LEISURE & ARTS

King Conner Rules the Waves

By ROBERT L MILLER

Fremantle, Australia

Next year's trivia games are likely to pose the question: "Who was the first person to lose the America's Cup, and the first person in 135 years to win it back?"

The answer: Dennis Conner.

After three years of sweat-soaked preparation and a long summer battling 13 yachts from seven nations, Mr. Conner has traded his albatross for a 3½ kilogram silver mug that is the prize in what is regarded as the "Super Bowl" of sailing.

Television images, received by 51 networks in 42 countries, showed Mr. Conner guiding his yacht, Stars and Stripes, to a 4-0 victory over Australia's defender, Kookaburra III, skippered by Iain Murray, in a best-of-seven-races series.

With $20 million spent by both Kevin Parry's defending Taskforce syndicate and Dennis Conner's Sail America challenge, the 26th America's Cup match, which began on Jan. 31, was predicted to be a closely fought battle for the venerated silver trophy and the portable billion-dollar industry that accompanies it. But the American yacht showed its supremacy soon after the crack of the starting pistol.

The weather conditions for the first race seemed to be ordered by the home team. In November, light winds of eight knots and a smooth sea had anchored Mr. Conner's heavy-weather-tuned Stars and Stripes, during the four-month challenger series. Soon after the start of the first race against the Australians, however, the boat Mr. Conner refers to as a "top fuel dragster"—so named for its straight-line speed, affinity for high seas and stiff, 25-plus knot winds—accelerated, to the bewilderment of all watching, through the light breeze. The New York-built, blue-hulled, 12-meter yacht rounded the top mark of the triangular course one minute and 15 seconds ahead of the gold-flake Australian yacht.

Mr. Conner's significantly improved nautical weapon went on to defeat stunned Australian skipper, Mr. Murray, by 20 boat lengths. Although the first American victory in the series did little to diminish the spirits of the 150,000 Australian supporters who welcomed Kookaburra III back into Fremantle harbor, Mr. Conner's Cup relocation program was building momentum. He had started to loosen the bolts holding the Cup at the Royal Perth Yacht Club.

The first America's Cup match held outside American waters, and the 8th U.S.-Australian duel in 25 years, took place in varied sailing conditions.

The second race saw large swells and wind gusts of 28 knots. In an effort to break Mr. Conner's spell, the Kookaburra III crew started out aggressively, trying every tactic to get ahead of the San Diego yacht. However, Mr. Conner, who had trained for the America's Cup in the trade winds and ocean swells off Hawaii, was in his element and powered up the first leg away from Mr. Murray and any further engagement. The veteran American skipper played a conservative game, sacrificing a few seconds to the Australians by sticking to safe maneuvers.

With the score 2-0, victory was still up for grabs. "We've been ahead in the America's Cup 2-nil before and we didn't like the way it ended up," Mr. Conner said, referring to his 1983 defeat in Newport.

Consulting their in-house weather network, the Australian defense syndicate waived their option for a lay day and decided to take a chance in the forecast shifty breezes, gambling on the quirky wind to give them the advantage they needed to get ahead.

The now desperately aggressive Kookaburra had a good start in the third race and looked set to take the lead for the first time in the match. But Mr. Conner, who grew up sailing in the shifty winds off San Diego, and a veteran of three America's Cup matches, outmaneuvered Mr. Murray and played the wind shifts to win by one minute 46 seconds.

The only excitement of the race came midway to the finish line when a bomb was reported on Kookaburra III. Mr. Murray, dejected at the prospect of being 3-0 down, was informed immediately by an Australian chase boat and asked what he wanted to do. "We checked our option list," Mr. Murray said later, "and our immediate response was: 'So what's the bad news?'" Mr. Murray said he continued the race because if the bomb had gone off, it wouldn't have affected the result and he might have got to see what life after 12-meter racing was all about.

Australia's claim to the America's Cup was lost in the fourth and final race when Mr. Conner and his crew crossed the finish line one minute 51 seconds ahead of the finest 12-meter yacht and crew Australia could produce.

