

# Voice<<<<<<>>>>>>>>pipe

The Newsletter of  
The Mid-Thames Model Boat Club



Jan 2022

Issue 173

## Chairman's Corner

- Update
- Rescue boat batteries
- Grounds maintenance

## 3D PRINTING A MODEL BOAT

## Fast Electrics

- 2021 Season Review
- Championship Results
- F/E Saturdays
- Preview of 2022

## Tug Towing

- 2021 review
- Underwater thrusters

## Yachting

- 2022

## Scale

- Lawrie Jumps Ship to build a yacht.

## Saga Sailing

- 2022

## Dates for your diary

- **Thur 20th January 8pm**  
**Club Evening Meeting**  
Display boats in build, Bring & Buy Sale, Concurs Competition Judging. **To Be Confirmed**
- **Thur 17th February 8pm**  
**AGM Zoom or venue TBC**
- **Sat 26th March 10am > 4pm**  
**Fast Electrics:** Run What Ya Brung, Free sailing, tune up, testing & advice
- **Sun 3rd April 10am > 1 pm >**  
**Yachting:** Fiesta/Victoria Handicap (any type of yacht) Tune up & trial of new course



Happy New Year to all our members! 🎉



Club500 racers gathering for the final round of the championship. *That's a funny looking Club500 Alan!*

## Chairman's Corner by Tony Simons

A belated Merry Christmas and a Prosperous New Year to you all. Let's hope 2022 for Covid is less prosperous because at the moment the signs in that area are good.

Once again, we have had to cancel our winter evening meetings because of Covid but this remains under review.

Hi5! have kindly agreed to allow our course marker buoys to be left out this winter and so the club facilities remain available for use providing the "Two Person" rule is met, e.g. The second person has a working mobile phone and remains away from the water to summon assistance if required. The most obvious danger at any time of year is falling into the water but at this time of year hypothermia adds to that danger. **Ensure help is on the way before attempting to help the person in the water, be mindful you don't become a second casualty.**

The organised event calendar had run its course by the end of October but several of us had said on warm days we might have impromptu meetings for any of the activities, Dave Parker has led the way with several Saturday meetings to practice Fast Electric tuning. My thanks to Dave as I have been able to draw on his knowledge to get my "Wacky racer" to the end of a race without the battery prematurely dying. All I have to do now is work on my ability to drive it.

## Rescue boat batteries

I have purchased two deep cycle batteries to power the outboard motor. These are lighter individually to carry from the store to the boat. They will need connecting in parallel to obtain the power required and will be fitted with suitable plugs for ease of connection to each other and to the motor.

- **Wed 6th April** **10am >**  
**Saga Sailing:** All types of boat are welcome
- **Sat 9th April** **10am > 4pm**  
**Tug Towing & Scale:** Tune up, trial of new courses, free sailing & competition
- **Wed 13th April** **10am >**  
**Saga Sailing:** All types of boat are welcome
- **Sun 17th April** **10am > 1pm >**  
**Yachting:** DF95s & IOM Tune up trial of new course
- **Wed 20th April** **10am >**  
**Saga Sailing:** All types of boat are welcome
- **Sat 23rd April** **10am > 4pm**  
**Fast Electrics:** **Round 1**  
Club500, F600B, Wacky Races, Mono1 & Run What Ya Brung
- **Wed 27th April** **10am >**  
**Saga Sailing:** All types of boat are welcome

### Grounds Maintenance

There will be a need for work parties to tidy away the fallen leaves and trimming the willow trees to maintain visibility of the lake. Many hands make light work and so dates will be announced driven by suitable weather.

I look forward to seeing you lakeside (on warm days)

**Tony**

### 3D PRINTING A MODEL BOAT by Wiki & Leo



Leo and I decided we would like a 3D printer. Leo, of course, had lots of ideas on what we could print, one of which was a model boat! First objective, to buy a 3D printer. There are quite a lot to choose from. A friend of mine at work had a Creality Ender 3 Pro, which is one of the most common hobby printers at a reasonable price. It had involved several hours of set up though, which I didn't really fancy. So I decided to go for the Creality Ender 5 Pro, which is slightly bigger but a lot of it comes pre-assembled and it is much easier to put together. The printer duly arrived, and after making a couple of errors in the assembly, I managed to put it together in about two hours.

We managed to set the PLA filament up quite easily but we had a complete nightmare levelling the bed. This is the main frustration with 3D printing! We have, after a lot of trial and error, managed to find the key to success! The answer is to buy a glass bed, which is completely flat and has no errors or warping in manufacture. Then, in-between prints, wash the bed with hot water and washing up liquid, dry it, and give it two coats of hair spray! Use a bed temperature of 70oC while printing.

