Special Edition Newsletter For Builders / Owners Only *from Ian Farrier* **April, 1996**

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F-36 Takes Line Honors in Cape to Rio

Mike Henning's new F-36 JAM TODAY led from the start and took line honors in the cruising multihull division of the 1996 Rothman's Capetown to Rio Race, finishing in 20 days, 20 hours, while Colin Kenny's 35' cat MANX with its unique Carbo Spars AeroRig took the win on handicap with an elapsed time of 25 days and 21 hours.

The race started in Cape Town on January 6th, 1996 and with the island of Ilha da Trindade as a mark of the course to port, finished off Copacabana Point, Rio de Janeiro. The 54 monohull and multihulls experienced good weather on the over 3,500 mile course across the South Atlantic, though the winds were a little light at times, and the main cause of a few retirements.

There were eight competitors in the cruising multihull division, seven cats ranging in size from 35' to 47', the sole trimaran being the F-36.

The multihulls were restricted in what size sails they could carry, and JAM TODAY's spinnaker actually required reducing to be eligible to compete, which did not help their competitiveness against the bigger IMS racing monos in the mostly downwind conditions.

JAM TODAY was slowed by a ripped spinnaker 3 days out from Capetown, but still finished 13th across the line, just behind the Finnish Swan 65 VAHINE. The spinnaker had taken two days to repair with sticky tape and dental floss, and was nursed carefully from then on, generating a close battle with the 40' Dean catamaran BOSSI INTERNATIONAL. However, all caution was thrown to the wind one day from Rio, and a 26 mile lead was pulled out on BOSSI, while the F-36 also moved up from 13th to 10th overall. A hole 6 miles from the finish then allowed three monos to sneak back by, and BOSSI closed, but not by enough to take away line honors.

JAM TODAY was crewed by four 40 year old self-admitted cruisers, and experienced maximum wind speeds of 30 to 33 knots. Mike reported that the F-36 handled these conditions with ease, under full sail, and they felt very safe. Only other problem apart from the ripped spinnaker was chafing halyards, which required replacing several times.

Mike Henning's F-36 JAM TODAY

JAM TODAY has now successfully completed her second Atlantic crossing, having arrived back in Capetown. Conditions for the 31 day return journey were very rough, with 55 knot winds at times, and six days had to be spent heaved to.

I'm Not Back Yet!

I have still been working 'under cover' on 'catch up' design matters the last few months and have yet to start my sabbatical break - but any day now I hope!

It has been very difficult to close down, there being many loose ends to tie up, but everything should be finalized by mid-May. However, due to this late start I may not reopen the office for new business until 1997.

Beam Plans Now Ready

Self-built C.M.M. and Beam Plans are now finished and available for the F-25A and F-9A/F-9AX. These took a little longer than anticipated, but there was a lot of refinement possible, and as a result of this I have been able to considerably reduce the amount of unidirectional required.

C.M.M. plans cost US$95, Beams and Folding System plans US$150, plus US$5 postage each ($10 for overseas).

Note that a signed 'use agreement' (available on request) is required before Beam Plans can be sent, to ensure this information is not misused. Order these plans before April 30th if required soon, as delivery time after that may be slow.

New F-25A Upgrade

The high cost of importing the F-25C into Australia (20% duty and 25% sales tax), made it very difficult to afford Down Under. I thus took some time to do a special F-25C style performance version of the F-25A for Australian and New Zealand builders only.

