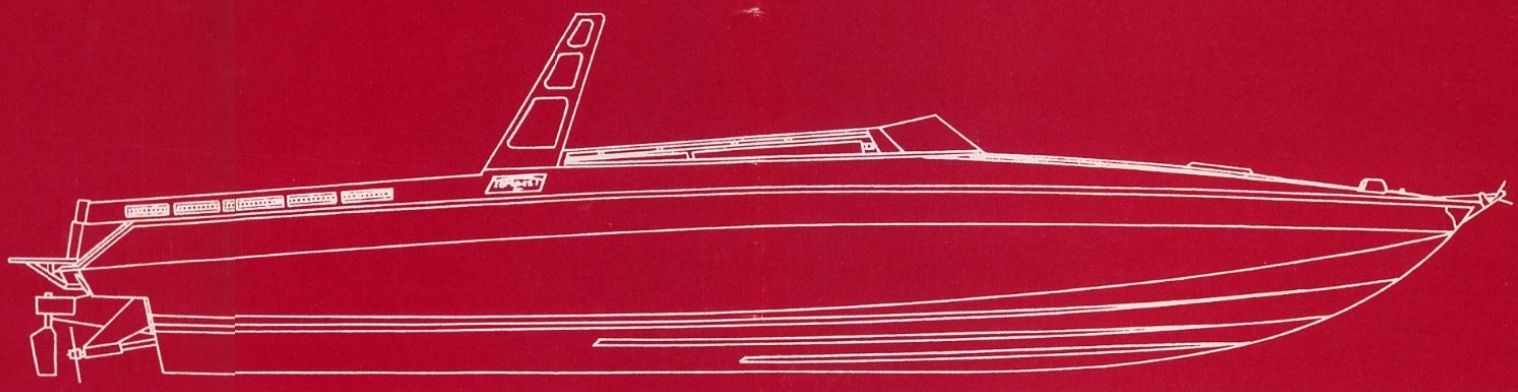
NAUTICAL QUARTERLY



TEMPEST 44

TEMPEST 44 A SURVEY BY FRASER AND JEAN FRASER-HARRIS

Years ago this old Navy fighter pilot drove a sports car. Neither a "hot-rod" nor an infernal noisemaker, it was a piece of elegant machinery that, in the days before the 55-mph signs appeared on transcontinental highways, provided enormous pleasure. It was not a racing machine, simply a superbly built automobile that enjoyed the release of the open roads and yet behaved with great dignity in city streets. No need for jump starts, burning rubber or macho flourishes; one knew that long after the self-appointed competition expired in the junk pile this machine would be a collector's "classic." A strange start to a marine survey, but an apt comparison when casting around for an accurate description of the Tempest Riviera 44.

When Jean and I were sent on this assignment we were not particularly enthusiastic; some years had passed since I had tried to "break" one of the early Bertram 31s while directing a small-craft test program for the Royal Canadian Navy.

It is no coincidence that the last three boats surveyed for Nautical Quarterly have all been conceived and built by men who love boats and understand the sea, who knew what they wanted for their particular purposes and who, failing to find it in the marketplace, decided to build it for themselves. The three boats could not be more different: one a high-performance, and luxurious, sailing yacht; another a sailing vessel whose designer has given priority to live-aboard world cruising; and finally this high-spirited diesel powerboat with good range and seagoing capability, specifically engineered for performance at speed, and for incomparable quality of workmanship. The Tempest 44 is intended as an efficient vehicle for offshore fishing, cruising, diving, or just plain enjoyment of sea and sunshine.

Dick Simon, chairman of Tempest Marine, an immensely successful businessman, believes that the nautical-recreation industrialists are killing their own goose by gradual product degeneration and customer disillusionment—a position with which we agree and feel is proven to some extent by our experience with the three examples quoted above. Simon not only loves and enjoys boats, but is in a position to afford almost any one he might choose.

