

MAXIMUS

100 FOOT SUPER
MAXI RACE YACHT



IMAGES BY TERRY FONG

DESIGNED BY GREG ELLIOTT AND
CLAU OLIVER, MAXIMUS EXHIBITS A
CONJUNCTIVE ARRAY OF INNOVATIVE
FEATURES. AS ELLIOTT CONCEDES,
"INDIVIDUALLY THE FEATURES
AREN'T PARTICULARLY GROUND
BREAKING BUT COLLECTIVELY WE
THINK WE'VE GOT SOMETHING
PRETTY SPECIAL."

"We recently had the opportunity to join the crew of
Maximus for an afternoon's sailing on this recently
launched high-tech super maxi.

Commissioned by EBS Yachting and built by Cookson's
yard in Auckland, Elliott and Oliver's design brief was
essentially that - brief. To create, for its length, the world's
fastest monohull. Owners Charles St Clair Brown and Bill
Buckley's intentions are clear. Their mindset is to gain line
honours in as many of the international regattas in 2005 as
possible, as well as having a tilt at the 24hr monohull
event currently held by *Mari Cha IV*.

The St Clair Brown family have long been involved in
the Auckland yacht racing scene. Charles, a lawyer and
businessman, has owned and raced a broad range of yachts,
including the Davidson 65 *Antaeus*, which is now on the
water. Bill Buckley, a keen offshore sailor and former New
Zealand motorcycle champion, has 'the need for speed' in
his blood. As owner and Managing Director of Buckley
Systems Limited, one of the world's leading precision
engineering and nuclear physics companies, a great deal of
the mechanical engineering on *Maximus* emanates from
this organisation.

A SAIL AREA OF ENORMOUS PROPORTIONS

While the *Maximus* project has not been entirely
unveiled in secrecy, there is an obvious reluctance to share
too many details. However, we can safely assume that,
through Buckley's involvement, *Maximus* has leading edge
mechanical engineering integrated into her design. What
we do know is that she is of light displacement carbon fibre
construction, has a carbon fibre rig with rotating wing mast
and PBO rigging, a three metre carbon fibre bowsprit, a
retractable canting keel and single lifting dagger board just
forward of the mast to avoid leeway. Used extensively on
multi-hulls, the concept behind the rotating wing mast is
to get the airflow from the leading edge of the spar directly
on to the sail. When compared to a conventional rig, the
airflow from the leading edge of the mast hits the sail about
a half a metre back.

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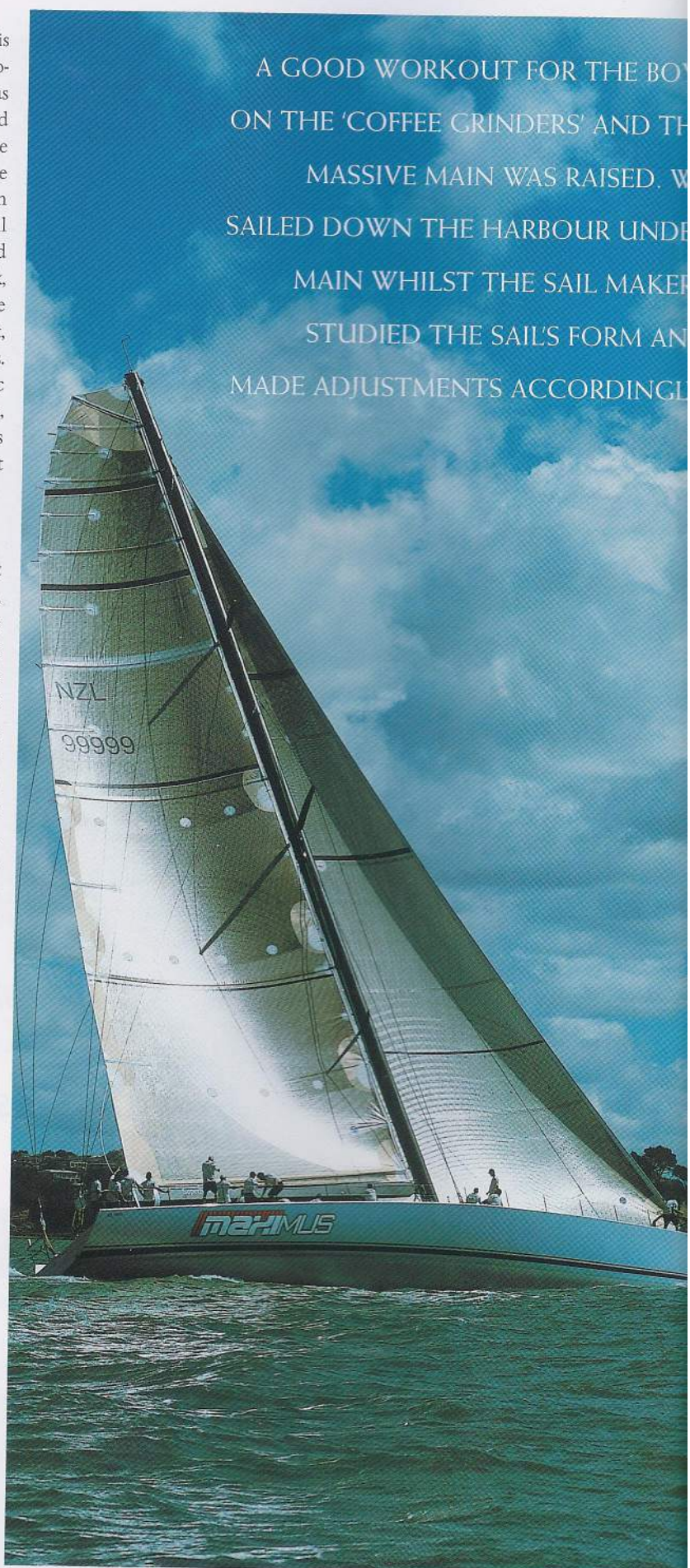
She is one of the beamiest super maxis around and extracts maximum power-to-weight ratio with a sail area of enormous proportions - 500 sq metres upwind and 800 sq metres downwind. There are three winch pedestals (coffee grinders) in the large shallow cockpit, with the twin carbon fibre wheels positioned well forward. The mainsheet traveller is located further aft of the helm station. Below deck, *Maximus* is relatively austere except for the machinery being the main engine, genset, various hydraulic pumps and electronics. The main engine drives the twin hydraulic keel rams and keel lifting mechanism, whilst a Lombardini Genset, which was chosen for its lightweight and compact size, drives the vast array of electronics.