This video gives some handy tips for levelling the bed [https://www.youtube.com/watch?v=\\_EfWVUJjBdA](https://www.youtube.com/watch?v=_EfWVUJjBdA) along with some useful files: <https://www.thingiverse.com/thing:3235018> which I really recommend using. You'll also need some software to slice the stl files and save them to a memory card in preparation for the 3D printer. I used Ultimaker Cura which you can download for free from <https://ultimaker.com/software/ultimaker-cura> If anyone would like some help with this I am more than happy to help get you set up.

To get started, there are a lot of prints available at [www.thingiverse.com](http://www.thingiverse.com). A lot of these are for the Creality Ender 3 Pro, but they will all work on the Creality Ender 5 Pro too. We tried a couple of small ones first, like a 3D printed rabbit, and a box, before moving on to a model boat. We decided on this one: <https://www.thingiverse.com/thing:3807800> as it looked quite fast

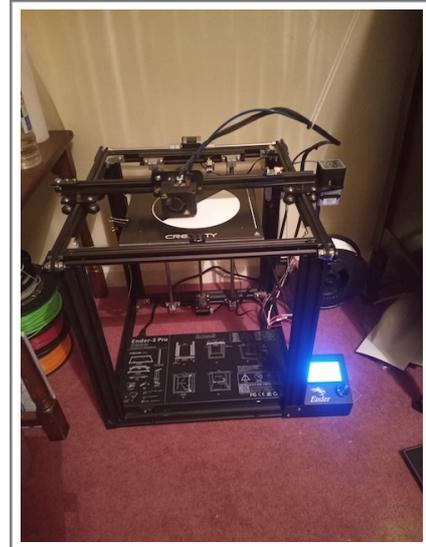
## Trading Post

Trading Post is an area of Voice Pipe where members can advertise their model paraphernalia. So if you have any you would like to sell, swap, buy or just want something send contact details, brief description and a picture if possible to:-  
parker42@btinternet.com

and came with a list of parts and where to buy them from. We printed all the parts and then had to glue them together. Our main problem was that the hull was in two sections: the front section was enclosed and had a face to join it to the back section. But the back section didn't have a face, it was completely open. We thought this might be a problem, especially if the boat had a crash, so we decided to design a plug, which would provide us with a face to join the back section to the front section. We used another piece of software to design the plug, called Fusion 360, which you can download for free if you are a hobbyist user. Using the software was quite a learning curve but we eventually managed it (phew) after watching many YouTube videos.

Next up was to glue all the pieces together. We used Gorilla Super Glue for most of the parts, but we used expanding Gorilla Super Glue for joining the front and back hulls, together with the plug. The join didn't look great – it wasn't a perfect fit and there were gaps, so we filled the gaps with car filler and sanded it down.

Next up was to paint the boat. This is a necessary step as PLA (the plastic print filament that we used) is porous. We used a plastic primer from Halfords, and then Leo chose blue for the hull, green for the back, red for the desk, white for the top, and two yellow stripes.



Assembled printer and below a close up of the printed squares used to help level the bed



We then fitted all the electrical components!

Finally we took it for a test run. The boat's first outing was a bit wild, and it seemed to flip all over the place. The nose was also

very buoyant. When we got home we did a search on thingiverse and found two fins, which we duly printed and then fitted to the boat with superglue. The next outing, which some of you will have seen, was much more successful. The fins stopped the flipping action. Steering still isn't great though, so our next step is to make a larger rudder and try that, along with moving the battery further forward in the boat to stop the nose lifting so much.



Left - the boat as it is today and above testing at a recent Fast Electric Saturday

It's been quite an experience, and we've learnt a lot along the way. Hopefully you'll be able to see the boat in action again soon!

**Wiki & Leo**

***Fast Electrics by Dave Parker***

***2021 Season Review***



***Ready for the start of the last F600B race of the***

After a slow start due to Covid restrictions racing has gone from strength to strength with good participation in all race classes except for Mono 1. This (new for 2021) class started well with an average of 4 competitors early in the season which reduced to 3 for the last 3 meetings. Last year potential new entrants to the class have been setting up and testing their boats and will hopefully join in the racing this year.

Fun competitions were held for those attending Chairman's Day

**Club Contacts - Your Committee**



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with 'Who's afraid of the wolf' and 'Bashing the buoys'.

