## Sea Trials:

# The First Noosa Cat 3500 With V8 Mercury Diesels

**For the Volunteer Marine Rescue team in Mandurah, Western Australia, the arrival of their new, 'wide body' SAR Noosa Cat 3500 gives them renewed capacity and confidence to protect their local waterways and adjacent ocean passages in this popular - and fast growing - region of Australia. ABM joined the crews from Noosa Cat and Mandurah, as they conducted the new cat's sea trials off the Sunshine Coast, Qld, just before the rig was loaded onto the special semi for the long delivery run across Australia to its new base in the West.**

## Noosa Cat 3500 / Mercury 335hp V8 Diesel

**Few countries in the world have a coastline as long or as rugged as that surrounding Australia, and because of the distances involved and the scarcity of population centres in many of the more remote parts of Australia, the issues of search and rescue play on the minds of the people committed to the safety of Australian boatowners and their families, commercial fishermen and all those who go to sea to make a living along this 12,000km coastline.**

Making matters much more difficult for SAR authorities, the issue of distance arises time and time again because so many of the offshore incidents involving the Search & Rescue people, are many miles from their operational headquarters.

A fine example of this in fact is the annual Sydney to Hobart Yacht Race, where a fleet of upwards of 120 yachts and hundreds of sailors make their way down the NSW and eastern Victoria coastline, before crossing Bass Strait over to Tasmania for the final run up the Derwent River. Most readers will recall the dreadful Sydney-Hobart of 1998, when a massive Bass Strait storm flattened the fleet, sank five yachts, lost six lives and resulted in only 44 of the original 115 yachts making it to Hobart.

On that day, Australia discovered how hard it is to run Search & Rescue operations over such a length of coastline and so far out to sea. And this was easily the most highly organised and professionally backed yachting event in Australia, when the SAR authorities were already on alert before the yachts had even gone out through Sydney Heads.

In other parts of Australia, along the eastern seaboard, around the 'bottom' of the Continent, then up to the nor-west coast of WA, the sparseness of our coastline, the distances involved, are often the biggest issue the SAR authorities have to deal with. And their biggest concerns are not the well organised events. It's the trawler that snags its nets on an underwater obstacle and rolls over, often before the crew even has time to raise the alarm that it is in terrible trouble. It's about the weekend warrior who goes out from his local launchramp, across the Bay and through the Heads on what appears to be a nice day, without really checking the weather and using a craft that probably hasn't had the batteries charged, or the fuel cleaned or the motor checked, for months.

There's nary a month goes by where in some part

***Left & Above: MerCruiser's top tech and Sales Manager in Queensland for government and commercial business, Dallas Hersey is very proud of the new V8 diesels, and was present for the hand over and sea trials with the men all the way from VMR Mandurah, WA, carefully going through the operational and management protocols for these sophisticated sterndrives.***





## Noosa Cat 3500 / Mercury 335hp V8 Diesel

***Right:** Noosa Cat CEO Wayne Hennig at the helm of the new Wide Body 3500 diesel.*
***Left Above:** The new Noosa Cat 3500 has just about every electronic option available - note the FLIR scanner on the targa.*
***Left Below:** Compact, 'clean,' beautifully fitted Mercury V8 is a snug fit inside the Wide Body 3500 hull. Servicing access is excellent.*

of Australia boatowners are getting themselves into trouble and calling for assistance from the local SAR as a matter of life and death emergency. At times like these, when the balloon goes up, crews are hurriedly cobbled together, made up from volunteers that could well be working in the local hardware store, on a building site, on patrol in a police car or working in the fire station. In SAR groups around Australia, cross involvement with other professional rescue and community organisations is a very common feature, but the available crew people all rush into position when the emergency is confirmed.

It goes without saying the boat must be "fit for purpose" and maintained in perfect operating condition ready to go in minutes, not hours or days, but when the duty base station radio operator picks up the emergency call or it comes in from the AMSA centre in Canberra (read: Australian Maritime Safety Authority) there's no time to think about boat maintenance or repairs.

The boat has to go, there and then, 24/7.

It's also critical that the craft can be operated by different crews, because most SAR organisations maintain multiple skippers with multiple deckies, and they may not always have worked together as teams before – but each has been trained to fulfil his task regardless of who he or she is working with. Sometimes they have smaller than necessary crews, other times they're ample – but emergency situations don't play fair – if there's any weakness in the regional SAR organisation, it's London to a brick it will be exposed by the announcement of an emergency situation.

