PATHFINDER45
CHARTER

story **PETER BRADY**

While on our stand at the Sanctuary Cove Boat Show, I had discussions with a number of charter operators about the industry in general and what they were planing for their operations in the future. From these conversations one of operators asked me to put together a proposal for a power catamaran with a layout purpose designed for the bareboat market that would also have a second life after charter as a long-range coastal cruiser. I've been vocal for some time now on how I believe that cross ownership by two of the largest power catamaran production boatbuilders and major bareboat charter companies is distorting the development of the power catamarans in an unhealthy way and so it was time for me to either put up or shut up in how to meet the requirements for charter operations without compromising the fuel efficiency and therefore range of a power cat design.

I gave thought to their request overnight and went back to them the next day for further talks on their priorities and requirements, as their business is based on managing vessels that have private owners which makes their needs slightly different than fleet owners. From this second discussion came the following brief:

1: That the boat be between 40-45ft, have a flybridge and four air-conditioned bedrooms with ensuites if possible as this would put the boat in pole position in terms of flexibility and facilities, which in turn would provide the best potential return for the owner and operator.

2: That the boat should look like a powerboat with a sports boat styling that would not only attract the initial purchaser but would also attract charterers and hold a higher resale value as their research like mine indicated that the public still liked their power boats to look like power boats in Australia. I suspect that Riviera and Maritimo have been getting the same feedback, as they have not rushed to follow the trend like many overseas boatbuilders of plumb bows and slab sides.

3: That the gear for the boat must be oversized, made locally if possible with a reliable spare parts and service backup and as this is the way we normally build, that part of the brief was easy.

After the show I sat down to see how I could meet the brief, combining it with a list of features that I thought were important including:

The engines had to have working room around them with good access to both ends as this is a work boat and needs to be well maintained to function efficiently, therefore inspection and maintenance needs to be easy.

There needs to be seating for all the guests at each table and this was a big ask given that there are three tables. I am amazed how many boats I see with beds for eight, but nowhere for all the guests to dine together at the same table.

At this stage I also made another list of features that I was determined not to resort to, however tempting which included:

(a) No tapered beds with the pillows at the entry end, as this to me is all wrong and completely counter intuitive particularly to inexperienced boaties. The pillows keep getting knocked onto the floor and any sand or dirt on your feet ends up at the pillow end when you get in.

(b) No open tread or backward facing stairs to the flybridge as this is a boat that has to be safe for inexperienced people and therefore it has to be simple and intuitive. Many flybridge stairs are almost an afterthought, particularly on converted sailing cat designs, however they need to be safe for all ages and physical abilities and therefore their design needs to be given proper attention.

My first thought was to update the raised deck concept that I had begun in 2000 with the 10m Leopard One design and it had proven to be a very capable bareboat charter vessel. We followed it up a couple of years later by building a 12.5m version as a dive charter boat for New Guinea as well as another 12.5 and an 11m version as pleasure boats. However, other charter operators were not so keen on this layout, even though they were familiar with Leopard One because they were not as confident of its marketability and in the end, I had to agree, even though I still think it was a very sensible design.

Striking out this option, again my thoughts turned to existing boats and the possibility of converting the Offshore 45's three bedroom layout to four, but it just didn't quite fall in to place so it was time for a clean sheet of paper, or in today's terms, a new computer file.

The greatest challenge in a boat of this size is not the number of bedrooms that can be fitted, but in providing a decent en-suite that has privacy from both the bedroom and the boat in general and the sliding door-hatches that other power catamaran builders use just don't work well enough for me in this respect, plus they rattle. I had located the bathrooms in or through the bedroom a couple of times in my earlier boats and even though it is the easy option, I am not a fan, as it can trap shower steam and toilet odours in the bedroom. In the Offshore 45 *Piera*, I solved the problem of having an en-suite with a separate privacy door by using a bi-fold door to the bedroom and another door further forward to enter the bathroom as there were other factors I had to work around, but it does use up more room which I didn't have in this four bedroom design. I also had to keep reminding myself that with a bareboat charter boat, everything in the boat needs to be as user friendly as possible, therefore two standard doors side by side would be a better option if it could be done.

