Current Projects

Name	*Far-Away*
Boat	8.2 m Salty 27
Motor(s)	2 x 150 hp 4-Stroke Honda 4-cyl Outboards
Trailer	Tri-axle (AL-KO) custom alloy trailer.
Electronics	Simrad, GME, BEP
Skipper	Peter Webster
Based	Gold Coast & North Queensland
Operating	Throughout northern Australia - Qld, NT, WA
Main Task	*Keeping the dream alive!*

Boat	(Modified) Ocean Craft 340
Motor(s)	1 x 20 hp Honda 4-stroke
Trailer	n/a - travels on Rhino Roof Rack on F-250
Electronics	GME VHF, GME 260 Sounder, RFD EPIRB
Based	Attached to "Far-Away" SEQ
Operating	Northern Australia
Mission	Still & video fishing photography

Name	*Redaction*
Boat	Quintrex 670 Offshore Hardtop
Motor	150hp MerCruiser Cummins diesel
Trailer	Quintrex gal steel / AL-KO brakes, suspension
Electronics	GME VHF, AM/FM, Lowrance LX12C
Skipper(s)	RC (Photography) PW (Fishing/Away)
Based	Gold Coast
Operating	All-Over
Main Task	Camera boat for still & video photography, plus depth sounder trials and field trips

Name	'Spotty'
Boat	Stacer 429 Nomad TS
Motor(s)	As tested by the team, to 40hp
Trailer	Stacer galvanised steel
Electronics	n/a
Skipper	RC/PW
Based	Gold Coast
Operating	SE Queensland
Main Task	Test-bed for o/boards, plus depth sounders

F&B Y-2009

Project Logbook

Quinnie Project Finally 'Cracks The Code'

It was the last piece of the puzzle, and we nearly gave up, but we knew there was much more performance to be had from the Cummins turbo diesel sterndrive . . . and there was!

It Pays To Be Persistent

Following last month's report on the rewiring and reorganisation of our Quintrex 680 diesel's electrical system, we've been doing quite a bit with the craft to the extent that we'd pretty much decided that we'd keep it for another season - for a whole host of other reasons, but mostly the ones that started out with, "this is finished!"

These words will have special significance to anybody that's ever built a platey before, because it can be such a tortuous process, by the time you get to the end of the project, the concept of starting over and doing it again is more than a little daunting.

In this case, it was even more poignant than that, because the 680 as we've set it up now, is particularly well suited to the job we had in mind for it nigh on 2 years ago when it was first ordered.

It's very hard to get a 6.5-7.0m platey that can sleep 2-4 people, cook for them, have toilet and washing facilities, fresh water storage and washing up facilities – all in a craft that has a very high level of aptitude to a wide variety of fishing types but especially bottom fishing and surface trolling.

Over the years, we've normally kept project boats for about a season or 12 months, and without actually ticking off the days on a calendar, it seems this is convenient for us, terrific for the buyer (because it's still 'as new' and the readers don't have time to really get sick of reading about it – and that's something we're always mindful about.

The Last Puzzle

The last piece of the puzzle for the writer was getting the boat to perform, as I believed it should have from the outset.

From day one we queried the original, standard alloy 3-bladed Mercury propeller, believing that it was "soft" or not really suitable to pull the most out of one of these new high tech, small, high revving diesel

SEA Media's Project Boats Policy - Sea Media maintains a number of 'project boats' principally to ensure the editorial team is able to keep up with today's rapidly changing boating world. It allows us to form *our own* conclusions, develop factual reference information for readers, and most importantly, get a "feel" for the product - something you cannot do from a press release, a brochure, or a 30 minute zoom 'around the bay' in perfect weather. Most boats are kept for about 6-12 months, depending on their complexity, effectiveness, usage, cost, and how much interesting editorial we can develop for readers from the project. When we're finished, project boats are (then) usually sold to *Fisherman & Boatowner* readers.

engines.

In recent years, these new common-rail diesels have become very popular with a lot of manufacturers, driven (pun intended) by very strong demand for lightweight, high performance diesels by the European automotive industry.

