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# TAKITIMU

VIP.S53

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Seating caters for two crew and three pilots

BY MARK BARRATT-BOYES

Weather conditions around Foveaux Strait, the notorious stretch of water between the South Island and Stewart Island, can be treacherous. Winds are predominately from the sou'west to sou'east, with speeds of up to 60 knots and rising. Its port, South Port, in the town of Bluff, also experiences very strong tidal movements, which in turn affect safe manoeuvring within the approaches, harbour channels and berths.

Its access point, South Port New Zealand Ltd (South Port), the southernmost commercial port in New Zealand borders the quaint town of Bluff in the rich, productive province of Southland, which generates about 12 percent of New Zealand's total exports.

The port undertakes its primary operations on 40ha of a major reclamation, Island Harbour, and last year handled nearly 2.1 million tonnes of cargo in four main divisions - processed forestry, containers, cool and cold storage, and dairy.

The aluminium smelter at Tiwai Point dominates the eastern side of Bluff Harbour. It produces about 330,000 tonnes of aluminium per year and is among the top 20 largest smelters in the world. Tiwai Wharf was built to service the smelter, and the 1.2km approach bridge is one of New Zealand's longest.

Because of the commercial operations of the port and the importance of moving ships safely in and out, pilotage is restricted to two hours over slack water, when a number of ships' movements are planned together. Up to three pilots may be carried on the pilot boat at any one time, and it is important

# PILOT BOAT is a speedy ship's guide



that they can be transferred quickly in all but the most extreme conditions.

South Port's existing 14m steel pilot boat, the *Awarua*, has been in service for 30 years. "With a top speed of only nine knots she is not at times sufficient to get to and from the pilot boarding ground when we have multiple ship movements at slack water," says South Port's general manager, Russell Slaughter. "Also, the *Awarua* does not have the layout for best-practice pilot transfer safety features that are incorporated into the replacement pilot boat, the *Takitimu II*."

In July 2005, the port signed a \$1.3 million contract with Stabi-Craft to construct the new *Takitimu II*. The hull had been proven in the Foveaux Strait area, where other boats of a similar design have operated for several years, says Slaughter.

"The deck and wheelhouse layouts were set out from our pilot's evaluation of pilot boats being used at other New Zealand ports, and adjusted to suit the Bluff environment."

*Takitimu II* is built of marine grade aluminium to MSA Workboat 40c structural requirements. Tony Gough designed her, and Marine & Industrial SGS approved the plan and oversaw her construction.

She has an overall length of 16.3m and a beam of 5.1m, and her stern has a platform built as part of the hull about 500mm above the waterline.

Her hull is of hard chine planing form, with twin engines and skeg keels to protect the propellers and rudders. The hull is divided into four watertight compartments, comprising the for'ard collision bulkhead, the for'ard accommodation, the stowage area and the engine room.

Continuous rubber belting around the deck line, along with diagonal alloy sections welded to the ▶

The central helmstation suits pilot transfers as the coxswain can maintain the good vision essential for close-quarters work

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The unique man-overboard recovery system

All who have trialled her have been impressed with her performance and seakeeping abilities, and have not been able to fault her behaviour

radar, aerials, navigation lights and two 24 volt fixed spotlights are mounted on the wheelhouse mast.

Hot air supplied to the window ledge outlets demist the for'ard and side wheelhouse windows, and pantograph wipers on three of the for'ard wheelhouse windows take care of any spray or green water. Electric 230 volt domestic heaters warm the wheelhouse and accommodation during Southland's cold winters.

A wooden chart table is mounted for'ard to port. A binnacle shelf incorporates the engine controls and gauges, the electronics, hydraulic steering, sundry switches and other instruments. As can be imagined, the pilot boat has a comprehensive range of electronic instruments, including a Raymarine combination radar, plotter, GPS and sounder that can be displayed on either of two LCD screens. A Plastimo 135 offshore compass is mounted on a binnacle, and there is also a Raymarine autopilot.