So the goal then became how to achieve the two side by side doors while still using our existing hull moulds with their proven performance, economy and sea keeping qualities. As is often the case, the solution was sitting there in plain sight. I'd raised the topsides of our moulds as part of my variable dimension moulding system and when I was sitting at my computer looking at the designs cross sections while figuring out how to get the doors to work, I had that 'eureka' moment when I realised that if I lifted the floor levels in the hulls up to chine level, I gained 125mm of hull floor width which in turn would allow me to have the two doors side by side with no detriment to the hulls performance. A few hours checking dimensions in the plan and cross sections drawings proved the concept was sound, then a few more were spent getting the sheer line and profile looking right. I was comfortable that not only was the concept sound, but it looked right as well and from there on in it was all about the detail and a huge amount of design hours because as the saying goes, the devil is in the detail and the concept can be easily wasted if the details are not well thought through.

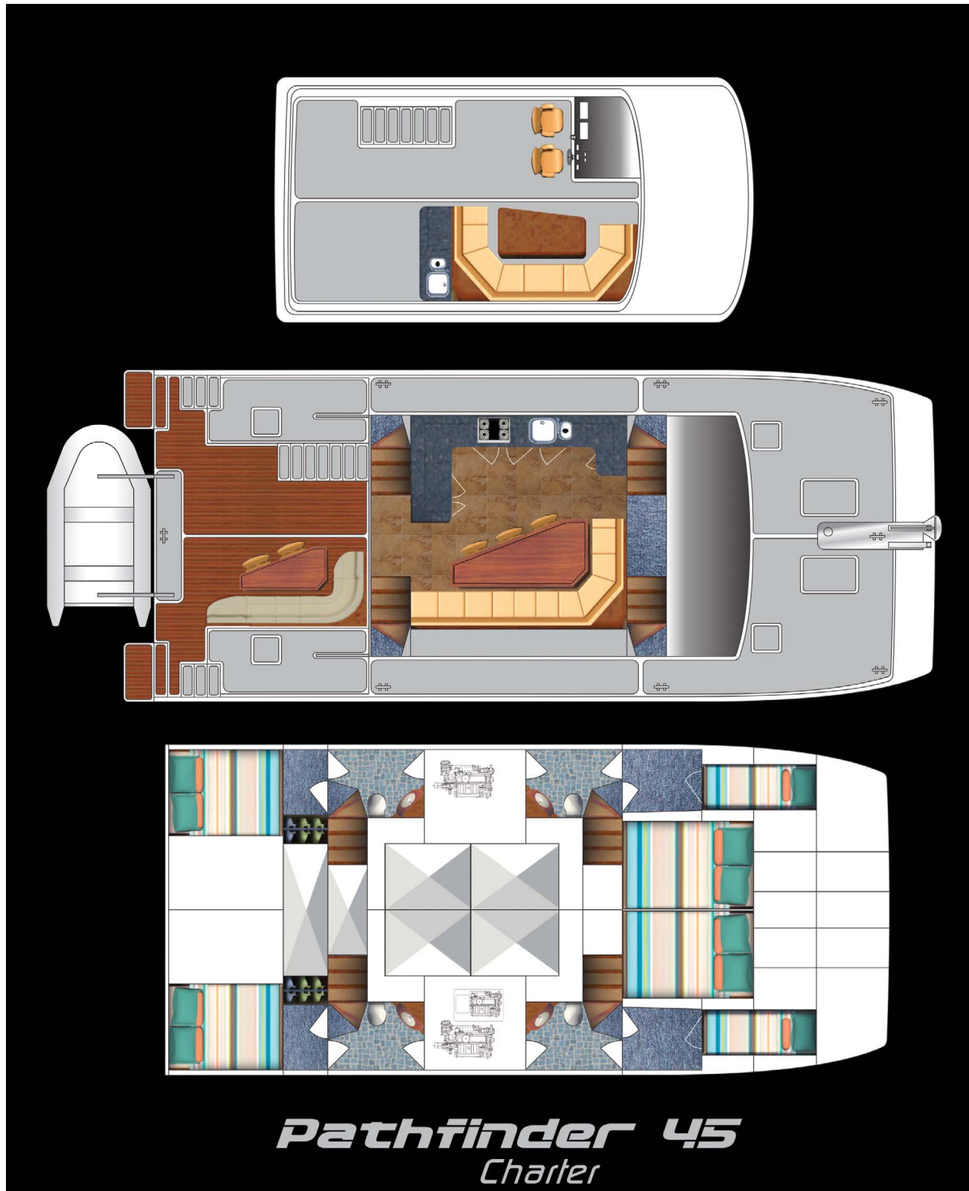
Having achieved the goal of four very private cabins with queen sized berths and spacious en-suites, the next challenge was where to locate the engines. What do other power catamaran designers and builders do?