Volvo's D-3 series is a good example, but Volkswagen, Peugeot, Cummins, BMW, all now make a range of diesels from 1.2L through to 5L and beyond, all with extensive use of plastics, alloys and contemporary fuel injections systems with waste-gated turbo-chargers and after-coolers.

I'm sure most of the traditional Scottish diesel engineers would be spinning in their graves over some of the specifications that we're now commonly seeing in these modern diesels.

Today's diesels are a far cry from the traditional slow-revving, heavyweight classics from the likes of MAN, GE, Lister, Gardner, Thornycroft, Kelvin, etc, all of which were based around the traditional notion that you built a massively powerful block out of darn near solid iron to cope with the massive (by petrol engine standards) compressions of the diesel engines.

However, over the years, metallurgy has changed dramatically, and these days it's common for diesel engineers to build really powerful blocks using special alloys cast in such a way that they create massive strength at a fraction of the weight of the traditional diesels.

Of course, the traditional diesel engineers would point out with some accuracy, that with the creation of these lightweight, alloy-blocked and headed diesels, the traditional reliability inherent in the classic heavy duty diesel, has gone out the window, and the days of the diesel engine going on for thousands of engine hours without touching it, have all but vanished.

But that's life – and just as few boatowners will ever see thousands of engine hours, there's really hardly any point building an engine that will achieve such performance unless you're selling it to commercial interests such as tankers, freighters, naval vessels etc, which still do require engines to go for many thousands of hours without overhaul.

Nevertheless, the lightweight, modern, high revving diesel such as the QSD 2.0 Cummins diesel in the Quintrex, is truly state of the art in the sense that it's producing its 150hp at 4,000 rpm, and is a very punchy, torquey engine with considerably more torque than its 2.0L engine capacity would normally have – thanks to the diesel engine characteristics, and the efficiency of its computerised fuel management system.

First Installation

When we first trialled the 150 hp Cummins, we were pleased with the smoothness of the engine and its obvious willingness to perform, but there was only one problem – it didn't seem to have 150 horses under the bonnet, although it was, technically, performing according to the manual.

We were aware that the claimed weight of 373kg was probably a bit suspect, but knew that it wouldn't be out by more than the liquids and the weight of the propeller (normally) but

even so, it was up at least 100kg on a matching outboard of 150hp from various brands, and we were prepared to accept a lesser degree of performance – but not to the extent that we had here.

The writer took it up with the Mercury people who, to this day, have shown very little interest (well, *none*, actually) in the project.

Nevertheless, according to the Mercury people, the 3 bladed 14" x 19" propeller was one of several they'd tried with the Quintrex team in their first trial in the Coomera River next to the Quintrex factory. They found it was the best performing propeller, and although they acknowledged my concern that the engine was spinning too high (at 4,200rpm) at full noise. However, they claimed it would settle down, and provide a handy buffer for those occasions when the boat was full of fuel, water and crew.

They believed it would settle down to run a bit under 4,000rpm. None the wiser, and willing to accept their counsel, we let the matter drop, and got on with the jobs we had queued up.

However, in the true confessions department, the writer was not happy. This $120K Quinnie was not performing very well at all; the poor thing was too slow, worrysome at sea, and decidedly suss in the Seaway Entrance bar crossing we have here on the Gold Coast. With a run-out tide and the normal wave action, it just didn't have the grunt to get out of its own shadow, let alone power up through and over a wave.

Well, it's taken a little bit of time to do it, but in the end, after 30 or so jobs on the Broadwater, the writer decided enough was enough: the propeller was not matching the torque curve of the engine and the 3-bladed alloy left a very hollow or flat 'feeling' from about 3,300-3,400 through to 3800-3,900 rpm, when it certainly made more noise, but we really didn't go any faster – we're talking here about going an extra couple of knots (see chart).

Solas Propellers

We decided to get in touch with our colleague Steve Evans from Solas Props on the Sunshine Coast, and see what alternatives he could suggest. Steve, as regular readers know, has been involved with us in virtually every project boat we've ever done – and often with spectacular results.

A conference with Steve confirmed what the writer suspected: the prop was ill-matched, and Steve had an immediate solution and recommendation.

