

Power*news* MAGAZINE

A PUBLICATION OF POWER EQUIPMENT: AUSTRALIA, NEW ZEALAND & THE SOUTH PACIFIC

DIESEL OUTBOARDS

POWERFUL
RELIABLE
BUILT TO
WORK HARD



POWERED
BtB MARINE
INDIGO
PROJECT
ULR750



INNOVATIVE REPOWER OF
CATAMARAN X-IT
POWERED BY DTORQUE

PAGE 4



CLASSIC HALVORSEN
'PALMYRA' ENTERS
21ST CENTURY

PAGE 14



YANMAR POWERED
POLYFORCE 500
EXPORT QUALITY

PAGE 20



YANMAR

PURE. RELIABLE. POWER.

Power when you need it, even in the most demanding environments



A world leader in agricultural equipment for over 100 years, continued desire for innovation brings you reliable, powerful and clean running generators available today.



For more information contact
Power Equipment Pty Ltd:

email: info@powerequipment.com.au
web: www.powerequipment.com.au
phone: 1800 069 469

Contents

- 03 **Evolutionary change** to see a new era at Power Equipment
- 04 Catamaran set to be **'torque' of the town** after repower installation of dual Dtorque diesel outboards
- 07 Indigo Project a **true game changer** in cost effective long range commercial boats
- 10 Akuna shows **'the way forward'** in boat repowers
- 12 **Adventurous Explore Group** discovers no better alternative to the proven reliability of **Yanmar**
- 14 Halvorsen 48 refit brings **21st century power** to a 1970s classic
- 18 Luhrs 37 repower **helps man & machine** in ultimate fish battles
- 20 What do you get when you cross a Golden Retriever with a Power Equipment showroom?... **A great partnership**
- 24 "Nothing runs like a..." **John Deere** refit set to turn heads in Australian market for vessel repower
- 26 *Spirit of Migaloo II* – **Yanmar and Aluminium Marine** prove sometimes smaller is better
- 28 **Yanmar** powered vessel will help investigate sustainable fisheries options for Mauritius
- 30 Sailing adventures near & far made easy with **Yanmar, GORI Propeller** combination
- 32 Oracle expedition vessel repowered for the **serious job of retirement** off Western Australia
- 34 Introducing the **Bridgeford Group**
- 36 **Yanmar** powered 3TNV automatic water pump system
- 37 Aussie Pumps **Yanmar** powered **Fire Chief Pump** to support mobile fire fighting unit
- 38 Congratulations to the winners of the Yanmar, Power Equipment **2019 National Marine Dealer of the Year**
- 40 Power Equipment welcomes **Rod Melrose** to the role of Service Support Engineer based at Lynbrook



Powernews is produced
and distributed by
Power Equipment Pty Ltd,
Australia

HEAD OFFICE

Marine & Industrial
Phone (03) 9709 8500
Fax (03) 9709 8544

General Enquiries:

1800 069 469

NSW SALES

Industrial: 0409 531 537
Marine: 0409 127 121 / (02) 8522 8900

QLD OFFICE

Marine & Industrial
Phone (07) 5644 9600
Fax (07) 5644 9644

WA/NT OFFICE

Marine & Industrial
Phone (08) 9435 2700
Fax: (08) 9435 2777

Power Equipment Ltd NZ

Marine & Industrial
Phone +64 (9) 3582 050
Fax: +64 (9) 3580 285

www.powerequipment.com.au
info@powerequipment.com.au



**A LEAP FORWARD
IN OUTBOARD
ENGINEERING**



THE FIRST TURBO DIESEL OUTBOARD

WITH DUAL CRANKSHAFT AND COMMON-RAIL FUEL INJECTION

The NEANDER Dtorque Turbo Diesel sets a new benchmark in diesel engineering, especially for outboard motors. Its 800cm³ twin cylinder, aluminium powerhead delivers a lusty 50hp at the propeller shaft.

But what's more remarkable is its torque output. Peaking at 111Nm at 2,500rpm, that's more than the best-performing 70hp 4-valve technology electronic fuel injected four-stroke gasoline outboards on the market today.



Common-rail fuel injection – greater performance, fuel savings and lower emissions.

Lower operating costs, increased travel range and the dependability of diesel fuel.



Dual counter-rotating crankshafts in powerhead reduce noise and vibration.



Distributed by **Yanmar** with the advantages of global technical excellence in marine diesel engineering and well-established distribution network.



For more information contact
Power Equipment Pty Ltd:

email: info@powerequipment.com.au
web: www.powerequipment.com.au
phone: 1800 069 469



Evolutionary change to see a new era at Power Equipment

It is often at critical points in life that change seems to be an appropriate action to take. Power Equipment would like to firstly acknowledge the tremendous contribution and commitment of Allan Foster who has announced that after almost thirty years as Managing Director of Power Equipment, he has decided to designate his son Luke as the next person to assume the responsibility for running the business.

Effective the 1st July 2020; at the commencement of the new financial year, Luke Foster has assumed the position of Chief Executive Officer of Power Equipment, proudly following in the footsteps of his father.

Upon reflection of the current circumstances and the COVID-19 environment we find ourselves in today, Allan – who has recently recovered from a few health scares – has had plenty of time in isolation at home to contemplate how he envisaged the next stage of the business and his own life. This in combination with the plans already implemented to ensure the company transitioned through the virus-induced recession led him to decide that, while not ideal, it would be an appropriate time to complete the final act of the phased transition process which has been going on over the last seven years.

Luke in his current role of General Manager has been running the company for an extended period and has shown himself to be more than capable of fulfilling this role in a permanent capacity. Reassured that the company he built up over many years was in capable hands convinced Allan that it would be appropriate to complete the final phase of the transition. "I felt it timely to formally pass the baton, and let Luke and our marvellous Team, write future Chapters of the Company's rich history," explained Allan.

Ironically, Allan started the fledgeling business of Power Equipment during the Paul Keating inspired "recession that we had to have" of the 1990s. Allan describes how it was made clear to him at the time that it was a less than ideal time to start a business. But adversity builds great character and with a knowledgeable ear at his side to lend advice, Allan is confident that this opportunity will enable Luke to become a greater leader of the business and fulfil his true potential.

Not to be lost to the company Allan will be assuming the role of Chairman of Power Equipment and will focus on assisting both Luke and the management team in an advisory capacity. In this new role he will evaluate their ideas and share the many experiences – and the events that enriched his own wisdom – and will remain a valuable resource to the company.

While it is a sad day for Power Equipment to lose its founder, we would like to acknowledge the tremendous contribution that Allan Foster has made to the lives of all past and present employees of Power Equipment and wish him well in his semi-retirement. Initially, as a distributor of Yanmar, Power Equipment has grown to be the leading Australian distributor of marine and industrial diesel engines and now supports numerous brands.

We hope you join us in congratulating both Allan and Luke on their career achievements and we look forward to the continued development of Power Equipment under Luke's stewardship.

**Allan Foster (Chairman)
& Luke Foster (CEO)**

Power Equipment Pty Ltd

Australian, New Zealand and South Pacific Distributor for these leading brands



POWER EQUIPMENT PTY LTD
ABN 97 005 866 642

10-12 Commercial Drive
Lynbrook, Victoria 3975, Australia
t: 03 9709 8500 f: 03 9709 8544

info@powerequipment.com.au
www.powerequipment.com.au

Catamaran set to become 'TORQUE' of the town after repower installation

An innovative approach to installing two new diesel Dtorque outboards into a 52 foot Hitchhiker sailing catamaran has given owner Ilan Sebban peace of mind and a better vessel under power and sail.

At its mooring on Sydney Harbour, 52 foot Hitchhiker catamaran SV X-IT is tethered with a crouched presence that is really only afforded the kind of sailing vessels that look fast even when the sails are packed away.

Wide beam (close to 33 feet), low hull profile and almost spacecraft-like bridge deck structure bely a fabulous diesel secret weapon amidships, made even more effective through an innovative re-think in fitting.

Unless you are looking closely down the hull tunnel though, the casual observer would be unaware of how cleverly a re-power with two new Dtorque 111 diesel outboards has been applied on this very ocean-capable sailing machine.

Sydney-based owner Ilan Sebban matter-of-factly explains the cat's return sail from its recent Ballina Slipways refit saw it hit close to 19 knots on multiple sections of the trip and averaged 9.5 knots all up under sail.

It was the performance of his new Dtorque diesel outboards that also delivered some impressive numbers too.

"We managed just over 10 knots on the sea trials and did a similar speed under motor on open waters too – I'm incredibly happy with the performance," Ilan says.

Dtorques prove their name and claims

Just consider those on-water speeds under power for a moment. The twin-cylinder Dtorques, distributed in Australia and New Zealand by Power Equipment, are the world's smallest diesel outboard with common rail injection and deliver 50 horsepower at the propeller shaft.

X-IT's previous petrol outboard combination, mounted in the cockpit area of the vessel, were a pair of 60 horsepower outboards.

"There was constantly a smell of petrol about the cockpit area with the old outboards, and unfortunately just too many failures," Ilan explained.

"And while I like to think of myself as a sailing 'purist', so to speak, I'm well aware of the

importance of good, reliable engines on board a vessel like mine," he said.

Nowhere was this better brought home for Ilan than during a return journey from Lord Howe Island a couple of years back when a 10-plus metre storm swell made things more than a bit interesting for Ilan and his crew.

"We ended up under engines, pretty much full throttle for nearly six hours just to keep the boat into a sea that was trying to get the better of us," he said, "and nothing hit home for me more that there are times when good engines aren't just a convenience, they are a necessity".

The Dtorque decision was no quick one, with Ballina Slipways shipwright Michael Cocks and Ilan mapping out the refit for X-IT over nearly two years.

X-IT has been kept very simple in terms of its onboard systems and conveniences – with deliberate intention.

"There is no generator onboard, no air conditioning. It is a minimalist vessel which means less things to go wrong when you are at sea," Ilan says.

Along with the obvious safety of using a less volatile fuel, the impressive 111Nm of torque delivered by the Neander-engineered outboards was key.

Diesel inboards were not a preference for Ilan due to sailing hull compromises from running gear, and electric propulsion was simply not realistic in terms of longer-distance cruising.

Michael Cocks of Ballina Slipways says of the Dtorque installation; "Ilan was having issues with the cockpit-mounted outboards with salt ingress and other issues, so we looked at an inside mid-hull position and made that work."

Understanding Ilan's vision and needs for X-IT, Michael was not afraid to take on what is quite a radical installation of outboard power on a larger sailing catamaran.

Sea-breaking pods have been designed and fabricated in front of each outboard position, while jacking plates allow both proper water entry for the outboard legs and full retraction away from the splash whilst under sail.

"The stern will usually bury to some extent with outboards to the rear and this midships installation has made the whole boat sit better in the water," Michael explained.

"The close-quarter handling was very good, with all that torque no doubt helpful and the vessel responded well under power. We're very happy with the outcome," he said.

Michael also praised a notable lack of vibration under power from the Dtorques – no doubt helped by the 804cc engine's dual counter-rotating crankshaft design. He was also impressed by running temperatures of the engines during sea trials that never went above around 40 degrees Celcius regardless of revs.

"It's nice to see smooth, cool-running engines like that," Michael said.

Advantages shine in a smooth-running diesel

With its remarkable torque output (peaking at 111 Nm @ 2,500rpm), these engines offer exceptional capability when powering heavy loads.

While being built for speed under sail and minimalist equipment onboard has kept X-IT's displacement to around 9 tonnes, the Dtorques' 50 horsepower output has pushed the hull at up to 10.5 knots during sea trials, (by comparison, the previous 60 horsepower petrol outboards struggled to achieve 6.5 knots at WOT).

Torque performance even surpasses the class-leading 70 horsepower petrol alternative, yet engineers claim a fuel burn of less than 12 litres per hour even under WOT. Considering a similar horsepower petrol engine would use close to twice that amount of fuel at full throttle, it is easy to see where the Dtorques start to show their true worth.

With an aluminium block and the smoothness of the counter-rotating crankshafts, the Dtorques have an expected service life in excess of 10,000 hours – nearly doubling that expected from a similar petrol-powered outboard.

A modern classic of the larger recreational multi-hulls, SV X-IT was the last built by the founder of Hitchhiker designs, John Hitch in around 2005.

Primarily a labour of love for Ilan, (and part obsession by his own admission), since buying it from John some six years ago, the Dtorque installation and other improvements to the boat under Michael Cock's direction has completed what he calls his "ultimate passion".

"Michael is right, the midships installation of the Dtorques has definitely balanced the boat



Dtorque mounted mid-hull upon hydraulic plates within sea-breaking pods

better and I believe the boat tracks better in this configuration, particularly with downwind sailing," he said.

You could be forgiven for thinking Ilan was a decades-long sailor in experience when he talks of his on-water enthusiasm and somewhat radical improvements for X-IT. He has two Tasman crossings, multiple offshore adventures, Sydney to Hobart and Lord Howe trips under his belt, but the reality of his offshore experience is far different.

"I was actually born in the middle of France. I had some power boats over the years but only have six years total in sailing experience," Ilan explains.

"I just get such a thrill when I am out at sea – the further out the better," he says, "I have rung my wife on occasions when I am out there and said 'you should see the stars out here at night! It's amazing!'"

"It's my intention to sail her to Cape Town next year some time if all goes to plan."

Such is the enthusiasm of the sailing enthusiast, especially with the backup of some reliable and capable diesel power onboard.

Whatever the adventures for Ilan and X-IT, his Dtorques will no doubt be trusty partners whenever and wherever they are called upon.



Ballina Slipways shipwright, Michael Cocks with one of the brand new Dtorque 111 Nm diesel outboard engines



POWER PROFILE

Application:	Sailing Catamaran
Vessel Construction:	GRP, custom build
Vessel Name:	SV X-IT
Length (LWL/LOA):	16.25m
Weight:	9 Tonne loaded
Engine Model:	Dtorque111 - 25"
Engine Power Rating:	50hp
Gear Ratio Model:	2.07
Cruise Speed:	8 knots
Top Speed:	11 knots
Propeller Size:	D14 x P11 N3
Repower Installation:	Ballina Slipway





EFFICIENCY, ENDURANCE, POWER AND CONTROL



The OXE is the world's first high-performance diesel outboard. It combines the reliability and endurance of marine inboards with the flexibility and agility of outboard engines.

OXE are the only outboards that complies with EPA Tier-3, IMO Tier II and RCD emissions and environmental standards. OXE Diesel engines are designed and built for commercial users according to commercial demands.

