

Left, a completed 360 in the company's private dock at Henan. The short coachroof and almost flush deck are clearly illustrated. **Right**, top quality reflected in the bows of a 360 at the assembly plant

UNDER THE SKIN

NAJAD 360

Swedish cruising-boat builders have set standards of finish and design which are envied the world over. David Glenn visited one of the most successful yards

Anyone searching for that elusive ideal cruising boat is likely, at some stage in his quest, to find themselves on Sweden's west coast. It is an area almost as densely populated with boatyards as it is with the islands which make up the archipelago running from Fredrickstad in the north to Göteborg in the south.

It is a natural cruising ground which has been the home of generations of boatbuilders, seamen and gifted woodworkers. Skills have been developed which have rubbed off on the modern Swedish boatbuilding industry, elevating it to one of the most respected anywhere in the world.

If ever there was an example of competition honing a product, then the concentration of yards on this coast is a perfect example.

Najad are one of the most successful and certainly the most modern on the island of Orust. The new yard is literally within a stone's throw of Forgas, Hallberg Rassy are a few kilometres down the road, as are Sweden Yachts and Malö. Some of them share the same moulding company and their workforces have merged and moved with the ebb and flow of each company's fortunes.

Najad, for instance, bought Aphrodite, another local company, in October 1990, and last year celebrated their 21st birthday, marking the event in style with the opening of their new yard.

Its gleaming offices, fronted with an opulently decorated atrium, feel more like a multi-national's HQ in Manhattan and are a far cry from the rickety, sawdust-carpeted premises of the past.



Three of Najad's key executives are (left to right): Staffan Asp, responsible for marketing in Scandinavia and the UK, Bernt Arvidsson, managing director and one of the two founding figures, and Bo Lennström, who has overall responsibility for marketing.

The company moved into new offices last year, celebrated its 21st birthday and underwent expansion in 1990 when the neighbouring yard of Aphrodite was bought

Reflecting Sweden's highly developed social philosophy, Bo Lennström, Najad's marketing director, emphasises the need to provide the right environment for the workforce. Individual members of staff were instrumental in the detail design of the departments in which they were to work and the company has provided extremely high-quality canteens, kitchens, washrooms and relaxation areas. There's even a private office suite for union meetings. Najad know that their workforce is their greatest asset.

The two men who founded Najad in 1972, Bernt Arvidsson and Thorwald Karlsson, now managing director and chief designer respectively, are still co-owners of the yard. Their roots lie in building wooden fishing boats and private yachts, including the classic Folkboat, skills which stand them in good stead when it comes to persuading discerning cruising yachtmen that Najad quality is second to none.

It is perhaps a testament to this quality and appeal of Najad's range of 11 cruising yachts (32ft to 51ft) that, in spite of the economic difficulties in Sweden, the yard is almost full and delivery cannot be offered until early 1994. The crippling devaluation of the Swedish krona last autumn compounded the problems, but a strong overseas order book has been maintained. Prices have recently had to be increased to meet the rising cost of imported raw materials.

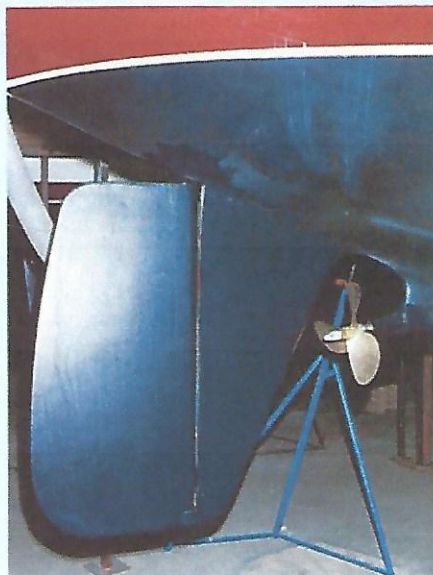
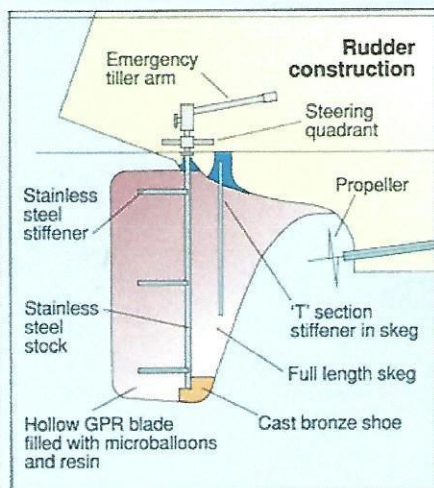
Bo Lennström emphasises the point that, although Najad yachts come off what looks like a production line, they are all built to order for owners who invariably demand some customisation.