"I'd like you to try the Rubex 4-bladed stainless steel Solas propellor we've developed especially for this type of engine. It will provide you with more stern lift, smoothness and I believe, a significant increase in performance" he told the writer.

Well, it sounded promising, so we ordered the $850, 4-bladed 20.25" x 15" stainless steel propeller, and it duly arrived in the office a couple of days later.

Within the week, we had the opportunity to change the propeller

from the jetty at the writer's house and by judiciously backing the craft into the beach in the canal, we were able to lift the leg and quite quickly change the prop. *Too quickly . . . .*

As it happened, I didn't spin it through 360 degrees, did I? Because it all switched over so easily, I was concentrating more on replacing the fold down tabs than spinning the prop through 360 which I assumed it would do.

Wrong . . !

We had an anode style trim tab sticking down about 50mm from the cavitiation plate, and sure enough, as soon as we started the engine, it just simply went *ker-lunk!* and jammed itself into the soft 'leg' of the anode. It was not a good look, because we had already cast off when Ruth fired up the diesel, so we drifted for a few minutes down the canal sans power, before picking up one of our neighbours' jetties and swapping the propeller back to the original 3-bladed alloy.

We were not happy campers. Obviously, the 4-bladed 20" prop was no way going to fit the Alpha leg with that damned anode hanging down so far.

Thanks to the wonders of the mobile phone, a frantic call to Steve Evans revealed an embarrassed silence when Steve said *"Peter, mate, (idiot) (you Richard . . .) you've got the wrong anode on the Alpha leg – when they're used with engines such as the diesel, you're supposed to have a flush anode, and this prop which we've installed around the world in hundreds of similar installations on the MerCruiser Alpha stern drive leg, will then easily fit and the resolve your other problems."*

"Now, take a deep breath, settle down, and give the Mercury blokes a call . . . I'll call Mary and have her bring down some of those little white pills to the jetty for you . . "

Back To Mercury

Well, we were pretty cross about this, but it's not like we were out in the bush and the boat didn't go. More to the point, we still didn't know if the new prop would be any better. But my 'gut feeling' was pushing me to try this new propeller, whilst everybody from Mercury and Quintrex were saying the opposite.

So it was another 2-3 weeks before the anode business was sorted out, the leg was serviced, the incorrect anode replaced by the flush mount version you can see in the accompanying photograph.

This time it all went together beautifully, and the propeller would even spin through the whole 360 degrees we needed . . . *(sigh!)*.

So last week, several months after this whole business started, we finally got ourselves in a position to test the original prop again, and then literally minutes later, switch the props again and go back out over the same course using the same technology, tides, winds and power to re-test the craft with propeller #2 – the stainless steel Rubex 4-blader from Solas.

A Big Difference - Again!

It was important for us to test the original 3-blade alloy MerCruiser prop again because we wanted to make absolutely sure we were comparing apples with apples. With the same amount of fuel, crew load, wind, tide etc.

That's pretty much what happened, except mid-way through the test, when we returned to our jetty off the Broadwater to change Prop #1, we were joined by two of the writer's grandkids, 9 year old Kyla and 8 year old Matthew, who pleaded with the writer to come out for a run on the boat. *School holidays . . . .*

Given that between them, they wouldn't have cracked 55kg, I didn't think it would make a hell of a lot of difference to the second set of figures, which were going to be for the 4-bladed Solas stainless steel prop.

But for the record, it should be noted that the load *did vary* to the extent that we added Matty and Kyla's weight to the original test schedule for the Solas prop.

It wasn't much of a handicap, but in *fact,* the 4 bladed Solas prop had a slightly bigger load than the standard 3 bladed Mercury prop.