*Fast Electric Saturdays*

During last year a small group of racers took the opportunity to set up, test their boats and practice their driving skills on most Saturdays. It is becoming more popular with other racers joining in because it is a good way of improving the performance of boat and driver outside of actually racing.



*Mono 2 class boats in action on Fast Electric Saturdays*

*2021 Championship Results*

Below are the finishing positions in the championship tables.

**Club 500**

Racer	No	Points	Position
Colin M	6	34	1
Tim K	8	28	2
Joshua S	3	27	3
Harry S	14	24	4
Lawrie C	9	15	5
David W	1	9	6
Wiki D	13	9	7
Steven G	16	5	8
Leo	10	4	9
Colin S	15	2	10
John M	4	2	11

**F600B**

Racer	No	Points	Position
Tim K	8	45	1
Colin M	4	36	2
Alan W	7	18	3
Tony S	1	17	4
Steven G	5	15	5
David W	3	7	6
John M	10	6	7
Leo/Wiki	9	5	8
Colin S	2	5	9

**Wacky Races**

Racer	No	Points	Position
Dave P	8	45	1
Tim K	3	36	2
Steven G	2	27	3
Tony S	5	12	4
Leo/Wiki	11	8	5
Colin S	6	5	6
Nathan V	1	3	7
Lawrie C	13	3	=7
Alan W	4	2	9
John M	14	2	=9
Jamie V	12	1	10

**Mono 1**

Racer	No	Points	Position
Dave P	1	51	1
Tim K	3	32	2
Steven G	2	28	3
Alan W	7	8	4
Nathan V	8	6	5

## Club Contacts - Your Committee



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Congratulations to Colin Mears who is Club500 champion, to Tim Kozlowski who is F600B Champion in his first full season of racing.

Well done to all who finished as 'runners up' and to all who participated in the F/E championships.

Thank you to all who took part and to all who helped setting out & putting away. A special thanks to those who officiated at the meetings. Without officials we wouldn't be able to run our championships.

### *Preview of 2022*

A full calendar of all four race classes is anticipated this year and Run What Ya Brung will continue as it currently works. i.e. No specific time to run your boat but free running between races, at lunch time and following organised races.

A Fast Electric presence is expected, with more fun & games, at Chairman's Day and hopefully a significant contribution to the 2022 Model Boat Show if it materialises.

The possibility of new competitors joining Mono 1 looks good because it's fast, exciting and a bit on the edge, but most of all it's fun. If you haven't already viewed it take a look at the inaugural Mono 1 race on the bottom of the Fast Electric page on the website. Races are a little less frenzied now as competitors are getting used to the speeds and driving standards are improving.

If you want to give it a go and you are not already registered please contact me to be allocated a race number.



*Tuning up Mono 1 class boats on Fast Electric Saturdays*

Fast Electric Saturdays should continue and remain an unscheduled informal arrangement this year. All are welcome even if it's only for a natter because it's a good time to pick up info and tips from other racers and subsequently improve performance.

*See you lakeside soon  
Dave*

### Tug Towing by Tony Simons



## Club Contacts - Your Committee



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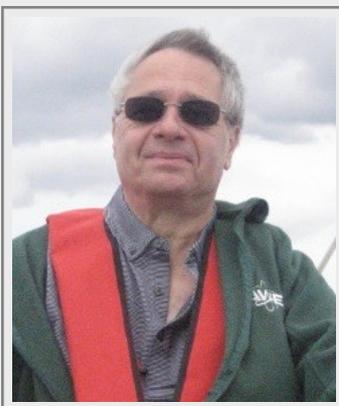
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## Club Contacts - Volunteers



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Tugs as an activity continued to have good support through 2021. As mentioned in the last VP I have purchased a 7' tank test model of a ship's hull to use as a tow. Pictured above it has been used at two meetings as a 7' long hull where it was generally noted that it was easier to initially move but took more forethought to slow because of the inertia.

Work progresses slowly at the moment to extend this hull by adding approx. 4' to the centre section of the hull. This will potentially make a hull of 11' approx. weighing 120lb (54 kg) which should up the challenge to the seasoned skippers.

Towing barges of various sizes are available for those not wishing to be run down by the larger tow.

Anyone wishing to offer designs for towing courses that give some challenge please let me know. I don't intend to have a permanent set of buoys just for towing because this permits laying temporary buoys, in addition to the existing, making course changes easy.