To become wealthy you have to be smart . . . and lucky. In this instance Simon's luck was named Adam Erdberg. A dual U.S. and Israeli citizen, Erdberg holds an engineering degree from Technion Institute of Technology in Haifa, taught metallurgy at the same institute and later became a lieutenant in the Israeli Navy where he saw combat service in the engine rooms of missile boats. He later participated in their design. He came to the U.S. for a holiday in 1974, stayed on, ran low on savings, and had to drop once more to the bottom of the ladder. At that time he did not even speak English! Adam bought a set of tools and went to work on the Bertram production line. By 1982 he had climbed back into a design office, switched companies, and finally opened his own marine engineering, consulting and design firm. His reputation

was such that he was drawn to the attention of Dick Simon's spies, who had been instructed to capture the best engineer and designer available in the powerboat field.

From the time the two got together a remarkable dynoduo was born. Naturally, mistakes have been made, both in material and personnel, but they have been rectified as they were recognized, and do not happen a second time in the boatbuilding enterprise that these two created in a very short time. Adam, in total charge of production, made clear from the beginning that what he sought in boatbuilding materials and equipment was not "the best value for money," but "the best available." Simon's contribution to the company has two vital components—broad experience in the recreational operation of powerboats large and small in the open ocean (he is also an experienced fisherman and diver), and the capital necessary to support considerable research and development. Thus it was possible to set up facilities and tooling for limited production without undue concern over cash flow. Jean and I both find Adam Erdberg to be one of those rare individuals whose modesty veils a brilliant mind and capable hands. One has to remind oneself that the eloquence of his descriptions and theories are being expressed in a language only recently acquired. He is as much at home on the shop floor or the bridge deck as he is at the design board.

In practical terms you can only produce a yacht of superior quality in limited numbers. Tempest is currently building 12 boats a year, and is unlikely to surpass this figure significantly, whatever the demand may be. If you produce 200 boats a year, an extra $10 on a specific part may be red ink on the books. If you double your work force with a high wage scale, the result may be company disaster. For these reasons, both Dick Simon and Jean and I see much merit in small building yards where quality is to be the primary objective. And mystique is not irrelevant: the more common a Rolls or Ferrari upon the streets of the world, the less the status attached to ownership.

The first Tempest 44 hit the Miami Boat Show in February of 1983, less than six months after the formation of the company. Subsequently a prototype was furnished as a press "chase boat" for the America's Cup in Newport. Although the appearance, quality, and performance evoked both interest and enthusiasm, the boat was not reliable; the drive systems were in constant trouble. Diesel power, with its higher torque, produces greater stresses on marine transmissions than a gasoline engine of comparable power, and in a planing vessel operating at high speed, the propellers are often 40% out of the water. Thus each blade undergoes a rapid change in forces transmitted. Fatigue failures in shafts and gears become a challenge to the designer. The stern-drive systems on the market at that time were of complex-lifting, multiple-gear design with too many places for potential failure. Worse still (and we saw them firsthand), the choice and mixture of construction materials was, to say the least, unwise in respect both to adequate strength and electrolytic resistance.

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The Tempest yachts are not intended for racing, normally undertaken with new equipment and run over a few hundred miles with a win-or-lose situation at stake. They are designed for years of high-speed cruising with a record of reliability. Typically, instead of indulging in futile legal bickering with the stern-drive manufacturer concerned, Adam turned to that old adage that "If you want a thing done well, do it yourself". One must add, of course, "if you can." The essence of good engineering is simplicity in the face of complexity. Adam followed this. First he decided to return to an accepted principle: drive by propeller and steer by rudder. He then took all the ball joints, short shafts and articulation and threw them out the window. He ran his shafts directly through the transom, mounting them externally on unusually long T-bearing struts which are also transom mounted. To put the rudders behind the props where they should be, he built an *outboard* steering ram box of massive proportions from which the two small balanced rudders are suspended. Shaft withdrawal is no problem.

