By Bruce C. Brown

The Magic Boats

The Ongoing Evolution of Bruce Farr's Exceptional One Tons

Pacific Sundance, *Geronimo*, and *Exador* burst on the IOR scene at the 1983 Southern Cross Cup, where this trio of Bruce Farr-designed One Tons won three of the five races. In an awesome display of superiority, this New Zealand team placed first, second and fourth overall, winning the series by over 100 points from the second-place New South Wales team. This design number (136) was first executed in April of 1983. Geoff Stagg, President of Farr International, the marketing arm for the design team Bruce Farr & Associates, describes these first three, and the 17 136s that followed, as "magic boats." They were designed to excel in the lumpy, windy, Australian/New Zealand conditions, but they went on to do well everywhere they raced.

Exador found conditions to her liking in Hawaii, dominating the 1984 Clipper Cup with four bullets in the first four races—before she was dismasted at South Point in the Around the State Race. Except for that mishap, she would surely have been the top individual boat and would have led her team to victory. With *Exador* out, *Sundance* (*Pacific Sundance*) won the class, followed by two other 136s, *General Hospital* and *Indian Gibber*. After leading the third-place New Zealand team in the '85 Admiral's Cup, and ranking as the third highest scoring individual yacht, *Exador* returned to Hawaii in '86 to lead her team to victory in that year's Kenwood Cup. Her class included sisterships *Sagacious IV* (winner of the '85 and '86 Sydney-Hobart Races), *General Hospital*, and *Indian Pacific* (*Indian Gibber*)—and they took two of the top three places in class.

The 136s continue to do well in windy, lumpy conditions. *Sundance*, in her original form but with a new rig, qualified for the One Ton Worlds along with several of her more recent sisterships. Boats that have evolved from this design continue to be major players both in the One Ton Class and in regattas throughout the world.

So where did these "magic boats" come from? What gave them their magic, and what progeny have they spawned? On the genesis of the 136 design, Stagg says, "In those days you wanted a very fast upwind boat and just a general, good off-the-wind boat. That proved to be the case with the 136s; they were just phenomenal upwind and, in their day, they were extremely fast reaching and OK running." Design 136 followed closely on the heels of *Ceramco New Zealand*, which Stagg describes as "not an all-out IOR boat" and *Free Fall*, a 37-footer Stagg credits as being the first of Farr's new generation of IOR boats.

Finalized in April, 1983, design 136 was the first response to the change in the rule that created 30.5 IOR One Ton Cup boats. Since the 136s were conceived specifically for rough conditions, they were designed with less sail area and more length than boats intended for Northern Hemisphere racing. They were also extremely stiff, with small, straightforward trapezoidal keels. The bulk of the successful 136s were built in New Zealand by Cookson, who utilized a PVC core and some Kevlar, but no carbon fiber, because owners of the early boats

One of the early executions of design number 136, *Exador*, blazes upwind in the conditions she was designed for.



Bruce C. Brown photo

weren't "splashing money around on construction." They were also built with an eye to what the crew would see when they went below for the obligatory post-race cocktail, with "a bit of finished timber."

There have been 10 different designs over the years (see box), with minor differences inside each design designation as boats have been slotted to race in areas of the world where conditions vary. If the boat is going to a light-air region, stability is sacrificed for a gain in sail area. And, of course, owners' preferences have always been incorporated in individual boats. *General Hospital*'s cockpit, for example, is significantly different from sistership *Exador*'s.

A recounting of all these boats' successes would take far more space than we have here, but suffice it to say that the boats came second (*Sagacious V*) and third (*Fair Share*) behind a Farr 44 in the '87 Southern Cross Cup, first (*Propaganda*) and second (*Jamarella*) in the '87 Admiral's Cup, first (*Bravura*) in the '87 Kenwood Cup, first (*FramX*) and second (*Sirius IV*) in the '87 Worlds, first (*Rush*, formerly *Jamarella*) in the '88 NAs, and first through sixth in the '88 Worlds (see "One Ton Worlds" feature in January 1989 *SW*). Not only have these results been amassed in the most hotly contested class in IOR regattas; they have not been realized by sheer weight of numbers. For instance, there were only four Farr One Tonners at the '87 Admiral's Cup, and three of these were the top-scoring boats in each of the three top-scoring teams.