### Underwater thrusters

Brushless motors directly mounted to the underside of the hull. As many modellers know it can be at times a challenge to fit a standard propellor shaft into a hull, align the motor and be leak free. Moving the motor out of the hull frees up space and lowers the centre of gravity making the model more stable. If you want a model to be very manoeuvrable then mount the thruster on a tube then slide this tube inside a slightly larger tube that is mounted firmly in the hull to provide a watertight strong mount for the drive. Bring the motor wires up the inside of this tube for connection to the models power supply.

In the world of real 1-1 scale ships certain types of ship have gone down the route of installing propellers driven by electric motors outside the hull e.g. Cruise ships being the main users. It frees up space inside the hull for fee paying passengers or cargo and removes the need for long prop shafts which usually dictates the engines being located in a central large space. Moving the propellers and motors to the outside leaves just the generators that provide power to the external motors and ships systems to be located in areas with least impact on passenger/cargo spaces. In the case of passenger ships these are usually Azipods. Some have the propellor mounted behind the motor while others have the propellor mounted in front of the motor which is more efficient as the propellor has an unobstructed flow of water entering. In addition, the pods can be turned through 360 degrees greatly enhancing manoeuvrability allowing them to enter harbours without the need of tugs.

Typically Tugs/deep sea oil drilling platforms and some ferries mount each propellor in a casing surrounding the propellor. This casing is profiled to provide typically 40% extra thrust from a given size propellor and power source in addition the casing with the propellor can be rotated through 360 degrees giving greatly enhanced manoeuvrability.

Note propellers with shrouds while having greater efficiency at low speeds they are not used in high-speed applications because the casing becomes a drag.

It is possible to build your own submerged drives but it needs careful design to produce a watertight drive, something that for various reasons, has eluded me. On the positive side along the way I have gained experience in moulding components in resin, machining them to fit tubes containing the electric motor and to accept shaft seals.



What do you call the fastest sailboat in the world?  
 Usain Boat.  
 Why is sailing like sex?  
 When it's good, it's really, really good. And when it's bad.....it's still pretty good.  
 Why did the sailing instructor jump into the water?  
 She wanted to test the water!  
 How do you make a yacht look younger?  
 Boat-Tox.  
 Why shouldn't the Navy name a ship after Donald Trump?  
 Because it will sink to new lows.  
 Why did the girl boat have problems sailing?  
 She didn't have boy-ancy!  
 (Buoyancy)  
 What race is never run?  
 A regatta race.  
 What do you call a competitive sailor who just broke up with his girlfriend?  
 Homeless  
 What detergent do sailors use?  
 Tide!  
 What does a drunk sailboat do?  
 Get Wrecked.  
 How did the Pope sink the brand new yacht?  
 He christened it with "Holey Water"  
 How do you make a boat feel better?  
 Give it some "Vitamin Sea"  
 Where do ghosts like to go sailing?  
 Lake Eerie.  
 What do you do with a sick boat?  
 Take it to the doc.  
 Where do zombies like to go sailing?  
 The Dead Sea.  
 Why did Pamela Anderson's sailboat tip over?  
 It was Top Heavy.

When relatively cheap submerged thrusters became available, they offered a way to go that involved a lot less workshop time but sadly not an escape from the problem of water entering the motors.



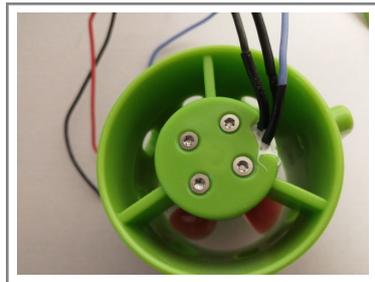
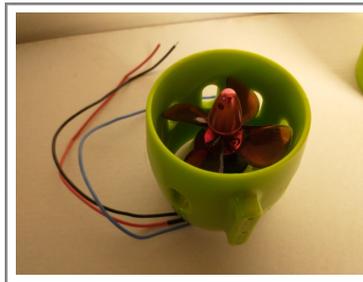
Two examples from eBay of brushless motor model boat thrusters. Circa £19 and £22

These prices tend to be ordering direct from China. There are UK sellers but they are usually more expensive.

NB For this price the motors are not watertight and do have steel components that corrode but I have kept two units operating for over a year by squirting PTFE type lubricant into the motors.

The Azimuth drives I now use come with plenty of sealant around the entry of the wires to the rear of the motor, but the motors are brushless out runners. There is no seal between the casing and the motor, it would be difficult to achieve a seal with this arrangement. Those familiar with brushless motors will know there are no brushes or a commutator to corrode, just bearings and stator windings to protect from corrosion.