Mr. Conner's determination to win was backed up by the syndicate's sophisticated boat-design program, use of computers, and the skill and experience of a crew, whose names read like the Who's Who of American sailing.

"Our boat is the product of a space shuttle-like effort," Mr. Conner said, referring to the hull design and materials developed in U.S. think tanks and research laboratories at Du Pont & Co., Allied Chemical, Grumman Aerospace Corp., and 3M.

"We wanted to put the best tools at the disposal of our design team," said Stars and Stripes technical director, John Marshall, who organized a national computer effort involving Cray Research Inc., Digital Equipment Corp., Data General Corp., Hewlett-Packard Co., and Ockam Instruments.

Even without the high-tech American approach, none of Kookaburra III's crew, although seasoned in world-class regattas, had sailed in an America's Cup match before. By contrast, the positions on Stars and Stripes were filled by Olympic medalists and multiple America's Cup veterans. Mr. Connor was the 1980 Cup winner, and has accumulated 10,000 hours at the helm of a 12-meter—more than double any man alive. His tactician, Tom Whidden, twice won the America's Cup, and is the president of North Sails, a company specializing in the design and manufacture of 12-meter sails.

The silver embodiment of yachting's holy grail shall now rest in the San Diego Yacht Club. The venue for the next Cup challenge is still to be decided. Sites that have expressed interest in hosting the event include Newport, San Francisco, Santa Cruz, New Orleans, Los Angeles, Hawaii, Atlantic City and San Diego.

Fred Frye, commodore of the SDYC, says a special America's Cup committee will be nominated by Mr. Conner's Sail America syndicate, with the majority of the committee to be SDYC members. A location and date for the next round of racing, he says, will be announced within 90 days. Once the venue is settled, challengers will start work to try and wrest from Mr. Conner his unofficial title of the best 12-meter yachtsman in the world.

Mr. Miller is an American writer based in Fremantle, Australia, for the America's Cup.

LEISURE & ARTS

New Zealand Challenger Means Business

By Robert Miller

Fremantle, Australia

At 9.30 a.m., chairman of New Zealand's America's Cup challenge, H. Michael Fay, steps on board his command boat. He's about to witness another day of racing, with New Zealand competing in the best of seven finals against American super-sailor Dennis Conner, for the right to challenge Australia for the Americas Cup.

Mr. Fay, of Fay, Richwhite & Co.—one of New Zealand's largest merchant banks—has set his sights on transplanting a three-year, estimated $1 billion industry into a country of 3.3 million. "This is easier than trying to get the Olympics off Barcelona, or the World Cup, or a royal wedding—unless somebody [royal] marries a Kiwi, but then they'd have it in Buckingham Palace. This looks like our one shot," Mr. Fay said.

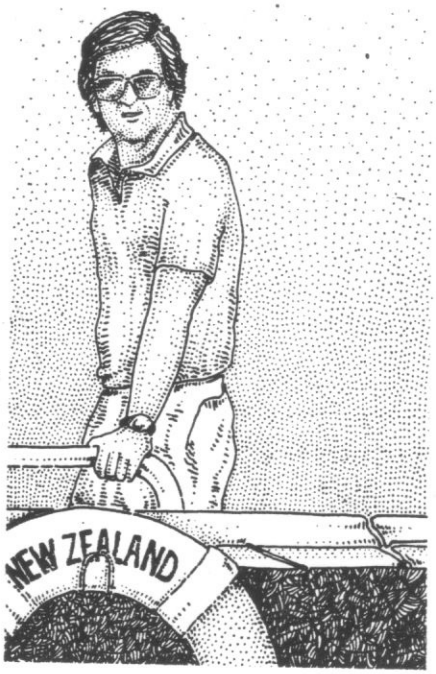
Mr. Fay, 37, has always approached the America's Cup as a 'business' event, rather than a 'yachting' event, and he believes the experience so far has sharpened his skills to a fine edge. "Everyone lining up to do their M.B.A. at Harvard should go out and find a job in a 12-meter campaign for 12 months," Mr. Fay said. "You come out with a lot better interpersonal skills, a lot better idea of the need for early decision making, good authority-responsibility definition, good lines of communication, how to get people motivated, and how to submerge goals in a group so that they're bigger than egos."