Over the years the Farr One Tonners have evolved, reacting to changes in the Rule, incorporating advances in construction techniques and benefiting from their designer's experiences in both the One Ton Class and in other designs. There is no "finished timber" in the new boats, though they are starkly beautiful, in a functional way, below. They utilize the latest construction techniques; Nomex core and carbon fiber in both hull and deck are *de rigueur*; the hollow carbon fiber frames have been lightened, and the spacing between them reduced. To save weight, the laminates are now oriented to the stresses the same way a sail is made. They are tented and cooked to produce the stiffest, lightest structure possible. The weight taken out of the super-light, super-stiff hulls is replaced with internal ballast. The use of internal ballast allows the new high-efficiency keels, designed for effectiveness to weather, to be kept narrow for less drag off the wind.

Rather than shoot for the performance corners and produce a boat with exceptional weatherly, reaching, or running performance, Farr has made a conscious attempt to produce a good all-around boat. Over the years small adjustments have been made to the volume curves, and the Farr design office feels the current hull shape is good. While they are loath to drastically change the underbody, they continue to refine the hydrodynamic foils. The rudder shape was a contentious item in the earlier boats, where some said the small rudders were prone to stalling out. The new rudders have been influenced by Farr's around-the-world racers, where steerability in the Southern Ocean is a prime consideration. The new semi-elliptical shape produces a good balance in light air and avoids loading up in a blow. Like the keels, the Farr rudders have a thin foil and provide maximum lift. As the design has progressed, the boats have benefited from a cleaner run aft.

The majority of the boats have been built by Cookson in New Zealand, but other builders, such as Ian Franklin, Barracuda, Killian Bush, and Neville Hutton have built their share. Stagg says that Farr has been "very lucky" with builders, but part of this luck must be traced back to the policies of the Farr office; there is ongoing contact between the design group and builders, and the Farr drawings are recognized as amongst the best in the industry.

One of the newest stars in the Farr One Ton constellation is Irv Loube's *Bravura*, winner of top individual yacht honors at the Kenwood Cup and second in the '88 Worlds behind *Propaganda*.

There have been 10 variants on design 136, but as Geoff Stagg says, "there's a lot of 136 in the new boats, because that's where we started." Chronologically, the design numbers and some of the most significant boats produced are

136 April '83: *Pacific Sundance, Exador, Geronimo, General Hospital, Sagacious IV, Indian Gibber*

138 April '83: *Sirius II, Swuzzlebubble, Saga, Epic, Carro Cheffe*

158 February '84: *Highland Fling, Bodacious, Cha Cha, Will*

168 September '85: *Sirius IV, Ramel*

182 October '86: *Propaganda, Fair Share, Bravura*

184 December '86: *Jamarella (Rush)*

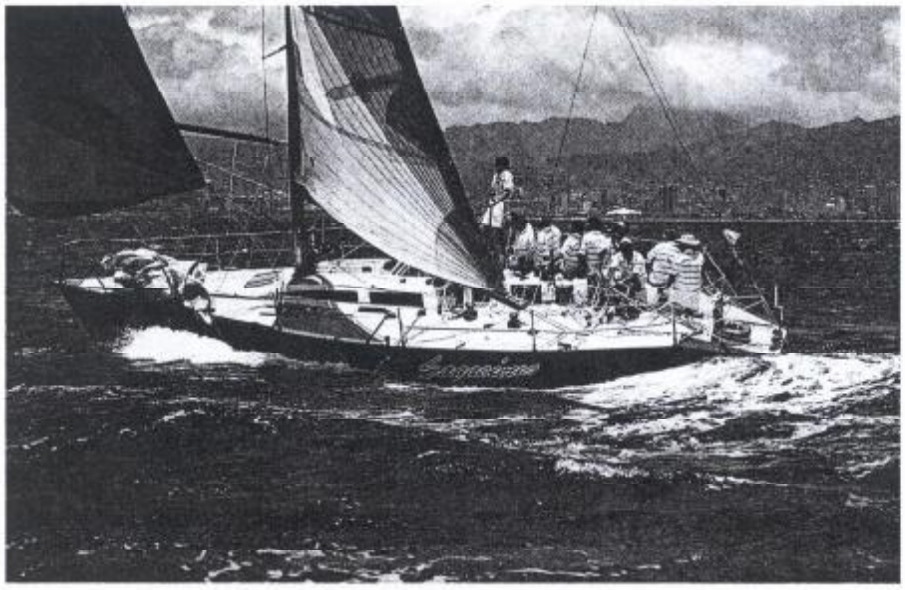
185 December '86: *Sagacious V, Fram X, Saucy, Mean Machine*

188 July '87: *Steadfast*

185-1 December '87: *Brava, Black Jack, Saudade, Cirkeline* (and boats under construction in Istanbul and England).