Underpinning the Search & Recue movement throughout Australia is a unique Australian product. It started life as the twin hulled "Sharkcat" designed by charismatic and uniquely talented prawn fisherman, Bruce Harris. The twin hulled movement he started back in 1972/3, has now grown through successive corporate changes, with several owners in the 1970s and 1980s carrying the original 'Sharkcat' philosophy forward with varying degrees of success.

In 1987, Wayne Henning and his wife Debbie were purchasing hull and deck kits from Sharkcat, and building them to a much higher specification than the factory, badging them as 'Sharkcat by Noosa Cat'.

In 1990, they made the historic decision to buy the Sharkcat moulds, and after a period of consolidation, set about building what is today an internationally recognised boat building operation with a unique range of twin hulled craft.

Today's Noosa Cats (as they are now called, thanks to a rather daft decision by a well-known bank to hold out the name "Sharkcat" as security over one of the previous owners of Sharkcat from the 1970's, to the point of hitting-up the Hennigs for vast amounts of money to repurchase the name "Sharkcat".

To the bank's amazement (and chagrin, no doubt) the Sunshine Coast couple decided not to play that game, and called their new company and its products, Noosa Cat, for the patently obvious reason that they were built in Noosaville by Noosa residents, etc! It took about 3 minutes for the rest of the world to realise what was going on and within weeks, everybody knew that Noosa Cats were carrying on where Sharkcats left off.

Whilst the writer has no idea if the bank still holds the name in their safety deposit box, it's significant to note that nobody really cares. Today, the name


***Left and Above:** Well known Furuno identity - not to say guru - Shane Beardmore working with the incredibly powerful Furuno Nav-Net multi-function system installed in the new Noosa Cat 3500. Shane is seen here explaining to Mandurah's Barry Walton all the functions and potential of this incredible system - whilst Mandurah VMR Commodore Ian Walton watches on.*

## Noosa Cat 3500 / Mercury 335hp V8 Diesel

"Noosa Cat" is synonymous with this amazing range of twin hulled powered catamarans, and all twin hulled craft (or "power cats") are labelled 'sharkcats' as a generic description, by the boating public.

### A Different Build Standard.

The name change is not entirely inappropriate either, because in truth these craft have not been "Sharkcats" for decades. Almost from the get-go, Wayne Hennig was determined to build a better powered cat with a much higher build standard and a higher standard of external finish.

The original Sharkcats were agricultural, to say the least, and as the writer has had quite a few of them over the years, this is not an emotional comment, but one of pure objectivity.

When the original Sharkcats were built under yacht designer and builder Rob Legge's watch in the factory, alongside his renowned RL-24 and the bigger RL-28 trailer yachts, the standard wasn't too bad and our first one, the dark blue 20 footer built in 1978 was acceptable – albeit in a very commercial way. It was just flow-coated over fibreglass and resin and the concentration was on hull strength, as distinct from finish. It was really nothing more than a deck with two hulls, a windscreen up forward over a funny little 2-berth cabin, with kneeling room only. But it was, in the late 1970's, an extraordinary craft with a level of rough water performance with two 150hp Black Max outboards, that was simply unbelievable.

This craft started a long fascination the writer has had for powered cats of all types, with the common thread over the last 30-odd years of Sharkcats and then Noosa Cats providing the backbone of our work in this field. There were many other varieties of cats we've owned and operated along the way including Powercats (268 and 328) Kevlacats (5.2, *'Krazy Kate'*) Markham Whaler (6.4m WA *"Tusitala"* ) Cairns Custom Craft cats (yellow 5.6m and black 6.8m), but we've had more Sharkcat/Noosa Cats (20' 560, 23' and 6700 HT) over the years than any other brand. And of course, the writer has been privileged to test or report on all manner of cats (ranging from the little 4.3m Markham Whaler in 1977 through to the exceptional Ocean Trek 528 in the late 1980s) in the intervening years.

So the writer is in an unusual position of being able to look across many years and managers of this "Sharkcat" franchise, and can say without fear of contradiction that Hennig has almost totally transformed what started life as a commercial abalone dive boat to become one of the most sophisticated craft of this kind in the world.