PANDEMONIUM ABOARD

Auckland provided us with near perfect weather conditions. Clear blue skies, plenty of sunshine and, according to the instruments, a 13 - 14 knot breeze. EBS Yachting is still conducting sea trials and crew familiarisation on *Maximus*, so we have a number of the experts on board, along with Brown and Buckley. One of the mechanical innovations installed on *Maximus* is the ability to retract the propeller into the hull. Unfortunately, there have been a few 'teething' problems, which meant we had to be assisted off the berth by the support RIB and towed to open water.

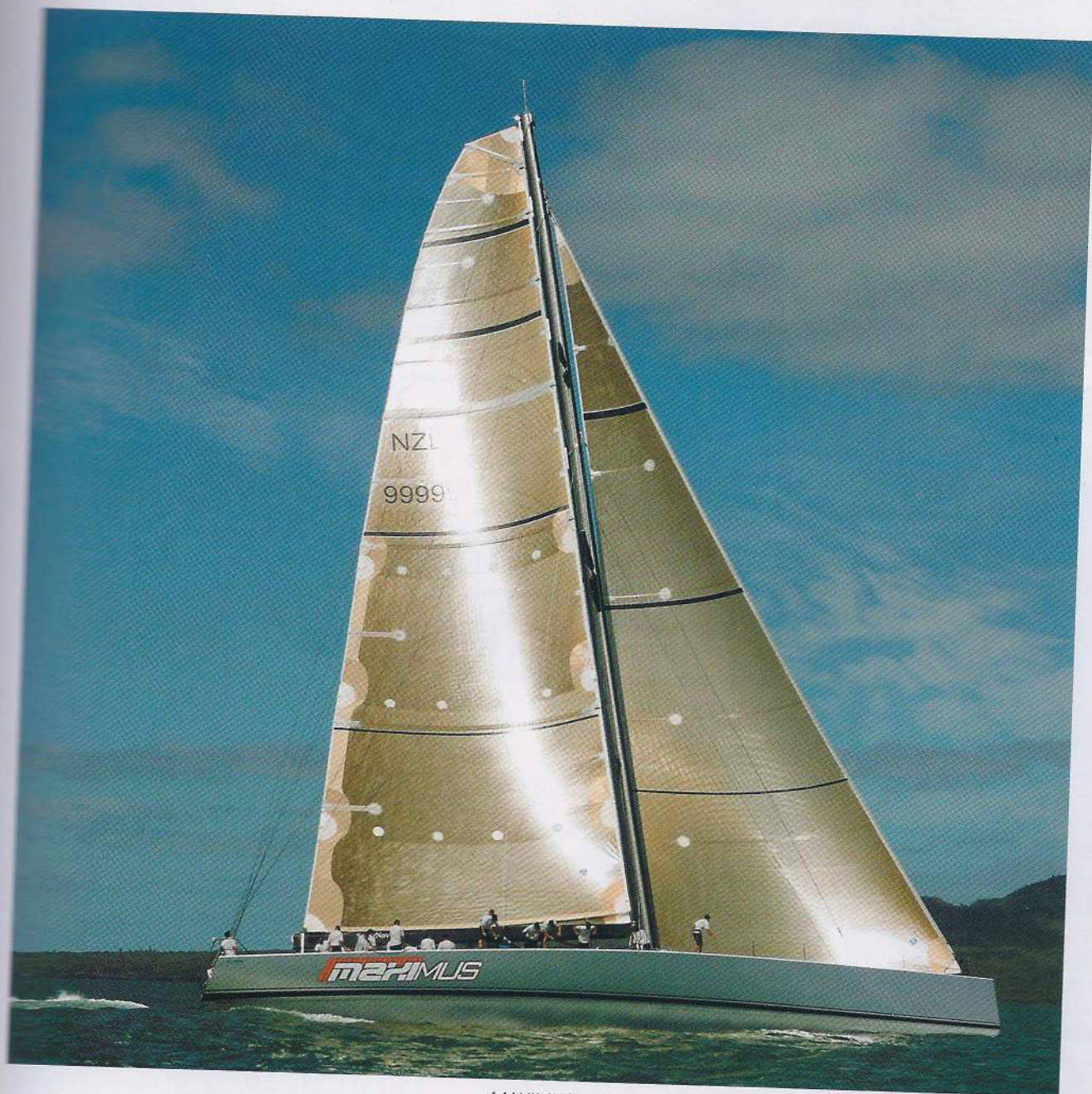
A good workout for the boys on the 'coffee grinders' and the massive main was raised. We sailed down the harbour under main whilst the sail makers studied the sail's form and made adjustments accordingly. The crew raised the genoa as we rounded North Head into the main channel and the engine started in preparation for canting the keel. The hydraulics can be operated in slow, medium and fast modes, which basically alters the pressure. According to Buckley, at high speed (increased psi) the keel can be canted from centre to the maximum 45 degrees in five seconds. On medium it takes around ten seconds. The instrumentation showed our boat speed at 9 knots as we tight reached north, quickly accelerating to 11 - 12 knots as the ballast shifted to the maximum canting angle. 'Uncanny' is how I would describe the sight from my position sitting on the rail. At an angle of 45 degrees, the keel seems