In addition, Najad tend to pair their yachts so that customers can be offered a high degree of variation in layout both above and below decks. So the 320 and 340 (both aft cockpit, but different transoms) are offered as variations on a theme, as are the 360 (flush deck) and 370 (longer coachroof and more headroom) and the 390 (flush deck) and 420 (coachroof and more accommodation).

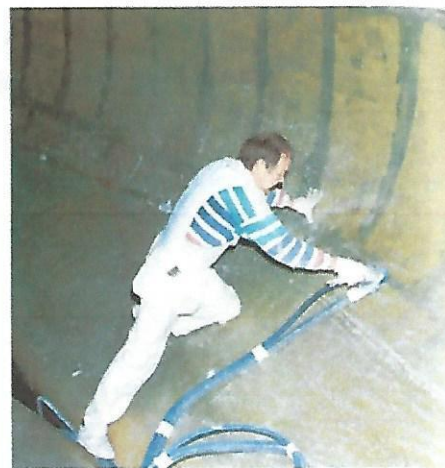
The 440 used to be Najad's flagship until they bought Aphrodite and introduced the 510. Unlike the rest of the range, the 510 is designed by Austrian Carl Beyer – all the original Najads have come from the board of ▷



RUDDER CONSTRUCTION



Good design points inherent in the 360's rudder are the full-length skeg and its internal reinforcement, and the large, cast bronze shoe which can be removed to allow the blade to be drawn. Note that the propeller shaft lies in an integral tube and doesn't rely on a P bracket



Top, preparing the hull before hull stiffening is bonded in place. Above, bulkheads have to pass through the companionway after the deck is fitted

Thorwald Karlsson in association with another well respected Swedish designer, Peter Norlin.

Three further models, the 33, 37 and 42 have all been inherited from Aphrodite and while they are available on request, none is being actively marketed.

"Najads are not trendy boats – they are more traditional," states Bo Lennström. During our visit the word 'racing' didn't pass his lips once and we were left in no doubt at all that a high-quality finish, practical seaman-like design, load-carrying ability and ease of

handling were the priorities. A close liaison is established with owners, many of whom visit the yard three or four times during the build and often sail their newly commissioned yacht away from the yard's waterside premises at Henan. "People regard their yacht as something very personal and this is one reason why we must offer a custom-built product," said Bo Lennström.

We followed the Najad 360 through various stages of construction. Sometimes it is automatically assumed that a boat of this size with a centre cockpit is likely to be more of a

50:50 in terms of performance. This boat is quite definitely not a motor sailer, but a powerful sailing boat with a big, turbo-charged diesel auxiliary. More than 200 have been launched since 1985 and the 360 continues to be a favourite among Najad's clients.

HULL AND DECK CONSTRUCTION

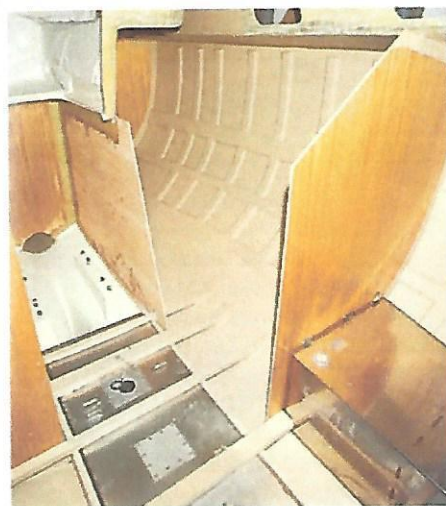
A 45-minute drive north from Najad's assembly plant brought us to their moulding factory which is also sub-contracted by other local boatbuilding firms, including Malö, to produce glassfibre hulls and decks. The advantage of this is that the plant is dedicated to moulding, so great attention can be paid to atmospheric conditions and cleanliness on the shop floor. Swedish environmental standards are high and are vigorously enforced in moulding factories like this.

Running since the mid-Sixties, the plant is extremely well organised and quality control, including Lloyd's Hull Construction surveys for the Najad range, is automatically built in to the production process. The downside of having a remote moulding facility is that the hulls, with decks in place, have to be transported by lorry for assembly at Henan, an expensive process for which the customer inevitably pays.

