Case Study

Dealing with situations involving more than a simple, single issue problem , or matters that can't really be addressed in the necessary detail in either F&B's "Letterbox" or Home Workshop sections.

Reader: ROSS TYLER, Sydney, NSW

Issue Of The Month: Pros and Cons Of Auxiliary Motors In The Modern Era

Hi Peter, Ruth and the team. I have been buying your publications for over 12 years and always look forward to each edition.

On the subject of auxiliary motors, I was wondering if you could do a test on the pros and cons of using aux. motors and indicate which motors, propellers and hardware are most appropriate. This would need to be examined in light of new and used boats given the changes in hull designs and weights of outboard motors.

The reason I ask is that I have an old Haines Hunter V16R with a later model Yammy 115hp that has its stability impacted (at rest and underway) by the weight of the auxiliary motor amongst other things. The aux. bracket (s/steel and adjustable) is on the port side to offset driver's weight. However, this all comes undone when the family is onboard. Further, the relatively narrow hull means that the amount of weight on the transom (main motor and auxiliary; petrol tank, weight of people sitting in rear quarter seats) also impacts the set up of the boat.

I have on loan a 21kg Tohatsu 5hp long shaft (an early 90s model but still basically the same as the current model) which has proven to be a very reliable auxiliary. It has its own internal tank which means there are no concerns over fuel lines and space for the separate tank. It starts first pull and provides heaps of power for its size, however, it is a pain to access on the aux. bracket to raise or drop the leg of the motor.

I feel like I need to be standing on the water to adjust the motor. The tilt mechanism is quite flimsy and cantankerous making it difficult to use. It would be nice to use the aux motor for trolling, however, the difficulties experienced prevent this from happening.

I have been examining current motors and am interested in your thoughts for the ideal aux motor and

set up. I have noted that:

- A lot of smaller motors have delicate tilt mechanisms and would be difficult to use if not the main motor on the transom ie: mounted on aux. bracket. Further how do they stand up to being tilted up most of the time;
- A number of small motors on the market (particularly 4 strokes) do not offer an internal petrol tank. The same goes for the option of long shaft;
- Not all small motors offer a smaller pitched propeller which I understand would assist performance as an aux motor;
- Some are impacted by fuel vapour lock which would create difficulties starting the motor in an emergency;
- Most new motors 6hp and below are single cylinder and are thus very noisy whether it be at mid range revs or WOT. I'd be interested in your thoughts on noise and vibration levels for motors between 2hp and 15hp.
- I wish my old Johnson 4hp twin cylinder was still working as it had plenty of mid range torque, was relatively quiet compared to modern motors, had a good size internal tank and a robust tilt mechanism.

Additional questions I would like to have answered in a proposed test include:

- What is the minimum acceptable horsepower for different size boats eg: under 4 metres say up to 4 hp, 4 to 5 metres say 5 to 8 hp and so on given the variety of situations a boatie can find him or herself in eg: a larger aux motor would be required if most time is spent inshore fishing versus estuary fishing?
- Can a smaller motor like the Tohatsu 3.5B with its optional 4.5 inch pitched prop and deeper gearing be used to adequately propel boats 4 to 5 metre in size and save on weight (it is only 13kgs) and improve my chances of lifting the leg of the motor up - or I am just kidding myself?
- Should I just start saving my pennies for the impressive Suzuki 6hp.
- Can you include in your test, checks on the tilt mechanism,

location and length of the tiller handle, access and use of internal tank, hot and cold starting, long versus short shafted motors on adjustable aux brackets, etc.

- Some quick tips or an 'idiot sheet' would be helpful.

I'm sure there are many readers who have similar issues with aux motors particularly those of us on the wrong side of 40.

PS - my V16R was fully restored 2 years ago and looks like a modern boat. We have 3 kids from 5 to 14yrs so a good auxiliary is essential.