Radio communication is via two Uniden ES VHF radios, which include a public address system, and the crew can entertain themselves during quiet periods with a CD stereo.

The *Takitimu II* is fitted with single-speed, power-assisted hydraulic steering. Steering is either by the wheel in the wheelhouse, or an electric toggle aft by a hydraulic system, with steering pumps on each engine for emergency back-up.

The wheelhouse bench at the starboard aft corner has a Formica top with jarrah cupboard doors and a stainless steel sink with hot and cold water.

The interior of the wheelhouse is a textured Multiflec paint system on exposed aluminium around the window line and on the binnacle shelf. The floors and the cabin walls from the windowsills down are covered in synthetic carpet, and the ceiling is covered in vinyl panels.

On the port rear corner is a head with exposed alloy walls and a plastic Hippilon ceiling. The sink has hot and cold water and there is also a shower and a toilet.

The toilet has saltwater flushing, and waste water is discharged into a plastic sewage tank below the deck fitted with a macerator pump for discharging overboard. Two deck hoses with Camlock hose fittings are run off the Onga pump. To starboard is a locker for wet weather gear and other items.

A veranda extending approximately 600mm back from the toilet wall provides shelter. The main deck is of smooth plate with a non-skid painted surface. Access to the engineroom is down a 600mm x 600mm deck hatch on the after deck, or by soft hatches to port and starboard behind the wheelhouse.

Two high-holding power anchors are carried on board. One is stowed in the bow and the spare on deck. Eighty metres of anchor warp comprising 10mm chain and

hull and inserted with rubber belting, help protect the hull.

The hull and wheelhouse are of bare aluminium that has been acid-washed and coated with Nyalic. The hull is painted below the waterline using the Altex Devoe paint system with antifouling. Four zinc protectors are fitted.

The waterline has a maroon and white boot top and the windows are outlined in black paint. The wheelhouse above the windowsill height is painted orange, and the *Takitimu II*'s name and pilot logo are displayed in plastic stick-on letters.

Access to the wheelhouse is from the rear deck through double aluminium doors with glass top panels. A 30mm-thick coating of foam insulation was sprayed in the roof cavity and cabin sides.

The wheelhouse incorporates a helm position, bench, chart table and a staircase down to the accommodation. There are five sprung seats, two for the crew and three for the pilots, with full suspension and armrests. The helm position is for'ard on the centreline, and the pilot and crew seats are mounted at the sides of the wheelhouse.

Fixed windows at the sides, for'ard and through the angled roof were bonded to fabricated alloy frame recesses in the cabin structure. Two 500mm x 500mm Weaver SLW50 opening skylights mounted in the roof provide more light and ventilation, and double as emergency exits from the wheelhouse.

Four Flexivent air vents on the wheelhouse roof supply non-forced fresh air to ventilate the wheelhouse and stowage areas. Venting to the accommodation is incorporated into the for'ard handrail structure. The



16mm nylon rope is stowed on a hydraulic anchor winch drum made by Gough Bros. It runs off either steering pump and can be operated on deck or at the helm.

Two mooring bollards are mounted aft, and there are four at the sides of the wheelhouse and two more for'ard. Aluminium pipe handrails extend around the wheelhouse, aft around the deck and for'ard around the deck winch and bollards, so there is always something for those on board to hang on to.

A safety track consisting of a second alloy rail is fitted below the handrail around the wheelhouse and for'ard around the deck winch and bollards. There are six safety harnesses and six safety lines, and the crew on deck can hook into eight safety line travellers.

Because of the known hazards of heavy swells and ships rolling onto the pilot and crushing him against the safety rails, the *Takitimu II*'s safety car and carriage rail system are broken for'ard to leave a safety gap in the rail system at the point where the pilot leaps.

The alloy staircase from the wheelhouse leads to the for'ard accommodation, which has contoured upholstered seats for nine around the sides, and a

watertight door in the bulkhead for access to the forepeak. The interior is finished with removable vinyl panels on the ceiling, Multiflec textured paint and synthetic carpet.