At first glance one is horrified by the bulk of this heavy stainless-steel box. It just shouts "drag!" and you fall into the trap. One of Adam's quiet smiles suffuses his countenance as he replies, "at lower speeds, yes, but at higher speeds it clears the water." Damned if it doesn't, too. I stuck my head over the stern at about 40 knots, and there it was, minding its own business in the sunshine, clear of the water! This whole assembly, now christened "T-Torque Drive," has a patent pending. Tempest Marine now offers earlier owners special terms on a retrofit program. Tempest's direct-drive system really works, and it should radically reduce the failure rate experienced in complex inboard/outboard drive systems at high torque.

There are at present three Tempest models, all from the same hull mold: a sports model, the Riviera cruising model which is reviewed here, and a fishing model. This last is a modification of the Riviera which is so versatile that it can be owner-converted by exchanging modules. A fishing chair, fishboxes and associated equipment replace the settees and aft cocktail table.

Hull design follows the Ray-Hunt, stepped-chines principle, but this boat has a lesser beam/length ratio, finer entry and slightly more deadrise aft (25° at the transom, compared with Hunt's original 24° designs) for a softer ride at sea.

Aesthetically, the Tempest 44 is very satisfactory, which is calculated understatement, yet the cabin top allows ample standing headroom in the accommodation forward. This includes a comfortable double bunk (Jean tested and approved it for "at rest" but not for underway), a semicircular settee, full head with bidet and shower, and a superbly appointed galley complete with glassware, china, and cutlery, each with its individual stowage. The owner is spared thought. Interior decoration is to owner's choice with unusual, versatile and practical fabrics. Excellent and abundant use is made of perspex mirrors.

On what might be described as the "flight deck," to starboard is the helmsman's position with room for a second body included. The seating here and to port of the companionway is cunningly arranged; both seats, secured by two substantial struts which lock in pace, fold up from deck level. Visibility from the seated position remains satisfactory in the planing attitude. The back and sides as well as the seat are very well padded and conform to the body, affording good all-round support. With the seat down, as it would be in enclosed waters or in any seaway, the supported standing position is entirely comfortable and secure.

The console and controls follow excellent engineering practices. Controls are standard Teleflex throttle and clutch levers. The instruments are practically grouped and follow a logical sequence—safety indicators, fire, bilge and engine sensors, operating controls, including trim tabs, with clear position indicators and rudder position indicator. A schematic diagram is incorporated on which indicator lights identify the source and location of any alarm. There is full engine instrumentation; an aircraft-type double needle manifold pressure gauge simplifies accurate engine synchronization. My only criticism of an otherwise excellent control panel (probably not of concern to most owners who would be a bit younger) was that the engine temperature and pressure gauges were on the small side. This is a problem readily solved by a pair of bifocal goggles. Even at moderate speeds, and behind the fold-up windshield, goggles are desirable anyway.