Regards
Ross Tyler
(Via email)

Following receipt of this email, Editor Peter Webster asked Ross:

I'd like to respond in depth in the next issue, but you've left out some critical pieces of information i.e., WHERE do you (and the family) go boating? What do you do together - fish? (Where?) Ski? (Where) How often do you ALL get out on the water? How many times have you been forced to use the auxiliary in a true 'get me home to safety' situation? If so, what went wrong with the Yammy ?

If you have the patience to answer these questions - we'll certainly open up the subject for debate and comment in #95.

Ross replied:

Where do we go boating? Georges River/Botany Bay, Port Hacking and off Cronulla, and our favourite coastal retreat, Sussex Inlet.

What do we do? Visiting beaches for picnics with the 3 kids/wife or taking my brother and father out fishing, mainly estuary fishing with occasional inshore fishing.

How often do I get out on the water? Not enough. My use of the boat is irregular, with spurts around Xmas (3 or 4 times) and school holidays.

The kids probably only get out a few times a year, but I'm always trying to encourage them. For myself, between my boat, my brother's inflatable and friend's boats, probably average at least once a month outside of school holidays. I do have a kayak, which I use (say) once a month as well.

The boat was rebuilt with some skiing in mind. I originally got the bug for skiing at the ripe old age of 38, behind a friend's Dancraft skiboat - but skiing without my (eye) glasses is difficult. Safer to stick with the fishing!

As far as the motors are concerned, the main motor was purchased second hand. It is a 1989 Yammy 115 with oil injection. As I found out over the first 2 years of ownership, there were some minor technical problems resulting in a call for help or needing the auxiliary motor.

Examples

a) Went out early one summer's day for a quick run with expectations of coming in before 11:00am to beat the heat. However, a fuse blew (under the cowl) with motor tilted up - and I'd forgotten to pack the flathead screwdriver to manually adjust the tilt and I didn't know where to find the blown fuse.

I do now, and have plenty of spares. I was rescued by Mr Dancraft, but the kids had to endure mid-30 temperatures.

b) Battery collapsed - moral don't borrow a friend's battery whilst saving up for new one! I always keep mine fully charged now, and get rid of it before its use by date.

c) Electrically operated choke can be a bit sensitive and one day the choke seem to come on whilst driving back in at end of day before dusk with kids (not good). It was the magic can of WD-40 that fixed this in the end, but had to limp home so problem could be properly identified.

(d) Thermostats - one of thermostats wasn't opening up properly so this caused problems in the upper rev range and eventually caused the warning buzzer to go off. Uncertain as to what the problem was at the time, I limped home from Botany Bay.

So I've had a love hate relationship with the Yammy to start off, but all the problems were in the end, just simple things that could happen to any of us with any rig.

It just shows how the simplest things can ruin a day despite all your preparation. I would still go out and buy another Yammy if I had the money. I do know now that my use of WD-40 needs to be even more liberal than it has in the past with other more basic motors because of all the 'electrics' under the cowl.

With correction of the problems and the occasional tank of Premium Unleaded to keep fuel system clean the motor is very quiet, idles nicely and doesn't seem to oil up the spark plugs at slow speed (when on premium) which is great in the many 4 knot zones that are appearing - such as those in Sussex Inlet.

I think it is a case of the owner and the boat/motor/trailer bedding in over time to understand the quirky nature of equipment. I had previously been use to the family Savage half cabin and tinnie with nice and simple Evinrude donks.

I don't think I have ever been in any really bad situations with my technical problems/ breakdowns because I have always been cautious (maybe because my first experience in the family Brooker V-12 in 1971 was when it was filled with water from a severe thunderstorm (sunny one minute, ugly the next) and we had to ride out the 'surf' in the Georges River to come back in to the ramp at Tom Uglys Bridge. But I do prefer not to be dependent on somebody else to assist should things go wrong.

One of the reasons I have asked the question about auxiliary motors is our passion for fishing has been lifted with my father's rediscovery of fishing, prompting me to think again about safety but also getting more use out of the auxiliary motor.

It would be used not only as a backup, but should be the preferred motor to go trolling (say) off Cronulla and the Royal National Park. Hence it needs to be in good working order.