Smoother, Better Performance

Well, in true fairytale tradition, the new 4-bladed stainless steel prop blew the 3-bladed alloy prop out of the water. You can study the figures for yourself, and recall they were put down literally back to back in (almost) exactly the same circumstances on the same day. On average, Steve's 4-bladed stainless prop was 20-25%

	Merc Alloy 3		Solas S.S. 4		M	S	(+ -)
	14 1/2"D x 19"P x 3		15 1/4"D x 20"P x 4		Specific Speed Comparo		
r/min	L/ph	knots	L/ph	knots	knots	knots	Gain
1000	1.5	4.5	1.6	4.8	4.5	4.8	
1500	3.3	5.6	3.9	6.1	5.6	6.1	
2000	6.0	7.1	7.2	7.2	7.1	7.3	
2500	8.2	9.1	9.9	10.1	9.1	10.1	
3000	14.3	10.3	15.8	15.6	10.3	15.6	51%
3500	17.1	18.1	21.6	21.5	18.1	21.5	18%
3800	21.6	19.9	26.3	25.2	19.9	25.2	26%
4000	24.02	1.5	32.0	26.2	21.5	26.2	21%
4200	26.1	23.0	n/a	n/a	23.0		

better than the 3-bladed alloy and easily justified its permanent acquisition by the F&B team on the boat.

To say the Quinny was transformed is the understatement of the year.

A whole combination of things that suddenly happened.

The bum lifted up out of the water, the power was delivered smoothly as the boat started to plane, and the outright speed was dramatically improved, especially in the critical working / cruising area of 3,800 revs, which Cummins believe is the optimum or sweet spot for this diesel.

Look at the difference – 19.9 kn compared to 25.2 kn (both averaged 2 way run figures).

Heaven's above, that is like putting an afterburner into the engine room, and it totally changed the aptitude and application of the Quinny.

It started handling like the Quintrex we wanted, it cruised more smoothly, more fuel efficiently and faster – what more could we want? It was also important to note its performance in the seaway was dramatically improved too, with the boat now having the snap, crackle and pop to pull itself off a wave, and return to the sort of level of handling we've come to expect from these Millennium based hulls.

We were delighted with these results, especially as they vindicated the writer's belief that whilst the original propeller was spinning up to the requisite revs, it wasn't pulling anything out of the engine ie, it was running 'softly' or turning too easily in the water, so the engine wasn't really working hard at all.

If enthusiasm counts for anything, PW's 9yr old grand daughter Kyla is a deckie in waiting . . . !

Conclusion

Obviously, I urge our readers to carefully consider their boat's performance and operational range of their engines(s).

It's crucial in a power plant without a gearbox (as in a first, second or third gear going forward) that you match the engine's characteristics with the right propeller, and especially considering a boat has to run at the best part of 3/4 throttle most of the time - which is something we never do in a car. If you think about it, car engines wouldn't last too long if we ran them like we run an outboard motor all the time.

Boat engines run hard, work hard and it's crucial that the propellers are matched to the engine's characteristics to the extent that if you have an engine that has an operating range of 5000-5500rpm (or even more commonly 5500-6000rpm) then it behoves the dealer and later, the owner, to make sure that the engine stays within that rev range during the operational life of the boat.

If it's under that rev range it's exactly the same as driving around in your car in second or third gear, and of the boats the writer has tested of late for various colleagues and friends, the single characteristic that stood out a country mile was that NONE of them were operating within cooee of their engine's operational range.

All of them were suffering from performance withdrawal symptons because of this characteristic. Sometimes it was because the prop was buggered, with great chunks out of it, or the shape of the prop was partly mangled, other times they had good props but they simply didn't match the engine *("I got this prop cheaply from a friend. ." said one fellow ruefully to me)*.

So I urge readers to very carefully consider their engine's performance characteristics and if they are in any way worried about the performance level of their craft, then it's worth talking to Steve Evans' team at Solas Propellers in Maroochydore (and various depots around the country) to sort the engine out.

Similarly, if you've got one of the newer craft and you've bought it from a dealer, if it isn't performing to what the brochure's stated, take it back to the dealer and say *"Please, I don't think this engine is performing properly" and by all means say that "according to F&B it should be operating between (say) 5,500-6,000rpm, and I'm only getting . . ."*

And be wary of being palmed off with comments like *"Mate, that's normal for that engine . . ."*

Sometimes it pays to be persistent.

Footnote: *We'd like to extend our thanks again to Steve Evans and the team at Solas for their support and belief in the writer's assessment of the problem, and publically thank them for their assistance in solving – once again – a really annoying problem through the sheer professionalism of their operation.*

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