

A Kiwi *Knave* IN CANADA



The main control and helmstation

When Greg Shine and Bladerunner Boats in Kumeu built a tailor-made design for Kenneth Keeping, a marine surveyor with Maritime Survey Services, they weren't anticipating that *Knave* would end up in St Johns, New Foundland!

Ken says *Knave* is operating beautifully, her special road trailer means she can be towed to work on any of the multitude of harbours, lakes or inlets within cooe of Ken's base in New Foundland, which at the moment is Conception Bay. *Knave* is surveying out of Conception Bay for ships that were sunk by Germans during World War Two with loads of iron ore and explosives on board. They are naturally rather keen to locate the explosives



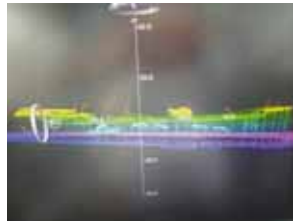
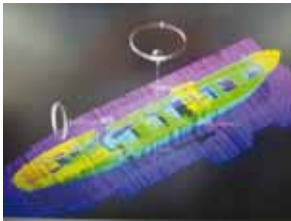


ABOVE: Survey computer



RIGHT: KAB Helm seat

BELOW: Sidescan images of wreck below



while they are still in an unexploded state..!

Knave's wonderful functionality was originally designed for use in Australia, and although she has ended up in New Foundland, Greg went ahead and got design approvals for Australia anyway and is hoping that Aussie skippers might need an aluminium boat of *Knave's* functionality, built by one of the best aluminium boatbuilders in the world.

Ken wanted the largest amount of boat he could fit onto a trailer so he could truck the boat around Newfoundland's myriad of waterways for his marine survey business. He also needed a comfortable working platform that was durable, stable and that you could sleep in overnight. He saw Bladerunner's *Gambler*, and was impressed with the amount of boat you got for the length because it meant they would be able to take the boat just about anywhere with relative ease.

Ken had read the *Professional Skipper* article on NIWA's research boat *Rangitahi*, and was impressed, despite hydrofoil catamarans not being that popular where he comes from. He knew he needed a catamaran's stability for the remote sensing equipment, and the tough durability of aluminium, so he went to Bladerunner Boats where he could customise the design to suit his specific requirements.

Ken had originally wanted the design to be capable of operating in heavy seas, so he used the 2B category for the 200 nautical mile limit in Australia as a model. While consulting with an Australian surveyor in Adelaide he suggested that you could achieve this by using a different welding schedule with thicker stringers than Bladerunner traditionally builds in their boats. As a result *Knave* is one of the strongest boats around for her construction size, and we understand that Bladerunner have adopted this same interlocking construction method for all their new commercial boats.

"We wanted a boat with a very high capacity for fuel so that it would be able to make the 200 nautical mile limit with relative ease, although the full fuel capacity will not be used unless required for designated jobs," said Kenneth. "We have 1720 litres split between ►

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Knave remains very nippy underway



The transducer arm locked in the down position

four tanks with 600 port and starboard aft, 260 port and starboard for'ard, making for a heap of petrol on board, although the majority of the time it will be only using the 2 x 600 litre tanks in the aft of the vessel."

The 9m hydrofoil supported catamaran was built by Bladerunner Boats in Kumeu to a mix of both Australian 2B and New Zealand maritime safety standards, both of which are in excess of the Canadian standard requirements so *Knave* received her safety approval on arrival.

This is one chunky work boat weighing in at 5500kg light ship, add another tonne and half of fuel and water plus an extra 500kg or so for gear and we are starting to see some serious displacement, which explains why we have twin 250hp Yamaha four stroke outboard motors with 30in legs. The choice of outboards was simple: mainly to be able to get the best power to weight ratio, and to keep the working cockpit low and clear. Outboards also allow for a quicker turn around if one were to die. Plus the price differential between petrol and diesel in Canada is minimal, with petrol or gasoline tracking lower than diesel.

Breather snorkels draw air from inside the transom

lockers to supply dry, cool air to the two outboards. A strong, fully fenced boarding platform is mounted between the motors that not only allows ease of access for servicing and running repairs, it doubles for diver recovery, and for when working astern.

From the cockpit, the davit and side-scan sonar transducer pod dominate the starboard side. The sonar transducer pod is a masterpiece of engineering, able to be easily moved from stowed, to deployed position by one man. It also doubles as a normal lifting davit for bottom sampling and the like. Once the transducer pod is deployed it is securely locked into a supporting bracket and clamped on the lower belting, meaning the vessel can operate at survey speeds of up to 12 knots.

The primary survey tool is an R2sonic multi-beam connected to an Applanix wave master POSMV system. This provides heading and position, yaw, pitch and roll information. The back up for this is a Trimble hemisphere DGPS and a Maretron compass that can supply information to the boat if the equipment had to be removed for other jobs. The navigation system is a toughbook computer running MaxSea that interfaces with a 12 inch Navnet 3D system. There is a Vartech

military grade monitor overhead that connects to the computer as a third viewing screen.

Having the boat set up like this allows the operator to be able to make sure that the survey computer and the boat read the same positioning and heading data. This gives continuity to the two platforms, making sure that the boat and survey equipment know where they are in relation to the world around them, and that the skipper follows the appropriate survey lines set out by the survey computer operator. Another point of interest is that they are able to import waypoints and routes through MaxSea into the Navnet 3D via excel worksheets. They can transfer entire survey grids and run them through the autopilot. Although this concept will take time to truly perfect it is nevertheless advancing technology. We have more on the electronics later.