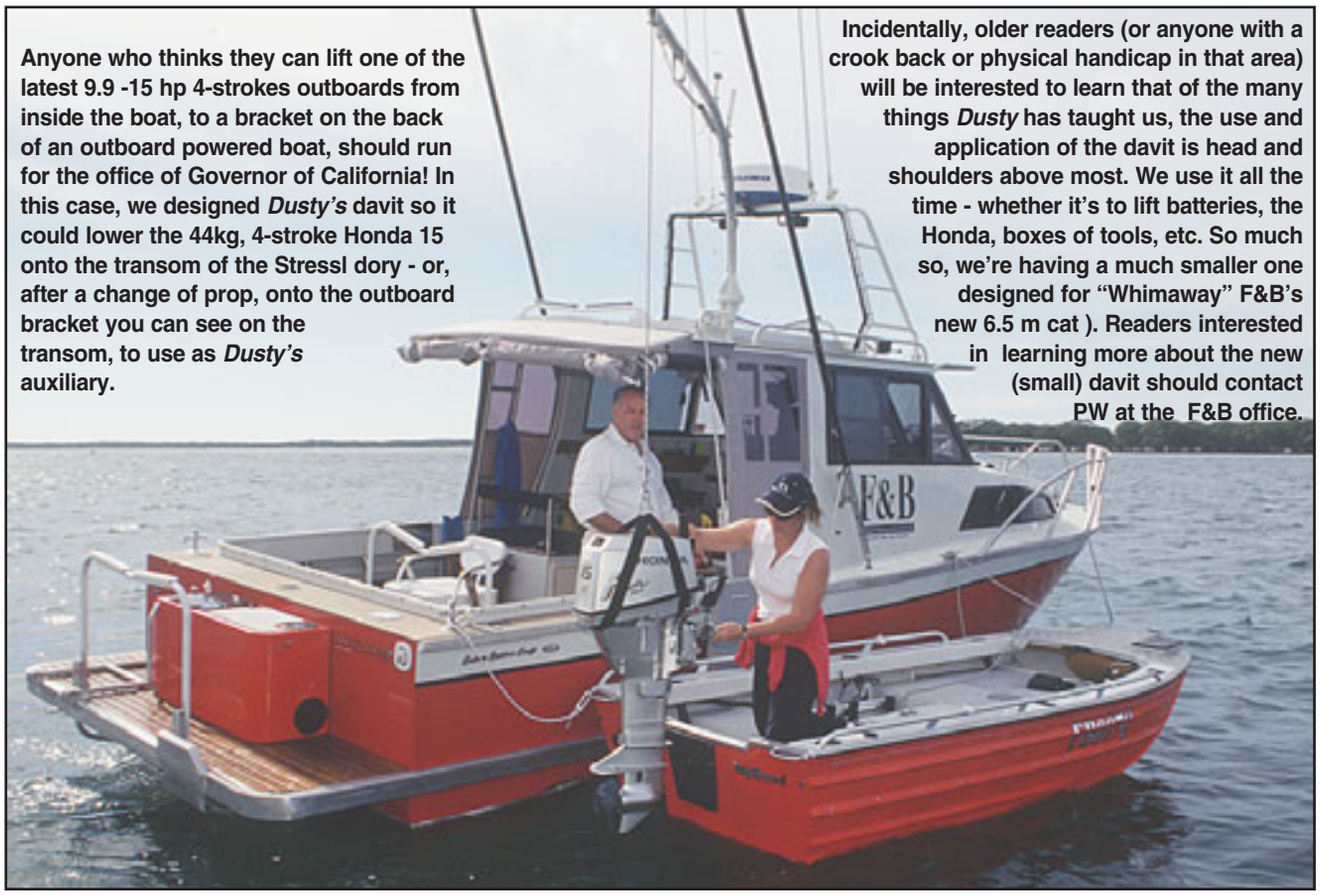
The Tohatsu 5hp will need to be returned in the next few months as it belongs on a friend's yacht, so what to do about an auxiliary is my $64 question.

