



# GATEWAY

**The Official Magazine of the Gippsland  
Gate Radio & Electronics Club Inc A0016893M**

**November 2022**



**Dangerous Battery Chargers**

**Rosebud Radiofest**

**Speakers Speakers Speakers**

**And More**



**Cover photo**, Silicon Chip Magazine SMD tweezers (component tester) project construction.  
(If you have any good photos, please send them in)

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Note: - club meeting minutes are now via a link in club emails sent out by the secretary.

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## Event Queue

### November:

- |                  |       |                                |
|------------------|-------|--------------------------------|
| 4 <sup>th</sup>  | 7:30  | Prac Night                     |
| 19 <sup>th</sup> | 8:00  | General Meeting                |
| 20 <sup>th</sup> | 9:30  | Rosebud Radiofest – see page 9 |
| 24 <sup>th</sup> | 12:00 | Synchrotron visit              |

### December:

- |                   |      |   |
|-------------------|------|---|
| 2 <sup>nd</sup>   | 7:30 | Prac Night (No General Meeting in December) |
| 3 <sup>rd</sup> . |      | Christmas Party                             |

**Club run events are only possible with the involvement of ALL members.**  
**Without volunteers to coordinate and participate in club events the club will fail to prosper**

# *President's Message*

President's Message November 2022.

Hi GGREC Members,

Thank you to the members that will be attending the Synchrotron tour on the 24<sup>th</sup> of November, looking forward to seeing you there. The tour starts at 12:00pm so I suggest we get there earlier and make use of their café.

The November General Meeting is the last General meeting for the year. It will be a good opportunity to get together for a social night with fellow members. Why not bring along something you have constructed to "show and tell" other members.

We have been invited to have an exhibit at next year's Train and Hobby show which will be held on the 11<sup>th</sup> to 13<sup>th</sup> of March with set up on Friday the 10<sup>th</sup>. I will be looking for member support before we commit to participate in this show. It will be held at the Sandown racecourse.

The Christmas Picnic/BBQ will be held on the 3<sup>rd</sup> of December, behind the Guide hall. It is a BYO everything event and is always well attended. It is a great way to close off what has been a busy year.

Our Log periodic antenna has been damaged by recent winds and the weight of numerous cockatoos perching on the elements. We will attempt to repair it and if that is not possible, we will replace it.

The WIA is currently surveying members regarding the "ACMA Amateur Class Licence & Higher Power Consultation" We encourage all GGREC members to join the WIA so that you can have a co-ordinated response to this and future important issues.

Our editor, Paul VK3TGX has been asked to dispose of a deceased estate's electronic parts and equipment. Bruce VK3BRW and Max VK3TMK have catalogued the parts and the list will be made available to you soon to make an offer by email. The highest offer for each item wins.

The Committee is still looking to fill the Secretaries position. If you would like to have a go for a short time to "try it out" please let me know. Our Annual General Meeting will be next April and we will be looking to elect a new Committee to ensure the future of GGREC. Please consider nominating for a position to keep the Club going strong.

Bruno Tonizzo VK3BFT

President GGREC Inc.

# From The Editor



This month I spotted this one on AliExpress, it's a GPS vehicle tracker, built into a regular auto relay case. Talk about compact.

If you wanted to hide a tracker in your car then this may be the one, who would ever find it. Anyone going through your car would pass this by as just another accessory relay.

There is of course the radio issues, in the engine bay would be rather problematic, maybe high up under your dash there may be a spot with just plastic above. Any metal will of course shield it from both the GPS satellites and the 4G mobile phone towers.

This just leaves one catch, you need another mobile account to use this thing, another drip feed for your ever slimming wallet.

If you go looking for this on AliExpress, beware they have a few 2G mobile variants, the 2G mobile network was switched off in Australia many years ago, heck even the 3G network is all but gone, so where on earth (literally) is there 2G coverage?



Then a bit of a surprise for me at the last meeting, I was contemplating skipping that meeting, but decided to attend anyway.