Between the for'ard accommodation and the engineroom bulkheads is an extra storage space accessed from the stairway. A watertight door fitted with indicators provides access to the engineroom, which is insulated with 8kg Soundsorber glued in panels under the deck, at the ship's sides and on the for'ard bulkhead. An inert gas manual system operated from the stowage area protects the engineroom, and she also carries two 5kg carbon dioxide fire extinguishers.

Bilge alarms incorporating an engine-driven clutched Jabsco pump and a 230 volt Onga pump are fitted in each compartment. She carries 3000 litres of fuel in two tanks built into the hull, and 300 litres of fresh water.

The *Takitimu II*'s two MTU Series 60 engines are fitted with Twin Disc MG 5114A gearboxes with a 1.92:1 reduction, turning two SAF 2205 stainless steel propeller shafts to two bronze propellers made by ▶

*Takitimu II* shows her underwater configuration with twin skegs

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The engine room is busy but well laid out

Gough Brothers. The two rudders have galvanised steel blades and stainless steel shafts. A Jesco hydraulic ram with a tie bar is fitted between the rudders.

The engines are fitted with dual controls but are started from the wheelhouse helm. Among the numerous options fitted are a power steering pump drive, a stainless steel exhaust outlet, raw water mixers and four flexible engine mounts. The wet exhaust system has outlets on the aft corners of the vessel at the port and starboard waterline level.

“The *Takitimu II*’s initial performance during commissioning and sea trials impressed us,” says Slaughter. “She has a top speed of 22 knots when fully loaded, and she is dry and comfortable at her operating speed of 18 knots.”

A 9kW Kohler single-phase genset provides the electric power. There is a 24 volt electrical system with switchboard and isolation switches, and two battery banks, one for the main engine, the other for lighting. Provision has been made to charge all the batteries off an alternator, and for joining the battery banks together. One change that has been made since her launch is that the alternators have been upgraded to give a great charge at lower revs.

All internal areas, including under the veranda,

are lit with 24 volt lights, and there are 10 230 volt lights to the wheelhouse, the accommodation and the engineroom, plus one 230 volt, 1kW deck floodlight, and 230 volt power outlets in the wheelhouse, engineroom and accommodation.

Lifesaving equipment is a vital part of a pilot boat, and the *Takitimu II* carries two eight-man liferafts, three life rings, three hand-held distress rockets, 10 lifejackets and a 406 emergency locator beacon. Should anyone go overboard, a special recovery system fitted to the stern boarding platform can be raised or lowered hydraulically from the aft control station.

During sea trials and crew training, the *Takitimu II* was tested in a wide range of conditions to see how she performed. “As a sea boat she performs very well,” says one of her skippers, Laurie Christensen. “All who have trialled her have been impressed with her performance and seakeeping abilities, and have not been able to fault her behaviour to date.”

As Bluff is only a small town, many experienced local seafarers were invited to check *Takitimu II* during her trials and make comments. According to Christensen, all of them have been impressed with her onboard comfort and manoeuvrability in all conditions. Pilots and launchmasters have now experienced the pilot boat in a wide range of sea states and weather ranging from calm to “bloody rough”, and all pilot transfers have been carried out safely.

As one master reported, “a 30 knot sou’easter versus an ebb tide always makes for interesting times, and at 24 knots in all directions we could not find a weak spot.”

specifications	Length overall	16.3m
	Beam (moulded)	5.1m
	Draft	1.4m
	Fuel	3000 litres
	Fresh water	300 litres
	Engines	2 x MTU Series 60
	Power	2 x 600bhp @ 2100rpm
	Gearboxes	2 x Twin Disc MG 5114A, 1.92:1
	Genset	Kohler 9kW, single phase
	Maximum speed	24.5 knots @ 2000rpm
Cruising speed	16 knots	

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Stock plans available. Construction and supervision arranged if required.

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