Hennig took the original "Sharkcat" range which at that stage topped out with the podded 8.0m cat, and started retooling virtually every model.

Ironically, he's owned Noosa Cat now for so long, he's actually starting back over re-developing the boats he re-developed in the first place - and that is a key element in the reason why the Noosa Cat franchise remains one of the most successful Australian GRP boat building operations of all time.

Hennig has never stopped retooling, re-designing and modifying his range of craft to 'stay the course' with technology and consumer demand. He listens to his customers, be they SAR groups, the Water Police, the Navy, or Fred the fisherman – it doesn't matter. Hennig is like a sponge in the sense that he takes onboard what everybody tells him they want, looks long and hard at the range, and decides whether or not he's got the right model for that customer.

A good example here is the recent delivery of seven Noosa Cat 3000s to the NSW Water Police with the integrated, full fibreglass hull(s).

In the Noosa Cat business, change is something of an evolutionary process rather than revolutionary. Given the base line is that all of the hulls work superbly, it has never been a case of any model needing great change – it's more about balancing the changes any new technology involves, against the displacement, engineering and fit-out of the hulls.

The hulls themselves have been changed too but only fractionally, sometimes with a tweak of the hulls' width. This was very apparent in the era when four strokes became the norm.

Today, with the 2400 and 3000 series, new hulls have all been slightly increased to build displacement towards the stern but without affecting the knife edge forefoot. Apart from the now integrated transoms, even standing back and looking at the boats out of the water, it's impossible to tell the difference – you need one of the older models parked right alongside on the hard, to pick the difference.

But this is the way Noosa Cat develops their new models and how they stay right on the pace with technology, as it changes.

The Noosa Cat featured in this report, is the diesel sterndrive version of the latest 3500, built for the Mandurah Volunteer Marine Rescue organisation. It is Noosa Cat's first applications of the Mercury V8 diesels, a pair of 335hp turbo charged V-8s.

This is important stuff – although the Audi-based


## Noosa Cat 3500 / Mercury 335hp V8 Diesel

***This is a big, powerful design - in every sense of the word. Note the terrific clearance height of the tunnel (critical to water flow exiting from the tunnel compression) and the scuppered, central transom door. When the going gets tough . . . .***

Mercury diesel V-8s are remarkably light by traditional standards, there's still nearly half a tonne involved, on each side, as each V8 engine and Bravo Three package weighs 496kg. So it took carefull planning to get the balance right in this big cat.

Traditionally, the best tool the designers have got of getting a craft like this balanced perfectly is the location of the fuel and water tanks. With sterndrive installations this is not quite as hard as you might think, because the sterndrives are in each corner and thus the fuel tank by definition has to go forward into one of the other comparments on either side. It's more a case of getting out the scales and doing the balancing act to get the craft perfectly aligned whether it's got a full tank of juice (500L a side in this case) or whether it's running on almost empty.

These are issues that are very much upper most on the minds of the Noosa Cat team when they move from one technology to another. In this case, the positioning of weights and balances of the diesel version is radically different to the weights and balances involved in the outboard version using (commonly) 250-350hp outboards, mostly from Yamaha but also from Mercury and Suzuki. But these V6 outboards all weigh in the 275-300kg class so the outboard version can easily cope with the difference in the outboard brands chosen by the customers.

With the Mandurah VMR opting for the newish Mercury V8 diesels in the 3500 instead of the big outboards, the overall weight, and the balance of their cat is marginally different (by a factor of approx 350-400 kg) to the outboard model. That said, it really means that Noosa Cat now have two 3500 models fully developed – one that's perfect for all the big-power outboards, and this one, for heavier diesels in the 500-600kg class.

This is an important factor, as Noosa Cat have always maintained a completely 'open door' policy on the brand of engines and drives they'll fit. If a customer wants a Volvo diesel driving Hamilton jet pumps – if they'll fit, that's what they'll get. No probs. Ditto the brand of outboard. If someone (anywhere) chooses a Suzuki V6 300hp outboard, or one of the supercharged Mercury Verado outboards, that's what Noosa Cat will instal for them.