I had heard on the mornings 10:00 'net that some members are not reading the magazine, so I must be doing something wrong....

However Bruno & the committee seem to think otherwise, giving me an award for my efforts. So a big 'Thank You' to them, and you.

If you have any suggestions on how to make this magazine more appealing, or more importantly, can send us better content, then go for it. Get everyone reading. Unfortunately, in Frankston there is quite a lot of QRM, so HF radio activities are a tad difficult, I don't hear those roaring European stations often referred to by Helmut, Klaus, and others.

This means my activities tend to get skewed towards general electronics & computers, with radio a bit more in the 'toy telephone' mode. I have thought of trying a shielded magnetic loop antenna, (for receive only) however I've yet to track down any design guidance, and my radio tower has some damage that is a bit outside of my skills/equipment, unfortunately you cannot just pop a Nally tower into a bag and post it off for repairs.



*Paul VK3TGX*



# Speakers



It has been said rightly, that one should spend the majority of one's sound system budget on the speakers. This is fine when the budget is quite large, however the wheels kind of fall off this idea when living on a shoe-string budget. Many years ago I bought what I saw as something appropriate for myself, Playmaster kit's from Dick Smith Electronics. With various parts being slowly swapped out over the years. Now as I like fiddling, I always keep me eyes open for any offerings. It's not that uncommon to see a bit of old HiFi kit

being put up as 'free to a good home' at the end of many a hamfest. Sometimes the items are all but junk, other times, whilst being beat up, sound really good. Quite often I'll just grab it knowing it will likely be in the bin at the end of the day. I enjoy a good tear apart session after getting home. (Although the wife is usually less than impressed – 'More junk' being her cry)

There is one big hole in all of this, and that is speakers, I rarely see anything at a hamfest, HiFi speaker wise. Older HiFi speakers tend to be a tad large, and taking several largish boxes to a hamfest is a tad foolish, the sellers boot space can usually be better utilised.

I have been somewhat partial to making speakers out of odds and ends, not expecting much, pretty much on the 'nothing ventures, nothing gained' concept. I don't really have room for another set of 'full size' speakers, so novelty box's it is, interspersed with knock-ups for church etc. My biggest problem is speaker drivers; years ago I was happy with 8inch full range drivers. I have a nice Cerwin-Vega bright yellow & blue driver, However these have mostly disappeared, well disappeared from any shop I can drive to, beyond Jaycar & Altronics. leaving only 10W drivers primarily intended for ceiling mounts in office spaces (Altronics C2000A) – not very promising for HiFi, although I do have a pair of similar drivers in wooden boxes that I have been giving 'heaps' to and have not died yet. WES components in Sydney have a better range, but of course mail order only for me, as I have no real reson for driving all the way up there.



AC-1A

I recently found a German company, Voxativ that make some very expensive 8 inch full range drivers, as in \$1999 for a pair!

They come complete with plans for a suitable enclosure, although I'm more interested in what is known as a dipole speaker. (At the moment)

This is a fancy name for what was once called a baffle board, or just a sheet of chipboard with a hole in the middle for a driver and something as a foot to make it stand up straight.



Trouble is \$2,000 is a bit much for me, but boy do they look nice – and I recently saw one used in a high-end speaker that a YouTube audiophile had selected as his new reference speaker – he seems to know his stuff so I take it as a VERY good endorsement....

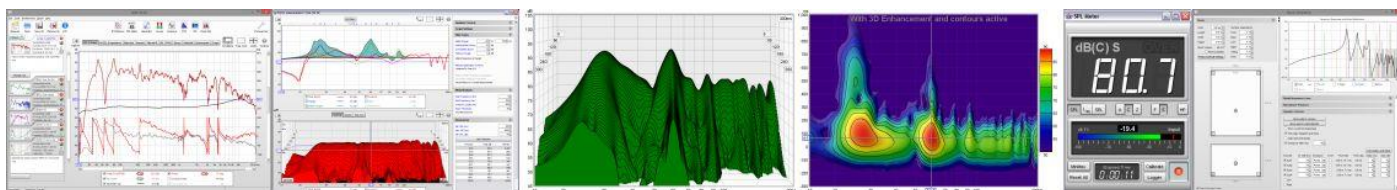
However I may have to drop back to this Dayton Audio PS220-8 8" Point Source Full-Range Neo Driver, about \$220 from WES.

