

AMATEUR BOAT BUILDERS' ASSOCIATION

NOV/DEC '03

ABBA COMMITTEE

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Contact any of these four people for clarification of association activities.

THE GOOD OIL ON DIESEL ENGINES

On Tuesday 30th September we were addressed by Graham Dearle of Yanmar Engines on the subject of installing or upgrading boat engines. As he explained at the outset, he was suffering from a dose of the flu, so it was very good of him to soldier on and talk to us. Graham's previous experience includes significant time in the east coast boat hire business so he knows a fair bit about what engines suit which boats and boat operators.

Incidentally, he was pleased to announce that Yanmar (WA) now had the contract to put engines into Freedom and Gulfcraft, although that seems to be a mixed blessing since the installations are to be inboard engines in hulls originally designed and reinforced for outboards. He seemed to think that the provision of engine bearers, etc, was a bit flimsy to say the least. Also exhaust heights above the water line were in most cases inadequate and had to be re-designed.

On the re-engining argument, Graham explained

that the first question needing asking was whether one was happy with one's present boat. It seems the answer is frequently "Yes" but the same cannot always be said for its engine. It may well be in need of overhaul or replacement. And it may simply be a fact that a new engine will be more reliable than the old b----r. After all, most amateur operators need reliability even more than their commercial counterparts. These latter usually have the skills to sort out engine troubles more easily than the amateur.

Given that rebuilding an old engine is a possibility, there is a cost factor to be considered. Yanmar's suggestion is that if the rebuild is going to cost more than 40% of a new engine the new engine is a better option - for a start there's the new engine warranty, which is worth having and there's the added advantage that all the ancillaries such as alternators, starter motors and water pumps, etc, are new as well.

Also with the new engine option there's the

added bonus that engines have become smaller and lighter in recent years. An increase in power may well be wasted in a displacement hull, but the new engine will probably be more compact and lighter than its predecessor which offers some advantage anyway. In planing hulls more power is often an attraction and this can usually be achieved with no increase in size or weight. However, a change of propeller and shaft may be necessary in this case. Yanmar do admit, in a little booklet on the whole re-engining subject, that the vessel's sale value won't increase by the whole cost of the new engine, only partly, but there's the operator satisfaction to be considered as well.

On installing a new engine it was generally assumed that an experienced installer would be employed. Yanmar even suggest that the chosen installer's previous experience be considered with reference to earlier jobs done and so on. After all, the engine is going to be different to its predecessor in several ways which require specialised skills not often held by the home handyman. Chief of these is the engine's mounting "footprint". In other words, the engine bearers will need alteration almost certainly. They may need to be widened, lengthened or even moved forward or aft; all of it a tricky exercise in an existing hull. A petrol tank may need to be converted to diesel, a bigger shaft fitted, new instruments installed and so on. Additional attention may have to be given to inlet and outlet sizes for cooling air, breathing air and exhaust gases, too. And adequate space has to be provided around the engine for inspection and maintenance access and attention given to the exhaust system - is it big enough, sound enough and does it reach at least 350mm above the water line?

Clean fuel is always essential, of course, and Yanmar provide a 5 - 10 micron filter on each engine, but they also recommend a 30 micron filter to be added in the line from the tank. It

should be capable of separating water and include a priming pump. The raw water intake should be immediately followed by a seacock and then an easily opened water strainer so that blockages can be dealt with quickly and easily. One needs to know exactly where the vessel's waterline is, and if the exhaust elbow is close to, or below it, a vacuum breaker/anti-siphon valve needs to be provided in the raw water discharge line at a point before it enters the water-cooled exhaust system. We don't want water drawn back or forced into the engine.

Whether a new prop is fitted or not, of course, the new engine's direction of rotation must be compared with the old. If the direction is different, this has to be considered when buying a new prop and if keeping the old it may be necessary to look for a gearbox capable of operating with the same ratio and efficiency in either direction.

Although the foregoing looks a little inhibiting many points lead fairly smoothly from one to the next and are resolvable by either the experienced installer or the intelligent amateur - but they all need to be considered and taken care of. There are oodles of brochures and installation manuals available to help.