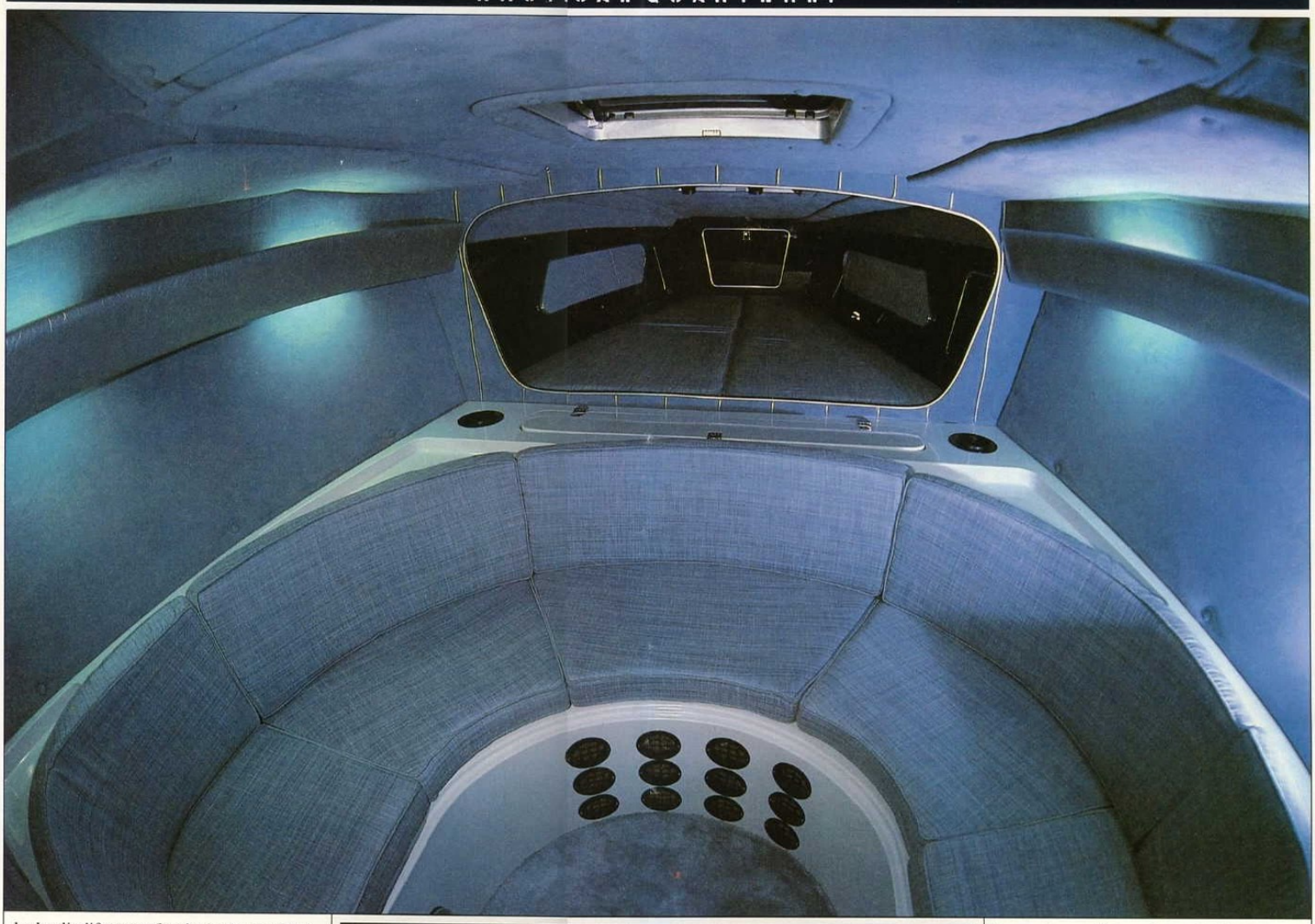
On this subject, it was suggested to Adam that thought might be given to curved "venturi" airflow deflection to reduce the wind effect which, while exhilarating on a temporary basis, can become equally enervating over longer periods of exposure. Running fast into wind, considerable velocities can be experienced across the deck. These in turn rapidly lead to eyestrain and windburn, both of which may be unwelcome to the delicate ladies that owners may wish to please.

The boats carry solid and well-engineered canopies, and it is possible to have forward enclosure. The weather in which these boats normally operate makes shade appetizing. But then so is a breeze. Again, on the subject of physical conditions, engine noise is not excessive; the hatch cover is cored both for strength and acoustic protection. With the T-Torque Drive fitted to the boat tested, vibrated noise was minimal and exhausts were well-silenced. The small afterdeck hatches, however, did rattle; there were two reasons for this, and modification will be forthcoming. They are of cored fiberglass and quite light. Neither sat on rubber seals, nor were they "dogged down." The latter is also a safety requirement to ensure that no water gets below if green stuff comes aboard.