Available in 125, 150, 175, 200 and 300 HP diesel outboard configurations

FEATURES

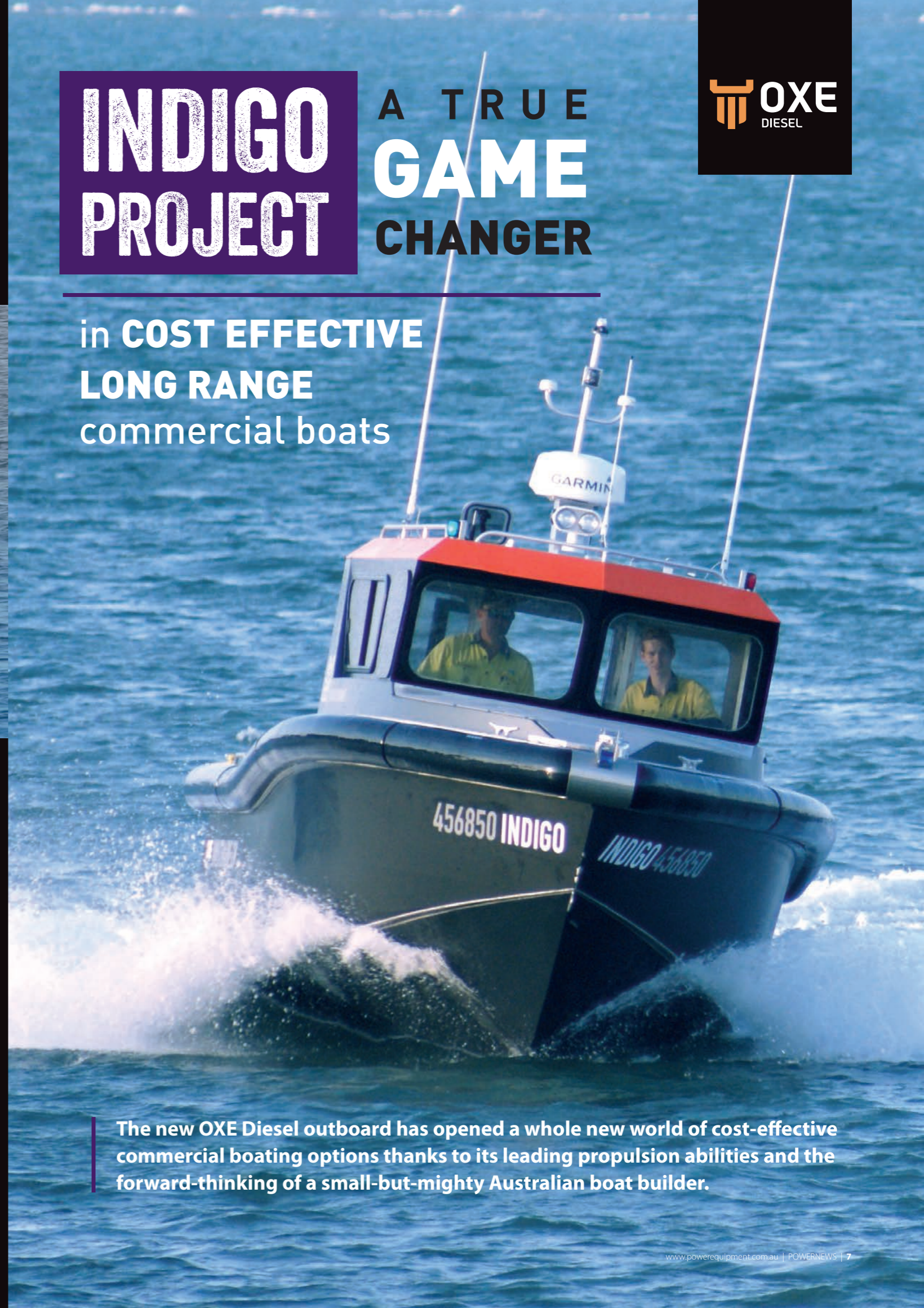
- Power & Safety of Diesel
- Low emissions
- Low fuel consumption
- Quick shifting
- Low speed control
- Joystick capability
- CAN based helm control system
- Dual helm capability
- Robust modular design
- Low drag propulsion housing
- Long service interval

OXE 300 HP AVAILABLE TO ORDER

**INDIGO
PROJECT**

**A TRUE
GAME
CHANGER**

in **COST EFFECTIVE
LONG RANGE**
commercial boats



The new OXE Diesel outboard has opened a whole new world of cost-effective commercial boating options thanks to its leading propulsion abilities and the forward-thinking of a small-but-mighty Australian boat builder.

A Queensland-based boat builder is revolutionising the world of commercial boating in utilising the inherent features of OXE Diesel outboards and maritime experience.

BtB Marine, based in Queensland’s picturesque Hervey Bay adjacent to the famous Sandy Straits waterways and World Heritage-listed Fraser Island, is looking to literally change the world of long-range work vessels with its new 750ULR “Indigo Project” – a concept made possible through the incredible new 200 horsepower OXE Diesel outboard.

The OXE Diesel is the only outboard built purely with commercial users in mind, and delivers unbeatable advantages in torque and maintenance over petrol horsepower rivals across its entire range.

Chris Hough (BtB Marine’s general manager) and his wife Eva (BtB Marine’s managing director) became aware of the OXE Diesel platform back in 2015, and it became the brainchild for development of an entirely new and cheaper-to-operate long-range work boat – the 750ULR.

“BtB has always come from a philosophy of looking at better ways to build cost-effective vessels,” said BtB Marine’s Chris Hough.

From this thinking came the 750ULR (Ultra Long Range), a 7.5 metre long, 3.14 metre beam plate aluminium work vessel with enclosed crew cab forward and massive 800 litre fuel tank.

With 6mm plate bottom and 4mm sides, the 750ULR can be trailered and easily dry-docked, creating a raft of cost-effective vessel operating options for commercial applications.

Called the “Indigo Project” by BtB Marine, the 750ULR is an impressive machine underway, has good stability (thanks to a 3+ metre beam) and commands significant presence for her length off water. In comparison to working vessels of equivalent carrying capacity and range the 750ULR is a much smaller and lower-cost vessel with nimble multipurpose functionality.

The design features a comfortable, wide bunk, flushing toilet and running water, completely isolated for the comfort of the crew and has already won a leading marine industry award for its commercial application.

Its possible applications include port security, border patrol, reconnaissance and hydrographic missions, with “hull-up” design tweaks possible depending on the role required for the vessel.

“The 750ULR design with the OXE Diesel is a boat that can deliver a range of work, patrol and transfer operations cost-effectively, both with its initial cost and operating costs,” Chris explained.

“AMSA survey requirements permit just a single engine in diesel fuel format so that brings costs down significantly for this vessel in terms of initial setup and maintenance.”

“We see environmental issues as being more important than ever, and feel that small vessels lend themselves to these many and varied roles particularly well, from environmental impact studies before approvals are granted for a project, to the ongoing management and research of the worlds’ natural assets,” says Chris.

OXE Diesel’s credentials have good synergy in this approach, with the outboards achieving EPA Tier-III, IMO Tier II and RCD international emissions and environmental standards.

Commercial focus on power, reliability and functionality

With a common-rail turbo charged engine, the OXE Diesel will happily run on a variety of oil-based fuel types including EN 590, ASTM D 975 No. 1 and No. 2, JIS KK 2204 and conforms to the



Easily transported upon a tandem trailer the 750ULR can be relocated to wherever it is required



Large enclosed cabin has additional room for storage if required. Crew cabin with bunk, toilet and running water provides comfort for the crew.



The setup is much better on these outboards – we were particularly impressed with the engineering that has gone into the leg of the OXE.”

Chris Hough – BtB Marine

NATO single fuel directive F54 and F75 grade fuels.

It is the torque delivered to the propeller that truly makes the OXE Diesel stand head and shoulders above the rest however, with an impressive 415Nm of torque from the 200hp engine and an incredible near 900Nm at the propeller shaft from its high torque gear ratio off its drive belt.

Torque peaks are reached at just over 2000rpm on the engine, accounting for a feeling of effortless grunt.

The OXE Diesel’s drive belt (running from the powerhead down the length of the outboard’s leg) is one of the torque delivery “secret weapons” of its design, and also caters for greater resilience in service, replacement and crash-stop survivability of the gearbox.

Considering a WOT fuel consumption of around 45 litres per hour, (a petrol horsepower rival is easily in the low to mid-70s), the range capabilities of the 750ULR with 800 litres of diesel onboard are unbeatable. It is estimated BtB Marine’s new workboat will easily achieve a 600NM range with the OXE Diesel in the vessel’s standard application.

Chris likes the proven engine platform and its 200 hour service regime – double that of a typical petrol outboard.

“What impressed us most was the fact that it is a proven engine based on a high-volume production diesel motor.”

Serviceability is a standout of the OXE Diesel too, with all daily check points and filters easily accessible towards the front of the outboard with the cowl off. Uniquely, the raw water impellor (and strainer) are also accessible and easily serviced on the front of the engine – a far superior maintenance option to traditional leg disassembly required on outboards.

“The first thing you notice is how easy the OXE Diesel pushes this boat – it’s actually not a lot of horsepower (200hp) on this much boat.”

The 750ULR comes in at around 2.5 tonnes dry – but when you add over 800litres of fuel, 500kg of deck capacity and seven crew, the Indigo Project is no featherweight plate alloy work platform.

With her single 200hp OXE Diesel she clocked a WOT speed of 28 knots in sea trials and a healthy 20 knots at economical revs of 3200rpm delivering 1.3 NM per litre of fuel.

“The other surprise is that you don’t hear the motor working hard, it is effortless across its rev range”.

Expecting a diesel outboard to be a noisy machine, Chris was pleasantly surprised with the on-water tests of the OXE Diesel.

“It is a very quiet motor for its horsepower and the fly-by-wire controls makes it an easy engine to control of course.

“When we did some testing with the OXE Diesel, sitting beside it with sound testing equipment at 4,000rpm gave a reading of around 87 decibels.

“The setup is much better on these outboards – we were particularly impressed with the engineering that has gone into the leg of the OXE.

“You simply wouldn’t believe the robustness of the gearbox on these things.

“From talking to the guys that developed the OXE over in Sweden, they told us that one of the primary focus points in the development of the OXE Diesel was ‘how do we get all the power and torque down the leg and to the prop best’ - and they have certainly done that.”

Chris went to sea when he was fifteen, and both he and his wife Eva share significant commercial skippering experience – the kind of experience that has given them the foresight to develop the 750ULR/OXE Diesel combination.

BtB Marine and OXE Diesels - another Australian boating industry success story thanks to the help and expertise of Power Equipment and the products it supports.



POWER PROFILE

Application:	Port authority, survey, inspection
Vessel Construction:	BtB Marine
Vessel Name:	Indigo #456850
Vessel Owner:	BtB Marine
Length (LWL/LOA):	7.535m
Weight:	4.1 Tonne loaded
Engine Model:	OXE200-33”
Engine Power Rating:	200hp
Gear Ratio Model:	High speed 1.73
Electronic Control Type:	Sea star
Top Speed:	30 knots
Propeller Size:	D15-3/4 x P15 N3



AKUNA

shows “the way forward” in boat repowers

Yanmar’s popular 4LHA turbo-diesels have ensured a yacht club start/rescue boat can give the durable support expected while using a fraction of the fuel compared to its original engine setup.

It is perhaps a sign of providence that the Townsville Yacht Club named its 7.9 metre Ozycat start/rescue boat *Akuna*, an Aboriginal word that translates to “flowing water” and “the way forward”.

The boat was purchased in 2016, but a repower in 2019 with ever-reliable 4LHA-STZP Yanmar/Bravo sterndrive packages has helped deliver a dependable and fuel-efficient support vessel for the club into the future.

“We wanted a safe, comfortable platform primarily for running day races and other events,” explained Townsville Yacht Club (TYC) member and commercial skipper Mick Malone.

“It is a boat that will usually be handled by the delegated club officer of the day during race events, but can also be used as a rescue or retrieval vessel to tow a stricken yacht home.”

Power Equipment supplied the Townsville Yacht Club its 4LHA-STZP engine packages with the heavy duty Mercruiser Bravo 2X sterndrive incorporating a large diameter single three-blade aluminium propeller.

They replaced European-branded V8 petrol engines and legs that were not only costing a lot to run at the petrol bowser, but were proving unreliable and expensive to maintain.

The Yanmar repower into the TYC’s support cat is yet another perfect example of just how versatile the 4LHA engine can be for both for catamarans and monohulls. Its compact size and sterndrive, shaft and waterjet configurations have made it an option for literally hundreds of new and repower applications in both production and custom hulls in the Australian and New Zealand markets.

Mick Malone is an experienced commercial skipper, captaining port tug boats for many years and offering other skippering services. He was keen to recommend the Yanmar conversion for the Townsville Yacht Club’s boat, given he runs similar engines in his own live-aboard catamaran.

The 240mhp @ 3,300rpm rated Yanmar 4LHA-STZP engines aren’t just built to last – they are also relatively light weight and easy to service – another helpful advantage for a club boat.

A world-class power-to-weight ratio direct injection turbo diesel engine, (the engine itself weighs in at just under 390kg), contrary to traditional diesel running the 4LHA is also a low smoke and low vibration engine at both idle and acceleration.

With more than 80 hours clocked up on the Yanmars since their installation in *Akuna*, fuel consumption hasn’t been the only advantage to the club.

Fuel consumption “more than halved” after Yanmar installation

“We have at least halved our fuel consumption easily with these engines,” estimates Mick, “and of course we have the reliability and confidence of new engines which is nice.”

With a displacement of 3.455 litres, the 4LHA uses a turbocharger with a waste gate boost compensator to improve acceleration performance.

Despite a reluctance among many to use a four-cylinder diesel due to high vibration levels being inherent with some brands, the Yanmar 4LHA series does not share such annoying traits. The lively performance of this engine has always impressed users with its smooth operation right across its rpm range and no-fuss simplicity.



An astute choice of engine repower has provided the Townsville Yacht Club with assurance that their support vessel will be there when they need it and not a burden on their finances

Output from this four-cylinder diesel is evident in propeller power right through its power curve. However even at 3,000rpm (just a few hundred revs under its maximum-rated running revs) the 4LHA consumes less than 40 litres/hour of fuel.

With a continuous power rating of 190mhp @ 3,100rpm, the advantages of this Yanmar package become even more evident, particularly for the possible tasks of *Akuna* in its club duties.

“The boat can be used as a support vessel for overnight events out towards nearby islands (up to 45 nautical miles away) or beyond, so there

will be times it will be required for longer hauls,” explained Mick.

So while *Akuna*’s 4LHA power curve can give speed if required, a torque peak in the mid-to-high 2,000rpms range delivers very efficient running (a little over the mid-20’s litres/hour per engine) if a long range tow or event support run over longer distances is required.

In all, a winning combination that will no doubt serve the Townsville Yacht Club well – and serious food for thought amongst those looking for the smartest “way forward” in their own new or used boat power needs.



POWER PROFILE

Application:	Light Duty Commercial
Vessel Construction:	Fibreglass
Vessel Name:	AKUNA
Length (LWL/LOA):	7.9M (26') LOA
Weight:	4,500 KGS (approx)
Engine Model:	Yanmar 4LHA-STZP
Engine Power Rating:	177kW (240mhp)@3300 RPM
Drive Configuration:	Sterndrive x2
Gear Ratio Model:	1.81:1/Mercruiser Bravo 2X
Electronic Control Type:	N/A
Cruise Speed:	24 -26 Knots
Top Speed:	32 Knots
Propeller Size:	17.5"x23"x3 Bravo 2X
Repower Installation:	Belcher Diesel Service



We have at least halved our fuel consumption easily with these engines,” estimates Mick, “and of course we have the reliability and confidence of new engines which is nice.”

Mick Malone – Commercial skipper



ADVENTUROUS EXPLORE GROUP



discovers no better alternative to
the proven reliability of
YANMAR

The latest high-speed catamaran built for the Explore Group is set to raise the standard in vessels for quality dive trips and dining cruise experiences. Having one of the best boats in this segment of the tour market meant having the best marine propulsion.

Yanmars have been fitted to the Explore Group's latest luxury fleet addition to be operated out of Hamilton Island on the Great Barrier Reef.

The recently launched MV *Ocean Explorer* is the biggest of Explore Group's Hamilton Island-based fleet, with the company's owner demanding Yanmars for the impressive 27 metre vessel.

The Yanmar decision for main engines is no small testament, given the Explore Group operates around 15 vessels in Australia and New Zealand, becoming one of the most successful new cruise, sail and dive boat operators in the region over the last 20 years.

There were no arguments from Guy Obren of Wildcat Marine about the Yanmar decision after taking on the contract to have *Ocean Explorer* built.

"We have had a good run with the Yanmar product," explained Guy – a man with more commercial boat experience than many in Australia and New Zealand.

"As boat builders we quite like the product and I have used Yanmars in multiple new builds and refurbishments with good results."

Yanmar 6AYM-WGT L rating commercial engines were chosen to propel the magnificent *Ocean Explorer*.

A proven performer across many commercial boating applications, the 6AYM series Yanmars

are a 20.3 litre, six cylinder in-line engine with a low-revving long-stroke (180mm) cylinder.

Along with practically unrivalled reliability and fuel efficiency for their class of engine, the 6AYM delivers relatively clean power output via Yanmar engineering.

Environmentally sensitive areas such as the Great Barrier Reef deserve clean running engines. It will be pleasing to know for *Ocean Explorer*'s owners, crew and guests then that applications within the 6AYM Yanmars such as internal exhaust gas recirculation (EGR) and multiple, micro-sized holes in newly designed injectors (creating a finer, more efficient fuel mist) ensure an IMO Tier II emissions standard engine.

This Increased fuel burn efficiency means less smoke and cleaner running will be evident underway each day, both at lower engine speeds or under higher loads.