There is one slightly sobering thought, however; although the range of available Yanmar engines seems very comprehensive, it's only about 15% of the total Yanmar range. In other words, a lot of engines are not available in this country. However it was pointed out that all Yanmars are designed as dedicated marine engines, which can not be said for most of their competitors.

It was very good of Graham to give up his time for this very interesting and practical talk, especially in the light of his physical condition at the time. We certainly hope he overcame his flu symptoms promptly.

PIVAC 42 - CRUISING PERFECTION

Geoff Leggatt

On Saturday 11th October we visited Mark Pivac's design and build project, the Pivac 42. Mark has produced a unique design with twin fore and aft drop keels, a transom hung rudder, and twin junk rigged masts. Principle particulars are as follows:

- Length overall 42'
- Moulded Beam 10' 6"
- Displacement 6 tonnes approx
- Deep Draft 8'
- Shoal Draft 2' 6"

Mark has designed the vessel with three underwater appendages: twin drop keels each with torpedo bulb attached to the tip; and a transom hung rudder which operates as a dagger board in a rudder box. The drop keels are intended to share two tones of lead between them with the advantage of this arrangement being that once the exact longitudinal centre of gravity of the hull is known Mark can distribute the lead between the two bulbs in order to obtain a level trim.

For a rig Mark has chosen Twin unstayed masts with a fully battened junk rig on each.

From outside skin to inside skin the construction is as follows:

- 600 g/m² Chop Strand Matt
- 800 g/m² Woven Roving (below waterline)
- 600 g/m² Woven Roving (above waterline)
- Balsa Core
- 450 g/m² Chop Strand Matt
- 450 g/m² Woven Roving

Mark has chosen a polyester resin from a cost point of view and chose balsa core over a foam core due to its higher impact resistance, higher shear strength and lower cost. In order to reduce the amount of time in sanding down fairing compound Mark trowels the fairing compound on transversely with a toothed trowel resulting in transverse lines of fairing compound being applied. This are far more readily sanded than a

full coating of fairing and don't clog the sand paper. When these stripes have been faired additional fairing compound is added between the stripes level with the surface of the faired stripes. Minimal sanding is then required to achieve the final surface. In order to further reduce sanding time Mark initially rough sands the stripes of fairing compound before it fully hardens (when of a "cheesy" consistency).

To date Mark has been working on this project for five years however the photos do not do justice to the progress which has been made. A large number of bulkheads and fitout panels have been pre-cut and the rudder blade has also been completed.

Thanks very much to Mark for interrupting progress and allowing us to view his project.