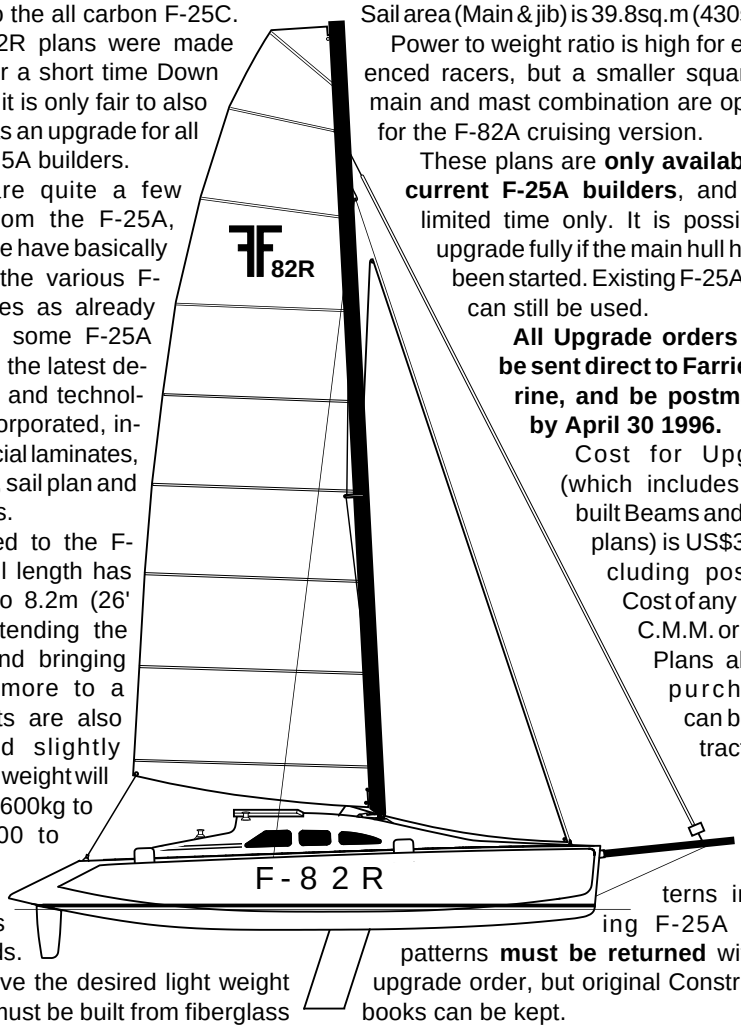
Called the F - 8 2 R , it is basically an F-25A upgraded to F-25C specifications, with some improvements to give equivalent per-

formance to the all carbon F-25C.

The F-82R plans were made available for a short time Down Under, and it is only fair to also offer them as an upgrade for all existing F-25A builders.

There are quite a few changes from the F-25A, though these have basically formalized the various F-25C changes as already supplied to some F-25A builders. All the latest developments and technology are incorporated, including special laminates, deck layout, sail plan and rig drawings.

Compared to the F-25A, overall length has increased to 8.2m (26' 11") by extending the transom, and bringing the bows more to a point. Floats are also longer and slightly larger. Bare weight will range from 600kg to 770kg (1300 to 1700lbs) depending on materials and methods.



To achieve the desired light weight the F-82R must be built from fiberglass or carbon fiber foam core composite, using vertical foam stripping. This new method has proven to be easier than fore and aft strips, as wider, easier to handle strips can be used, with fewer glue lines.

Cedar strips can still be used for a cruising version, called the F-82A, to differentiate it from the full racing version.

The beams, folding system, and associated Central Mounting Modules are self built with newly developed methods, or F-25C kit/production beams can be used, as can many other F-25C parts. Modules however, **must be self built,** as there are some differences for the F-82R.

Interior is similar to the F-25A, but the high and extended cabin options are standard, making it very roomy. Either a daggerboard or 'kick up' centerboard can be fitted, while rudder can be either underslung or transom mounted.

Mast is an 11m (36') long aluminum or carbon fiber rotating wing section, and mainsail can be boomed or boomless. Identical boat comparisons, and race results with the F-25C & F-24 Mk II, have now shown the square top mainsail to be definitely superior, and thus this is standard. Sail area (Main & jib) is 39.8sq.m (430sq.ft.).

Power to weight ratio is high for experienced racers, but a smaller square top main and mast combination are optional for the F-82A cruising version.

These plans are **only available for current F-25A builders**, and for a limited time only. It is possible to upgrade fully if the main hull has not been started. Existing F-25A floats can still be used.

All Upgrade orders must be sent direct to Farrier Marine, and be postmarked by April 30 1996.

Cost for Upgrade (which includes Self-built Beams and CMM plans) is US$395 including postage. Cost of any F-25A C.M.M. or Beam Plans already purchased can be subtracted.

All Full Size Patterns including F-25A CMM patterns **must be returned** with the upgrade order, but original Construction books can be kept.

LATEST DESIGN NOTES

Polyester/Vinylester Resins - Epoxy resin is best and recommended for all building, due to its superior properties. However, polyester or vinylester resins are still acceptable (except for wood) for the lower cost, or to avoid allergy problems. However, it is important to become familiar with the chemistry of these resins, particularly waxed or unwaxed resins.

Unwaxed (laminating) resins are used for all general laminating, and being air inhibited, never fully cure while in contact with air. The resin thus remains slightly tacky and secondary bonds are very good, the resin sticking well to itself. However, the surface remains relatively soft and not very sandable. Epoxy will not stick to such a surface, or may not even cure.

Waxed (finishing) resins contain wax, which floats to the surface, sealing out the air, allowing the resin to fully cure. Thus the resin surface is hard and sandable, but secondary bonds are poor unless the wax is first removed and the surface thoroughly sanded. This resin is usually used for the last layer, and for filling and fairing. Epoxy resins will stick to a fully cured and well sanded polyester laminate. However, **never** use polyester over an epoxy.