The latest design, 209, was completed in July of 1988 and three boats are currently under construction.

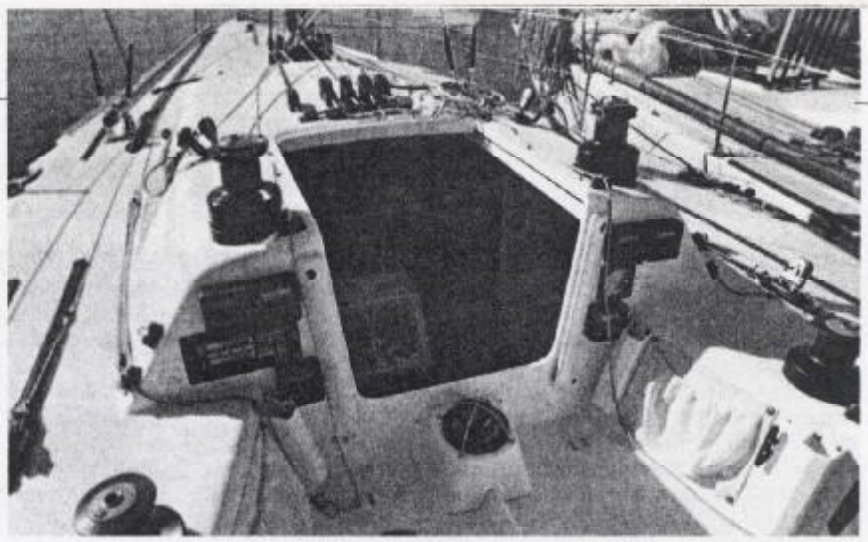
Sagacious V boils off the wind, illustrating her ability to excel in heavy-air tight reaching.