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TOP: *Maximus* is launched with great ceremony

ABOVE: Its canting keel can go to 45° in five seconds

almost parallel to the boat. At a quick glance, the bulb gives the illusion of a white dolphin playing beside *Maximus*. With 13 - 14 knots of wind speed, the yacht almost defies logic with her turn of speed upwind and, going by the virtual

lack of wake, appears to have a very low drag coefficient.

As we settled down to enjoy our beat upwind, there was sudden pandemonium when one of the crew noticed copious amounts of hydraulic oil below. Brown immediately powered *Maximus* down and the genoa was dropped. Buckley's knowledge of the system was evident as he emerged from below exclaiming that the fault had been put down to an unsecured hydraulic hose and was now rectified. Coincidentally, I was just discussing the hydraulics on the keel with one of Buckley's team. I was questioning how their set-up was different to that of Skandia, which hit the headlines (and almost disaster) when the hydraulic ram controlling the canting keel snapped in the Sydney to Hobart. Technically, it was explained to me that the twin rams on *Maximus* were quite different in their operation, more robust and they were confident that the same failure wouldn't happen. Just goes to show that no matter how precision engineered the machinery, it's the simple things that often let us down. Many America's Cup campaigners have learnt it's a matter of check, check and check again.

AN INCREDIBLE TURN OF SPEED DOWNWIND

With the hydraulic line repaired and tanks refilled with oil, we set off again comfortably beating upwind without a hitch. There was an air of anticipation from the guests on board as the crew readied the code two gennaker for our

downwind run home. You get appreciation of the enormous volume of sail area *Maximus* carries when the gennaker is raised. The breeze progressively dropped on our upwind and was now showing a miserable 10 knots. Although we all wished for a more breeze, our downhill run was nevertheless exhilarating. Our boat showed an incredible 16 - 17 knots, which meant we were back at base before we knew it. The crew dropped the sails, flaked the massive main and readied *Maximus* for our tow by the support RIB. For a return to the berth, the keel needs to be retracted to about four metres. Several attempts at raising the keel had the hydraulics groaning, revealing a minor problem with the software in the PLC, in turn triggering an electromagnetic switch that drops the hydraulics psi for safety reasons. If that was the one major point of difference that the Yachting have in their arsenal, it's Buckley and his skills as a precision engineer. Buckley and his technicians quickly corrected the problem and the keel was raised.

A HECTIC RACING SCHEDULE AHEAD

The minor problems we encountered highlight the need for day-on-day testing and crew training. Whilst the timetable is tight, EBS have several weeks of testing ahead before *Maximus* is shipped to the States for her first regatta in April - The Antigua Week. The start of a hectic schedule goes from Antigua to the Rolex Transatlantic Challenge in May and an attempt at the 24 hr record. France next, with the Giraglia Rolex Cup in June, Sweden and the Round Gotland Race in July, Skandia Cowes Week in August, the Rolex Maxi World Cup in Italy in September, the Rolex Mediterranean Sea Race in Malta in October. The season culminates with the Sydney to Hobart in December where it is expected there could be anything up to ten months entered.

Maximus is described as the fastest, lightest, most technically advanced racing super maxi. An afternoon on the harbour confirms she appears to be all of that. We watch with eager anticipation as she competes in the upcoming regattas.