A distinctive feature of the Najad range is the rubbing strake or knuckle which is

Najad's new assembly plant can accommodate up to 18 boats at a time, from 32-footers to 51-footers





Top, the mould is masked so that the coloured gelcoat can be applied. **Above**, the pre-formed stiffening framework can clearly be seen in this 360

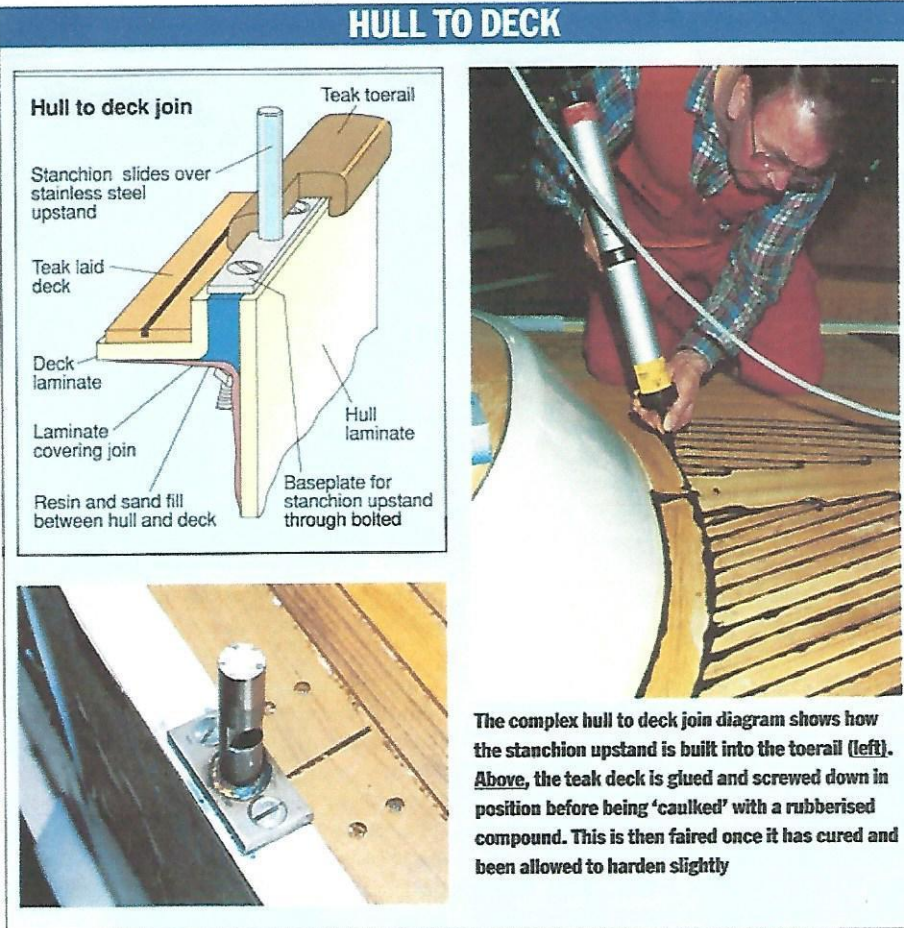
moulded into the topsides and finished with a brass beading.

So that the hull can be released, a split mould is required with lamination taking place in two halves. Coloured gelcoat is applied first to the mould, followed by the white gelcoat and glassfibre/resin lamination.

Underwater features of the 360 are likely to appeal to those contemplating trouble-free cruising. There is a full-length skeg protecting the rudder, the propeller shaft is contained and supported by the hull itself rather than relying on a P bracket, and the long keel, substantial enough to allow drying out without fear of overbalancing, is, in the case of the 360, encapsulated in the moulding. The iron keel is cast to fit this shape then bonded in with a resin mixture. Newer boats in the range have externally bolted on keels.

There is considerable variation in the moulding and stiffening techniques used throughout the range. The more recent boats, like the 370 and 420, have balsa core sandwich hulls (the balsa extending from the gunwale to the keel) as do the 320 and 340, but the 360 uses a solid laminate with a complex stiffening framework of longitudinal and transverse stringers bonded inside the shell. This is filled with closed-cell Divinycell foam.

We were impressed by the stiffening fillets bonded into the hull in way of the rudder stock. In addition, the long skeg was well stiffened with a wooden T section structure providing the all-important lateral resistance.



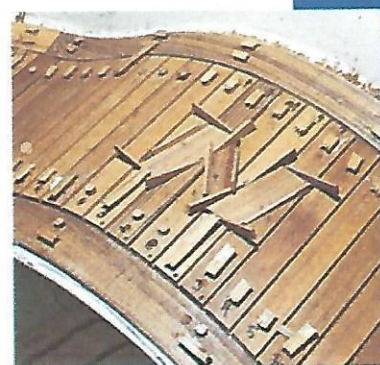
The complex hull to deck joint diagram shows how the stanchion upstand is built into the toerail (left). **Above**, the teak deck is glued and screwed down in position before being 'caulked' with a rubberised compound. This is then faired once it has cured and been allowed to harden slightly

Once the descender of the T had been lowered into the hollow skeg, the moulding was filled with a sand and resin mix. The cross of the T was then laminated to the hull shell.