EDITOR'S NOTE

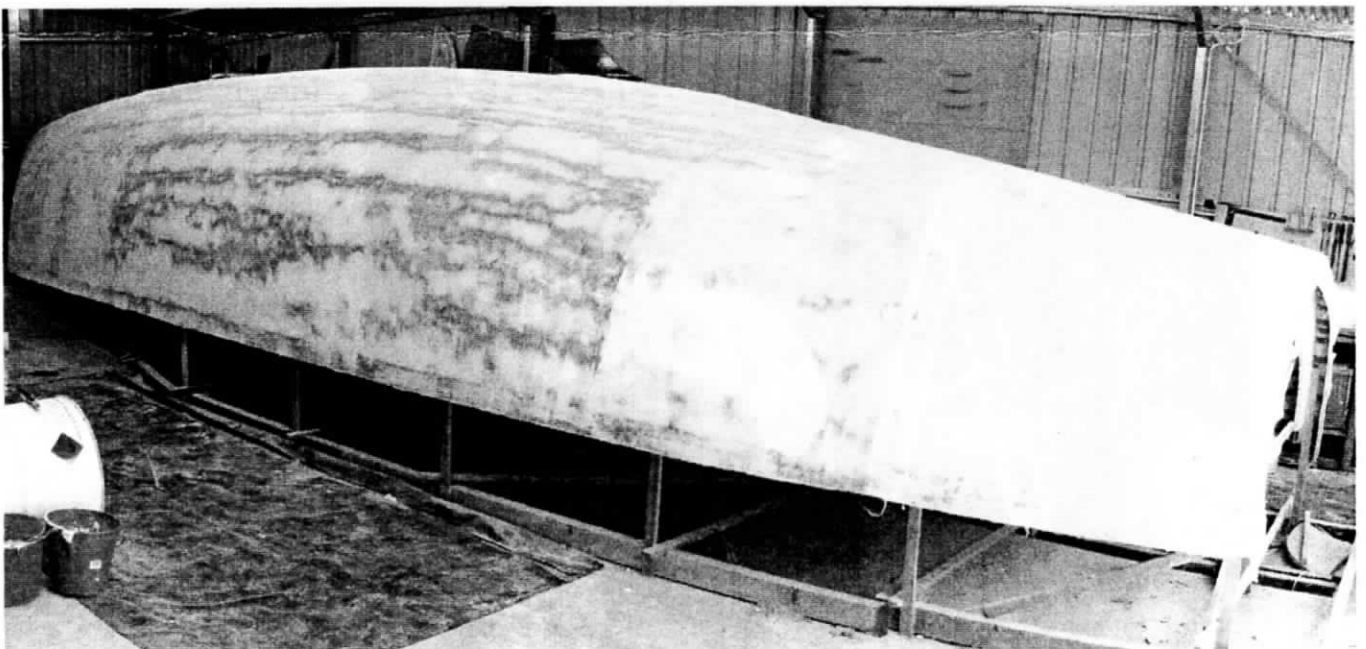
It was a pity that I couldn't attend this visit, it must have been fascinating. I seem to remember predicting in the last issue that this cruising yacht would be something different and I was certainly right! A junk-rigged schooner with twin fore and aft drop keels. Well, well. In "Sailing Alone Around the World" Joshua Slocum claimed to have sailed "Spray" something like 4000 miles on a reaching course in the Pacific, hands free with just a lashed helm. Many experts have questioned this claim but one thing is almost certain - this Pivac 42 could do it. With trim changes between the two drop keels, and balancing the two junk sails if necessary, this boat should balance on any point of sailing. It looks to have a fairly wide transom which would make balance a little harder but the two drop keels will be the main secret weapon. The junk rig, of course, is renowned for its ease of management when sailing short-handed. A fascinating design.

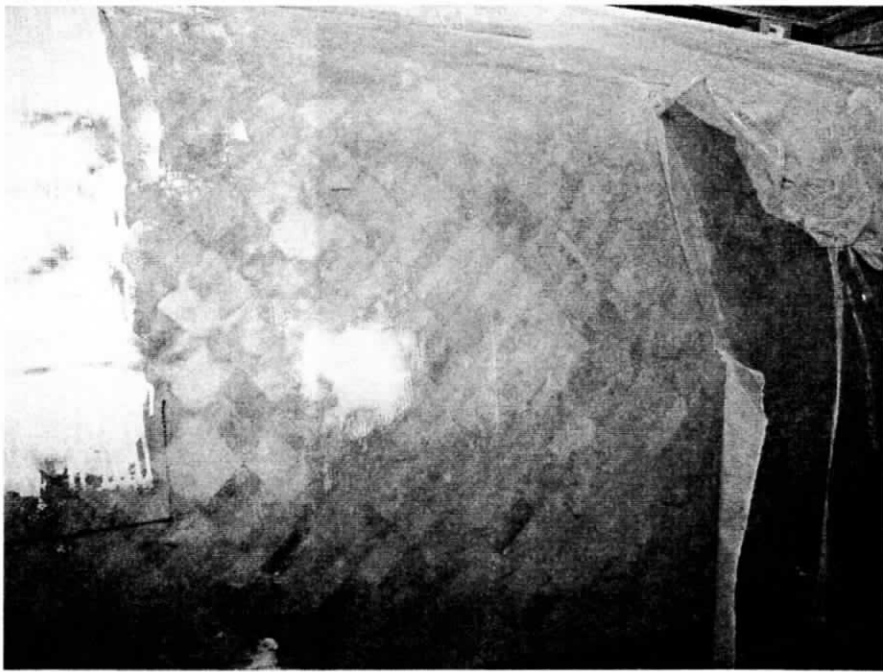
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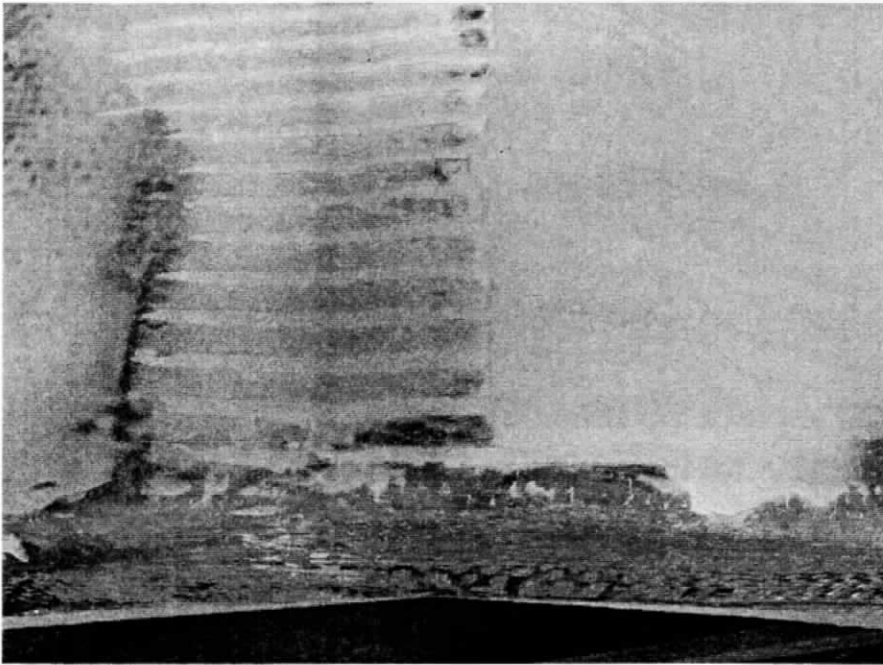
Above: Plan view of Pivac 42'. Aft most of the two drop keel slots is just visible.