An opening door aft gives access to a swimming platform. An outlet for a telephone-shower connection and controls is recessed into the counter above the platform, an excellent facility for swimmers in salt or sandy tropical waters. The cockpit boasts a lounging pad conceived as "a backdrop for bikinis."

Our sea trial first and foremost underlined the design and engineering superiority of the boat. Engine start-up is preceded by engine inspection. No struggle with hatch covers or furniture removal. Having first invited the bikini models to vacate the "solar pad," press the appropriate button on the console and the entire deck section elevates to expose both engines and generator for simple "pre-flight" checks.

This is the place to emphasize the extent to which concern for ease of maintenance or essential part replacement has been followed through on every system, electrical or mechanical. To reiterate, even if the



hydraulic lift pump for the hatch ram fails, a secondary source of hydraulic power is available from one of two more pumps (one on each engine), and finally the ram is so bolted to the deck molding that, using only an adjustable wrench, the deck can be lifted clear by unbolting the ram, drawing the hinge pins and so effecting emergency repairs with all systems dead.

Engine start-up was simple, noise at idling insignificant, backing out of the dock and maneuvering unfussy. In the open, engines were run at warm-up revs, about 1600 engine rpm. We were still in displacement mode at about 10 knots.

Although powerboat builders, for obvious reasons, like to state their speeds in miles per hour (which not only sound better but are more readily understood by the layman), we will use knots in this context, believing the seagoing measurement to be more appropriate to a cruising boat in which chartwork, and thus nautical miles, will be required for navigation. Time did not permit the inclusion of running a measured mile, and in estimating speeds here we have converted the rpm/mph table in the owner's manual. These figures may be a bit optimistic for the vessel we were aboard, but fast is fast. If you are not racing, performance in rough water at high cruising speeds seems far more important to us than whether it's 40 or 45 knots. After that it's all in the mind!

Unfortunately our sea trial was on an almost perfect afternoon, sea state light chop, about one-two feet. This the boat completely ignored. The lift onto a plane

was unnoticeable. No radical changes of attitude. Trim tabs down gave an earlier liftoff, and the acceleration seemed a little more rapid, but there was so much power available that their use was not necessary except for fine trim adjustments or elimination of slight listing from loading transfers. We found a fast-moving container ship running about 20-23 knots and used her wake to get airborne a couple of times. It seems that Jean's white knuckles were not in apprehension, but in bracing for her first flying-boat experience. She had nothing to be apprehensive about the second time around, which was testimony to the gait of this boat. Takeoff and re-entry are controlled and stable, the landing shock beautifully cushioned, and despite her slim line she showed no inclination to bury her nose. The rough water capability of the Tempest does not have to rest on the narrow evidence of this short and artificial experience; a U.S. Navy test driver, attracted by Adam's proposals for high-speed craft similar to those he had operated in the Israeli Navy, has put the boat through its paces. In rough Gulf Stream conditions he managed to get even Adam and Dick a wee bit nervous, but reported very favorably on the boat's performance. This information, I assure you, did not reach us through the builders!

The Tempest 44 feels as she looks—sound, seaworthy and fast. I could detect no "dirty tricks." She appeared slightly sluggish on the wheel; this was because quite a lot of wheel is required. For my taste, both for quickness of reaction in a seaway and in close maneuvering, I would select a higher ratio on the hydraulic adjustment. In docking, Dick does and Adam doesn't use the wheel. I wouldn't, as it is not necessary. Clutch control only, with a touch of throttle, is much less fussy for the uninitiated, and the boat is extremely docile.