With wider hulls, some designers locate the engines well aft under the cockpit using either V-drive gearboxes or IPS units, however both of these systems have their issues that I have written about in previous articles and I don't believe it would make them suitable for bareboat charter boats. On top of this, I am also not a fan of engines under the cockpit or aft deck with the only access through a deck hatch without raised coamings to protect the engines from water should the hatch need to be opened at sea. I know this is not such an issue for bareboat operators as the last thing they want are the charterers touching the mechanical systems and are happier to tow the vessel back to dock if there are problems. It could however make a big difference to obtaining a higher level of survey certification or to the boat's resale value once its charter life is over. The other option used by sailing catamaran builders and a few power cat builders is to place the engines under the aft beds, but again for a number of reasons that I have written about over the years, I don't believe this is a good option either.

In the end I decided to place the engines right in the middle of the boat like we had on our earlier four cabin raised deck power cats, but added a few new tricks we'd learned over the years to make them work even better. This location is the ideal for reducing pitching by placing their weight right where it has the least effect and means that conventional shafts can be used in combination with my full length keels for maximum protection of the stern gear which is a huge plus for bareboat charter operators around the reef for very obvious reasons. The downside of this location in the earlier boats was the increased difficulty gaining access to the engines for maintenance or engine removal, so to overcome this I have used full height doors to access the enginerooms from each end going through the bathrooms and the side decks are wider than usual with a removable section in the decks above the enginerooms meaning the engine can be lifted straight up and out if it is ever required. These wider side deck also have the added benefit of creating a safer feeling for less experienced charterers when moving around the boat.

Even though this arrangement is different for a power cat at first glance, once you can see how well it works, the logic becomes obvious. By undertaking the inspection and regular maintenance of the engines through the bathrooms, you are least likely to cause any damage to the boat as they are a gelcoat finished area, so if some oil is spilled or you have dirty hands, you are right beside the basin to wash up. The full headroom now created in the engineroom makes the engines and other equipment easy to maintain, as does a door at each end, with the full headroom also getting the heat up and off the engines where it can affect belts and hoses. Another benefit of this arrangement is that the bathrooms work as an extra sound blocker for engine noise to the bedrooms and although this would not be as critical on the short steaming time of bareboat charters, it would be a considerable attraction post charter.

The charter operator had also requested a good sized genset so each cabin can be air-conditioned and this is located up and to the inside of the starboard engine where it can also be accessed from a removable section of the settee if required. Whilst on the subject of engines, my first suggestion was to fit naturally aspirated diesels as the vessel is only allowed to run a maximum of 10kts in charter and this option would be the least trouble for the charter operator. Unfortunately there are not many naturally aspirated engines to choose from around 100hp available in Australia these days and this choice may have restricted the vessels operations after charter and therefore its resale value.



In the end I decided on a compromise of mechanically injected (to avoid the complications of electronically controlled common-rail injection) but turbo-charged engines of around 200-250hp as these would provide the 10kts maximum at very under-stressed revs, yet have the low down torque that makes my boats manoeuvre so well, plus give the boat post-charter performance that people expect (but don't always get) from a power cat. All the charter operators would have to do is to take the throttle stops off every couple of weeks and give the boat a hard run for a few minutes to keep the turbo's sweet. Alternatively with the ease of engine removal, the naturally aspirated engines could be fitted during the boats charter life, then more powerful units dropped in to replace them post charter, as the survey shafts will be large enough to take extra power in pleasure boat use.

As with all my most recent boats, the fuel and water tanks are located up on the double floored saloon and galley area which means they will have minimal effect on the boat's trim full or empty, with 1,00lt of water and up to 2,400lt of fuel in four tanks. This large fuel capacity would not be needed for bareboat operations, however the four tanks and their locations can be used to perfect the boats trim whilst in charter, would expand the type of charter operation the boat could be used for and will provide the boat with its post-charter range.

Construction would be gelcoat finished composites using a combination of fully moulded hull and decks, with the cabin built using our DECKIT modular system as we have already effectively had a sistership in the Offshore 45 built this way and she is certified to the NSCV Commercial Rules using this construction.

NOW TO WALK AROUND AND THROUGH THE BOAT

You can tell the vessel is a four bedroom arrangement when stepping off the pontoon onto the boarding platform because of the raised aft cabins forming the sides of the cockpit-aft deck. These boarding platforms make getting on and off the boat easier both from the dock and the tender as well as being closer to the water when using the swim ladder. The cockpit-aft deck is easily as big as most monohulls of this length with the raised aft cabin sides providing good protection from the breeze and a place to sunbathe. Steps run up the sides of the transoms to the side decks and there is a transom beam fitted to support the tender davits and house the fenders or fishing gear. To starboard in the cockpit-aft deck is a settee and table with loose chairs to provide sheltered seating for all and to port are the flybridge stairs which are wide and solid, again making it safer for less experienced charterers to move around the boat. The house and starter batteries are under the flybridge stairs, so they are out of the accommodation or enginerooms and are easy to inspect and maintain.