Mr. Fay is breaking from an America's Cup tradition followed by business tycoons Sir Thomas Lipton, Baron Bich, and most recently, Australia's Alan Bond, when he says, "We're not here to collect Bond's trophy—he can keep it. What we came for is to win the America's Cup industry, to get this marketing opportunity, the jobs, the capital investment and the tourism back to New Zealand."

"Michael is a 'total' operator," said David Richwhite, Mr. Fay's partner of 12 years and currently at the helm of their international banking interests. "Anything he does is 150% on."

Before any Cup commitments were made, Fay, Richwhite conducted an extensive three-month feasibility study to determine whether New Zealand had the capability to design a winning 12-meter yacht; build it; and, sail it competitively.

When satisfied that his country's yachting expertise was up to scratch, Mr. Fay organized the challenge's financial backing. He and his associates then mapped out an organization that could successfully compete against challengers backed by some of the world's largest corporations. Mr. Fay knew from the start that to assure himself of victory, he would have to own the challenge so that



Michael Fay

he would not have to answer—or apologize—to anyone.

Fay, Richwhite contracted away from the Royal New Zealand Yacht Squadron in Auckland, (all America's Cup challenges must be entered through an ocean-based yacht club), and from the challenge sponsors—the Bank of New Zealand topping the list. "It is really run as an owner-operator project by Fay, Richwhite & Co.," Mr. Fay said, "and therefore, by me."

The name Fay, Richwhite is not emblazoned alongside those of the Bank of New Zealand and other sponsors depicted on the challenge's dock-side buildings. Mr. Fay's personal transport around town is not a Mercedes-Benz but a ten-speed bicycle that keeps him as fit as anybody who sails for him. If he's brought a blazer to Fremantle he has kept it hidden, preferring knit shirts, sweaters, and baggy white sailing pants.

In a clever orchestration, Mr. Fay has down-played his personal image and interest in the Cup, raised New Zealand's national support and patriotism to war-like levels via the media, and immersed himself in running his campaign. It's a job that, as any America's Cup veteran will testify, has as much, if not more, importance as what happens on the water.

"We've totally centralized the decision making," Mr. Fay said, "but totally decentralized the information collection." This translates as Mr. Fay's presiding as judge, jury and hangman on all matters of the challenge. When the sailing and design committee made a case for a stock of lighter and stronger masts than were currently available on the market, Mr. Fay rented a factory in Fremantle, flew the parts out from England and went into the mast-building business.

Mr. Fay doesn't apologize for coming out of obscurity to try and slay a few giants. He has had some hard lessons and isn't afraid to apply what he's learned.

Lesson one in Mr. Fay's business apprenticeship came early. Thirteen years ago, on a Friday afternoon, a disgruntled Mr. Fay, armed with a law degree and his glowing record as a young division manager in a rapidly growing New Zealand merchant bank, thumped the table at a meeting with three newly employed general managers of the bank, and told them: "Now, the first thing I'm going to do is get rid of you guys as general managers. That's the first move, because you don't know anything about banking!"

Mr. Fay was fired two hours later and learned not to give early warnings. He opened his own merchant bank the following Monday, and a year later formed an unwritten partnership with David Richwhite. Today Fay, Richwhite & Co., trades over half of New Zealand's government securities and has offices in Sydney and London.

If New Zealand wins the America's Cup, Mr. Fay's gratification will not be in pulling his country out of the shadow of rival Australia, or in winning the world's most prestigious yachting trophy. It will lie in him closing one of his toughest business deal.