Finally let us examine the construction of this very pretty girl. Back to Adam's do-it-yourself philosophy. Subcontracting is minimized, consisting essentially of reliance upon Caterpillar diesels for propulsion and other subcontractors only for specialized items such as hardware and electronic equipment. All tooling and molding is "in house." Isophthalic fire-resistant resins are used throughout, and there is no "chopper gun" on the premises. The facility is open but well-covered, and windbreaks control dust. The joinery shop is screened from the molding area. Potential customers are welcomed and can watch the gestation of their vessel from mold to completion. (This, gentle reader, is a rarity!) The molds are held in heavy pipe framing. Glassed-over plywood and cut-balsa panel is used in stringer construction, and all is resin-sealed before going into the hull. (No untreated wood will be found in a Tempest.)

The hull is of solid alternate mat and roving fiberglass construction. Hull thickness, framing and bulkheading support meet military specifications developed by the U.S. Navy. No. 1 bulkhead is beefed up as a "collision bulkhead." Strain gauge tests in rough water conditions indicated bottom loadings of 120 psi, and allowance for this figure has been well exceeded in the design and construction. Additional stringers and laminate layers are found in way of re-entry surface. The deck and fore end liner both form structural members. Close-tolerance interlocking tooling jigs serve to position the stringers, frames, bulkheads, and liner which are secured before the hull is broken out of the mold. The liner is cored with ⅝" Klegecell and has plywood and aluminum strip stiffening. It has a total thickness of ⅞" and is lipped. The deck structure is cored with Klegecell, balsa and plywood; the hull/deck join is a "shoebox" fit, glassed over on the inside and bolted through the heavy aluminum rubrail at 6" centers. Construction is strong and well-executed.

Engineering is equally satisfactory, the two Caterpillar 4-cycle diesel engines with water-cooled supercharging developing 355 hp each. They are mounted very close to each other, but the installation is such that all servicing is easily performed. All senders are connected through a 10-point sealed plug, and engines can be removed in 45 minutes without difficulty. The fuel tank, mounted at the center of gravity, is 3/16" 5086 aluminum alloy and built "in house." Fuel lines are Aeroquip, and there is a Racor filter and a water trap on each line in addition to the on-engine filter. A water-in-fuel alarm sensor is installed. In the same compartment forward of the engines is a BMW 3-kw, 110-volt generator in a sealed container; it runs so quietly that it can hardly be noticed in the accommodations! A reverse-cycle air-conditioning unit of 6000-Btu capacity is standard, and a 9000-Btu version is available. This draws from cabin air, not bilge or engine room. Despite the complexity of this boat, the electrical control panel is easily interpreted, and all wiring is installed in accordance with military specifications and letter- and color-coded.

Amongst the available extras such as radar and other electronic equipment is a cunning companionway electronic combination lock. Get it wrong three times and an alarm goes off! The 20H Danforth anchor stowed on a locking bow chock can be operated from the cockpit without anyone on the foredeck.

We must conclude that our inspection of the facilities, interviews with the personnel, study of production, and a very enjoyable sea trial of the Tempest 44 all confirmed the company's claim that the beauty of this boat is not merely skin deep. She's a lovely and capable lady.

Takeoff and re-entry are controlled and stable, the landing shock beautifully cushioned, and she showed no inclination to bury her nose.

One of the new generation of offshore performance boats, the Tempest 44 is fitted with the company's own T-Torque Drive, a direct-drive system with props at the surface and with rudder steering. The hull is deep-vee, with 25° deadrise, and although it's long and slim there are posh overnight amenities below decks. Shown at left are vee berths forward and a huge dining/partying banquette amidships. Aft in the cabin space are a trim galley with microwave oven and an enclosed head with shower.

LOA: 43'6"
Beam: 9'6"
Draft: 3'2"
Displacement: 15,000 pounds (approx.)
Fuel: 300 gallons
Water: 50 gallons
Power: twin Caterpillar 355-hp 3208TA diesels
Hull: hand-layup fiberglass
Designer: Adam Erdberg
Builder: Tempest Marine, 4600 S.W. 44th Avenue, Fort Lauderdale, FL 33314