"With this build, we did not have to encourage the owner to go Yanmar because he has had good results from Yanmar engines himself within his existing fleet."

Wildcat Marine contracted Queensland-based Commercial Marine Australia for the One2Three-designed build and fit out, with impressive finished results.

Quality horsepower for luxury cruise experience

With a nine metre beam and unloaded displacement over 62 tonnes, conventional fixed-propeller and shaft running gear deliver a comfortable cruise speed of 21 knots with the 6AYM-WGT engines (670kW/911 mhp @ 1938rpm). A top speed of around 23.5 knots was achieved in a simulated full-weight loaded test (with an addition of around nine tonnes of load, plus some 5,000 litres of fuel and 2,000 litres of fresh water).

"Being a three-level vessel and having that beam, there is extra weight," Guy says.

While Guy concedes the boat is certainly not overpowered, for her daily commercial duties a 21-knot cruise at an expected 260 to 270 litres of diesel per hour (combined) is sweet efficiency for any vessel of this size and load.

Typical usage will see around a 50/50 split between higher speed running and slow cruising, with around a 1.5 hour run to the reef

They are heavy duty, commercial-grade engines, but it is unbelievable just how smooth they are, but of course, they are pretty much built to last forever, and smooth running is always part of that."

Guy Obren – Wildcat Marine



The bridge is equipped with state-of-the-art systems that puts every operating system at the skipper's fingertips and reflects the quality appointments throughout the vessel

for the dive trips and low speed running for dinner cruises and other usage.

The 6AYM-WGTs were ordered with Yanmar's deep sump option, allowing a 500-hour service regime that will help keep *Ocean Explorer* spending more of her hours showing off her luxury fittings to guests rather than in servicing downtime.

"They are heavy duty, commercial-grade engines, but it is unbelievable just how smooth they are," says Guy, "But of course, they are pretty much built to last forever, and smooth running is always part of that."

A smooth delivery of power is no doubt also thanks to a quality fit out by Commercial Marine Australia whose work in fitting the Yanmars included perfectly matched custom exhausts.

"The new engine mounts we are using (that are recommended by Yanmar) are really good quality also and help deliver a smooth-running vessel," explained Guy.

Ocean Explorer to showcase the reef and tropical evenings in style

Similar to the innovation and practical thinking that goes into her Yanmar engines, *Ocean Explorer* will deliver a clever dual-purpose luxury experience out of Hamilton Island.

By day she is designed as a top-end dive tour vessel on the Great Barrier Reef, while a quick one-hour turnaround in the afternoon will see her carrying a dinner cruise at night.

Ocean Explorer enjoys a quality of fittings and finish more reflective of a private pleasure craft than commercial cruising vessel.

Hydraulics can position a full-beam stadium-style water entry at the stern of the vessel (complete with underwater cameras for viewing the aquatic fun for guests who prefer not to get wet).

A four-bank tank filling system is cleverly out-of-sight on the main deck, along with other hardware and ground gear including fire hoses, anchoring gear and other equipment. This neatly-designed practicality is further enhanced with stone benches and facades inside, extensive stainless chef and hospitality equipment and even a full guest-viewable Teppanyaki barbeque on the outside of the second level.

Even some of the tiniest details show just how much thought has gone into this vessel's passenger purpose, with convenient

USB charging points located cleverly and conveniently around much of the guest seating.

"For example, the paint finish is probably around 40 per cent more expensive than what we would normally do on a ferry," Guy proudly points out.

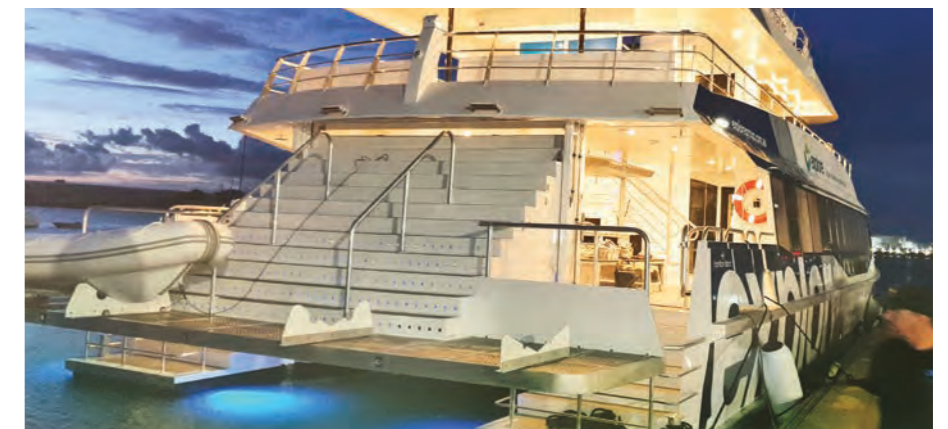
A flash paint job is not all that shows on *Ocean Explorer* however.

A stroll through any passenger area gives more a feeling of a cruise ship interior than tourist transport, with seating and booth finishes that ooze invitation rather than just a place to sit. Even the vessel's open-air top deck enjoys a seating layout that would not be out of place in a high-end airport lounge or observatory.

This upper deck allows for spectacular viewing angles during reef trips and a pleasant vantage point for sunset cocktails before dinner is served in lower deck areas during the evening (as with the large-glassed vertical superstructure of the One2Three design on lower enclosed and airconditioned decks).

The bridge continues a brief of clean and quality finish, but is much more than just a steering station and controls for the ever-reliable Yanmars down below. State-of-the-art systems put every operating system at the skipper's fingertips – from full viewing systems around the boat right through to automatic solenoid release valves for treated sewage.

With a capacity of around 120 for dive trips and between 60 to 80 guests for dinner cruising, there is comfortable room for all.



A full-beam stadium-style water entry platform at the stern is hydraulically controlled and is complete with underwater cameras to capture the aquatic life below and can be illuminated to add ambience in the evenings. (Photo credit Incat Crowther)



POWER PROFILE

Application:	Commercial - Passenger Ferry
Vessel Construction:	Aluminium Power Catamaran
Vessel Name:	Ocean Explorer
Vessel Owner:	Explore Group - Whitsundays QLD
Length (LWL/LOA):	27.47 Metres
Weight:	160T GRT
Engine Model:	6AYM-WGT (L)
Engine Power Rating:	911MHP (670kW) @ 1938 RPM
Drive Configuration:	Twin shaft with fixed propellers
Gear Ratio Model:	2.03: ZF 2050
Electronic Control Type:	ZF Micro Command - 4 Stations
Cruise Speed:	21.6 Kts @ 1800 RPM
Top Speed:	23.6 Kts @ 1950 RPM
Propeller Size:	38"x35"x5Blade-Veem Propellers
New Installation:	Wildcat Marine

"She is licensed for 200 passengers if ever used for ferry duties or things like cruise ship transfers, but that will not be the primary purpose of the boat," Guy said.

The Explore Group has had other boats built in Australia with Yanmars fitted from factory with good results according to Guy Obren.

"In fact, most of the boats they have had from new have had Yanmars and they are very happy with them," Guy said.



Halvorsen 48 refit brings 21ST CENTURY **POWER** to a 1970s **SYDNEY CLASSIC**

The clean common-rail efficiency of new 6LY440 engines has given one of Sydney's Halvorsen 1970s flybridge cruisers an engine room to be proud of, a spritely step under throttle and an owner incredibly happy with his decision to go with Power Equipment's high tech Yanmar option

Palmyra, a stately Halvorsen 48 flybridge cruiser that has privately entertained on Sydney waterways since its launching in 1973 has recently been fitted with new Yanmar 6LY440 common-rail engines.

These class-leading power-to-weight engines, which are proving incredibly popular across multiple boating sectors with their 324kW (440mhp) @ 3,300rpm, have given Palmyra a 25 knot top speed and a comfortable, efficient 18-20 knot cruising speed in easy conditions.

And while some older vessels seemingly need to be dragged reluctantly into the 21st century in terms of fitting new technology, this 46-year-old cruiser has taken to her repower like a grand lady stealing the show in front of the Opera House with new dance moves!

Palmyra's new owner, with a background in marine engineering and superyachts himself, purchased her around 12 months ago and soon discovered through investigations towards a major service and propeller replacement that a repower was the only sensible long-term investment. Old V8 turbo diesels which were struggling to deliver 20 knots at WOT were removed, along with original fuel tanks, running gear and most of what wasn't hull, bilge or keel in the engine room.

"We literally emptied the engine room, pulled out all the wiring, resealed everything (including all new seacocks) and installed all new running gear as well, including shafts (resized up to two inches)," said Quintin Wakeford of Wakeford Marine Services.

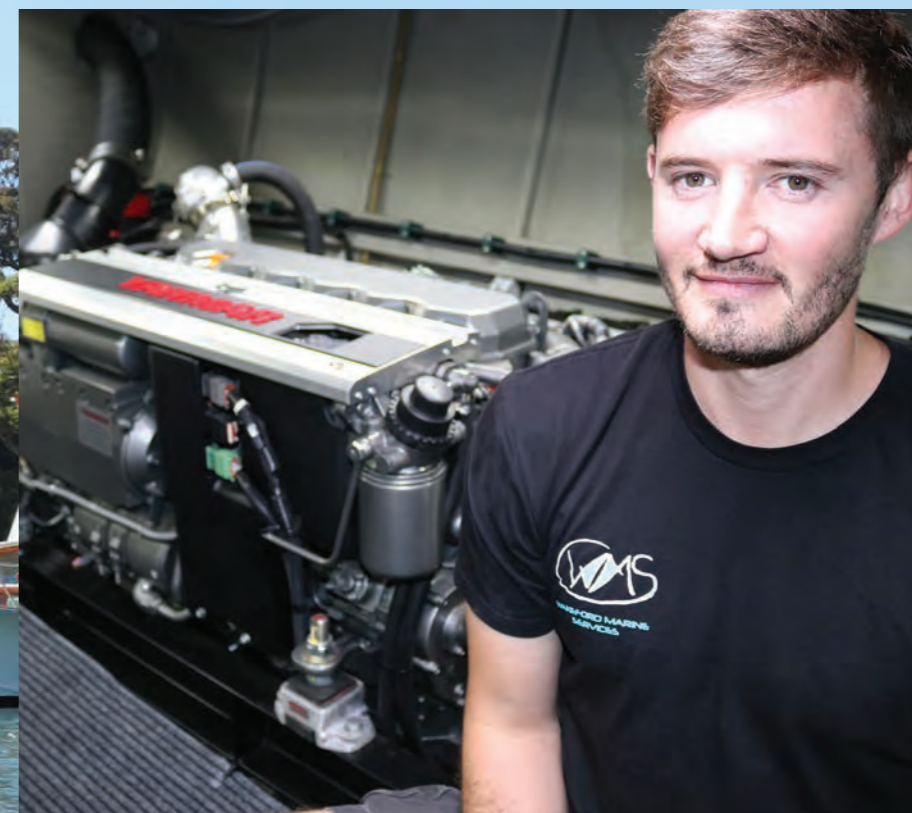
Wakeford Marine Services, Power Equipment's recently appointed Yanmar sales and service marine dealer stewarded the refit and Quintin has been very happy to work with Power



Classic entertaining lounge with ample seating and room to relax and enjoy the grandeur of Palmyra. All galley facilities incorporated within the interior behind beautifully crafted traditional french polished timber panelling to retain the wonderful heritage appeal

"We literally emptied the engine room, pulled out all the wiring, resealed everything (including all new seacocks) and installed all new running gear as well, including shafts (resized up to two inches)."

Quintin Wakeford of Wakeford Marine Services



Quintin Wakeford, of Wakeford Marine Services takes immense pride in his work and the rewarding results which have seen Palmyra prepared for many years of leisurely cruising amongst the waterways of Sydney which she has become very familiar with over many journeys



2" PSS Shaft Seals adorn the new shafts installed within Palmyra



To put it simply, she just handles beautiful now since putting the Yanmars in."
Palmyra's new owner



Electronic controls integrate harmoniously within the dual control stations with the flybridge setup for elevated open air enjoyment

Equipment in the planning process that went into *Palmyra*'s new heart.

"New skegs and upsized shafts were all part of the refit, and with a different brand of engine going in even a new powder-coated custom steel engine bedding was built and fitted," he said.

"There was around four months of work on the job itself, and countless hours in planning."

Quintin credits Yanmars as impressive across multiple facets of their design, but is particularly impressed by the fuel efficiency and warranty available with the 6LY440.

"Yanmar offer a great warranty and I really like the new common-rail injection system on these engines – it's the latest technology and is far more advanced".

Yanmar's new common-rail propulsion units and the beautiful Halvorsen 48 share similar philosophies in some ways too, having kept their core original good design.

The 6LY440 utilises the same famous 6LY2A engine block that has been a favourite of multiple boating sectors for years.

It is a block that has been literally produced in its thousands in the mechanically-controlled version and delivers the benefits of a light weight and a slim, six-in-line configuration that makes engine rooms seem bigger in just about every application.

The 6LY's dimensions (complete with KMH61A2 gearbox) come in at just under 75 centimetres in width and a little over 1.4 metres in length.

The block is about where the similarities end however on this new generation machine, with pretty much all the components of the 5.8 litre turbocharged engine including injector units, pipework, manifolds and 24-valve cylinder head new to the 6LY440.

They are a direct injection engine, utilising the Denso Common-Rail system, giving some of the cleanest and most efficient diesel power currently available in the world.

With a power-to-weight capability of 1.8:1 (kW per kg) the 6LY440 leaves all of her competitors in her (virtually smokeless) wake.

An interesting and equally impressive characteristic of the 6LY440 is that while power and fuel consumption figures are very lineal in performance, torque peaks come in early (close to 2,000rpm) on the engine's rev range and are relatively stable even at higher speeds.

Digital control delivers world-class performance and perfect control

Like all of Yanmar's new technology engines over the last five years, the 6LY440 engine also uses Yanmar's Vessel Control System (VCS) which is basically a "plug and play" setup offering the option of joystick control if required for low-speed docking and positioning in cooperation with compatible thrusters.

The fully electronically-controlled engines have proven a joy for *Palmyra*'s new owner, who credits Yanmar's control system and new engines with giving the vessel a "much better feel and much easier control".

"There is no shudder going into forward or reverse and the Yanmar gear lever action is just much better," *Palmyra*'s proud owner explained.

"To put it simply, she just handles beautiful now since putting the Yanmars in."

The quiet running of the 6LY440s has also been a pleasant surprise, with *Palmyra*'s owner explaining that at lower revs "the engine room fans are louder than the engines".

"She is happy at 8 knots and around 1,200rpm on the engines, but I am cruising closer to 18 or 20 knots when conditions allow and the Yanmars are doing that easily."

Nice figures given the Halvorsen's 18 tonnes of displacement with 2,000 litres of fuel and around 1,000 litres of water onboard.

A KMH61A gearbox with 2.43:1 reduction and four-blade 26inch (diameter) by 24.5inch (pitch) propellers are delivering around 86 per cent load on the engines at WOT – a working load

Quintin believes is what recreational vessels in this kind of application should probably be aiming to be in the vicinity of.

"You could push it harder, but it is not necessary with the performance this Halvorsen is achieving from the Yanmars," Quintin said.

This is an opinion shared by the owner, who says the prop and ratio combination feels right at both dockside and in open water.

Palmyra – a modern classic worthy of her quality upgrade

Palmyra was launched from one of Sydney's famous Halvorsen stables in August 1973 under the name "Coolong".

While Halvorsen's are a popular classic on Sydney waterways, she was one of only a few built at her 48 feet in length.

Designed for entertaining and performance rather than maximum berths, she has only two sleeping cabins but impressive saloon and cockpit lounging areas. Her open space gives the impression of the living room you would find on a vessel nearly 20 feet longer.

With full walk-around decks and expansive flybridge area, she is a true entertainer who certainly holds her own in classic looks amongst multi-million dollar neighbouring vessels at her picturesque Newport marina berth.