But if the customer is unsure, and seeks Hennig's advice, he'll plump for his default suppliers. That can be summed up this way: Noosa Cat like to fit Yamaha outboards, Mercury sterndrives and Furuno electronics, and in truth, that's what most of the cats they build use as 'standard' equipment.

### Diesel Performance

It's no secret the writer is passionate about the use of diesel engines in commercial and semi-commercial applications where hundreds of hours are involved. More so in boats like this that are required to operate 24/7, regardless of the weather. Make no mistake, this big rig is capable of going anywhere, anytime, providing it's got the fuel in the tank to drive it.

This needs to be emphasised because boats of this calibre have to operate 24/7 and they can't be tricky or hard to drive, or in any way be hampered by poor handling and performance.

When the crew is on a mission and people's lives are at stake, the rescue boat has to achieve 100% of its designed performance every time, and the crew must feel 100% confident that there will be no funny turns; no swerving and diving in a following sea. It must have true and straight tracking regardless of the conditions, and it must have the ability to take a wave right over the boat if it is necessary at the bottom of a bad trough bouncing back off that island where a boat (or surprisingly often, an aircraft) has foundered. . .

These are serious boats for serious situations, and over the years Noosa Cat, working with some of the best coastal rescue crews in the world, have developed a series of standards covering a whole range of boat building matters. Be it how the post is installed in the cockpit floor for towing, how the boat handles and steers, the speed it can maintain offshore in any conditions (and particularly at night) or how the big, open scuppers can drain the whole cockpit of water in seconds. . . . across the fully sealed, lock-down hatches.

In the night time, in the dark, especially in a storm, SAR skippers can rarely see the sea state they're in. They have to rely on the boat coping with whatever comes along, regardless of the wave conditions or the sea state. Inside the cabin, most of the lights are in red mode; the navigator/observer has his or her eyes glued to the control screens on the port side. The skipper is feeling the boat as it pitches and rolls in the heavy conditions, hands on the throttle, eyes glued forward in his own cocoon whilst his crew watches the big Furuno LCD panels with the overlaid radar on the GPS screen, their eyes glued to the remarkable FLIR night vision screen. This is their latest tool; a major 'break-through device' to give them 'eyes' in a night rescue as they carefully track through the dark in the rescue zone.

These days, in major operations, AMSA plans the

Series: **Noosa Cat 3500 (Wide Body)**
Model: **Rescue Patrol Standard Cabin**
Moulded Length: 9.30m
LOA: 10.46m
Beam: 3.50m
Survey: 2C

- 2 x 500L fuel tanks with fuel level senders
- 60L water tank
- Seating - 3 x adjustable suspension chairs, 3-person settee with table, 3-person bench seat
- S/S tow post
- Walk-in toilet compartment
- 2 x berth
- Hinged cockpit and transom doors
- Rain sensing wipers
- Safety gear package
- Custom yellow rescue gelcoat
- Lock-up bulkhead with HD sliding door
- Salt water deck wash system
- Fresh water shower
- Capstan winch to cockpit coaming
- LED flood lights, LED strip lights to engine bays
- Electric power assist steering
- Bilge pumps
- Structural fire protection and fixed fire extinguisher systems to engine bays

**Furuno Package:** These are the main components of the Furuno gear:

- 3 x TZT14 14.1" Multi Function Display only 12-24 VDC
- GP-330B GPS Antenna (NMEA0183 & NMEA2000)
- AUM005-MAP WIDE Jeppesen Vector charts, 3D Data, Sat Pictures - Australia
- PG-700 NMEA2000 Fluxgate magnetic sensor with solid-state rate gyroscope
- ICOM IC-M604B 25W, DSC, 55ch VHF Transceiver.
- SC630 30W Loud Hailer Horn Speaker (8 ohm) c/w S/S mounting bracket
- DFF1 Digital Network Sounder
- 520T-BLD Transducer 600W Depth/Temp Bronze Low Profile B-117
- FLIR M-Series M324XP (25Hz, PAL) 320 x 240 Microbolometer
- DRS6A - 6kW, 24/36/48rpm, 64NM, 4ft Open Scanner only (radar)
- RT-300 dual band direction finder
- ICOM HF radio

rescue pattern co-ordinates in Canberra, 'plugging' directly into the VMR Cat's Furuno Nav-net system, supplying co-ordinates despatched from the Duty Officer and his team in Canberra, as the Noosa Cat 3500 travels to the rescue area.