Whilst dipole speakers are reported to have a very airy sound, free from any box sound that can plague conventional box's, they suffer from poor bass response as the lower frequencies wrap around the baffle board cancelling themselves out. A good subwoofer is one option here. I've yet to try one, however the pure simplicity of the system has my attention. Another easy DIY option is to simply buy a kit speaker, or try the suggestions that sometimes come with a particular driver, like the Voxativ.



So after you have a candidate speaker, how do you test it? Well first off if you are happy with the sound, then don't bother, however if you are just curious, or it's not working out and you need some 'clues' then you can try 'REW', 'Room Eq Wizzard', it's a free (or was when I downloaded it) Windows program for evaluating speakers.

With the software sorted, then you'll need a 'sound card', or audio interface to get the sound into and out of your computer, most PC's do have built in audio, it may suffice, however don't hold your breath – most discerning users skip the built in offerings.



<https://www.roomeqwizard.com/>

I'd tend to suggest an audio interface that supports XLR balanced mic's, like this Behringer ECM8000 Mic





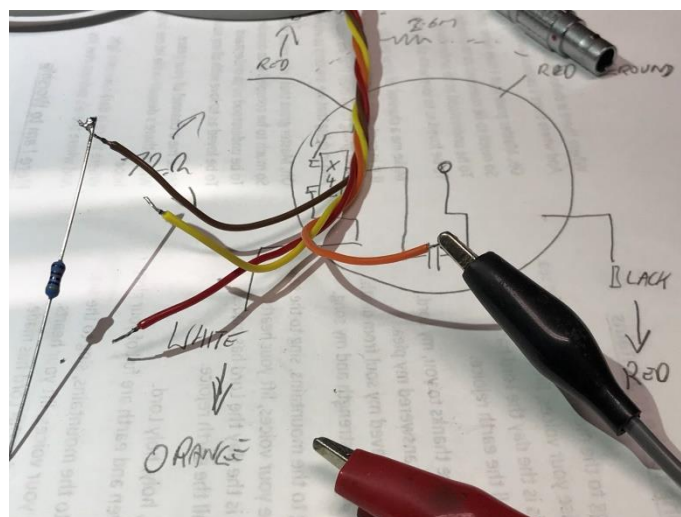
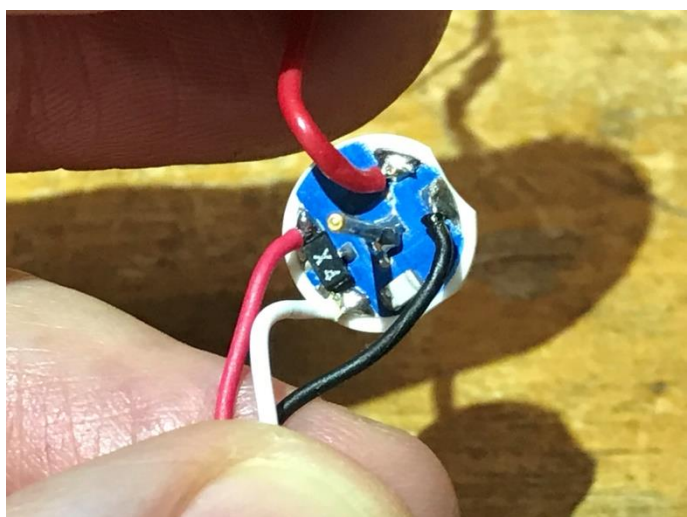
The REW website suggest more upmarket equipment, including a calibrated Dayton mic, I actually went a lesser route, I had a Tandy Realistic sound level meter that has an RCA line level output and connected that to a Roland Edirol UA-1EX that I already had.