Back in the cockpit, the rest of the work deck is clear and functional. There are dive bottle racks and built in self-draining stowage trays for 'handy bits'. A built-in auxiliary outboard motor bracket for the tender motor is fitted to port. We note that all the fuel points have sturdy locking caps over the filler caps.

Moving for'ard to port is the external head and shower compartment and note: it is fully heated! To starboard, fully enclosed in its protective housing along with a separate 125 litre diesel tank, is an 8kW Fisher Panda diesel genset that provides power to a Webasto reverse cycle air conditioner, and a stand alone Webasto diesel heater that controls the climate in both the main cabin and the head, as well as providing hot water.

When living in the North Atlantic it is imperative that the head be heated and it took a little bit of convincing for the boat-builders to fully grasp the need for this. If the head is not heated in minus 32 degrees Celsius, when you drop your pants your nether region and cheeks will quickly freeze to the seat. It may not be a pretty sight.

The cabin can be fully closed off and secured. On entering, there is a small galley to starboard with a sink, hot and cold water, and twin electric hob. The electric jug, toaster, fry pan and all the cooking appliances ensure

If the head is not heated in minus 32°, when you drop your pants your nether region will quickly freeze to the seat

the crew are well fed summer and winter. The cabin is lined in Fronrunner fabric for warmth and sound softening, although with the outboards the engine noise is hardly discernable from inside the cabin.

There is a small dinette to port with an added crew and computer position ahead of this at the front. For'ard under the foredeck is a crawl in bunk space, that is quite roomy and light with its own escape hatch above.

The main conning position at the heart of the ►

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The stern view gives an indication of the boat's capabilities



vessel has every electronic aid and survey need close at hand. The main switchboard and distribution panel is low down under the dash panel.

Victor Solomon from ENL in Auckland, says *Knave* has been equipped for precision hydrographic survey work on Canada's rugged marine eastern coast. He says the client knew exactly what he wanted, and that no expense was spared to equip her with double and even triple redundancy built into her electronics package.

Basic navigation capability consists of a Furuno NavNet 3D radar/sounder/chartplotter system, with a grunty 1kW transom-mounted transducer. Additionally, incorporated into this package is a Furuno FA30 Automatic Identification System to alert her to, and identify, those vessels that might be of concern within her operating range. These AIS targets will appear on her radar and/or plotter screens, together with Automatic Radar Plotting Aid targets. A Maretron solid state heading sensor has been included to provide radar course up and north up, target lat/long, and radar/plotter overlay as required. This same sensor also provides heading data to the Furuno NavPilot 711 autopilot. A Maretron Weather Station provides environmental information.

Similarly, as part of the network, there is a Toughbook laptop running the PC based charting program MaxSea Explorer, providing the user with a "second station" for information from and control of the network.

Because much of the area she will be operating in is isolated, the onboard radio communications are an ICOM 504 VHF radio and 802 single sideband, each with appropriate antennas.

Technical survey equipment onboard include a POS MV Wavemaster dynamic positioning and orientation

unit providing data for attitude, heading, heave, position and velocity, and a Hemisphere 131 Differential GPS providing sub-600mm positioning information.

All onboard data is directed through a multiplexer and sources can be selected through a system of rotary switches. By now we can start to see the true depth and capability of this vessel.

While *Knave* is essentially a day boat, the crew will be working long hours and she is fitted with a KAB self-riding helm seat to reduce fatigue on the skipper. From this position the helmsman has excellent all round vision, with only a small area well aft of the beam, blocked by the heads. In saying this, the helmsman can still see all four corners of the vessel and the small blind spot is easily compensated for.

Once underway and clear of the marina and channel restrictions, *Knave* quickly responds to the touch on the twin throttles and quickly registered a top end speed of 42 knots on the GPS. Drop the revs to her most economical service speed of 25 knots and she is consuming 70 litres an hour which gives a working range of 500nm.

Knave is surprisingly nimble at speed and easy to control in the turns. She is easy to manoeuvre, even when turning and berthing within the tight confines of the work pontoon and mangroves. Clearly the distance between the main engines gives the twin-screw manoeuvrability a significant advantage for the Canadian waterways.

She sits comfortably on her purpose built, Canadian approved, triple-axle alloy trailer. Her tow vehicle is a new Ford F550 Super Duty rated to 26,500lbs towing GVM, that connects to the trailer via a fifth wheel and turn table coupling which is quite common in the northern hemisphere, where it is used in preference to the rig feeder coupling. The breaking system and trailer components are all American, supplied by CM Equipment incorporating a Kodiak electric hydraulic breaking system for six stainless steel disc breaks. ■

specifications	Length overall	10.4m
	Hull length	9.0m
	Beam	3.1m
	Construction	5083 marine grade alloy plate
	Displacement (light ship)	5500kg
	Power	2 x 250hp Yamaha 4-stroke
	Petrol	1720 litres
	Diesel	125 litres
	Water	240 litres
	Electronics	ENL
	Designer	Greg Shine
	Builder	Bladerunner Boats Limited
Built to MNZ SSM coastal and Australian 2B offshore		

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