This brilliant new Cloud-based system allows Canberra to work simultaneously with SAR craft at sea, plus any helicopters, fix winged aircraft and commercial shipping being brought into the mission.

Noosa Cat build boats like no one else for these conditions. It's not to say that other people can't do it, obviously they can, and have done so in the past. But nobody else in the world has had the responsibility of building Search & Rescue boats – *hundreds of them* - for more than 25 years. Needless to say, there is a level of knowledge, a level of know-how imbued in a Noosa Cat's DNA that is simply unobtainable anywhere else in Australia.

### The 3500's Specific Characteristics

What's this one like? Well, as an initial disclosure it must be clear the writer is a big believer in diesels and especially in boats like this. In SAR situations like this, it's no longer just an issue of engine reliability, and in most cases, it's not even an issue of fuel economy, although these are matters of deep concern to every SAR organisation holding chook raffles and running meat trays in the local pubs.

It's just not true to say that fuel economy isn't an issue when it really is at the coal face, but from the writer's perspective, in issues of life and death, the type of engine installed in a rescue vessel that's financially underwritten by the State or Federal government, should be irrelevant: the engine should simply be the best engine for the job.

Now in the writer's opinion, that brings us back full circle to the diesel, and in this case, the new Audi-based Mercury V-8 turbo diesel is an ideal unit for the 3500 Noosa Cat. It's a 4.2L engine, so it's not that huge in the traditional diesel V-8 sense, but equally, it's still a substantial volumetric design that is beautifully crafted with lots of materials like aluminium in its castings (to keep the weight down) so it can be used in the automotive world (by Audi, obviously). At the same time, married to the MerCruiser Bravo Three twin prop sterndrive, it's a near perfect application in the marine world, too.

Performance from the V-8s was spectacular to say the least. Few cruisers have the acceleration of this rig. Put the throttles down and it basically jumps out of the water in its own length and just rockets to full speed in about 20 seconds. Spectacular is the only word.

In cruising terms offshore, it's almost a bit overpowered because it easily pulls 36 knots without fiddling with the propellers. For private use, with a 'normal' fit-out and lesser fuel loads, it will be quite easy to crack 40 knots.

Would I buy the diesel over the outboard? Yes, absolutely.

On a personal level it would be largely because of the huge difference in fuel consumption and the cost of running the rig, because in the writer's case, this craft would spend most of its life way offshore beyond the Shelf, taking full advantage of its sea legs and speed that would get you to the Continental Shelf from Sydney Heads in a bit over half an hour – *you've got to think about that, eh?*

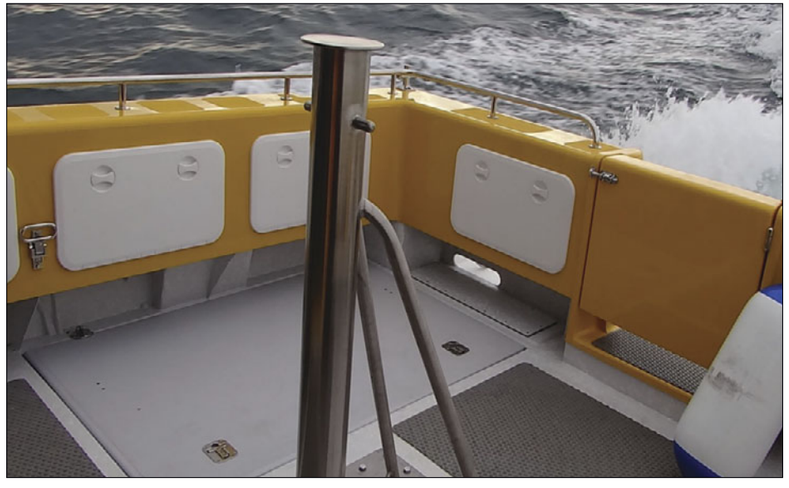
Awesome stuff. Even if you took it easy, you'd still be out on the 80 fathom line to start fishing in about three quarters of an hour, so in terms of optimising *fishing time vs. fuel range vs. fuel efficiency,* I think the diesels would win hands down for this little black duck.