POWER PROFILE

Application:	Pleasure Craft
Vessel Construction:	Halvorsen Flybridge Cruiser
Vessel Name:	Palmyra
Length (LWL/LOA):	48' LOA
Weight:	18 Tonne
Engine Model:	2 x 6LY440-CR
Engine Power Rating:	324kW(440mhp) @ 3300 RPM
Drive Configuration:	Twin Engine Shaft Drive with Conventional Fixed Pitch Propellers
Gear Ratio Model:	Ratio 2.43/Yanmar KMH61A 2.43:1
Electronic Control Type:	Yanmar VC10
Cruise Speed:	18-20 Knots
Top Speed:	25 Knots
Propeller Size:	4 Blade 26"/24.5"
Repower Installation :	Wakeford Marine Services



YANMAR

REBIRTH OF A LEGEND 6LY400/440

MARINE COMMON-RAIL ENGINES



The fourth generation 6LY marine diesel series builds on the virtues of its classic six-cylinder forerunners, advancing efficiency and lowering emissions.

High-pressure common-rail fuel system to deliver exceptional finely atomised fuel for better performance, fuel economy and smooth running.

6LY-CR Series 5.8L
6LY400 294 kW (400 mhp)
6LY440 324 kW (440 mhp)

5x
BEST IN CLASS



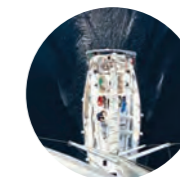
Clean



Interconnective



Quiet



Powerful



Fuel Efficient

ENGINE LINE-UP 40-440 MHP

COMMON RAIL TECHNOLOGY

3JH40
40 MHP



4JH Series
45 - 57 - 80 - 110 MHP



4LV Series
150 - 170 - 195 - 230 - 250 MHP



8LV Series
320 - 350 - 370 MHP



6LY Series
400 - 440 MHP



For more information contact
Power Equipment Pty Ltd:

email: info@powerequipment.com.au
web: www.powerequipment.com.au
phone: 1800 069 469



LUHR 37 **repower** HELPS MAN & MACHINE in **ultimate** Fishing Battles

The 6LY440 fully-electronic diesel superstar does better than standing on the shoulders of its successful Yanmar predecessors, it is proving that Yanmar repowering can take an already good game boat into the “brilliant” category

“The thing is, when one of the guys down on the deck are on the wire with a big fish, I need to have good control over that boat,” explains Luhrs 37 owner Simon Ahern.

“These new engines are spot on when I need to be pushing backwards or moving the boat quickly in different directions during a hookup or close-quarters stuff – they certainly respond quicker,” Simon enthuses.

Such is the praise for the new pair of Yanmar 6LY440 fully electronic diesel engines in his well-maintained Luhrs *Reef Raine*, installed by North Queensland-based Belcher Diesel Services.

Simon is enthusiastic about his game fishing, but while he doesn't profess to be a heavy or light tackle expert, he certainly knows how he needs his game fishing machine to work in the heat of battle with something 500 pounds or more hooked up behind the boat.

The American-built vessel had a pair of 480hp Yanmars replaced with the new 6LYs and the results have been impressive – with a top speed of 32 knots and virtually smoke-free running, even on cold startups.

Previously the boat topped out at around 29 knots.

With the advantages of fully electronically controlled engines making their mark for Yanmar owners like Simon now, the future looks much cleaner in the air and on the transoms of repowered boats and ultimately happier at the diesel bowser.

Simon estimates he's running the Luhrs at the 20knot-mark for around 100L/hr (combined).

“At about 24knots it's probably around 120 litres per hour, but it's also nice putting the sticks on the Laminex to feel how she runs,” (“Sticks on the Laminex” being Simon's fond term for running at WOT).

He followed the run-in regime for the new engines to ensure the legendary longevity that Yanmars are famous for and has already topped 100 hours. And just as well-maintained fishing gear is essential during game fishing critical moments, Simon keeps clean oil in his machines and changes filters at the prescribed hours. The

standard service regime for the new Yanmar 6LY440 is 250 hours once run-in.

“I'd recommend all boat owners keep good records of their maintenance – I also mark the change dates and hours on my filters as another reminder,” Simon suggested.

A nice new set of Palm Beach controls on the flybridge helm of the Luhrs complete the Yanmar gauges and electronics suite well in a command centre set for search and hookup battles of epic proportions.

With an added set of electronic controls in the cockpit, Simon can also dock the boat himself if necessary.

The Luhrs can turn on a dime during serious game fishing hookup manoeuvres and Simon is reveling in the responsiveness and control offered by the electronic precision of his new engines.

Electronic control can also reduce the chance of skipper error in gear changes whilst operating a vessel between forward and reverse – a nice safety factor when all focus is on a 900lb+ Black Marlin jumping nearby.

He who has the tech, wins...

“There is a very good jump in technology with the 6LY440 Yanmars” says Brad Belcher from Belcher Diesel Services in Townsville North Queensland, the team responsible for *Reef Raine's* engine refit.

“I'm a big fan of them and whilst rated at 40 horsepower less than the old engines, actually push the boat quicker.”

“They're smoother and definitely quieter engines too,” says Brad, who is very happy to have come on board as a Yanmar Dealer in September 2016.

The new electronic common-rail engines also present an easier install in terms of connections to a boat's systems, with less harnesses to run than the first generation electronically governor equipped engines sold by Yanmar.

The better performance of the 6LY440's is an experience Power Equipment has seen mirrored in three similar refits on other vessels around the

country so the future is looking very bright for this exciting new model.

The 324kW (440mhp @ 3,300rpm) 6LY440 is a 5.8 litre engine (that's 354 cubic inches in land-lubber hotrod speak) and utilises Yanmar's famous six-in-line block that has been the basis of the LY2 and LY3 series engines for around two decades.

Another class-winning factor of the 6LY is in the compact size of the engine, made possible through a shorter bore and stroke (106mm X 110mm). This allows for better engine room fits and easier access all round.

A proven block is where most of the similarity ends however with this new, cleaner Yanmar marine powerhouse, with everything from fuel delivery through to manifolds engineered to create a cleaner, better engine in every way.

The 6LY440 comes with impressive emissions credentials too, meeting European RCD2, IMO/GL and EMC standards along with US EPA Tier 3 accreditation.

The cleaner running of this new compact horsepower in the Yanmar quiver is evident in the lack of smoke at all rev ranges – something keeping game fishers and skippers very happy during the hours of slower running between strikes.

Power Equipment was privileged to have a demonstration of *Reef Raine's* abilities on flat water at full throttle for a photo shoot off Townsville, with the Luhrs leaving only white water and wake visible behind her.

Reef Raine will be run regularly to North Queensland game fishing hotspots like Myrmidon Reef, some 120 kilometres from Townsville with the confidence delivered by the new Yanmar 6LY440s.

Here Simon and his fishing companions hunt for the prizes that lurk in 300 to 1000 metres of water only a few kilometres from the crystal-clear tranquility of a reef lagoon.

Knowing his Yanmars are up to the task, whether during the day's fishing or with 'the sticks on the Laminex' during the return journey is no doubt making Simon's favourite on-water pursuit an even greater joy.

//

These new engines are spot on when I need to be pushing backwards or moving the boat quickly in different directions during a hookup or close-quarters stuff – they certainly respond quicker,” Simon enthuses.”

Simon Ahern, Reef Raine owner



POWER PROFILE

Application:	Pleasure Boat – Luhrs 37
Vessel Construction:	Fibreglass
Vessel Name:	Reef Raine - Luhrs 37
Length (LWL/LOA):	37' LOA
Weight:	Approx 11,500 KG
Engine Model:	2 x 6LY440-CR
Engine Power Rating:	324 kW (440mhp) @ 3300 RPM
Drive Configuration:	Twin Engine/Shaft Drive with fixed Pitch Propellers
Gear Ratio Model:	2.04:1/Yanmar KMH61A
Electronic Control Type:	Yanmar VC10 + optional Palm Beach Controls
Cruise Speed:	20 -24 Knots
Top Speed:	32 Knots
Repower Installation:	Belcher Diesel Service

WHAT DO YOU GET WHEN YOU CROSS A GOLDEN RETRIEVER WITH A POWER EQUIPMENT SHOWROOM? ...A GREAT PARTNERSHIP!



Images courtesy of Worldpoly

A chance meeting with a friendly Golden Retriever dog has set up an Australian Export partnership through the help of the Power Equipment team and the tough, clean power of Yanmar diesel engines.

Not many international export success stories are sparked by a wandering pet – but here's a true story.

When Worldpoly's unofficial "company" hound – Griffin (a six-year-old Golden Retriever) – wandered from his usual workplace address and into the head office of Power Equipment in Melbourne, a helpful partnership was formed.

In the process of coming to retrieve the wayward "Griff", Managing Director of Worldpoly Rob Hall was pleasantly surprised to discover a world of Yanmar engine expertise virtually on his doorstep in the shape of the Power Equipment team.

Rob was in the process of developing a polyethylene pipe butt welding machine for export to the United States market, but through his usual engine suppliers was running into a lack of understanding, when it came to providing a powerplant for his machines that met strict US Tier 4 emissions standards.

"We spoke to the other engine companies but they either didn't sell, or just couldn't support the Tier 4 compliant engines we required for export to the US," Rob explained.

Yanmar's 3TNV88F-UGGE provides a clean solution for PolyForce machines

Worldpoly's PolyForce pipe butt welding machines are a combination of high-tech application, engineering standards precision and Australian ingenuity.

They will deliver polyethylene pipe-joining welds to exact ISO or ASTM standards with zero chance of operator error in such joins. And with Yanmar engines on board, they can do it all day (or night) long!

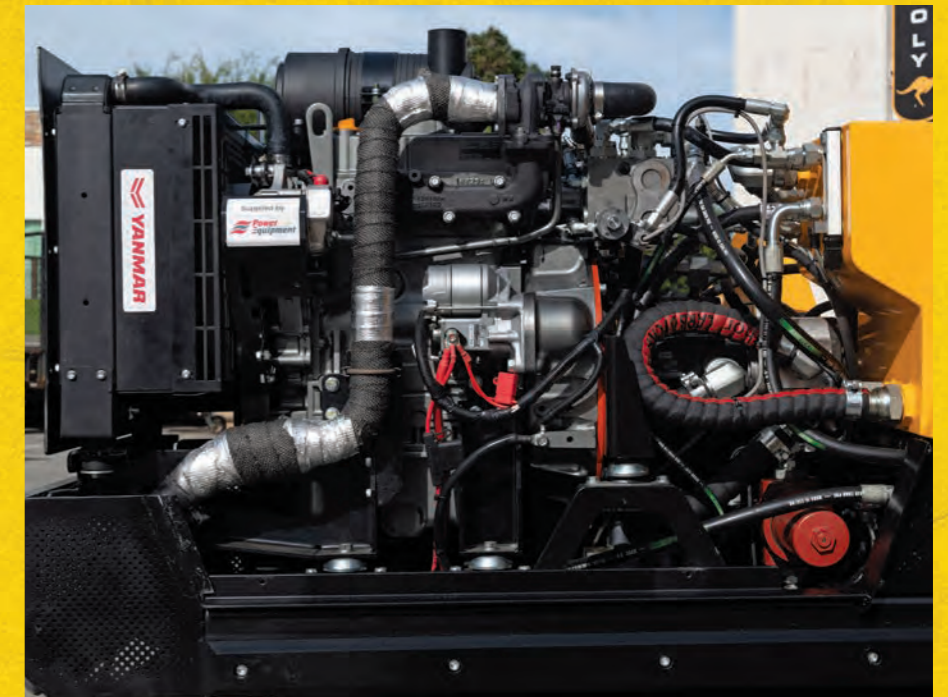
"During the design process, we made a much tougher machine than is currently available on the market," Rob explains.

"The US market demands strict Tier 4 emissions standards for any diesel engine onboard – even for off-road and construction machinery (unlike Australia) and we really didn't know where to start with getting the right engine to meet that requirement.

A quick chat with Power Equipment's power products team soon revealed an easily available Yanmar diesel option in the shape of the 3TNV88F-UGGE.

But an emissions compliant engine was only part of the win for Rob:

"We've had a truly great experience with the



At the heart of the unit is the 3TNV88F-UGGE which has its 15kW applied across two primary duties – hydraulic power and element heating

Power Equipment team so far," he enthuses.

"I'm not just talking about the service and support – they literally solved all the problems in terms of emissions compliance and running parameters for the engines."

High praise indeed.

The Yanmar power (just over 15kW or 20.4 horsepower in the 3TNV88F-UGGE) is not wasted in the PolyForce platform.

The Yanmar's grunt is applied across two primary duties on the butt welder – hydraulic power and element heating.

There is close to 12kVa of power used on the Teflon-coated heating plates alone to prepare each polyethylene pipe for joining. This is followed by the application of huge hydraulic forces pushing the heated pipe surfaces together and producing a join that is stronger than the pipe itself.

Worldpoly opted for hydraulic drive of the generator on their PolyForce machines, and while this may not be the most efficient power take-off from the Yanmars for producing electricity (there are losses of around ten per

cent according to Rob), it freed up design options for the units as a whole.

Knowing your engine is knowing its destination...

Dean Whitford, Power Equipment's National Power Products Sales Manager can tell you anything you want to know about Yanmar's TNV range of diesel engines – and you would hope so given he has some thirty years in the industry.

The TNV range come in 2, 3 and 4 cylinder variants and have been applied to literally thousands of industrial applications worldwide.



What got the Yanmar product “over the line” with Worldpoly for Dean and his team was their understanding and assistance with emissions information and clear guidelines about various operating conditions.

All internal combustion engines will deliver differently depending on environmental conditions. One of the strengths of the Yanmar product is that it's operating output and efficiencies across all environmental conditions – from hot desert locations to the freezing cold of places like the Rocky Mountains or Alaska in the USA – are clearly documented and available for the client.

“The fact that we could help with compliance requirements and paperwork for US Tier 4 emissions requirements got us in the door with Worldpoly,” says Dean.

“Our ability to provide clear data for exactly how our TNV machines will deliver under different atmospheric and environmental conditions have given us another edge with the Yanmar product.”

Rob agrees:

“The reality with R&D (research and development) of a new machine is that it's always full of questions as you go,” Rob said.

“The Power Equipment guys know their stuff and were willing to help along the way – and by that I mean the whole way. If we could get that kind of assistance from other suppliers of gear on our machines, we'd have half the job in developing the final product!”

And while the TNV engine is ultimately, in Dean Whitford's words, “a means to an end” in terms of the PolyForce butt welding machines, they are matching the technology and robustness required by Worldpoly.

“Yes, we want to use the Yanmar because of the Tier 4 emissions compliance, a good range of engine options and the fact that they (Power Equipment) are keeping us happy, but they are also matching our machines well too,” Rob explained.

“They are ready for stuff like IoT (Internet of Things) and work well with the onboard tech of the PolyForce machines we've developed.”

Worldpoly are serious when they claim to have built a tough machine, with even the electronics meeting rugged standards.

“The PLC we use onboard is full mining spec tough – it's the same units used on underground rock drilling equipment,” Rob says.

Worldpoly's PolyForce units also include data loggers for full tracking of operation, taking human error out of the primary task of butt welding. With such strict and exacting international standards on the joining of such pipe, Worldpoly's machine technologies take the quality assurance worries away.



Machine functions are controlled via an intuitive, rugged and easy-to-use touchscreen that allows full functional control

And with the reliability of Yanmars like the 3TNV88F-UGGE keeping things running, the jobs will get done properly every time.

A naturally aspirated three-cylinder engine displacing just over 1.6litres, the 3TNV88F-UGGE is part of a new line of Final Tier 4 engines based on the famous TNV series.

Yanmar achieved superior exhaust cleanliness by improving the TNV's combustion chamber and clever application of exhaust gas recirculation. It is interesting to note that this engine delivers nearly half the emissions per kWh at its higher power outputs – in effect an engine that gets cleaner the harder you work it!

A focus on vibration reduction and higher-strength materials will also deliver a high life engine with less down time for hard-working applications.

A Yanmar for every application

Worldpoly ended up utilising a turbocharged variant of the TNV Yanmar range for its newly developed PolyForce machines because more power was needed than the 3TNV88F's could deliver on the beefed-up version of the butt welding units. Rob explained that these machines were quickly snapped up in the domestic market and he is working with Power Equipment to apply a higher horsepower, Tier 4 Yanmar for the USA-bound machines.

“We've recently sold two 1600mm units to the USA (machines capable of joining pipes of 1.6metres in diameter),” Rob says “and it's going to be a big market. There is a massive amount of pipe infrastructure earmarked for repair or replacement across the US, infrastructure that was put in post-World War 2 that is failing.”