Air can also be excluded from an unwaxed resin to fully cure by peel plying, or covering with a plastic film. Gelcoat for instance is an unwaxed resin, but it cures very hard against the mold as no air is present. However, on the inside it stays slightly tacky for an excellent bond with subsequent layers.

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If using Kevlar or carbon fiber on inside of hulls, don't forget to use a glass fabric strip under bulkheads to reduce the point loads on these more sensitive fabrics.

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With foam stripping, a 5lb/80kg PVC foam should always be used, unless otherwise specified.

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A Hot Glue gun can be a very handy tool, particularly with foam construction. The quick setting glue can be very convenient and useful in holding many items in place while glue or resin is curing.

F-25A

CMM Plans Sheet 3: Note that the width of the slot each end of the Top Plate, and top of End Plate, should be reduced from 42mm to 38mm (1 1/2"). Not a problem if already made, just fill any gaps that will appear each side of Bolt Plates when assembling with putty.

Width of Beam Pads also changes from 148 to 151mm (5 15/16") to suit. If already made, just fair in slight step alongside Upper Folding Strut slot when assembling (Sheet 6) with putty.

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CMM Plans Sheet 24A: Note that the height of the upper storage access hole (middle top) above the middle join should be 125mm/5" not 250mm/10" as in some very early plans.

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CMM Plans Sheet 25A: Only ONE layer of 400gm/12oz uni is required across cockpit floor each side of CMM bulkhead (two pieces, one each side). Two layers (4 pieces) were shown in some early plans.

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Acetal/G.F. Flanged Bushes: Correct number required for the F-25A is 80, while correct number of acetal washers is 64.

F-9A/F-9AX

CMM Plans Sheet 3: Width of beam pads is now increased from 145 to 147mm (5 3/4"). If already made, just fair in slight step alongside Upper Folding Strut slot when assembling (Sheet 6) with putty.

F-25C

Mast Step: There have been some problems reported by one builder in using the rotating mast step design, and the drawing

below details the various factors to watch. It is very important that the correct relationship be established between the mast step and raising wire pivot points, and these same factors apply to all mast steps.

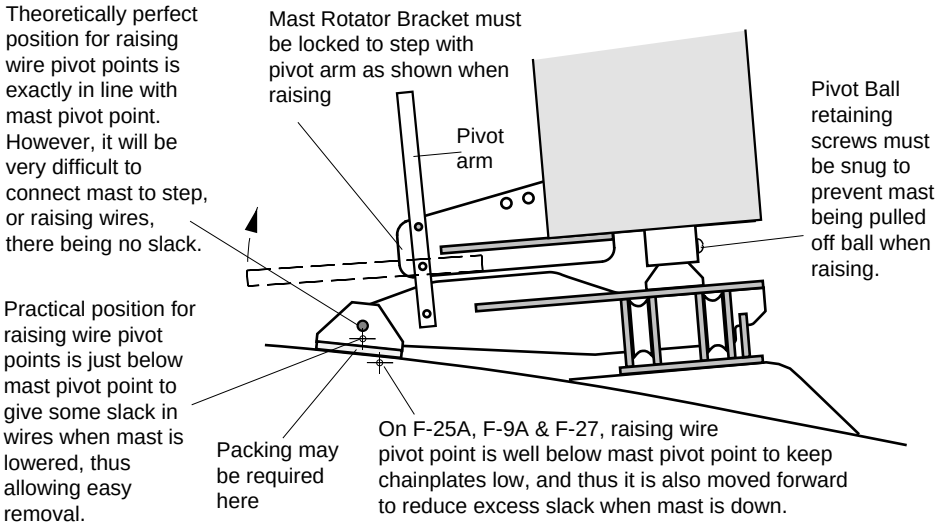
The F-25C step was designed so that halyards could be led aft which is very convenient, particularly for single-handers.

is raised, but **not too tight**.

2. Use a couple of light stabilizing lines to hold Mast Raising Pole on center (particularly if single-handed).

3. Make sure nothing can catch or hinder the mast's movement.

If everything is setup correctly, the winch will then easily raise or lower the mast



MAST RAISING AND LOWERING FACTORS

The problems were with a carbon mast, where the molded in carbon Rotator Bracket was extending aft past the Pivot Brackets - trim back if it does, otherwise it will dig into the deck.

A 6mm (1/4") packing may also be necessary under the Pivot brackets for all F-25C masts, to keep the proper plane for the Mast Base Plate. Check when fitting step.