But I do acknowledge and respect that many blokes fall in love with the exhilarating brilliance of the Noosa Cat 3500 with twin 300hp outboards. Or more. Don't worry about the fuel consumption, folks, this is one of the most exciting cruisers in the world, and if it uses a bit more fuel than the diesel, and you can afford it, who cares? *Especially if the writer can have a shot at the helm . . . .*

With the (big) outboard version, there is the added advantage that a cat that is light *and* powerful is a beautiful thing to use offshore, and there's no doubt the outboard powered version would be even more exhilarating than the diesel version.

It's all about weight, weight and you guessed it, weight. The outboard versions save upwards of 400-500kgs and that extra weight is right on the transom so they sit higher, they go even faster, track flatter, but curiously, when it gets REALLY rough, I don't think they handle as well as the diesel model with its weight down low on the keel, on both sides of the cockpit with a lower roll moment i.e., it will feel and be slightly more stable underfoot in heavy conditions.

Sigh. It's a wonderful personal decision you'd have to make – but for my money, the diesel is the model I'd have for serious blue water fishing and cruising, SAR work, and commercial activities, but the outboard version . . *well, I wouldn't mind one of them, either . . . just for Sundays!*



***Detail finish in the Noosa Cat 3500 is impressive, reflecting the factory's considerable 'hands-on' experience in this field, largely as a result of working with so many of Australia's top rescue crews over the years.***

### Conclusion

In a month where the writer had the opportunity of trialling the Noosa Cat 3500 diesel and well as the keenly awaited run in the brand new Noosa Cat 2400 (see that in August or September issue) it was exciting to work with two of the most popular models in the range, with the 3500 being the writer's first experience with Mercury's new V-8 diesel supplier (Audi/Volkswagon) since Mercury stopped using Cummins as their major diesel engine provider in this field. The Audi-based Mercury is certainly impressive and easily up to the standard required for 24/7 SAR work. Better than that, it's a fairly high revving engine too, so between the torque, rev range and the Bravo Three twin prop set-up, the performance and acceleration of this rig is awesome.

It will be a fabulous rough water boat, that's for sure.

Noosa Cats have come a long, long way since the writer wrote the very first test of a "Sharkcat" back in 1973 and worked with various owners of Sharkcat in the subsequent decade before Wayne and Debbie Hennig purchased the moulds and launched Noosa Cat.

The Hennigs have since done a remarkable job in difficult times with a specialised craft – to not only protect its iconic status, but to actually improve it as much as they have, especially with the latest generation of Noosa Cats.

This is a colossal achievement for what is still a privately owned family business.

For the people of Mandurah, they have acquired a sensational craft that will prove to be a wonderful asset for the boating community over there for many years to come.

**ABM**

## MerCruiser TDI 335hp V8 Diesel

Engines: Mercury Diesel TDI
Horsepower: 2 x 335hp
Cylinders: V8
Gear Ratio/Drive type: 1.81:1 Bravo 3 XR
Propeller Name: Bravo 3
Propeller Pitch: 22.5"
No. of blades: 4 front, 3 rear
Material: Stainless Steel

### Test Conditions

Test Date 23/6/2015
Boat Weight as tested (Approx.) 6,800kg
Load (people & gear ) - 500kg
Temperature 23°
Wind Velocity (Knots) 15
Fresh/Salt Salt
Fuel Level at testing 25%

### Performance Data - *Combined*

| *RPM* | *SPEED Km/h* | *FUEL L/h* | *FUEL Km/L* |
|---|---|---|---|
| 1000 | 11.1 | 6.2 | 1.79 |
| 1500 | 15.7 | 13.4 | 1.17 |
| 2000 | 22.4 | 27 | 0.83 |
| 2500 | 33.3 | 46 | 0.72 |
| 3000 | 43.5 | 65.6 | 0.66 |
| 3500 | 53.7 | 104 | 0.52 |
| 4000 | 64.8 | 136.8 | 0.47 |
| 4200 | 66.6 | 147.4 | 0.45 |

### Performance Summary

**Top Speed**: 66.6 Km/h (36 knots) @ 4200rpm. Optimal Cruise Speed: 38.4 Km/h (20.7 knots)
**Acceleration** (0 – 20 knots): 6.5 sec
**Nominal Range** * 657.3 Km
**based on 95% fuel capacity at optimal cruise*