Already a supplier to more than 100 countries worldwide, Worldpoly is no newcomer to satisfying the needs of overseas customers.

Rob's father – Tom Hall Snr – is credited with being one of the pioneers of extruded polyethylene pipe into the Australian market some 65 years ago.

Now a third-generation business, Worldpoly is continuing its Australian export success story with a serious foray into the American market thanks to the help of Yanmar power and expertise.

Who could have guessed that Griffin the Golden Retriever would help form such a brilliant partnership in export opportunity for Australia? Good boy Griff...good boy!



Hydraulic controls, warning panel, just part of the range of features that contribute to the user friendliness of the PolyForce 500

Power to take on the water

For more than 30 years, recreational and commercial boat owners have relied on John Deere propulsion to power their adventures.

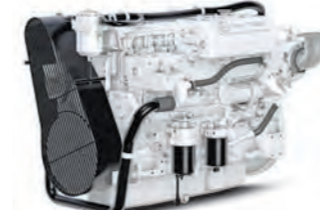
- John Deere marine engines are powerful, reliable, quiet and fuel efficient
- Engines offer expanded power from 60 to 559 kW (80–750 hp)
- High torque and low rated RPM provides excellent vessel control and reliable auxiliary drives.



John Deere Marine Propulsion Engines



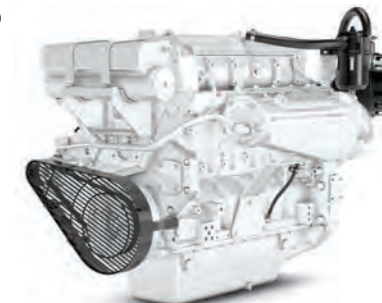
4.5L
60–235 kW
(80–315 hp)



6.8L
115–298 kW
(154–400 hp)



9.0L
213–410 kW
(285–550 hp)



13.5L
272–559 kW
(365–750 hp)



As Reliable Out at SEA as on the LAND



JOHN DEERE



For more information contact
Power Equipment Pty Ltd:

email: info@powerequipment.com.au
web: www.powerequipment.com.au
phone: 1800 069 469

“Nothing runs like a ...”

JOHN DEERE

refit set to turn heads in Australian Market for VESSEL REPOWER



The owner of a North Queensland-based Dyna 53 sought advice recently on the best option for repowering his 30-year-old vessel. The results in a quieter-running, smoothly powered vessel are soon to have eyes opening wide and heads turning when other skippers realise just how good a John Deere marine engine delivers on the water.



JOHN DEERE

It is what some skippers might call a postcard day on the water off North Queensland as the recreational vessel MV *Five O'clock Somewhere*, a Dyna 53, is put through her paces with a new pair of John Deere 6090SFM85 engines.

The near 60 feet of flybridge motor yacht (built in the 1990s) is dominating calm waters and a light breeze doing around 25 knots with a relatively quiet baritone tune from the exhausts that only comes from quality American steel – a song that is certainly set to attract plenty of listeners in boating circles.

Owner Michael Day was happy to take the advice of local diesel and marine fitout specialist Brad Belcher from Belcher Diesel Service on the recommendation of John Deere powerplants.

Brad saw the 6090SFM85s as the ideal solution for the repower needs in Michael's recently-acquired Dyna 53.

Replacing an aged set of two-stroke diesels rated at the 450hp-mark each, the new John Deere engines were always going to be nautical miles ahead of their predecessors in technology and near smoke-free operation. The M5-rated variant of the 6090SFM85 engines installed also deliver an extra 100hp (550bhp @ 2,500rpm) each but are an environmentally pleasing Tier 3 EPA commercial marine emissions standards engine.

They are a six cylinder, in line, four-stroke overhead valve marine engine and are part of a suite of John Deere marine power that now ranges from 80 horsepower to the 750 horsepower mark.

The John Deere 6090SFM85 (M5 rating) is recreational and light-commercial rated for users who may be looking to put anything from around 300 to 1,000 hours each year of running time on the water.

“Any boat without good engines...is really just a bucket!”

“And any boat without good engines is really just a bucket,” says owner Michael Day when asked about his views on the John Deere repower.

While it may be a little harsh to put the comfortable accommodations aboard his Dyna 53 in the “bucket” category, it is the low-revving, high torque delivery of the 6090SFM85 engines that really shines underway.

It is power delivery that comes with a confident note when listening from the outside, but surprisingly quiet inside the vessel with its lower revs and common rail fuel injection. A comfortable conversation is easy now inside the vessel whilst underway - a courtesy not afforded passengers inside with the old engines.

The first thing you notice about the Dyna's new engines is the smoothness of power, zero vibration and a power curve that simply doesn't have any flat spots.

New, precision stainless engine bedding and refit attention to detail has helped with smooth power outcomes.

Belcher Diesel Service put serious thought and precision into the new engine beds, and also engineered custom transmission brackets to cradle the engine and ZF 305-3A gearbox packages supplied by Power Equipment.

The transmissions coupled with the new John Deeres are a 2.250:1 ratio for optimum performance and will be assured long, reliable service with custom transmission oil coolers (again supplied by Belcher Diesel Service) to assist with running in warm tropical North Queensland waters.

Any boat owner looking to refit with quality engines like the John Deeres would be well advised to learn from detail that went into *Five O'clock Somewhere's* refit - it is a gold class example of ensuring reliability into the future.

Not only did Belcher Diesel Service install electronic controls on the flybridge (and docking controls in the cockpit), they also engineered a stainless exhaust system for the engines to ensure correct breathing and backpressures.

Sea water strainers and primary fuel filters were all renewed, and water tanks were also replaced during installation because of easy access whilst the old engines and generator were removed.

Removing and installing engines was done on-water at a service pontoon in *Five O'clock Somewhere's* marina, saving thousands in slipping costs and avoiding the cost of delays whilst waiting for parts or expertise.

It is a credit to Brad Belcher and his Belcher Diesel Service team when you consider the planning that went into an on-water installation of the new John Deeres, with crane logistics, multi-deck cutting for access to the engine room and even timing for removal and installation relating to tides in the region (tides can range to nearly four metres in this part of North Queensland).

All well thought-out work that has made sure the gleaming “white bucks” in the engine room are true deliverers on the water.

Four valve cylinder heads, turbocharging with air-to-seawater aftercooling and high capacity heat exchangers are all part of how this 9 litre engine delivers its power curve.

It's the brains of the John Deere engine that takes those mechanicals from pure diesel grunt

to a much sweeter, cleaner, quieter and more efficient tune however.

High pressure common rail fuel injection delivers the go-juice to the 6090SFM85 with the highest possible precision and full electronic engine control ensures multiple engine protections and customisable features for different vessels.

“I'm extremely pleased with the outcome,” Michael says of the performance, “and while my son probably uses and drives the boat more than I do at the moment, there is no doubt about the improvement.”

Michael and his family enjoy pointing the nose of *Five O'clock Somewhere* towards the pristine waters of the Great Barrier Reef some weekends, a two-plus hour run off the coast of her home berth in Townsville. He also plans to use the boat on four or five week adventures should retirement allow more time on the water in the future.

They promise to be reliable runs to the Great Barrier Reef too, with the John Deere's attention to maintenance, serviceability and fault diagnosis among the leading features of these marine engines.

For example, the 6090SFM85 boasts water-cooled exhaust manifolds, eliminating external fittings that can leak or break. The engines also have multiple service variations with either side dipstick and oil fill options and remote oil and fuel filter options for easier engine room accessibility if needed.

Couple those features with an ECU that delivers one of the most advanced fault code diagnostics on the market and with proper servicing you should have a virtually bullet-proof engine for years to come.

It is far from sunset days for this near-30 year old

The power delivery is just so smooth, it's a completely different boat,”

Brad Belcher – Belcher Diesel Services

hull with Michael's decision of new power just one of the number of upgrades worthy of her luxury heritage and comfortable, twin cockpit levels and spacious aft master cabin.

During unofficial testing with full fuel and water tanks, *Five O'clock Somewhere* clocked a 27.5 litre per hour (per engine) fuel burn for 10 knots @ 1,500rpm. At just over 2000rpm and a 66 litre per hour (per engine) fuel consumption she delivered a comfortable 16 knots.

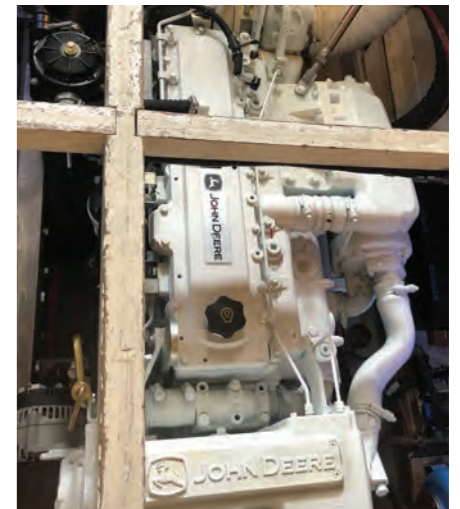
While the John Deeres can consume up to 115 litres per hour at full 2,500rpm rated engine speeds, on the day of running they were consuming around 110 litres per hour for around 23knots into the breeze and against a small tidal run at 2,500rpm.

Says Brad Belcher of Belcher Diesel Service: “From the first time we took her out through the heads and pushed down the throttles on the new John Deeres, we just looked at each other and couldn't believe the difference these engines offer.”

“The power delivery is just so smooth, it's a completely different boat,” says Brad.

While John Deere may be a new player in the North and Far North Queensland marine market, if the brand's domination across the agricultural sector is anything to go by the future is looking very bright for John Deere marine engines and Power Equipment.

What's that saying Brad? Nothing runs like a Deere!



POWER PROFILE

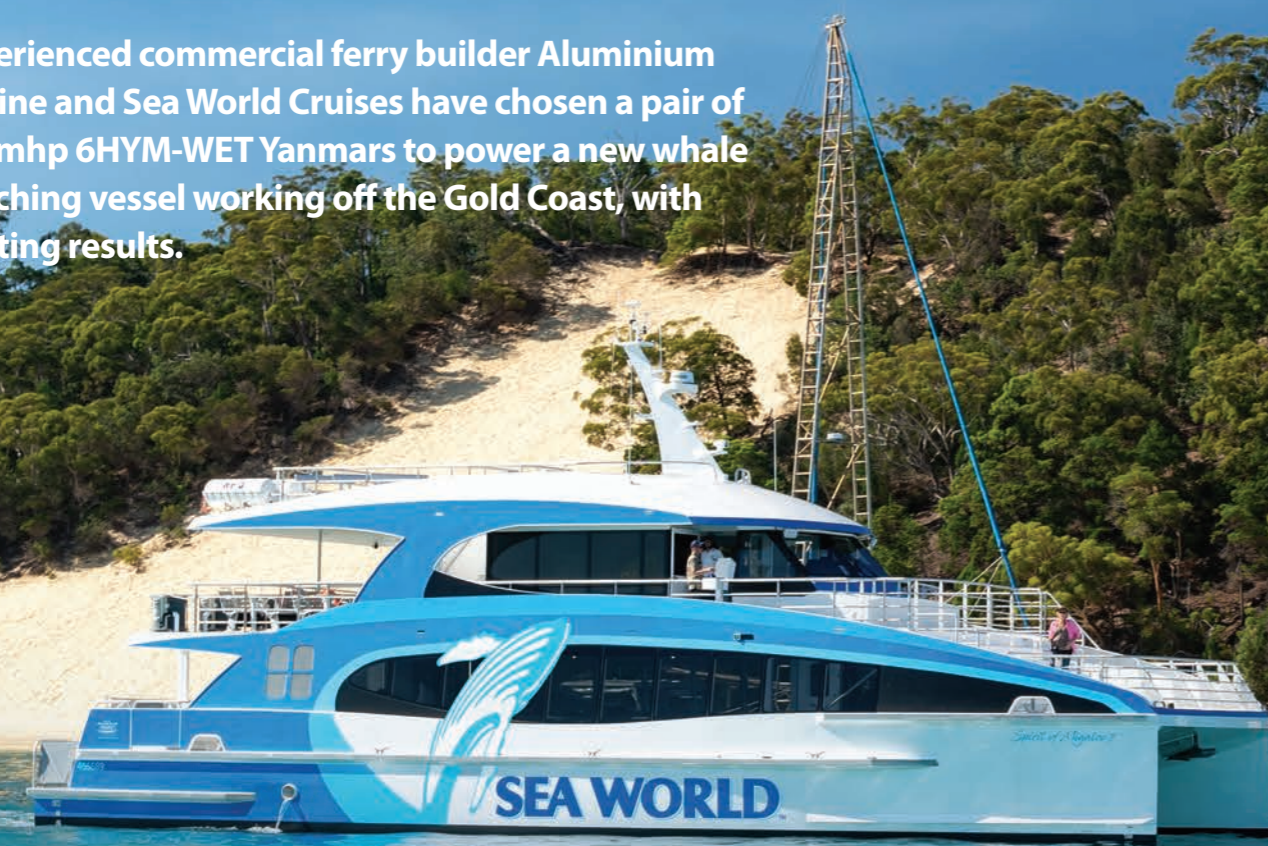
Application:	Pleasure Boat
Vessel Construction:	Fibreglass
Vessel Name:	Five O'clock Somewhere
Length (LWL/LOA):	18.29M (60.01') LOA
Weight:	22,000 KG (approx)
Engine Model:	John Deere 6090SFM85 (M5)
Engine Power Rating:	410 kW (550bhp) @ 2500 RPM
Drive Configuration:	Twin Engine/Conventional Fixed Pitch Propeller
Gear Ratio Model:	Ratio 2.250:1/ZF305-3A
Electronic Control Type:	Flex Ball Electronic Controls
Cruise Speed:	20 Knots
Top Speed:	25 Knots
Repower Installation:	Belcher Diesel Service

SPIRIT OF MIGALOO II



Yanmar and Aluminium Marine prove sometimes smaller is better

Experienced commercial ferry builder Aluminium Marine and Sea World Cruises have chosen a pair of 650mhp 6HYM-WET Yanmars to power a new whale watching vessel working off the Gold Coast, with exciting results.



POWER PROFILE

Application:	Commercial - Whale Watching Passenger Ferry
Vessel Construction:	Plate Aluminium Catamaran
Vessel Name:	Spirit of Migaloo II
Vessel Owner:	Gold Coast Whale Watching
Length (LWL/LOA):	24 M
Weight:	76 Tonne
Engine Model:	6HYM-WET - (L) Rated
Engine Power Rating:	478 kW (650 mhp) @ 2150 RPM
Drive Configuration:	Twin shafts with pitch propellers
Gear Ratio Model:	2.46:1 - Yanmar YXH160-5
Electronic Control Type:	ZF Micro Command - 3 stations
Cruise Speed:	16.4 knots @ 1800 RPM
Top Speed:	25 knots @ 2170 RPM
Propeller Size:	950 mm Dia. x 991 mm Pitch
Installation Completed by:	Aluminium Marine - Brisbane

In a time and place where the “bigger and faster is better” approach often dominates, a Gold Coast-based cruise operator is showing that teaming up slightly smaller Yanmar Marine power matched with the right design in hulls can make for a very effective vessel.

The *Spirit of Migaloo 2* was launched recently in Brisbane and has been busily ferrying passengers up to four times daily off Queensland's Gold Coast seaway on whale watching tours for the Sea World Cruises operation from Main Beach.

While the three-deck profile of *Spirit of Migaloo's* Aluminium Marine/Incat Crowther-based design strikes an impressive on-water presence in its iconic Sea World livery, the vessel is in fact cut down in overall length by around two metres from an existing successful 25.2 metre Aluminium Marine design and sports a frugal 1,300 horsepower in total.

With a 195-passenger capacity and eight metre beam, a slim and efficient hull design teamed with 6HYM-WET Yanmars (650mhp each) and

Yanmar gearboxes has proven to be a better-than-expected combination.

She is designed for whale watching and general commuter operations and also carries a 60kVA generator set, twin 2,000 fuel tanks along with equal 1,200 litre fresh water and sullage tanks.