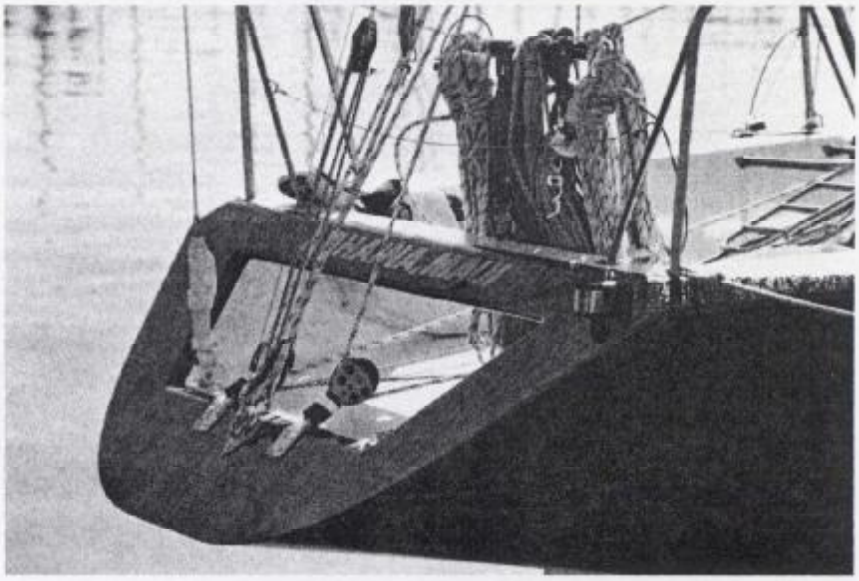


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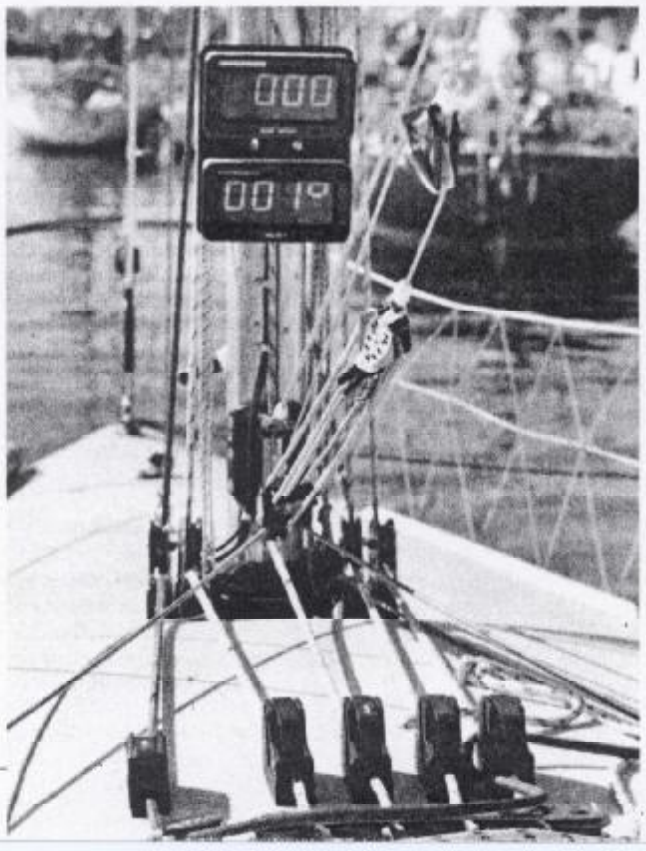
Built by Cookson, she is slightly longer than the original 136s, and with a lower prismatic volume she's a lot lighter with about the same amount of sail area, but slightly less stable. Saving weight on the boat was a prime consideration in the layout and building. There are no hydraulics, and quite a bit of titanium and aluminum were used, along with selective amounts of Nomex core in the ends. The mast was polished rather than painted, saving weight aloft, and the rigging is partially cobalt. One interesting touch is the dolphin fin-shaped kelp cutter just forward of the rudder. Stagg says *Bravura* may not be the "ultimate, ultimate Farr One Tonner, maybe just the ultimate."

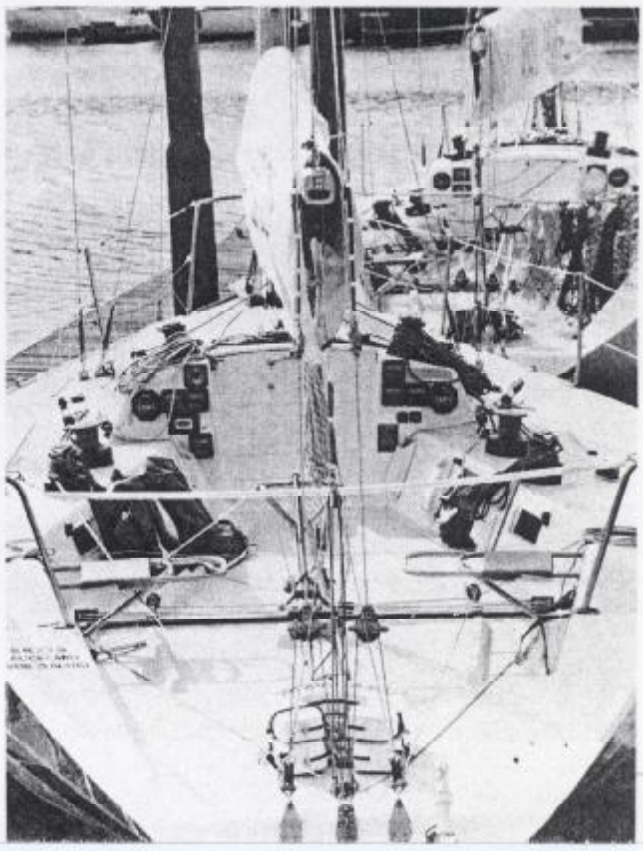
Forty-five Farr One Tonners have been built and several more are under construction. They may not always be the swiftest boats on all points of sail, but they're reliable boats that don't let their sailors down with holes in their performance; in short, they are the kind of boats that, as the record book shows, win regattas. •





Upper right: *Bravura*'s efficient instrument layout on companionway bulkhead is backed up by conventional compass mounted on the sole. Right: *Bravura*'s "window" transom. Lower left: Sail control lines lead aft aboard *Bravura* (note 10:1 vang purchase system). Lower right: 1988 One Ton Worlds winner *Propaganda* features a layout with open transom, wide cockpit, and simple permanent and running backstay arrangement.





Bruce C. Brown photos