No mast step is foolproof, and I've also personally broken other steps, and even the proven F-27 and F-31 steps can give trouble if not used properly.

The leverage a mast can have on a step is enormous, and if the rotating step is not locked together, as required when raising, it could break. If the raising wires are too tight or incorrectly placed, or if the halyards are left cleated on the roof, or snag on something, then you will break the step.

Thus at first raising and lowering, take it very slowly and carefully, to experiment and establish the correct procedure and setup. The basic requirements are:

1. Have the raising wires aligned correctly, to prevent mast from swinging too far sideways (which can break the step). These wires must be aligned so as to not tighten or loosen unduly during the raising process. This is a little tricky, as position of the raising wire anchorage points, relative to the mast pivot is critical. They have to allow enough slack for the mast to be rolled back and easily pinned to its pivot brackets, and then tighten wires slowly as mast without any drama or hassles. The tension on the winch line can be considerable, and if this is of concern then it can be reduced by making the Mast Raising Pole longer.

F-36

Mike Henning has made a number of notes and suggestions as follows:

1. I have found that leading the line from the Spinnaker pole along the inner edge of the float works best. I used an eyebolt on the rear beam flange in place of a normal bolt, returning the line to the cockpit using a block. On the rear cockpit coaming I fixed a turning block with an integral jammer. I can now use any winch and the line is guided aft by the wingnet supports.

2. Use Spectra or non-stretch line to the bow pole - too much stretch otherwise.

3. Would recommend extra U-bolts to be placed in front of the mast base for spare halyards.

4. Fit two fairleads on tip of main hull bow to lead tack lines neatly aft if these are not led back inside bow pole.

5. The cleats for mooring on the floats should be moved further outboard, as the angle of the floats causes a lot of abrasion between the mooring lines and the top outer edge of the float deck when mooring alongside a dock. Clips along float deck to take fenders are also a good idea.

6. Small drains at rear corner of cockpit seats will prevent rain water and dirt collecting in this area.

7. Consider using Lewmar type handles on the escape hatch, as they can be opened from both sides, and also locked from the inside when the boat is left.

8. Consider leading the mainsheet forward inside the boom. It can drape down at times as the boom moves across, and hook on winches. My solution is to support the sheet using webbing straps.

9. I had the mast baseplate designed slightly longer to the rear and integrated the deck sheave assembly as one unit.

10. I had a stainless pushpit with a center gateway fitted to rear cabin top. This is a very useful item on which to hang Dab buoys etc. Also a great place to sit.

11. The SSB radio people felt a whip aerial was best, as the rigging wires are not the best arrangement. I mention this because aerial base fixing could be provided for early on with a plywood insert to rear cabin top or other suitable position.

Mike mentioned that he felt the jib tracks might be a little tight, but this will depend on cut of sail etc. The plan position gives the same sheeting angle that has been found to be best with the F-27 and F-31, and is what I would use. Heavy cruisers can go a little wider, to ensure plenty of power if wished, but with less pointing ability.

The halyard chafing problem during the Cape to Rio Race occurred just where the halyards exited the sheave boxes in the mast. Chafe guards were there, but were not enough. During any long voyage it is wise to frequently check halyards, and cut out any chafed area if need be.

Mike also reported the F-36 to be very dry when around Capetown local waters, but spray started to appear when they were driving the boat hard in the Rio race, mostly from the lower Beam struts. Thus it is a good idea to use a fairing on these, as described in the plans, and shape to cleanly part and deflect the water downwards.

JAM TODAY's spinnaker pole was also replaced prior to the Cape to Rio race, as this was showing signs of stress around the welded screecher mounting plate, due to the bending action of the spinnaker.

Cause was the use of the common architectural grade 6063 T6 alloy, instead of the specified 6061 T6 structural alloy. Type 6063 T6 loses considerable strength when welded, the yield strength of welded 6061 T6 being **80% higher**. Welding should be minimized with aluminum, and this is the reason I use bolted saddle eyes for the pole side lines rather than welded tabs.

If only 6063 T5 or T6 alloy is available, then increase size of tube to 5", or fit a sleeve at the tab area and always minimize welding. Mike mentioned that the replacement pole stood up fine, but it still flexed a

lot, so it may be a good idea to increase size anyway for the best performance.

Another alternative is to form an epoxy carbon fiber/glass sleeve around the pole in this area, for about 250mm/10" each side. Carbon fibers should run longitudinal, with glass (or some carbon) fibers at 45°. A 3mm (1/8") thickness of carbon will more than double strength of pole at this area. Paint white to minimize any possible expansion problems.

