

Voyager V1040 Hybrid



ECO-POWER *catamaran*

Queensland based Voyager Catamarans have raised the bar when it comes to advances in world Hybrid development for power boats. The new 'V1040 Hybrid Explorer' is a luxurious 36ft three cabin vessel with very impressive GREEN credentials.

Voyager's renowned semi-displacement catamaran hulls are inherently more efficient through the water than equivalent monohull designs.

Now, with twin 7kw electric drives, pollution free cruising at speeds of up to six knots is possible in silence and comfort. A range of up to 20nm is possible with 1.5kw of solar energy available from the recessed solar roof panels to top up the Lithium-Ion battery banks.

When in diesel mode, twin 140hp engines are able to give an unsurpassed range of over 600nm at eight knots, yet still achieve top speeds in excess of

20kts. The twin engine installation combined with the wider and more stable catamaran platform also provides a greater margin of safety at sea, while making manoeuvring a breeze in confined areas. It also has the added advantage while cruising of being able to shut down one drive and run on single only for better efficiency and range.

Voyager Director and Design engineer Derek Appleton, who was the driving force behind the project, says that with both fuel costs and pollution becoming ever more important all over the world, Hybrid power is fast gaining momentum. While following a little way behind its land based cousins, the new breed is an

Explorer



inevitable move for the boating fraternity. 'Voyager Catamarans' is the first production catamaran builder to specifically develop its power vessels to be suitable for true Diesel Electric Hybrid propulsion systems with the potential to lower average fuel consumptions to around 10lt/hr.

How Does It Work

The 'VI040 Hybrid Explorer' has been developed around the world's first serialised Hybrid System produced for pleasure boats by renowned engine

manufacturer Steyr Motors of Austria. It not only assures zero emission and low speed maneuvering in harbours, noiseless drive on inland waters and marine reserves, but also eliminates the need for separate generator units for other onboard equipment.

Unlike more basic designs that require a diesel generator to be running in order to power electric motors on the props, the Voyager/Steyr GREEN vessels consist of an electric motor integrated with each diesel engine, and run from Lithium-Ion

Voyager hybrid on the water. (main pic)
Steyr Hybrid engine. (top)
interior – port. (above left)
Interior – starboard. (above right)



Voyager hybrid launching.

battery banks. This gives the Voyager Hybrid the ability to run in silent, zero emission mode in marinas or pollution sensitive areas, but also to operate at high speed on open seas and longer voyages.

Electric Mode

The Zero emission electric drive mode allows speeds of up to six knots using solely electric propulsion, and with the flick of a switch, the clutch engages to start up the combustion engine, without the need for a conventional starter motor. Drive out to open waters on electric, then switch to diesel for a longer or faster trip, and revert to electric again around your favourite islands and fishing grounds, or for the return to marina.

Diesel Mode

Under diesel operation the vessel operates as normal enabling top speeds in excess of 20kts, as well as the already well documented economical cruising of these semi-displacement cats at speeds of 16-17kts. While the diesels are running, the electric motors switch to generators

If imitations serve a purpose, it's to remind us of how much we value the original,

When something's been on top for a while, imitation seems inevitable. Sounds harmless enough, but some people just want to look taller by standing on someone else's shoulders without all the hard work it took to get there. They'll copy a product and let people believe it's every bit as good as the original; at a glance, it's an easy mistake to make.

Our Bluestreak battens are always having to fight off cheap imitations for this very reason. To look at them, you'd never guess at the years of development that goes into these simple looking products; the endless testing and refinement that results in a great product trusted by racers and cruisers the world over. You wouldn't see the huge investment in the ground-breaking, computer-tapering technology we perfected to make every batten a precisely controlled, high-performance shape, or the premium-grade raw materials that go into their manufacture. These are what make a Bluestreak unique and why they can't just simply be *copied*.

Trust the experience of three decades of hard work and success when we tell you that the only thing as good as a Bluestreak batten.... is another Bluestreak!