Hope this answers your queries.
Ross

Peter's Response

This is not an easy situation, especially as most auxiliary outboards in situations like this are rarely very effective.

Generally speaking, the need for an auxiliary is becoming a thing of the past, as modern engines have



Anyone who thinks they can lift one of the latest 9.9 -15 hp 4-strokes outboards from inside the boat, to a bracket on the back of an outboard powered boat, should run for the office of Governor of California! In this case, we designed *Dusty's* davit so it could lower the 44kg, 4-stroke Honda 15 onto the transom of the Stressl dory - or, after a change of prop, onto the outboard bracket you can see on the transom, to use as *Dusty's* auxiliary.

Incidentally, older readers (or anyone with a crook back or physical handicap in that area) will be interested to learn that of the many things *Dusty* has taught us, the use and application of the davit is head and shoulders above most. We use it all the time - whether it's to lift batteries, the Honda, boxes of tools, etc. So much so, we're having a much smaller one designed for "Whimaway" F&B's new 6.5 m cat). Readers interested in learning more about the new (small) davit should contact PW at the F&B office.

become so reliable. That said, if I had a 15 year old Yamaha on the back of my boat, I'd want some sort of auxiliary power, too – especially if I was planning to go 'trolling off Cronulla and the Royal National Park'.

First off, a lot of what you've asked for in the test department is extremely difficult to arrange, and I'm not sure it would be very helpful.

For instance, the effectiveness of an auxiliary outboard (specifically, its ability to thrust you and the boat out of trouble and back to safety) is as much dependent on its installation on the transom as it is on the horsepower of the outboard – and that has to be qualified by discovering if it has the right sort of propeller to do the job!

So F&B could prepare a comprehensive report on typical motors for an auxiliary; the consumer goes forth and purchases the 'best' engine – and installs it in such a way that it won't work in choppy water when the boat pitches up and down in the joggily conditions. Or it is located in dangerous position on a badly designed bracket that won't go up and down when you want it to. In fact, I think there's good evidence to suggest that 'Murphy' programs these brackets to make damn sure they won't go up and down when you need them . .

In answering the fundamental question – are they worth it, I would like to observe that there are two types of auxiliaries:

(1) The type that has enough power to drive you out of trouble, but is not necessarily fast enough to take you all the way back home, and

(2) The type the not only has the grunt to drive you away from danger, but has the power, the thrust and the speed to actually take you back to base – *before the year is out*.

Dealing with the (Point-2) first, for most trailer boats, this requires a fairly powerful engine, fitted with a displacement prop, and the outboard (most commonly a 2-stroke) mounted permanently on the transom.

Why? Because unless the boat is fitted with a crane, it is too hard to lift one of these engines – and they'll all be in the 6hp-15 hp class - onto a transom bracket (safely) in an emergency. To try and do it in rough seas is all but impossible. At best, you'll get a hernia – and in the worse case scenario, you'll drop the lot.

Nevertheless, many owners want or have to deal with remote or worrisome situations, and they will not have any peace of mind, unless they have this auxiliary set-up i.e. big enough to literally 'take them home'.

Okay, let's deal with it . . .

To go home from any distance – even in a flat water river – let alone offshore, at 6-7 knots across the ground (and no fudging here – if it won't do a genuine 6-7 knots across the ground, there's a good chance you could end up a statistic) even a 16 footer (4.75m) is going to need a properly set-up 8.0 - 9.9hp outboard. Bigger, middleweight rigs (say 5.5 - 6.5m) will need at least 15 willing horses. Bigger again, in the 6.5m – 7.5m heavyweight division, you will be just kidding yourself with anything less than 18-25 hp.

Now please remember, that we're talking here about having an auxiliary that is genuinely capable of bringing the whole rig back home in possibly rough seas and strong winds, and/or against strong tidal flow or river current, and achieving 6-7 knot forward progress steadily and reliably.

To make all this work, I'd

- Install a fixed, non adjustable, permanent transom bracket, after
- I'd sat the normal crew in their normal seats, and
- Adjusted the height of the bracket so the auxiliary outboard's cavitation plate was level with the lowest part of the boat's hull at that point so the prop would always be in the water when everybody was sitting down normally.