Deck construction is conventional, using a Divinycell sandwich for stiffness with ply pads in way of high-load areas. Once it reaches the assembly plant, the glassfibre moulding is laid with 12mm thick Burma teak, which is set in silicon and fastened to the decks using stainless steel screws.

As mentioned earlier, the deck is bonded to the hull (see diagram) before it leaves the moulding shop, for ease of transport and to prevent the hull twisting out of shape. Extraordinarily, all the bulkheads are fitted after the deck has been positioned. This is why major bulkheads are in at least two parts.

Woodworking in the Najad yard is of the highest quality. This picture shows the curved, teak-laid helmsman's seat, which features the company's logo painstakingly worked in.



The wood dowels, which hide the screw heads fixing the deck, will soon be chiselled away so that they are perfectly flush with the teak planks.

As for the accommodation, wood for the interior is all taken from a single tree, generally African mahogany. American cherry is an option.

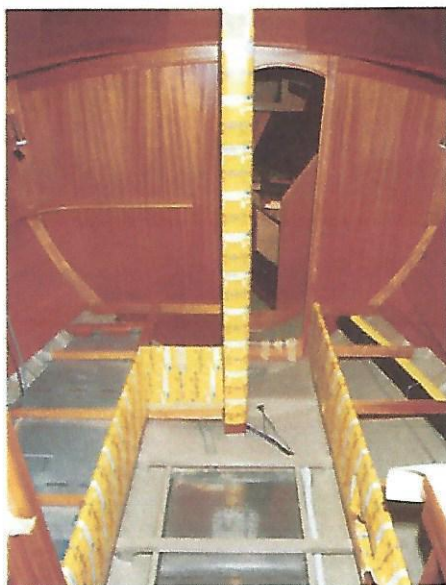
Rudders are likewise manufactured at the moulding plant. The blade is made of a two-part shell which is bonded to the stainless steel post with a framework of stiffeners welded to it. The blade is then filled with a mixture of resin and microballoons. The solid bronze rudder shoe at the bottom of the skeg can be removed to allow the rudder to be drawn.

FIT-OUT

The assembly hall can accommodate up to 18 yachts at any one time. They don't move from their allocated position – instead, teams of shipwrights move themselves and their tools

to the job. A cleverly designed system of hinged, deck-level walkways can be lifted to accept or release a boat which can then be trolleyed out of the building. Both sides of the building open completely, allowing immediate access to any part of the shop floor.

Apart from the bulkheads, which are bonded directly to the hull shell, tanks and chainplates are installed before the furniture is fitted. Most of this is built in units outside the yacht. For Najad, ▷



The main saloon nearing completion, with tanks in place, bulkheads bonded in and bunk furniture built

one of the most crucial aspects of boatbuilding is the selection and finish of the timber used to build the accommodation.

An individual boat will use the timber from only one tree to ensure consistency in colour and grain. Standard finish is in unstained African mahogany which is polished and varnished to a satin finish. Some owners like a high-gloss finish, which is more expensive, and there is an increasing demand for non-rainforest timber such as American cherry. Exterior brightwork and trim are all in Burmese teak, for which Najad believe there is simply no alternative.

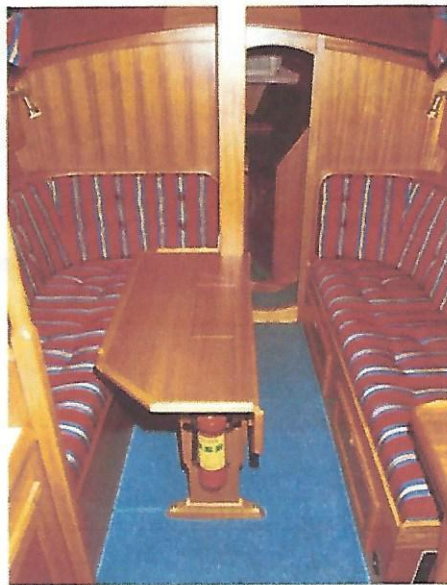
There is an abundance of wood below, the theme only interrupted by the white vinyl deckhead picked out by varnished wood battens. The entire hull is lined with slatted mahogany and, while this provides excellent insulation and can be removed easily to access the hull shell, one wonders how it would look painted white.