The vessel is delivering a top speed of nearly 25 knots (27 knots during initial sea trials), while efficient engine loadings are still delivering a cruising speed in the 18 to 20 knot range.

“She performed very well considering the size of the engines,” according to Aluminium Marine's Steve Cordingley.

“She is a testimony of a perfect gear reduction to engine, propeller and hull design combination.”

A veteran of larger aluminium catamaran and commercial vessel building in Australia, Steve says the *Spirit of Migaloo 2* has performed well through a combination of “good hull design, good building and the great torque delivered by the twin turbo design of the Yanmar 6HY's”.

“Slimmer hulls also make for a more comfortable fit for the 6HYM-WET engines,” Steve said.

“We (Aluminium Marine) modified the hulls down from a successful 25.2 metre design we built for a New Zealand customer previously to a 23 metre overall length, but retaining an eight metre beam across the vessel,” Steve said.

The final plans, (in conjunction with Incat Crowther) saw a hull modification amidships to retain the very capable sea-keeping abilities of the longer design whilst meeting the customer's overall length and layout requirements.

“The results with the twin 650mhp Yanmars have been more like the performance of a six metre beam, 22 metre long catamaran, which was quite surprising,” Steve said.

Yanmar match delivers better-than-expected performance

Having “never heard a bad word about Yanmars”, general manager and co-owner of Sea World Cruises Anthony Arden said Yanmar was “our hot choice right from the time of design”.

“We are not covering big distances in the vessel, and much of the whale watching operating hours are at idle or low speed so we did not really have a need for high horsepower,” Anthony explained.

Ordering a vessel with whale watching duties as its primary purpose, Anthony was closely involved with the custom final design.

“The lower horsepower combination of the 6HYM-WET engines also brought the overall cost of construction down, which is always an important consideration for a commercial vessel.”

The savings will continue well into the future for Sea World Cruises as well, with Anthony saying the new Yanmar-powered *Spirit of Migaloo 2* is using less fuel than the other much smaller whale watching vessel in their fleet.

Anthony says the fuel burn on the *Migaloo 2* is significantly less than that of the company's smaller (18 metre) vessel which runs lower horsepower, European-brand engines.

Lower fuel consumption and efficient operation also deliver a nice synergy with a business operation that showcases the environmental beauty of Queensland's favourite marine mammal visitors and locals alike, including the popular migrating humpback whales and endemic dolphin pods.

Yanmar Marine's commitment to lower emissions across its engine range works well with a nature-based tourism operator like Sea World Cruises, particularly given the vessel can have engines running up to 12 hours every day without a break.

However, just like good hull design is always about what is going on under the waterline,

it is the case with what was put under the *Migaloo 2's* new Yanmars that has also made for a more user-friendly vessel.

Steve Cordingley opted for genuine Yanmar engine mounts on this build and says the results have been excellent.

“We found the Yanmar engine mounts performed 100 per cent better than other types we have used previously,” Steve said.

“The noise and vibration dynamics are excellent – even the new owner says the vibration comparison with the Yanmars are ‘chalk and cheese’ to their other vessels”.

With underwater hydrophones fitted to the *Spirit of Migaloo 2*, a quieter, lower-vibration vessel will no doubt deliver a better experience for passengers and whales alike.

Tiered-stadium seating and six viewing platform areas are no doubt making this state-of-the-art whale watching vessel the envy of operators around Australia with its quiet, efficient Yanmar power.

The airconditioned experience onboard is no doubt even better within the limited, purpose-built “Captain's Lounge” VIP seating area with luxurious seating and premium vantage viewing near the bridge.

Outside of whale watching season, *Spirit of Migaloo 2* is expected to be deployed on day trips and cruises to Moreton Island off Brisbane, Queensland. While this operation will require up to 1.5 hours each way of cruising speed operation (at around 1,900rpm), daily engine hours would be much lower than during whale watching operation.

Where does the name “Migaloo” come from?

Migaloo is a rare white Humpback Whale that was first seen in Australian waters in 1991 near Byron Bay.

The word “migaloo” is Aboriginal in origin and in some languages means “white fella”.

Marine naturalists believe *Migaloo* is around 33 years old and has been known to migrate past the Australian east coast every year. While humpback whales enjoy special protections in Australian waters, *Migaloo's* rarity and popularity with Australians led to both Queensland and Australian Commonwealth governments awarding this specific animal special protection status that prevents vessels from getting any closer than 500 metres to him.

The amazing *Migaloo* – and perhaps the greatest prize for whale-watching eyes – is the namesake of Sea World Cruises' new Yanmar-powered vessel *Spirit of Migaloo 2*.



Compact quiet vessels make for perfect close encounters with these tranquil marine mammals off the Gold Coast. (Photo Credits: Sea World Cruises)



Powered vessel will help INVESTIGATE SUSTAINABLE FISHERIES Options for Mauritius

Experienced Australian boat builder Steber International has powered its largest hull to date with Yanmar. Built for the Mauritius government, the Westcoaster-based hull will investigate sustainable fishing in the Indian Ocean.



If you want to run a single engine in a vessel with a range in excess of 1,000 nautical miles off a place like Mauritius in the Indian Ocean, you had best have some serious confidence in that machine.

That is exactly the trust seasoned Australian boat builders Steber International and the Mauritius government had in the Yanmar 6HYM-WET (H-rating 500mhp), the preferred choice for powering a new fisheries research vessel *Investigator II*.

"32 years ago we built our first boat for the Mauritius government," Steber International's Alan Steber explains with some obvious pride, "It was a 41ft fishing vessel".

A couple of years later the government bought a 47ft fishing vessel from Steber Craft as a training vessel.

Both of those boats have had no hull or structure failures over all those years and still utilise their original steering and running systems, a credit to the quality Steber Craft have become renowned for.

Alan's latest build for Mauritius represents a new milestone for the Taree-based boat builder though, launching their biggest boat to date and utilising a Westcoaster hull design.

At 60 feet, the hull is an original Westcoaster design, with the mould and intellectual rights purchased by Steber recently and upgraded to the new AMSA code.

Investigator II is a fisheries training and research vessel and has been purpose built with those activities in mind in terms of layout and deck gear.

It has a basic laboratory on board, including fume extraction tank for scientific dissection work on fish samples.

The vessel includes an eight cubic metre

fish room which is designed and insulated as a manually-iced cool room. A transom crane system is designed to launch and retrieve anchoring systems for surface and seabed fishing and can also deliver FADs (fish aggregating devices) as part of the research work expected for *Investigator II*.

Three hydraulic (Australian made) fishing reels complement the deck gear onboard, capable of dropping up to three kilometres of line to the bottom. There is a clutched PTO off the main engine's ZF325-1 transmission (assisted by a 200 litre hydraulic oil reservoir), that is coupled to all the hauling systems onboard, including a drumline capable of deploying longlining and pot capture equipment.

The boat includes a saloon that can seat up to 12 people in relative comfort with a large open-plan galley adjoining this area. This structure on the vessel, being larger than would be traditionally seen on a Westcoaster fishing boat, can also double as a training area for small groups onboard as required.

There are five accommodation cabins to sleep 12 also.

With around 8 months in design and equipment decisions for the final configuration of *Investigator II*, overall it was simplicity that ruled in the final design.

"We had to keep the vessel simple to meet the needs of its deployment – no digital panels for operating systems where possible and simple labels on switches, valves and other equipment," Alan explains, "This was one of the philosophies behind powering her with a single Yanmar too – a relatively simple, large displacement, reliable and easy to service engine."

The 6HYM-WET is a purpose built marine engine which has delivered outstanding results for commercial boat operators worldwide.

The engine is a 6 cylinder in-line twin turbocharged configuration with single exhaust outlet and a displacement of 13.733 litres and an all up dry weight of 1,385 kgs.

The 6HY series is available with 4 commercial rated power outputs ranging from 500mhp (368kW) to 700mhp (515kW). For *Investigator II* the choice was made to use the conservative and heavy-duty continuous rating of 500mhp (368kW) @1950rpm which powered her to 13.7knots during trials – not a bad haul for a single 500 horsepower engine on close to 30 tonnes of vessel.

This model includes Yanmar's latest combustion chamber design, named ASSIGN, a system originally pioneered by Yanmar on their large bore, low speed propulsion engines. The ASSIGN technology combined with Yanmar's mechanical fuel system provides commercial operators with excellent fuel economy together with IMO Tier 2 emission compliance.

With close to 8,500 litres of fuel onboard across four tanks, there is an expected 1,000-plus nautical mile range.



Mase Mariner 1600 powered by Yanmar provides AC power throughout the vessel

A 500 hour service interval and sillicard-treated cylinder liners with nitrided stainless steel rings make for what Alan believes would be a "lifetime engine" for this boat.

"They are a good reliable engine and the client was keen to have the Yanmar because of their serviceability, support and reputation," Alan said.

"It was also the client's choice to have a single-engined vessel, and frankly, one good, reliable engine will last a lifetime".

A Mase Mariner 1600 generator, (also distributed through the Power Equipment stable), provides AC power and utilises the four cylinder Yanmar 4TNV88 diesel engine to deliver its 15.3kW of electricity. It delivers this power running at a frugal 1,500rpm, making for a quieter engine.

This 2.1 litre power plant is not just a convenient source of reliable electricity, with easy access to its sea water pump, air, fuel and oil filter positioning. The Mariner also incorporates automatic safety stops for low oil pressure or high water/exhaust temperatures to protect itself.

Even in its soundproofed cabinet configuration, the Mariner allows easy access for inspections and servicing, making it an ideal choice for the Mauritius government's working crew needs.

Alan has visited Mauritius and the crews and skippers who have operated his vessels a number of times over the years, building a rapport with them.

Meeting a skipper who had been driving his boats since the first 41footer more than 30 years ago was a real thrill according to Alan – that skipper thanking Alan for the quality of his boats and telling him "we have been out in some terrible seas at times and your boats have never failed us!"

"It was an honour to meet a man who had relied

"They are a good reliable engine and the client was keen to have the Yanmar because of their serviceability, support and reputation."

Alan Steber, Steber International

on us for so long," Alan said.

The primary purpose of *Investigator II* will be to travel to remote areas and islands to fully investigate fisheries and the sustainability of fisheries in those waters. There is a species of shrimp in waters off Mauritius for example that hits the 18inch mark and this will be among the fish and crustaceans studied as part of *Investigator II*'s work.

Alan and Steber International are thorough in their operational training for their vessels and set a benchmark in vessel operating manuals some 30 years ago. Such is the philosophy Alan sees in the Yanmar product too – clear, simple instructions to keep a reliable engine doing what it needs to do for thousands of hours.

"On launching the boat and during initial test runs there was no vibration, it is absolutely smooth and extremely quiet," Alan added.

"The Yanmar is perfect all round from what we have seen in its initial runs."

The fishing equipment (right down to terminal tackle) was part of the contract, a unique proposition for an exported Australian vessel.

Investigator II was run to Sydney from Taree, the 6HYM-WET serviced and oil changed with final checks, then cradle-shipped to Mauritius as a turn-key vessel ready for work.

Another fantastic partnership of quality Australian boat building and proven Yanmar and Power Equipment reliability to the world.



POWER PROFILE

Application:	Research Vessel
Vessel Construction:	Fibreglass
Vessel Name:	Investigator II
Vessel Owner:	Government of Mauritius
Length (LWL/LOA):	61' LOA
Weight:	28,500 KG
Engine Model:	Yanmar 6HYM-WET x1
Engine Power Rating:	368 kW (500mhp) @ 1950 RPM
Drive Configuration:	Shaft Drive
Gear Ratio Model:	ZF325-1 / Ratio 2.957:1
Cruise Speed:	10 - 12 knots
Top Speed:	13.7 knots
Propeller Size:	40" x 37.5" 4B
New Installation:	Steber International - Taree NSW

Sailing Adventures

NEAR & FAR MADE EASY WITH

YANMAR

GORI PROPELLER
experience the difference

COMBINATION

Yanmar 4JH5E Common-Rail engine with SD60 Saildrive combined with 3 blade GORI propeller make an ideal combination for any catamaran



A new Grainger Raku 48 sailing catamaran on Queensland's Sunshine Coast is not only sitting pretty with its stylish, high-performance design, but its Yanmars and Gori propellers have saved the day during her ocean adventures.



The Yanmar promise of unbeatable reliability and purpose-built marine diesel application has proven its worth and "saved the day" more than once for a Queensland-based recreational sailing couple on their new catamaran *SV Mint*.

With Yanmar long considered the blue-ribbon choice for sailing vessel auxiliary power, it is no surprise that Grainger Raku 48 owners Troy and Annette chose the combination of Yanmar 4JH5E (54mhp@3000rpm) engines and SD60 saildrives, coupled with innovative three-bladed Gori overdrive folding propellers.

Built on the Sunshine Coast, Troy was closely involved in construction and fitout from start to finish.

The Grainger Raku range are foam/glass composite in construction with epoxy glass skins and carbon reinforcement in selected areas. The Raku 48 is a true high-performance cruising platform with its 14.6 metre LOA being pushed by over 83 square metres of mainsail, 36 metres of jib and over 165 square metres of gennaker on a 20 metre mast. *Mint* tips the scales at around 8.5 tonnes lightships, but closer to 10.5 tonnes fully geared and provisioned for cruising.

While the designer recommends around 40hp engines for the Raku 48, Troy was keen to have a bit more performance available under power and opted for 4JH5E (54mhp@3000rpm) Yanmars.

"Putting the 54 horsepower Yanmars & Gori Propellers in was the best thing I did – we get eight knots under power at just over 2000rpm, and great economy especially when using the Gori Propeller overdrive function during motorsailing," says Troy.

The Gori three-blade folding propellers chosen for *Mint* have an innovative overdrive function that can position the blades into a steeper pitch in forward via a simple technique of changing between reverse and neutral gears, without the use of vulnerable hydraulics or complicated mechanical devices.

The "overdrive" gives the same vessel speed at lower engine revolutions when motorsailing with the end result being less engine noise, less vibration and better fuel economy, factors much appreciated by Troy especially during long passages. The propeller in itself adds a new dimension to sailing under power. Qualities that are unique to the 3-blade Gori folding propeller.

Interestingly the Gori folding propeller can be applied to engines from 10 to 300 horsepower and the company has led the field in folding propellers now for more than 20 years – a nice synergy to the modern design and on-water efficiencies of the Grainger Raku.

Yanmar power and Saildrives that deliver in all conditions

A naturally aspirated engine, the 4JH5E Yanmar punches above its 2.19 litres engine displacement and nimble 201 kg in weight.

Mint's eight and nine knot performance under frugal revs are not only thanks to efficient hull design, but also the direct-injection efficiencies of the popular Yanmar diesel and output of the SD60 saildrive leg.

The 4JH5E delivers exactly what a sailing skipper needs – its highest torque (just under 160Nm) at low revs for easy dockside maneuverability but the majority of its rated power output at less than two-thirds of its maximum rated revs.

This gives the perfect combination of performance and fuel efficiency where they are needed most, making it a favourite of sailors worldwide. It also meets European RCD I, BSO II and EMC emission compliance along with US EPA Tier 2 emission compliance.

The SD60 saildrive is perhaps an unsung hero of *Mint's* powerful performance under engines, with its simple and efficient design getting grunt to the propellers with vibration-free efficiency.

Among its proven features are a double seal mounting system between engine and hull

(with water sensor for safety), clockwise or counter-clockwise configuration options and 2.23 or 2.49 ratio options.

The SD60 Saildrive can also easily handle power delivery up to an 80-horsepower engine yet only weighs in at 44 kilograms.

While the Grainger Raku range are lauded for their performance, they lack nothing in comfortable accommodations and fit out. *Mint* is no exception, with four comfortable queen-size berths, two bathrooms and a saloon and cockpit area that ooze modern luxury and materials with plenty of room.

Troy opted for electronic controls and dual stations (port and starboard) making for easy handling under power or sail.

The Raku design is not spartan in hull dimensions and engine mounting is slightly further forward than many catamarans. This gives reasonable engine room access (under the rear berths) that is helped by Yanmar's compact design and the 460mm engine mount width of the 4JH5E engines. At just 560mm in engine width, daily checks and maintenance on these motors is easily accessed in even the skinniest of hulls.

Yanmars to the rescue a long way from home!