Below: Profile view of Pivac 42' on building jig.





Balsa core visible below clear fiberglass skin. Peel ply visible on extreme right hand side.



Left hand side of photo shows initial screed of fairing compound with voids formed by trowel teeth. Right hand side shows initial screed having been faired and voids refilled.



ABBA members in foreground explaining to Mark that they forgot to bring their old clothes to assist with fairing. Illustrates scale of shed and vessel.

ADMINISTRATION NOTES

TREASURER

We are going to need a new treasurer as Chris Davis, the present incumbent, needs a rest after 5 years' sterling service. The job's not terribly onerous, as Chris would be the first to admit, but he's done his fair share and needs more time at home. Basically the treasurer needs to handle about thirty memberships a year, keep records and make out cheques to cover the newsletter expenses. As he's anxious to step down we look forward to receiving an offer in the near future from someone willing to take over his role. If you can help either let us know at the next meeting or ring one of the committee members listed on this masthead.

FORTHCOMING EVENTS

Tuesday, 2nd December - Evening Meeting.

Ray Miller, renowned traditional spar maker and ship rigger, will address us on the subject of spar making and tool sharpening. Ray will probably use a portable bench to actually demonstrate

techniques, making this a lecture certainly not to be missed. That's at RPYC Junior Club at 7.30 for 8pm. Please note that this is not the usual last Tuesday in November, but the first in December - it fits Ray's schedule better and will make distribution of this newsletter easier following John McKillop's brief holiday.

Saturday, 6th December, Toolbox Visit. We will be able to view an almost finished, 14' traditional ski boat built by Andrew Tainsh at his home at 1B, Malsbury St, Bicton. We last met Andrew when he hosted our visit to the Serpentine Amateur Aircraft Builders' airstrip a while ago. But that was only one of his facets. This time we find out how he gets his feet wet as well. That'll be at about 2pm.

LIBRARY

The two books purchased and available last meeting were quickly snapped up and will be available again. Also Geoff will bring along books on design to the next meeting.

CALENDAR

TUESDAY, DECEMBER 2nd, evening meeting. Ray Miller demonstrates spar-making and rigging techniques.

RPYC Junior Clubhouse, 7.30 for 8pm

SATURDAY, DECEMBER 6th, Toolbox Visit. Andrew Tainsh shows us his 14', traditional ski boat at 1B Malsbury St, Bicton, 2pm to 5pm.

MONDAY, DECEMBER 8th, Committee Meeting.

And if you can't make any of the above, have a Merry Xmas, anyway!