Time Out: Many auxiliaries fail to work properly because when the crew's weight is forward at the helm, the prop lifts out of the water on just about any small wave.

I'd get onto Dr Props (Solas' Steve Evans) and have Steve select the most appropriate displacement prop for the job, marrying the size and type of the outboard up against the size and weight of the boat it's pushing.

A standard, *out of the box* prop on these small outboards is useless – you'll get more thrust in a bad sea by facing aft and pissing downwind.

If you can afford a new outboard – no problem, have the dealer swap the toy prop for the real one – but you (or the dealer) will still probably have to talk to Steve Evans to work out which is the best size. Our dealers don't know a hell of a lot about displacement props, but you can always be surprised, and score one who does.

Finally, I'd buy a quality lock to keep the outboard on the transom when it's parked on the land – and I'd buy a quality outboard cover to protect the poor thing from all the knocks and blows, the salt and fish scales it is going to be covered in over time.

Operationally, I'd start every single trip on the auxiliary, running it for at least an hour per trip. It should have its own tub of fresh fuel purchased from somewhere other than where you purchased the boat's main tank's fuel.

Back To Point One

Okay, we can't afford the bigger engine above. We can only afford a tiddler, or something secondhand. What to do then?

Here we are looking for an auxiliary that will keep you out of trouble; off the rocks, away from the surf; holding station (at least) in the channel.

Left: These new little self contained 2.0 - 3.0 hp 4-stroke outboards from Honda (and Yamaha has a good one too) are amazingly good little auxiliaries - and are very useful on scanoes and inflatables. Importantly, they are light enough to man-handle out of a cupboard and back out onto a bracket - easily. They won't bring you back in from the 'Shelf, but the long shaft models will definitely get (and keep) you and your family out of trouble - until professional help arrives.

Similar rules apply.

I'd still opt for the permanent fixed transom bracket.

But I'd probably keep the self-contained smaller outboard (Tohatsu or Mercury 2.5/3.5/5.0hp for example) or one of those incredible little Honda or Yamaha 2.0 – 3.0 hp 4-stroke outboards; up to the grunty Suzie 6hp 4-stroke one-lunger, inside the boat.

These engines are small enough to swing over the transom fairly safely, attach, switch the fuel on - and pull the starter rope.

Assuming

(a) you've got fresh fuel

(b) you've already run it that morning

(c) you've got the right sort of prop on it (same rules; same principle), these little engines will keep your nose into the weather, slowly (painfully) push you away from danger whilst you

(a) Anchor up as soon as you reach a safe distance off or away from danger, so that the rig at least holds station whilst you

(b) Send up the balloon for professional help (on the radio) to the local SAR group, or your mate, passing traffic, whatever.

Final Thoughts

Ross, I hope this helps. I can understand where you are coming from with the kids, but I'd have to observe that just as you'd have to be concerned about taking a 1989 Holden around Australia, a 15 year old V-4 Yammy, no matter how faithful it has been, or how well it has been looked after, has probably passed its 'Use By' date as far as offshore work is concerned.

Maybe it's time to practice on these new inshore techniques using soft plastics for bream, flathead and whiting.

The Haines 16R is a great boat, but it is going to be severely hampered with a biggish outboard on one side – as you've already noted. And in truth, it was never designed to go very far offshore, under the best of circumstances.

I'd stay inshore, go for Option 1, investing in the biggest new small outboard you can afford (try that for a contradiction in terms – but I'll wager you'll understand exactly what I mean.

I'd further invest in a new 27 Mhz or VHF radio for safety's sake, and I would definitely go along and join the local (and Sussex Inlet) VMR, AVCG or RVCP as a paid-up member. These guys do a fantastic job – and they'll help family boat owners who are genuinely trying to do the right thing, to an extraordinary extent.

Having them on side, providing that oh-so necessary 'cover' for that rare time when that brown stuff hits the fan, and the family starts getting frightened, is a godsend, and worth every cent of their membership fee.

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