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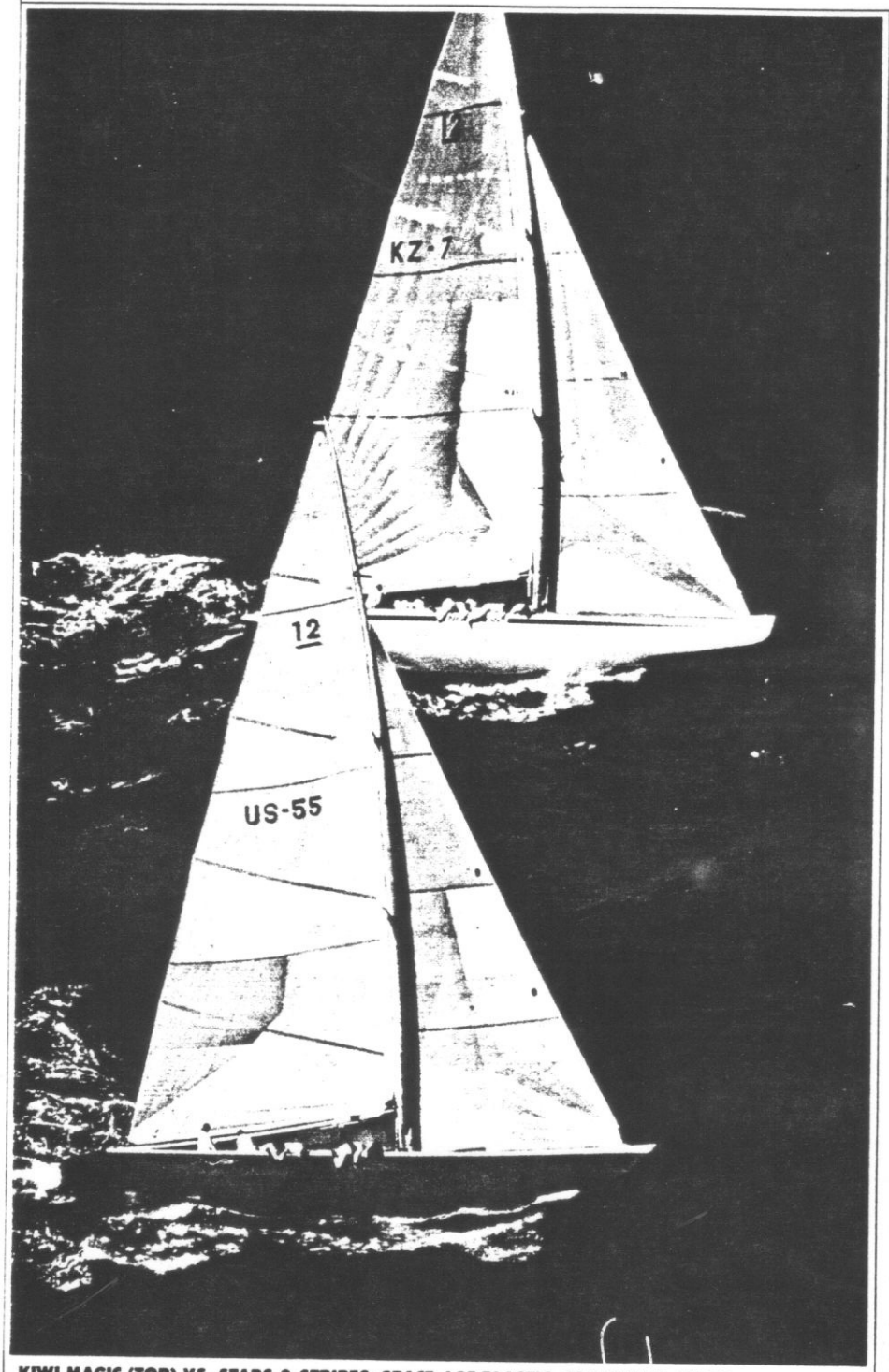

MASON/FOCUS WEST

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On Jan. 2, Stars & Stripes sailed past the 12-meter yacht USA for the fourth straight time, winning the semifinal round of the America's Cup elimination races off the coast of Australia. Afterward, USA skipper Tom Blackaller mused that his nemesis, Stars & Stripes skipper Dennis Conner, seemed to have found a mysterious burst of speed.