Laptops generally only have a mic input that is only good for computer style electret mic's and not anything professional, like Behringer ECM8000, or the Dayton Audio EMM-6 calibrated analogue measurement microphone suggested by the REW website, so you'll need to get an external one of some type or another.



Another option, curtesy of a deceased estate is a Bruel & Kjaer industrial/scientific mic, trouble is I don't have the complete setup, nor can I find exact documentation.

Documentation on another preamp head says it needs 200V for the actual electret capsule, and 28V for the actual buffer amplifier.



The head on these has a 5 pin Lemo plug, 4 pins are used, no information so far from the internet, just a larger non SMD preamp/head, with a different plug. Looking at the board you'd be forgiven for thinking there is only two components, a FET & a cap, however there must be some very high value resistors somehow created under that blue mask, otherwise how is the FET biased, where does the 200V go, I cannot measure any resistance between the HV line and the pogo pin that links this board to the capsule. It's greater than 20Meg ohms

If anyone is up to this challenge, I have a spare capsule's and heads, and a few Lemo sockets. Just not in single unit fancy wooden boxes. (That one should go in a display cabinet)



How to Use Room EQ Wizard <https://youtu.be/HYMQ6M-Z5rM>



REW results from my 'TV PA' on the table, quite a drop off starting at 2.5KHz then really getting going above 6KHz, I'll have to try adding a tweeter, however there is no room for one alongside, so I'm thinking of trying a low profile unit in front of the main driver, kind of emulating a coaxial driver. The grill out front is fairly rigid, so it should hopefully work.



*Pad VK3TGX*



# Rosebud Radiofest

The Southern Peninsula Amateur Radio Club (SPARC) is running the

## Rosebud Radiofest

On Sunday November 20<sup>th</sup>, 2022 at 9:30am start.  
\$6.00 entrance fee (U12 free).

The Location is : Eastbourne Primary School Auditorium, Allambi Avenue, Rosebud Vic.

Melway reference 169 K5. Follow the signs from Boneo Road.

For further information, click on the following SPARC Link

<https://sparc.asn.au/rosebud-radiofest/>



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**Rosebud Radiofest**  
NOVEMBER 20 2022  
Eastbourne Primary School  
Allambi Ave Rosebud  
Entry \$6 | U12 FREE

The  
**SOUTHERN PENINSULA AMATEUR RADIO CLUB**  
in association with Eastbourne Primary School, proudly presents the spectacular