With more than 500 hours already on *Mint's* Yanmars, good performance under power and the beautiful fitout of their Grainger are not the only things Troy and Annette are grateful for.

A trip to New Caledonia in 2019 saw *Mint's* Yanmars put to work in more ways than one, and literally saved the trip.

"Our generator actually failed early into the trip to New Caledonia and unfortunately it took many weeks for parts to arrive for a repair," explained Troy.

"In the meantime we had to rely on running the Yanmars to keep our house batteries alive when solar charging couldn't keep up – they really saved the trip."

The 4JH5E utilises a 125amp (@12 volts) alternator as standard and was capable of keeping *Mint's* lithium house battery system healthy for a number of weeks through the vessel's charging and electrical management system.

"We also put a lot of hours on the Yanmars on the New Caledonia trip relying on getting places under power – particularly when we did a 200 nautical mile crossing to Vanuatu," Troy said.

"That trip saw us run the Yanmars for around 20 hours all up because of a lack of wind," he said, "and it is certainly nice to have a good motoring option when you're trying to get somewhere!"

The Yanmars also saved the day again on *Mint's* return journey from New Caledonia to Australia when a mainsail rigging breakage occurred early in the evening on a stiff 20-knot breeze.

"I didn't want to be trying to fix rigging in those conditions in the dark, so we just fired up the Yanmars and motored for the night," Troy said.

"It kept us on track safely and we didn't need to worry."



The compact design of the 4JH5E at just 560mm in width and 871mm in length make an ideal solution for any catamaran allowing for easy access within the skinniest of hulls for daily maintenance checks. (Photo credit owners of SV Mint)

Putting the 54 horsepower Yanmars & Gori Propellers in was the best thing I did – we get eight knots under power at just over 2000rpm, and great economy especially when using the Gori Propeller overdrive function during motorsailing."

Troy, Owner Mint

With the 4JH5E Yanmars sipping under four litres per hour each (under eight litres per hour combined) there was no stress involved with running engines for longer periods off *Mint's* twin 270 litre fuel tanks.

Mint has her ropes thrown almost weekly from her home base with social sailing and racing or weekend runs to nearby islands. However, Troy and Annette have their eye on a Louisiades Archipelago rally later this year and like the idea of popping up the Queensland coast to the Hamilton Island Race Week also.

Racing under sails is in the couple's blood, having run NACRA catamarans together in the 1990s. While things aboard *Mint* might not be quite as wet and wild as that kind of catamaran action, she is certainly a joy on the water with the performance of Yanmar/Gori propulsion.



POWER PROFILE

Application:	Pleasure Boat
Vessel Construction:	Catamaran - Foam/Glass Composite
Vessel Name:	SV MINT
Length (LWL/LOA):	14.6 MTR (48') LOA
Weight:	8.5 T Lightship/10.5 T Fully Loaded
Engine Model:	Yanmar 4JH5CE - SD60
Engine Power Rating:	39.6 kW (54mhp) @ 3000 RPM
Drive Configuration:	Sail Drive x2
Gear Ratio Model:	2.23:1 – Yanmar SD60
Electronic Control Type:	Teleflex Morse KE4
Cruise Speed:	8 Knots @ 2000 RPM
Propeller Size:	Gori 3 Blade Folding Propeller 18" x 14" x 3
New Installation:	Cure Composites

Expedition vessel REPOWERED for the SERIOUS JOB of RETIREMENT off Western Australia

The MV Oracle was originally launched in 2000 to support one of the world's highest-profile America's Cup racing teams. Today she continues her testament to quality Yanmar power that delivers huge range with unbeatable frugality in her new role as a comfortable home-away-from-home for a retired couple.



POWER PROFILE

Application:	Pleasure
Vessel Construction:	Fibreglass - Freeman Bay
Vessel Name:	Oracle
Length (LWL/LOA):	24.5 m
Weight:	42 Tonne
Engine Model:	Yanmar 6CXBM-GT(M)
Engine Power Rating:	294 kW (400 mhp) @ 2500 RPM
Drive Configuration:	Shaft Drive x2
Gear Ratio Model:	2.5:1 / ZF286A
Electronic Control Type:	Morse Electronic with actuators
Cruise Speed:	10.1 knots @ 1600 RPM
Top Speed:	15.6 knots @ 2531 RPM
Propeller Size:	Nakashima 4B x 32D x 28P
Repowered by:	WestJet Propulsion & Owner

When it came to the serious business of retirement after a lifetime of hard work on the water, Lynn and Peter Mouchemore decided to repower their impressive expedition vessel MV Oracle with new Yanmars for their frugal and reliable promise into the future.

It is not every day that you see a 24.5 metre Westcoaster – originally launched in Western Australia in the year 2000 as an America's Cup support vessel – taken out of its own virtual semi-retirement and setup as a home-away-from-home for a couple who love their time with family on the water.

With berthing for 18 people aboard, huge outdoor galley (the "LG - Lynn's Galley" as it is affectionately known), three tonne crane, 300kg/day ice machine, marlin board and fully enclosed wheelhouse, she is a true expedition vessel with capability for comfortable living and huge range.

Oracle had been used for charter in New Zealand after its America's Cup duties and had ended up in Queensland for another two years after that work. She had been used primarily as marina-based accommodation at a yacht club for around five years following those chartering days and her previous Yanmar powerplants had suffered from a lack of use and marine care.

Hence Peter decided to change out the original 20-year-old Yanmar 6CX-GTYE (360hp @ 2600rpm) engines with new 6CXBM-GT M rated (400hp @ 2,500rpm) power and ZF286A 2.5:1 gearbox propulsion.

With a hefty dose of marine experience himself, (Peter was a commercial fisherman for 57 years), he had a few ideas on upgrades for Oracle and the refit.

"I wanted to keep a similar engine to the mains that had been running in the vessel, so we went for the simplicity and reliability of the 6CXBM-GT

engines, close to original horsepower," Peter said.

Exhaust upgrades for both the main engines and auxiliary power were part of a six-figure upgrade for Oracle.

"They are definitely quieter," says Peter of the new Yanmars powering Oracle, "and both of my sons agree."

"Fuel economy is probably close to the old Yanmar setup and we're getting 10 knots for probably close to 33 litres per hour (combined)," Peter says.

Understanding the value of cruising revs to propel Oracle's 42 tonnes and to take advantage of the 6CXBM-GT's sweet spots in torque curve, (which run between around 50 to 80 per cent of engine speed in these Yanmars), Peter opted for a change in propellers to capitalise on the engine's most economical running speeds.

"She had been running a five blade propeller, which gave her a couple of extra knots top speed," Peter explained, "but they were pretty thin so I changed them for a four blade prop with more pitch (Nakashima 32inch diameter X 28inch pitch) which gives us 10 knots at economical revs".

While Oracle tops out speed-wise at 15.6 knots, her range can be extended hugely at 8.3 knots with the Yanmars running at only 1,300rpm. Holding 9,000 litres of diesel aboard, Peter and Lynn's Western Australian coastline is very much their proverbial oyster! (At the lower cruising speed, the expected range of the vessel exceeds 2,250 nautical miles).

Peter says the four-blade prop upgrade gives more positive handling at lower speeds too – a nice help with quiet Yanmars and no vibration felt from the wheelhouse.

"The engines are solid-mounted using the original bedding setup, but there is no vibration.

You feel nothing and hear little at the wheel," Peter said.

This shouldn't be surprising, given the 7.4 litre 6CXBM-GT Yanmars are able to deliver their power smoothly thanks to micro-sized multiple holes in a new injector design, high-performance turbo and high-efficiency intercooler that delivers less turbo lag.

The 6CXBM-GT is another of Yanmar's popular six-in-line engines aimed at commercial applications and not only delivers minimal fuel consumption across a wider speed curve, but caters for multiple professional activities at sea.

While it is a fully mechanical engine (a preference for Peter who does most of his own maintenance), this user-friendly engine is still Tier II compliant with lower NOx emissions – making them environmentally friendlier too.

Large inspection windows on the side of the 6CXBM-GT block even allow on-site replacement of pistons if ever necessary – although with under 100 hours of running time up so far on Oracle's new main engines, that kind of maintenance will be many years away.

Part of Oracle's refit saw new auxiliary power installed also with two new Mase Mariner 2510T 25kVA three-phase silenced generators.

As with most boat operators with a commercial background, Peter is serious about maintenance and says he currently holds "around four years' worth of maintenance consumables and filters aboard".

"Most 'wood ducks' (Peter's friendly term for boat owners who know or care little about vessel maintenance) just don't understand the importance of regular maintenance – it's not an option, it's a necessity," quips Peter.

Yanmar gets the nod for penultimate sea adventures for Peter and Lynn

Peter and Lynn cruised in Oracle for around nine months across two extended trips before deciding on her four and a half month refit at Northport Shipyard in Fremantle. WestJet Propulsion and Peter himself worked on the engine installations.

Oracle's 24.5 metre length and 6.5 metre beam provide for a lot of living area aboard and significant inventory of equipment. Spending around \$650,000 on her on top of the original purchase price, Peter says Oracle owes him in the order of \$1.5million.

"The Yanmar price was competitive however and their fuel economy is great," Peter says.

"We've got all we need onboard, including Foxtel and all the free-to-air television, a bar and plenty of refrigeration," Peter says proudly.

Peter and Lynn's sons have continued their father's (and his forefathers') proud tradition of fishing off Western Australia, with Peter still helping his sons on board their 18.6 metre Conquest in their own commercial cray fishing season work.

"I'll sometimes go with them and maybe drive the boat between pots just to help them out," Peter says.

This season they parked Oracle up at the Abrolos Islands group, near one of the boys' preferred fishing grounds north west of Geraldton on the mid-Western Australia coast.

With his own lifetime of fishing behind him, Peter's sons represent a sixth generation of fishermen in the Mouchemore lineage.

Peter fished for sharks off Tasmania for a number of years, (in a 65 foot Fairmile), like his own

father and chased both crays and sharks off Victoria before following uncles to the more lucrative – and in Peter's view better managed – fishery of Western Australia in the late 1970s. Among the innovations Peter's relatives introduced to fishing Australian waters was the fact that his uncles brought the first echo sounder to Western Australia in the 1950s.

Oracle is expected to range waters from Quinalup on the southern end of Western Australia's coast to perhaps the Kimberleys if Peter and Lynn are feeling adventurous in their retired maritime months on the water each year. The beautiful Shark Bay inlets are also expected to be a regular anchorage.

Power Equipment has been proud to supply the power for Peter and Lynn's "home-away-from-home" Oracle and it is certainly a vote of confidence in the Yanmar product to have someone of Peter's experience welcome the brand into his penultimate seagoing adventures.



Highly efficient a pair of MASE Mariner 2510T gensets within soundproof cabinets each provides 25.1kVA/50Hz to power all the modern conveniences.



Bridgeford Group

energy ▪ engineering ▪ efficiency

BRIDGEFORD GROUP

The Bridgeford Group is a multi-disciplinary Renewable Energy, Building Services Engineering and Energy Efficiency Consultancy, that operates at the intersection between class-leading engineering and sustainability, with the aim of future-proofing our Client's assets and operations.

The Bridgeford Group is a subsidiary of Power Equipment with the purpose

of adding expertise in new energy systems and diversifying existing energy platforms that still fulfil a vital backup energy role.

Bridgeford Group works almost exclusively for large-scale property owners, agricultural and industrial clients, providing a wide range of Owners'-Engineering services. As such, we act for the owner, in their best interest, to ensure compliance, drive sustainability or performance outcomes, produce designs and procure upgrades.

OUR MISSION AND VISION

The Bridgeford Group envisions a world where sustainability is intertwined within our Client's core operations, producing greater output, reducing cost and helping preserve the environment for generations to come.

We do this through world class engineering, hiring the best minds, solving the hard problems, and presenting engineering solutions in an easy to understand and actionable manner.

We strive to develop solutions that is leading, elegant and cost effective while reducing our clients impact on the environment.



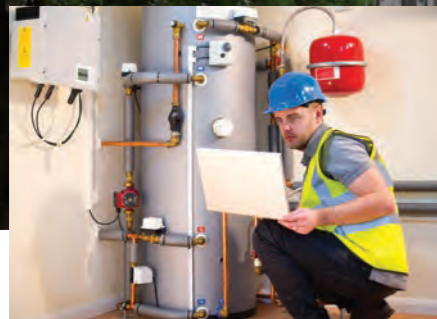
What we do:
Engineering, energy and efficiency



Who we are:
A group of talented engineers working to mitigate against climate change, and who want to make a difference to our clients assets



How we serve our clients:
Through top quality engineering innovation, adopting a different perspective and by incorporating sustainability into all we do.



SERVICES OVERVIEW

Energy Efficiency and Asset Strategy

Our teams' experience includes:

Energy Upgrade procurement assistance including grants for Energy Efficiency upgrades.

Asset condition audits providing asset management plans and programs for expected expenditure.

Energy Efficiency Audits and Upgrades for commercial and industrial facilities across a wide range of industries including (plastics, hay bailing, rolling stock facilities), waste management and sorting, water authorities and pumping and distribution businesses.

Building Services Engineering

We specialise in complex existing systems, building precincts, working direct for owners:

Peer Review Services of other consultants work, keeping large consultants to account, providing innovation and looking at problems through another lens.

Building Services and Renewable Designs ensuring heating and cooling to offices and facilities are energy efficient, state of the art and meet client specific requirements.

Compliant Design with ever changing Australian Standards, our designs are compliant, and we are licensed to perform the required engineering.

Energy and renewables

From a strategic standpoint, many organisations are unsure about the road-map to Zero Emissions. Bridgeford Group have guided large organisations towards a renewable future.

Net Zero Emission Strategies for Universities, councils and property owners.

Off-grid energy systems for agricultural clients and pumping stations, tying in diesel, solar and battery systems.

Micro-grid, high voltage, dispatchable energy and embedded generation for Monash University.

Solar, battery and electrical vehicle charging for universities, parts distributor, council and water authorities and waste management facility.



Bridgeford Group

We helped Power Equipment save over \$35,000 per year, whilst going green

Energy and Cost savings for Industrial, Agriculture and Commercial sectors

After great success with their 99kW solar system, Power Equipment's newly appointed CEO Luke Foster and award winning Energy and Building Services Engineer Nick Tassi started Bridgeford Group, a multi-disciplinary Energy, Efficiency and Engineering Consultancy, with the aim of bringing energy efficiency, cost savings and great engineering to Power Equipment's Industrial, Commercial and Agricultural clients.

Luke says, "Nick and I studied Aerospace Engineering at university together, and he provided design advice, energy and savings modelling for our 99kW solar system while working at his last consulting firm. Since selling his stake in the that firm, and seeing his great results across energy efficiency and building services not only here but at other leading Commercial and Industrial Clients, we knew we needed to chat about starting something together."

This initial conversation led Luke and Nick to form Bridgeford Group in July 2019, and are co-located across the Power Equipment offices Australia Wide. Bridgeford Group celebrated 1 year this month, and since inception has helped clients go green, reduce costs and improve their bottom line.

"Energy prices have risen drastically over the last few years, the business landscape is being continually disrupted with new players and technology, while customers are expecting companies to do more for the environment. We can help our clients save energy and money," says Nick Tassi, Managing Director at Bridgeford Group.

"These savings are bankable and reliable, whether it is solar power, operating savings through controls improvements, or designing high-efficiency heating, cooling or process systems, the savings repeat year-on-year, directly improving the bottom line. We can assist our Clients through the whole journey, from identifying savings opportunities, to designing systems, assisting with procurement, and reporting on savings post installation," Nick says.



Power Equipment's 99kW solar system warehouse roof with solar panels (above)
Inverter technology contributing to a substantial power saving throughout the year. (below)

Built on years of experience across a wide range of sectors

Nick's experience spans a career in building services and energy efficiency both on the contracting side and consulting side, and has helped a range of agricultural, industrial and commercial clients identify energy savings, reduce cost, improve process throughput or comfort for employees. His and the team's experience at Bridgeford Group spans multiple sectors and takes a holistic approach to saving energy and cost across operations and built environment.

Not only solar...

Building upon the success of the solar at Power Equipment Head Office, Bridgeford Group assisted Power Equipment with design and advice for an Electric Vehicle charger, allowing their solar to provide further benefits.