He was right. On Dec. 26, Conner's boat had secretly gotten a new skin—a thin, space-age plastic film with tiny grooves running from bow to stern. The film, developed by 3M Co. and based on research by the National Aeronautics & Space Administration, helps Stars & Stripes slice through the water with less drag. The plastic covering is just the latest in a long series of aerospace borrowings that are honing the racer's edge. From computer-aided design and advanced composites to computers that monitor the set of the sails, technology as much as seamanship has spelled the difference between winning and losing.

UNSUNG HERO. Indeed, once its new skin was on, Stars & Stripes came back to trounce the New Zealand, widely known as Kiwi Magic because it had been all but invincible. Coming into the final match, the Kiwi's composite-plastics hull—the first ever in an America's Cup race—had been beaten only once, by Conner, in 38 outings. New Zealand had bested Conner in two other duels. But the space-age skin worked a little magic of its own, and Stars & Stripes drubbed the New Zealand 4-1. Conner now has his shot at regaining the prize he lost in 1983, when he skippered Liberty and lost to Australia II, the first America's Cup yacht to sport a winged keel.

It was Australia II's 1983 victory that launched a scramble to exploit high technology, boosting costs of 12-m racing to ridiculous heights. Most syndicates now sponsoring serious contenders for the ornate, 27-in. trophy spent about $10 million. The next race, set for 1990, could cost double or triple that. "Money has become perhaps the most important factor in the America's Cup race," says Donald J. Huseman Jr., president of Keelco, a Wilmington (Calif.) company

that built keels for many 1986 entries.

Virtually every boat in the race has a winged keel, a design the Australians adapted from the drag-reducing winglets on some aircraft. But the unsung hero in 1983 was Australia II's on-board computer system, which collected a constant stream of data from sensors monitoring speed, tilt, heading, drift, and wind direction and strength. Some data were displayed graphically on a video screen to help decide race strategy under prevailing conditions, and all were relayed to a computer on shore. It analyzed the information overnight, often producing valuable tactical insights.

In 1983, Conner did not install such a system on Liberty until seven days before the final round. "It was really too late for them to get familiar with it and trust it," says Richard S. McCurdy, who pioneered on-board computing in 1970 and co-founded Ockam Instruments Inc. in 1982. Having learned his lesson, Conner asked McCurdy to join the Stars & Stripes syndicate, based at the San Diego Yacht Club. When Stars & Stripes arrived in Fremantle, Australia, it came armed with $200,000 worth of equipment provided by Ockam, Data General, Hewlett-Packard, and Digital Equipment. In fact, Ockam's systems are carried by 12 of the original 18 entrants.

Equally important, the final design of Stars & Stripes was the result of months of testing, analysis, and cross-checking data from on-board systems with sophisticated programs run on the world's biggest computer, a Cray X-MP/48. Cray Research Inc. donated 125 hours of time on its supercomputer, worth $250,000, to Stars & Stripes.

The Cray's number-crunching power was exploited by Nils Salvesen, head of marine hydrodynamics at Science Applications International Corp., a defense contractor, and Charles W. Boppe, an aerodynamics expert for Grumman Corp. They analyzed simulated hull designs, hunting for the slightest hint of better performance. The technical constraints on 12-m yacht designs are so rigid that just a 1% boost in speed is considered a breakthrough.

BOW WOW. Cray also donated 125 hours of supercomputer time to the USA syndicate. And its designers came up with a revolutionary design that they thought was a world-beater: The Cray predicted a 2% increase in speed, plus improved maneuverability. Again, the key was aerospace technology—this time, the so-called canard wings that some planes have near the nose. The designers adapted the idea by putting a rudder in the bow as well as the stern.

Moreover, the designers—Heiner Meldner, a physicist who works on Star Wars weapons at Lawrence Livermore National Laboratory, and Gary Mull, a naval architect—took the heretical step of eliminating the keel, which accounts for about 40% of a boat's drag. Instead, they slung a 21-ton lead torpedo under the hull. Meldner still insists that USA could have whipped Stars & Stripes if the crew had had more time to learn how to handle their odd boat.