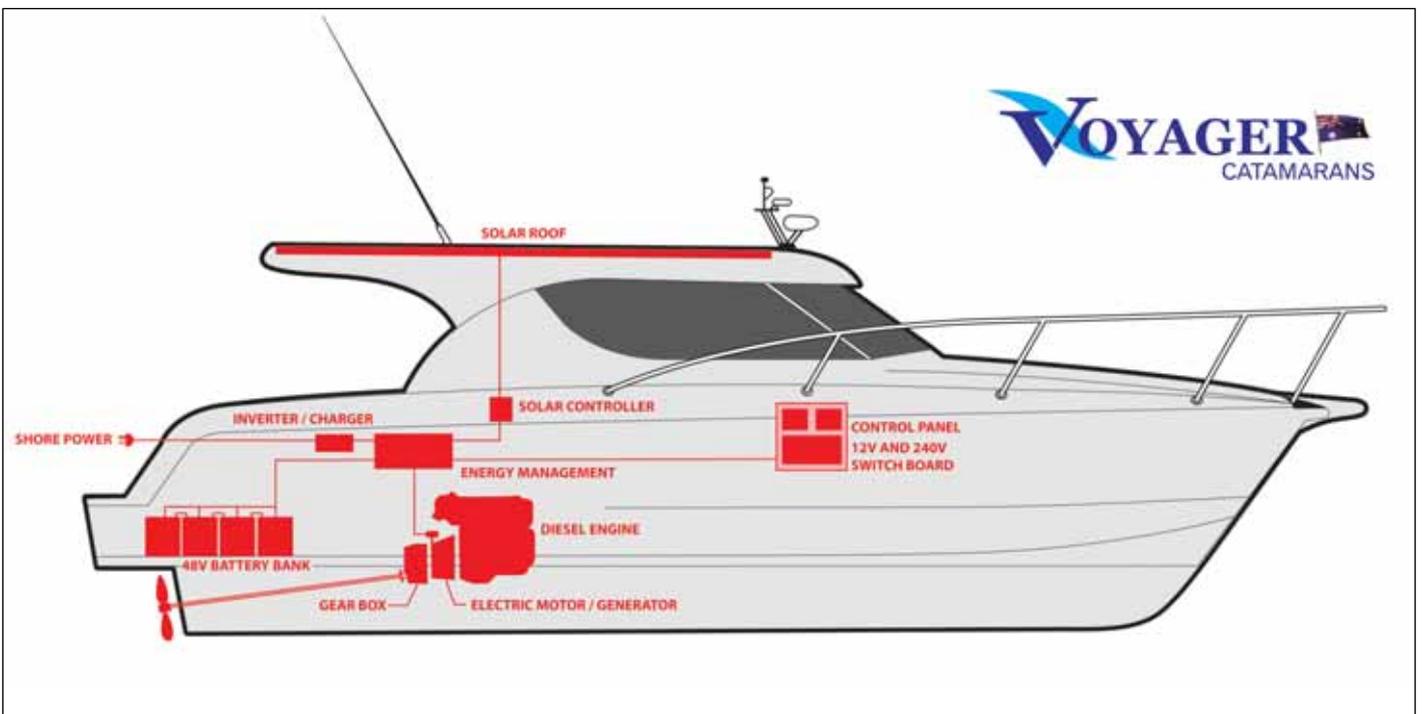
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with a max output of 5.8kw each, and can recharge the batteries fully in up to one and half hours.

Boost Mode

In the lower speed range, the ingenious propulsion then gets 'boosted' by the electric drive to provide greater torque with lower fuel consumption, while improving response and acceleration.

Batteries can also be charged by shore power; and topped up by the solar panels on the roof. The whole system including battery banks are constantly monitored and brought to the attention of the driver through a special colour LCD Control Screen. The monitor forwards the driver demands via CAN protocol to the engine control units that regulate the torque composition of the drive system

depending on dynamic requirements.

In addition to the advanced Hybrid Propulsion system, the Steyr diesels installed by Voyager Catamarans are already 100% Bio-diesel ready, so as Bio-diesel becomes more available, and traditional fuels continue to rise in cost, owners will be able to save even more on their boating costs. These motors also meet the requirements of the next round of pollution regulations for marine engines in the USA, even though they are not enforced yet in Australia or New Zealand. Furthermore, they are one of very few motors that are actually commercially rated, being used in the Australian Navy, and not restricted only for leisure use.

The Queensland Government has also recognised the benefits and export

Saloon. (top left)
Cockpit. (top right)



Aft transom. (top)
Solar roof. (above)
Mastervolt lithium batteries. (left)

potential of this technology in the Marine Industry, and has seen fit to assist this with production development in partnership with Voyager Catamarans. In buying one of these Eco-friendly Voyagers now, owners will not only be assured of greater resale value, but can also take advantage of the immediate operating benefits available now.

Multihull World plans to be featuring a full review of this remarkable vessel in a not too distant future edition.

This demonstration vessel is available for purchase now at a significantly reduced cost, on the basis of a 12 month availability for publicity and display engagements by Voyager and the Qld Government.

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Australia Seas Green

As the nation debates the complexities of climate change and green house emissions, Australians in the marine industry are embracing a new GREEN era.

The gradual introduction of Hybrid power systems into the Australian marine market is allowing savvy customers to make informed, environmentally friendly, decisions.

In 2008, STEYR MOTORS was the first company to develop and release a 'Parallel Hybrid' designed to act as a generator, starter, engine booster and provider of electric propulsion.

The STEYR MOTORS Hybrid technology was so advanced, that it saw the company snare the prestigious DAME award at the METS Trade Show Amsterdam in 2008 as well as Innovation & IBEX awards in other countries.

As a manufacturer based in Europe, STEYR Motors has always complied with the highest emissions standards including Tier III and Bodensee II, RCD 2003/44, EPA and IMO. However, the development of the Parallel Hybrid and now the Serial Hybrid will revolutionise power generation throughout the Industry.

The term 'Hybrid' power describes the combination of a power producer and the means to store that power in an energy storage medium. A 'Parallel hybrid' maintains the mechanical connection between the engine and propeller shaft. As the name implies, the electric motor acts on the drive shaft in parallel with the engine.

In STEYR MOTORS case, the Parallel Hybrid solution guarantees zero emissions and provides low speed manoeuvring as well as eliminating the need for separate generator units for other onboard equipment.

The 'zero emission' 7 KW electric drive mode allows for an average speed of five knots using solely electric propulsion and switches to the combustion engine with an easy turn of the ignition key.

The ingenious propulsion system is then boosted by the electric drive and secures a quicker acceleration response from the diesel engine and lowering fuel consumption. Recharging occurs when running in diesel mode at a peak rate of 5KW and is assisted with 1.5KW of solar panels. The design employs a 48 Volt system suitable for various batteries types, however recent developments in battery technology, mean that as little as 110 kg of Lithium Iron Phosphate (Li Fe PO4) can provide nearly 7.6Wh of power. Unlike lead acid batteries, lithium cells can be charged very rapidly and are exceptional where massive discharge rates are required.

STEYR Motors has now sold several Parallel Hybrid units into the Australian market with the first of these being for the developmental Voyager V1040 Hybrid Power Catamaran