It is also important to use the specified pad eye or 12mm (1/2") U-bolt on the bow for the pole brace wire. JAM TODAY initially had a 10mm (3/8") eyebolt here, due to the bow being faired very narrow, and this quickly bent.

Only problem on JAM TODAY's return voyage was the spinnaker pole wire brace breaking at the swage. Could be just the fitting, but it may also indicate that increasing the wire size to 9mm (3/8") may be a wise precaution. Only use 1 x 19 wire as specified, 7 x 19 being much weaker, and a toggle should also be used at each end.

I continue to be amazed at the load that can be put on these bow poles, and it seems they can't be made too strong. The wire failure is also another example of why wire should not be used for structurally critical applications with beams, where a failure could be life threatening. Wire is not 100% reliable, and while used on some of my designs for fore and aft stiffness, it does not matter structurally if it fails.

F-36 Fab. Parts Page 22 & 23 - note that material should be angle not flat bar.

Materials List: The F-36 Main hull and Deck surface areas as originally given are incorrect. It appears the latest version of my 3D design program includes open spaces in the calculated area, and I did not do the usual rough manual double check. The computer calculated area for the hull was also including the horizontal open area between the gunwales. Thus the true area is 48.5sq.m (524sq.ft.) for the hull, and 30sq.m. (324sq.ft) for the deck (which includes cabin sides and cockpit coamings). Correct total area for hull and deck is thus 78.5sq.m. (848sq.ft.)

The theoretical amount of Resin required is now reduced to approx. 400 litres to 800 litres (110 to 220 gals), though I'm sure some may still exceed the maximum figure (still depends on type of materials, methods, wastage, and degree of finish).

PARTS/MATERIALS SUPPLY

FIBERGLASS MATERIALS: Graeme Bird continues to be an excellent source for fiberglass materials and resins, and is now operating independent of Erskine Johns/ CMI. Graeme has been involved in the composites supply business for large marine and aerospace manufacturers, and being an experienced trailerable trimaran builder himself, really knows the business, and what works best for amateur builders. For more information and prices call or fax Graeme in California at (619) 735 8631 (this is a new number - make a note of it).

Another source of fiberglass materials, cores, resins etc., and recommended by F-25A builder Dean Eavey, is G.J.S. Corporation (Pam Prough), 64323 US 33 East, Goshen, IN, ph 1-800-348-7503. Will supply small amounts.

BEAMS & FOLDING PARTS: The full range continues to be available from OSTAC in Australia (Ph. 7 274-2700, fax 274 4688) while F-25 and some other parts are also available from Colorado Composites (the manufacturer of the F-25C) who are now also taking over the parts business from MPG. Bill Adams is the one to talk to at Colorado Composites, ph. (303) 674-2580, or Fax 674-2758. Mike and Pam Guthrie of MPG are in the process of moving to Pensacola, and will concentrate more on the marketing of the F-25C in future.

JAM TODAY off Capetown, with Table Mountain in the background

More News.....

Three Corsair F-24 Mk IIs took 1st, 2nd and 3rd across the line in this year's Marlay Point Race in Australia (usually 300 plus entries). Congratulations to Martin Kilpatrick, Bob Kay and A.J. Murphy.

Lyman White won the Multihull Division of this year's S.O.R.C (Miami) in his F-25C SILVER HEELS. The fastest three boats were all F-25Cs in conditions ranging from 8 to 30 knots.

SILVER HEELS also won the multihull class in Key West Race Week (great photo in the April edition of SAIL mag., (page 70).

Yann Vincent's F-31 SALE GROSSE recently crossed the Atlantic, from France to the Caribbean, and then won the multihull division of the Heineken Cup Regatta sailed off St. Martin.

However, note that while the F-31 is a strong and seaworthy boat, when properly equipped and sailed with caution, it is still a relatively small boat for ocean crossing. It was not designed for, nor is it recommended for such crossings.

FOR SALE

Some builders have decided to build their own beams and folding systems and thus have complete OSTAC built Folding Systems for sale. These are:

F-9A Folding System - Linwood Hardy (508) 368 8831(MA)

F-9A Folding System - John Sexton (612) 895 5968 (MN)

F-25A Beams/Folding System - Jurg Huber (Switzerland) Ph 41 31 331-9343, Fax 41 31 311 2351

Other items for sale are as follows:

F-25A Daggerboard, OSTAC built, Randy Smyth, Ph. (904) 243 9463 (FL)

F-25A OSTAC Rudder, S.S. shaft & bearings, John Teloh, Ph (954) 584 9698 (FL)

Farrier Marine also has the following:

F-36 Bow nets (not Bow Wing) $220

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