In the case of the green thrusters, I use on my harbour tug there are four screws holding the motor into the rear of the casing. I found by removing one of these screws I can squirt PTFE type lubricant directly into the motor this lubricates the bearing but also coats the steel components preventing rust that could seize the motor. Do repeat this monthly to ensure rust doesn't start.



New thruster showing the motor mounting screws at the rear and sealed wiring entry.

I missed three months and this caused a defect in the motor that while rotating freely the speed controller failed.

Despite this the motor shaft can go tight so turn the prop manually to keep it free approx. weekly there are occasions when the prop doesn't tighten for weeks.

I modified the green casing to fit a brass tube that provides a means of attachment to the hull by sliding up through a plastic tube firmly glued in position inside the hull, the three small wires from the motor are fed up inside this tube and connected via a terminal block to the ESC (Electronic Speed Controller) The terminal block provides for an easy means of disconnecting to



#### BENEFITS OF A GOOD VOCABULARY!

I recently called an old Engineering buddy of mine and asked what he was working on these days.

He replied that he was working on "Aqua-thermal treatment of ceramics, aluminum and steel under a constrained environment."

I was impressed until, upon further inquiry, I learned that he was washing dishes with hot water under his wife's supervision.



Inside the thruster casing and the servo driven steering arrangement inside the hull

remove a thruster and to reverse any of the wires to get the correct direction of rotation.

This video demonstrates the advantages of this type of modern drive in real world scenarios (double click on the picture)



As ever if you need any help with your tug or advice please contact me. If I don't know the answer someone within the club will.

Tony

#### Yachting by John Price.

In the new year we will be looking out for suitable weather windows to get in some yachting. We are hoping for a dry day with preferably some north in the wind..

If anyone fancies a sail do get in touch.

Happy New Year  
John

#### Scale by Lawrie Cooper

##### Building a Victoria

After a couple of failed attempts at yachts, I sought advice and either a Victoria or Fiesta was recommended. Sadly they've stopped making both, although there is a MkII Victoria, which has a graffiti style paint scheme, and only seems to be available from the far east. Fortunately, people seem to give up building the old Victoria, as it looks difficult, or they've nowhere to put it, so they turn up on eBay occasionally.

I tracked one down in mid October. It said it was started and complete (the glue and screws were missing).

They hadn't followed the instructions, and had started with the deck fittings (but ignored the stand) and then glued the servo box together which fell apart.

This was reglued and epoxied centrally in the hull. So I followed the remaining instructions and allowed for the two mast halves to be taken apart so that it's more easily transportable.

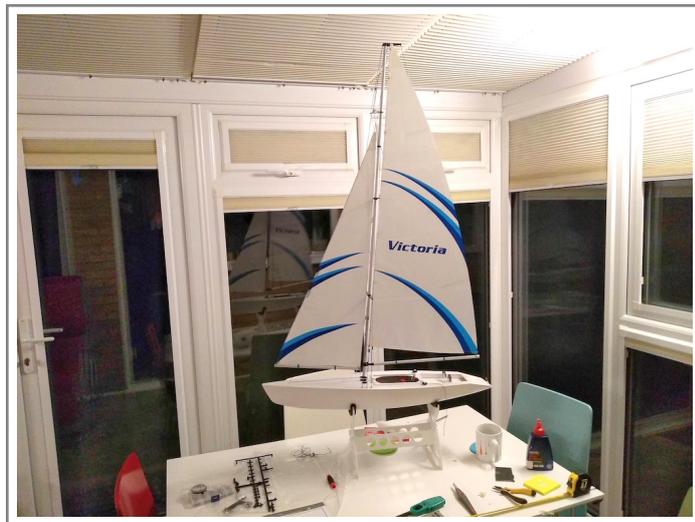


Servo box before installation and then fitted in the hull

All went very well till the rigging. The basics are simple, but the sail control line and its associated bits are a rather strange layout, and the instructions to adjust everything seem



inadequate, but my end result looks right, except I broke the wheels off. I left the keel fin till last as it makes it awkward to move the hull.



Finished and Time to put it in the water

Lawrie

**Saga Sailing**

There is no change in the day/time for our regular meetings, but, (different from last year,) this is now a calendar event and is on the monthly calendar. I personally will make more of an effort to join in on Wednesdays, as my hospital treatment hopefully has now ceased. As my life revolves around my motor home and my model boats (don't tell the wife!) most motor home trips are between Thursday and Monday, so this should not affect the weekly Wednesday SAGA Sailing meetings.

I hope we all have a better year this year, 2022, and I look forward to seeing you all lakeside in the very near future.

Best wishes, Alan