It's a wonder that USA even made it to the semifinals. Because the syndicate raised only about half of its hoped-for $10 million, the boat didn't enter the water until late June, 1986, two years after Stars & Stripes had begun shakedowns and training. Still, USA matched or outpaced Stars & Stripes on 13 of the 16 "legs" of their first two semifinal races. "But close only counts in horseshoes—and grenades," grumbles Meldner.

Despite their losses, both Kiwi Magic and USA have probably kicked off new trends in 12-m design. Many technical representatives at other syndicates concede they will be running back to their supercomputers to evaluate the innovations these yachts pioneered. But when it comes to on-board instrumentation, everyone points to Australia's Kookaburra III. On Jan. 20 it won the right to defend the cup against Stars & Stripes—and is widely regarded as the most sophisticated boat. Even Meldner and McCurdy admit to twinges of envy at what has been done by Kookaburra's computer expert Christopher Todter, an American who was a missile-guidance specialist at Bendix Corp. before he moved to Australia.

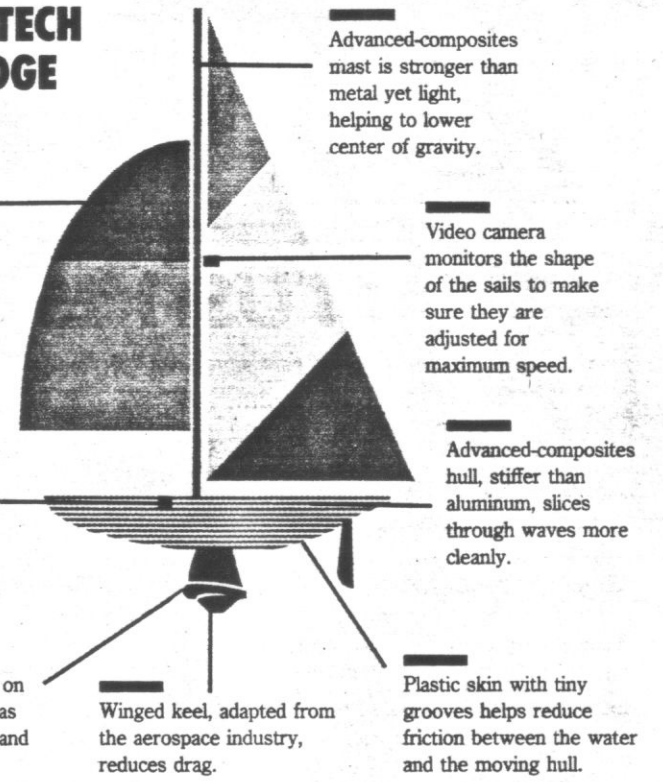
Two things distinguish the systems Todter fashioned for Kookaburra. First, he devised an uncannily accurate computer program to forecast the wind's direction and strength during a race and the best course to set. Before the start of a three-hour race, the program predicts within minutes the arrival of the Fremantle Doctor, a stiff sea breeze that whips in from the Indian Ocean.

TRIMMING THE SAILS. Also, Todter mounted a video camera in the mast, where it peers at the stripes on the sails. The image of those curved lines is fed to an on-board Digital Equipment Corp. MicroVax II computer, which analyzes the shape of the sail and flashes warnings when the sails should be trimmed to improve speed. Meldner of USA says tomorrow's on-board computer systems will use artificial intelligence to advise how the sails should be trimmed.

Where will it end? Some believe the high-tech options ultimately will be exhausted and the advantage will shift back to seat-of-the-pants sailing. Others say the America's Cup will turn into a battle of computers, with technology virtually deciding the race before the starter's gun. One thing is certain: Whether the winner in 1987 is Stars & Stripes or Kookaburra, it will be a victory for American knowhow. If the America's Cup has to stay in Australia, says Jesse Lipcon, manager of DEC's MicroVax program, "we may as well lose to our own computer technology."