Stepping in to the main cabin through the aft bi-fold doors there is a stairway each side to the aft bedrooms, with the electrical boards located on the port side right above the batteries to create the shortest wire runs to the board and therefore the least voltage loss. Also to port, there is a large spacious galley featuring a microwave, large fridge and smaller freezer combo, a gas cook top so if the generator goes down, you can still boil the kettle and a settee to starboard that can seat 10 when combined with the loose chairs. Moving forward past the galley and settee there is a step down to the forward bedroom stairwells: this is so headroom could be maintained as well as a nicely raked front window line and the stairs are designed to be ergonomically correct and therefore safe even in the dark.

AS WITH ALL MY MOST RECENT BOATS, THE FUEL AND WATER TANKS ARE LOCATED UP ON THE **DOUBLE FLOORED SALOON AND GALLEY AREA** WHICH MEANS THEY WILL HAVE **MINIMAL EFFECT ON THE BOAT'S TRIM** FULL OR EMPTY, WITH 1,00LT OF WATER AND UP TO 2,400LT OF FUEL IN FOUR TANKS

The forward bedrooms are laid out in the same style as the guest bedroom on the Sedan 41 we are currently building, with a queen double on the wingdeck and forward on the outboard side, a very wide single. All the bedrooms demonstrate another benefit of raising the designs floor level besides the double doors and the wider floor area by reducing the bed height to 650mm in the forward cabins and 400mm in the aft cabins making them easier to access for less physically able people. The reason I have drawn a single in this cabin as well as the queen double is that it makes the cabins more flexible allowing for either two singles in a group to share a cabin or a couple with a child, as well as taking the total berths available up to 10. Besides the extra berth in the front cabins, all the cabins are much the same size and have the same facilities with good storage and all bathrooms are identical so there will be no need to race to get the best cabin, nor will there be any complaints of "I paid the same but don't have as good a cabin" between groups chartering the boat.

Coming back out into the cockpit-aft deck and up the stairs onto the flybridge, the helm station is located to port so it is easier to judge how close you are when passing other boats or when docking. The settee and table are to starboard with again enough room for all on board and a barbecue, sink and fridge behind them, as this is where most of the evening entertaining will be done with the view and the breeze. The foredeck is large enough to allow for sunbathing and the anchor winch and chain lockers are set well back so their weight is further aft making the chain locker deeper.

So there you have it, the Pathfinder 45 Charter: my statement that you can have your cake and eat it too.

This is a boat that provides everything the imported production power cats designed purely as bareboat charter or inland waterway boats have, but with a proven offshore long-range cruising pedigree and designed and built in Australia for Australian conditions. If it was built to 2C survey, it would also make a perfect skippered charter or dive boat particularly for a location like the Kimberley where its speed and range would work exceptionally well with the remote location and strong tides. One cabin with its own bathroom could be set aside for the skipper and mate and the other three for the guests. There is even the option of enclosing the flybridge and making this the skipper and crews quarters, freeing up the fourth bedroom for guests and making it an even more viable business opportunity.

The design features classic sports powerboat styling which is not only easy on the eye, but provides the softest, driest ride and will never date as these boats have evolved for a reason, not just a fashion. Even though areas like the Whitsundays are designated partially smooth waters for bareboat operations, anyone who has cruised or raced the area knows how steep, nasty and unpredictable the waves can get between the islands when the tide is running hard and the wind gets up. When you throw inexperienced drivers into the mix with these conditions, it makes it even more important that charter boats are good sea boats with predictable handling and a soft safe ride, which this boat will have with its combination of Controlled Vapour Dampening features and its ideal weight distribution. Everything about this design, its layout and the equipment chosen speaks to reliability and ease of maintenance and this could never be more important than in bareboat or skippered charter as you cannot make money when tied to the wharf. When its charter days are over, this design could revert to being a very economical long-range coastal cruiser with that magical ability to cruise for over 40 hours straight at 16kts, a sprint speed of over 20kts and a range at displacement speed of over 2,000nm. The accommodation and facilities are still generous and practical for 10 even in pleasure boat use, which would make it an ideal share boat for groups or two families.