Some of the wiring conduits run inside the preformed stiffening framework. Elsewhere it is well clipped and arranged and the switch and fuse panel is clearly labelled and well done. The 43hp Volvo Penta diesel is extremely neatly installed with adequate access from above and via side panels.

Aesthetically, the 360's flush deck with her short coachroof might be more pleasing and it certainly creates an easier deck upon which to work. Down below the curved forward end of the superstructure makes an attractive feature, but there is limited room in the forecabin, a problem which is solved entirely with the 370's much longer coachroof trunking.

In terms of layout, Najad's standard arrangement differs from their immediate, local competition (the HR36) in that the galley and nav area are transposed. Although

Looking aft towards the linear galley, which runs down the port side towards the aft cabin

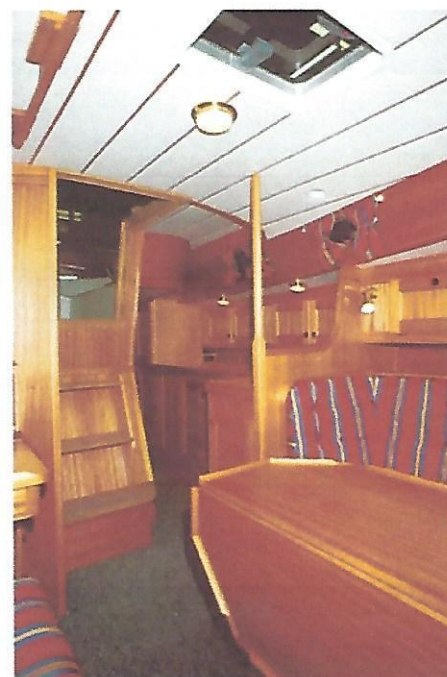


The owner of this boat chose the fabrics he saw in Najad's new offices to upholster his new 360

Under the Skin articles are not designed to be comparative, it is very tempting to look at these two boats side by side, as it were. The Najad's nav table is tucked away to starboard, faces aft and relies on the end of the settee berth for its seat. Serious cruising folk might consider this insufficient. The galley, to port, is linear and you have to squeeze past it to get to the after cabin.

Bo Lennström said that it was important to position the head compartment almost in the middle of the yacht so that the occupants of both fore and aft cabins could reach it easily and at the same time not disturb other occupants of the yacht. Like Hallberg Rassy, the Najad range is fitted with deep enamel sinks and manual Baby Blake marine toilets.

Finish below can be entirely to customers' requirements. One of the latest 360s (see photograph, above) was sold to a client who



was taken with Najad's main office upholstery and curtain material, so he specified it for his boat. The result has been generally regarded as a great improvement on the ubiquitous blue Velor which is used in most of Najad's excellent publicity brochures.

We felt that Najad were ahead in terms of finish quality, but in the 360's layout they hadn't been as effective as HR in their equivalent 36. One should bear in mind, however, that Najad can offer greater flexibility in layout than Hallberg Rassy.

Distinctive features on deck include a centre cockpit which is well protected not only by a five-panel, fixed screen, but also deep, well angled coamings. There's a neat bit of decorative inlay depicting the Najad class insignia on the helmsman's teak seat and plenty of room either side of the companionway to put a chart or instruments.

The Burmese teak toerail cap, which covers the upstand of hull and deck where they join and also provides a landing for the special, socketed stanchions, (see diagram, page 93), sets off the sweep of teak deck nicely.

Each boat has to undertake yet another road journey when hull assembly is complete, just a mile down the road to Najad's waterside premises. This is where the company wanted to build their new factory, but local objectors thwarted the plans. Nevertheless, Najad have their rigging shop here, and all boats, whether they are leaving by road for export or not, are launched, sailed and thoroughly tested in an exhaustive series of pre-commission checks.

Most boats are stepped with a Selden spar which has all halyards and reefing controls on the mast. If a customer wanted them led aft this could be arranged.

CONCLUSION

Najad's workforce is obviously capable of producing extremely high-quality work and the design represents a keen understanding of what a cruising boat should be. In addition, the management's decision to offer a good deal more flexibility than some of their neighbours might be appealing to those who want something unique. Whether that is worth the extra cost which the Najad range reflects in the marketplace is up to the individual customer to decide.

One thing is certain, however: Najad are well worth a visit, particularly if you have a chance to explore the exceptionally beautiful cruising grounds this coastline offers. But be careful – once you've cruised the Swedish archipelago in your brand new Najad, you may never want to leave. □

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