By Otis Port in New York, with Robert L. Miller in Fremantle, and bureau reports

THE HIGH-TECH RACER'S EDGE



JAVIER ROMERO

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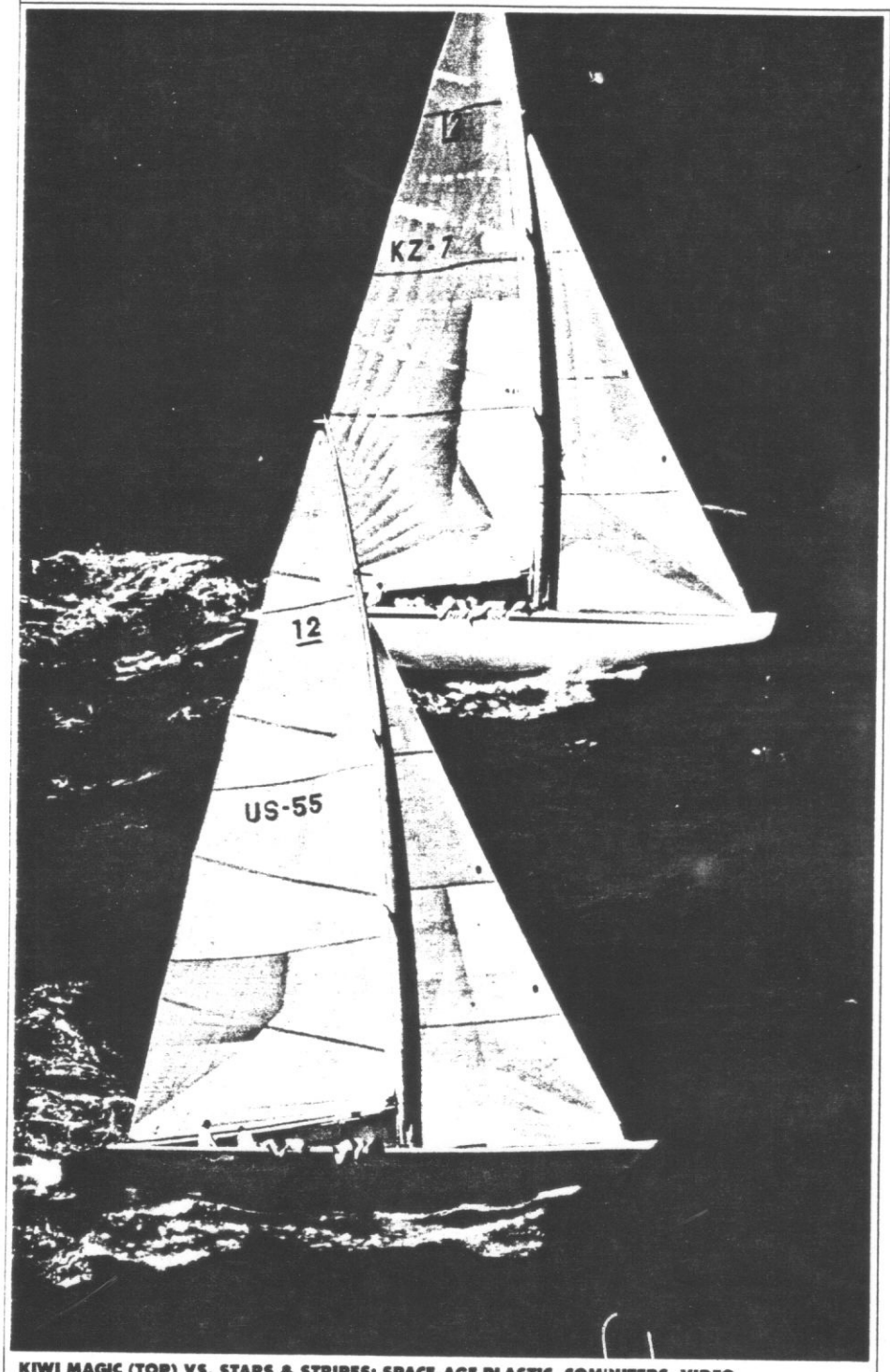

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