"Since our last article in Power News, we have added the EV car charger, that saves us over 2,000 litres of fuel per annum. Nick and the team re-assessed the solar system performance, and since energy prices have increased following installation, our payback for the solar system is now approaching three years, with \$35,000 per annum savings," Luke commented.

Nick has also helped clients reduce their operating expenses and carbon foot print, with electrification projects in both on and off-grid scenarios – "One of the largest operating expenses that many clients face is energy, whether it is diesel for farming, electricity for office buildings or gas for heating. There are grants available to help with energy audits and



designing and installing upgrades. An example might be diesel pumping stations. While you will require the diesel gen-set for peak loads and times when the sun isn't shining, solar can reduce diesel fuel costs."

Energy Efficiency isn't the only thing Bridgeford Group do, in-fact they are specialists in retrofit HVAC and electrical applications, particularly in large commercial, government and university precincts, as well as energy generation systems, to co-generation for pools or large scale ground-mounted solar systems for million acre farms, to energy assessments for water authorities. Unlike many other consultants, Bridgeford Group come to your site to gain an appreciation of what you do, understand your unique facility or site, and provide tailored advice.

Get in touch to save

To contact Bridgeford Group and find out about how you can save energy and costs, and potentially receive a government grant for energy audits or equipment upgrades, contact Bridgeford Group via their website.

Bridgeford Group Pty Ltd

10-12 Commercial Drive
Lynbrook VIC 3975 Australia

Phone: +613 9709 8560
email: admin@bridgefordgroup.com.au

www.bridgefordgroup.com.au

3TNV AUTOMATIC WATER PUMP SYSTEM



Smart machines are just a good idea without quality power like Yanmar's 3TNV

Keeping water trucks up to a pipeline project in North Queensland was proving a laborious task until the smarts of a local diesel business and the reliable, strong power of Yanmar got involved.

Yanmar's 3TNV series engines have been used in a set of three skid-mounted six-inch water pump stations designed and fabricated by Belcher Diesel Service in Townsville.

These are no ordinary water pumps and closer inspection of the Yanmar-hearted installations reveals some clever additions. To appreciate their real value though, it's worth going back a step to understand the problem they were deployed to solve.

A long time between drinks...

A fleet of 12,000 litre water trucks were working (sometimes around the clock) on a water pipeline project designed to help drought-proof some of North Queensland's major towns and cities.

Filling each of those trucks was a 30-35 minute process via a take-off on the main pipeline and involved the driver having to leave their vehicle and wait out a time-hungry filling process.

Enter Brad Belcher and his team from Belcher Diesel Service and the water truck contractor soon had a much better solution to his water pumping needs than he could have ever imagined.

Brad already knew the 1.3litre, 22-kilowatt (29.4hp@3,000rpm) power of the Yanmar 3TNV82A engine coupled with a six-inch pump could bring the fill time down significantly. These engines are renowned for their low emissions and great efficiencies from new MP high injection fuel pumps and carefully rounded holes in their injectors to promote even fuel spray.

But pumping power and volume was only half

the solution the BDS team could see when they tackled the problem.

Great engine made even smarter

Looking at the water truck turnaround time as the problem needing to be solved, the team at BDS could see that Yanmar power was only the core of the solution – but could be improved with some technology added on.

They set about designing and installing a remote-control system on the pump platforms that transformed a better pumping system into a brilliant one.

With remote start, remote rev control (idle up speed controller) and remote shutdown via wireless remote capability added to the pumps, drivers no longer needed to leave the cab of their truck to fill via standpipe.

The Yanmar 3TNV82A engine driving a six-inch Remko pump also meant fill time was reduced

more than ten-fold to around three minutes and ten seconds!

The remote start capability of the Yanmar engine was no doubt enhanced via the good design of the 3TNV. The Yanmar has fuel injection nozzles on a greater angle than conventional engines, good intake swirl ratio and a specially shaped combustion chamber that not only results in uniform fuel mixing but also improves starting ability and exhaust emission.

So impressive were the Yanmar pumps in their water truck duties, one was later used to keep a creek bed free of water whilst the pipeline was run under the creek bed. This task saw the Yanmar 3TNV82A running non-stop for more than a week as it kept a banded worksite dry – again proving the marathon reliability of Yanmar power on the job.

With inbuilt failsafe mechanisms also added (including temperature and low oil shutoff), the Yanmar 3TNV remote-controlled, skid-mounted pump systems designed and fabricated by Belcher Diesel Service have certainly added another feather to the cap of Yanmar industrial applications.



Combining reliable components within a logical process has created a labour saving solution to enable remote filling control for a fleet of water trucks

Aussie Pumps

FIRE CHIEF PUMP

to support mobile
firefighting units

of the National Parks and Wildlife Service

Australian Pump Industries has announced their success with a contract to supply 280 diesel drive Aussie Fire Chief pumps for the National Parks and Wildlife Service (NPWS), mobile firefighting unit.

The prestigious contract for the building of replacement vehicles was won by Blayney based ICR Engineering. It is a multi-million-dollar contract that will do wonders for the rural community and create new jobs in the area.

Australian Pumps specialise in engine drive pumps for fire fighting, water transfer and trash handling. The company is a leader in the development of this equipment. Seen right are the Aussie Pump staff assembling these special configuration pumps.

Fire Chief Pumps

Australian Pump has worked closely with National Parks over the last 25 years in supplying a specially configured version of their Aussie Fire Chief high pressure pump. The Fire Chief is arguably the world's finest lightweight portable firefighting pump. It is claimed to deliver more water at pressure than competitors.

"To drive the pump, we use a Yanmar 4.8 hp Model L48 single cylinder diesel engine and close couple the pumps. This makes it a very compact unit, important as space is at a premium on the back of the Land Cruiser ute" said Aussie Pump's Chief Engineer, John Hales.

New South Wales State Government MP Paul Toole announced the award to ICR for the complete state-of-the-art equipment. The new firefighting units represent a high-tech approach to providing NSW National Parks with the best equipment available.

"National Parks would not compromise on the pump. They know using the Aussie Fire Chief over the years has given great results" Hales said.

Essential Tool for the Job

The mobile firefighters are compact 4 wheel drive vehicles. They are an essential tool for fire crews to access fires in some of the most rugged and remote areas across New South Wales.



The Aussie Fire Chief with Yanmar diesel is the heart of the system. We have used a high-tech approach to the design and configuration but, it is the pump that will have to do the work when the chips are down,"

Ian Reeks – ICR's Engineering Director

ICR's Engineering Director, Ian Reeks said "One of our advantages is that we are located in the central location of New South Wales making it more convenient for delivering the finished products to all areas of the State. ICR has geared up for the contract by the acquisition of high-tech routing equipment that will enable them to produce a world class firefighting unit".

"The Aussie Fire Chief with Yanmar diesel is the heart of the system. We have used a high-tech approach to the design and configuration but, it is the pump that will have to do the work when the chips are down," he said.

International Success

"One thing we like about the Australian Pump Fire Chief is the way they warrants the pump end for 5 years" said Reeks. "That shows real confidence in the quality of the product. No wonder National Parks had such a good run out of that equipment" he said.

Australian Pump operates from a 2.1/2 acre factory complex in Sydney's boutique Norwest Business District. The company's firefighting equipment is sold all over the world. They played a prominent part in last summer's major fires in both North America and Europe. Their firefighting pumps also play a major role in Sumatra's annual forest burns.



YANMAR

**2019
National
Marine Dealer
of the Year**



Power Equipment would like to acknowledge the contribution of our dealer network in providing great support and product knowledge to the customer face of the Yanmar product. We are proud to announce that Unitech Marine Sales has earned the accolade as Power Equipment's Yanmar – National Marine Dealer of the Year for 2019.

Based upon a range of criteria including, sales growth across the entire year, business diversity, service performance and customer satisfaction they have achieved outstanding performance and provided exceptional customer support to achieve this honour. The annual awards are just one measure by which Power Equipment appreciate the tireless support and contribution of the service network in maintaining the esteem by which the Yanmar brand is recognised.

Unitech Marine Sales is located in Derwent Park, just off the Prince of Wales Bay on the Derwent River. They have been an authorised Sales & Service Agent since 2009 and provide sales and support for Yanmar and more recently John Deere marine engines and Torqeedo electric outboard motors.

Comprised of a team of 14 they are headed by brothers Peter and Matthew Shedden who have extensive experience in pleasure and commercial diesel marine engines. A family business they ensure a polite and personable experience to all customers. Providing complete support services including welding, CNC milling and turning they are experienced to provide new and re-power solutions and meet the demands of all marine and general engineering customers.

"Unitech Marine Sales had an amazing year with some large commercial installations in addition to their numerous pleasure-craft engine sales, tremendous growth and have received glowing recommendations from their customers based on the levels of support they have provided across the extensive product categories they support," said Michael Blair, Power Equipment's, Marine Group Manager.

"It is fantastic to see continued high levels of support that is based upon extensive knowledge to bolster the Yanmar product and



2019 National Marine Dealer of the Year – Unitech Marine.
Jessica Shedden, Peter Shedden and Matthew Shedden

I sincerely congratulate Peter and Matthew and the entire team at Unitech Marine Sales for winning this honour," commented Michael.

Michael congratulates all the winners and commented that, "On behalf of Power Equipment I am very proud to congratulate all the dealers who worked very hard to achieve this recognition in their respective territories.

"I am also very encouraged by the level of enthusiasm and significant growth being achieved by many dealers, some of which have only been part of the Power Equipment team for less than 5 years but already are shaping up to be very possible contenders to feature in the 2020 Power Equipment Yanmar Marine Dealer awards."

The award recognised the regional excellence with state winners and the overall National Power Equipment 2019 Yanmar Marine Dealer of the Year:

National:

Unitech Marine Sales, Derwent Park, Tasmania

State:

NSW Dealer of the Year:

Sydney Diesel Marine Pty Ltd, Chatswood, New South Wales

QLD Dealer of the Year:

Marine Mechanical Solutions, Coomera, Queensland

WA/NT Dealer of the Year:

Stem 2 Stern, Bibra Lake, Western Australia

VIC/TAS/SA Dealer of the Year:

Unitech Marine Sales, Derwent Park, Tasmania



2019 New South Wales Marine Dealer of the Year – Sydney Diesel
Philip Lulic of Sydney Diesel



2019 Queensland Marine Dealer of the Year – Marine Mechanical Solutions
Ray Harris with Rob Arnold of Marine Mechanical Solutions



2019 Western Australian Marine Dealer of the Year – Stem 2 Stern
Andrew Wright of Stem 2 Stern with Nick Marsden



2019 National Marine Dealer of the Year – Unitech Marine
The winning Unitech Team

WELCOME

ROD MELROSE

ANALYTICAL, PRECISE AND
SOLUTIONS DRIVEN



Power Equipment has appointed Rodney Melrose in the position of Service Support Engineer, who has made a fantastic impression already with his technical prowess and analytical nature.

Rod, as he is known around the office is based at the Power Equipment Head Office in Lynbrook. Rod's role encompasses supporting the end users of both Yanmar and John Deere products across customer support, technical considerations and warranty. It is a challenge that Rod cherishes as he takes great pride in working across two established and respected brands in the diesel engine industry and thrives on the technical challenges that he confronts from his daily interaction with customers.

Rod's heritage commenced with a diesel mechanics apprenticeship with the Gas & Fuel Corporation where he developed his skills and depth of understanding whilst on the tools. Globally experienced, he then had the great fortune of applying his expertise in diesel engines within the mining and off-shore construction industry. This saw him working with and leading teams of mechanics and engineers to ensure the continued operation of large industrial diesel engines used for propulsion, generation and cranes.

This heritage has provided Rod with the understanding of how vital diesel equipment is to the effective running of industry. He has an acute understanding of the importance of the reliable running of these engines and he is ostensibly aware of the restraints that occur when failures eventuate. This exposure has strengthened his temperament and allowed him to develop a confidence that enables him to rise to the challenge of functioning in highly stressful situations.

In conjunction with his approach to thinking-outside-the-square, logical analysis of a problem and being confident to improvise

without compromising safety or quality are the cornerstone attributes that keep a level headed analytic mind eager to assist clients with whatever difficulty that might arise.

While a mechanical background provides the basis to his technical proficiency, the ability to fully understand the clients predicament is equally as important and eventuates from an environment of considerate communication.

Rod emphasises the value of communicating with the customer to establish a thorough understanding of the situation and credits listening as an attribute that is immensely beneficial. He has experienced this same situation and allocates priority to making sure he provides accurate technical assistance so that a solution can be found as quickly as possible.

Rod recalls that, "working abroad in remote locations forced him to think outside of his comfort zone. It also makes you aware of how reliant distributors and customers are when it comes to technical support having been there myself."

Rod has a firm belief in continued development. "I believe that a person's skill set is something that continues to grow as they go through their working life. I don't think we ever stop learning or taking on new ideas," remarked Rod. Part of the satisfaction that he receives from his role at Power Equipment is in expanding his knowledge across all engine platforms and developing strong and lasting close relationships with everyone within the Power Equipment organisation and the clients and customers that he interacts with everyday.

While Rod's role is to augment the Engineering Division he also derives strength from the team itself. "I am extremely fortunate to have Nick Lee and Jim Kibblewhite around me. The strength of the engineering department rests with them. They have proven time and time again to be a wealth of knowledge," explained Rod. Not only has Rod gained the benefits of the shared knowledge of the Engineering Division but their support has made him confident in his ability to make a valuable contribution and the ease with which they have welcomed him has made his role immensely enjoyable.

In his private time he still finds it difficult to separate himself away from engines and is an avid motor sport fan. Across all the happenings from the Supercars and his favourite driver David Reynolds – with which he shares a few larrikin traits – while he also has a fond appreciation of riding and racing of motorcycles. In addition to motor sport he has an appreciation for push bikes and football and gains great satisfaction from barracking towards a victory for his beloved Saints; but admits that success is only around the corner.

At the end of the day nothing gives him greater satisfaction than the friendly greeting he receives from his adored staffie, which always leaves him smiling.

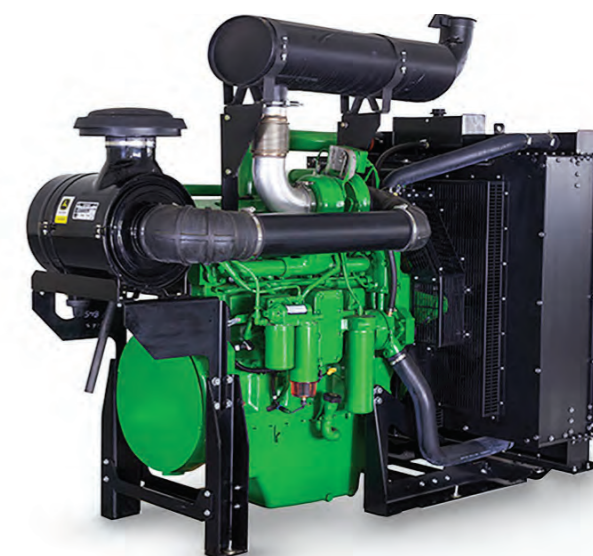
Supporting the Yanmar and John Deere brands is a great honour for Rodney, who greatly appreciates this unique opportunity that working at Power Equipment provides and with his adherence to personal improvement and exceptional customer support he affirms that his goal whilst working at Power Equipment to, "make a positive impression is something I hope people encounter after their interactions with me." We welcome your positive attitude and hope that our customer's appreciate it as much as we have thus far.

Today's forecast 100% chance of irrigation



**When you can't count on the rain,
depend on John Deere irrigation power.**

John Deere gives you irrigation power choices ranging from 24 to 367 kW, on all irrigation equipment. When an entire crop is at stake, you'll see why more farmers are choosing John Deere power for their irrigation units.





**THE SEA IS
UNRELIABLE.
YOUR OUTBOARD
SHOULDN'T BE.**



**THE CXO300
DIESEL WITHOUT
COMPROMISE**

Go outboard without giving up diesel

- /// World's first 300HP diesel outboard

Go outboard without giving up robustness

- /// Built for professional use

Commercial warranty:
1500 hr/18 month

Recreational warranty:
5 years

Go outboard without giving up service

- /// Service agents throughout Australia

TAKING ORDERS NOW