# ROSEBUD RADIOFEST

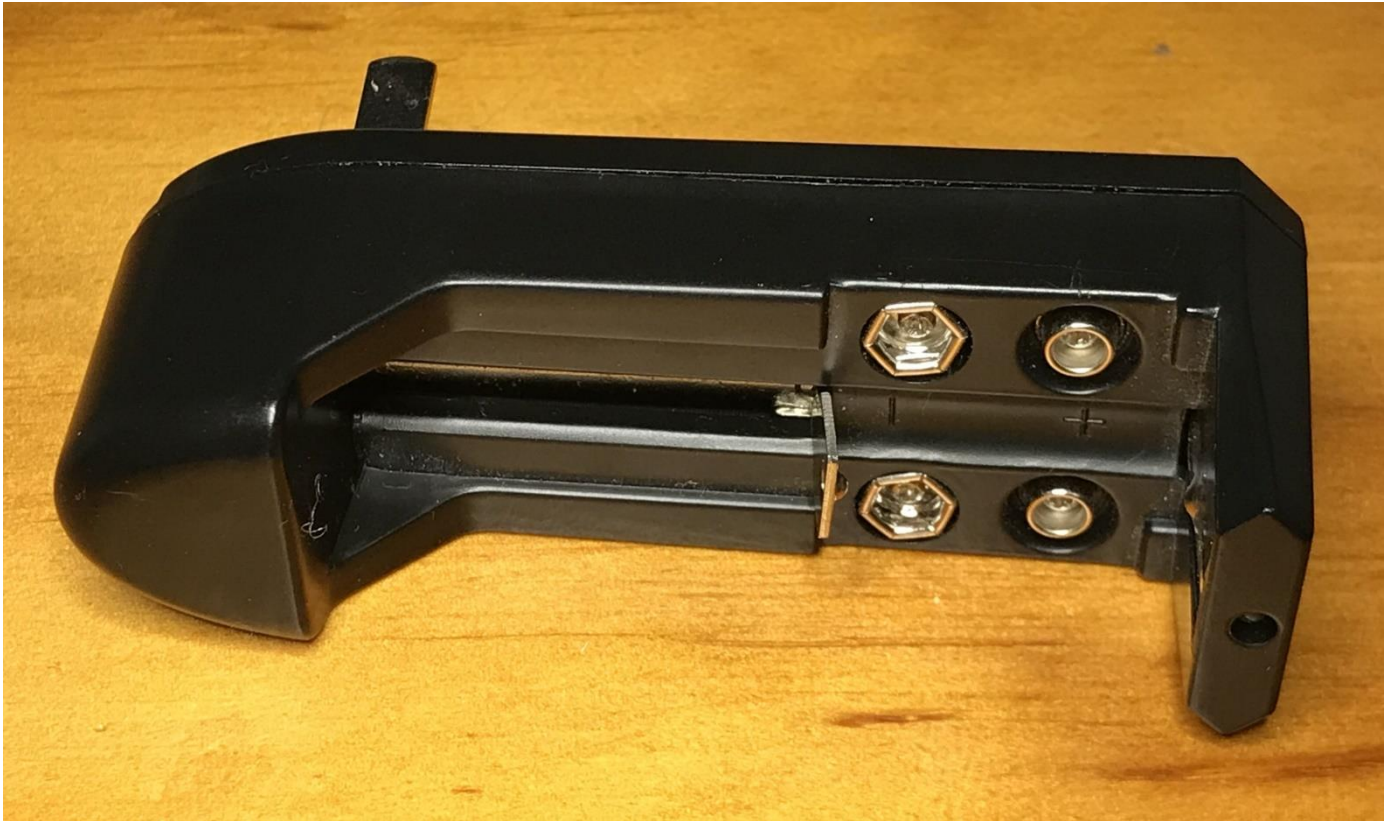
**Sunday November 20**

**BOOK A TABLE!**

Tables cost \$10.  
Tables for club promotions are FREE.

**DOORS OPEN AT 9:30 AM**  
Entry \$6  
Children under 12 admitted free

# Dangerous Battery Chargers



A while ago I purchased a Li-Ion torch kit, I kind of didn't trust the charger though, and kind of resisted using it. Eventually I opened it up and the construction didn't seem that bad, so I inserted the battery and stood back – no flames all's good – or so I thought.

An hour or so later I connected a meter, 4.3 volts – Yikes, get that cell out of here before it blows up in my face!



You've probably seen pictures a few years ago about these "hover boards", in a ball of flames.



(Hover Boards - Inspired by the movie 'Back to the Future' no doubt? – and no these things don't hover at all – so why the name?)

These are mostly kids toys, and where do kids keep most of their toys, in their bedroom – nice place for a fire, especially when everyone's asleep. It is also known that kids tend not to be awoken by smoke alarms, a recipe for disaster....

Li-Ion cells have a voltage range of 3.00 to 4.20 volts, 4.20, Not 4.21, and DEFINETLY not 4.3V.

If you want an extended service life, then stay below 4.20, 75% capacity is at a 4.0V charge.

Inspecting that charger, the single Li Ion cell's terminals are just wired in parallel with the two 9V battery terminals, there is no selector switch, or sensor it appears. This is an all but impossible situation, it is impossible to provide a safe charging voltage for a single Li Ion cell and a 9V battery from the same output. It appears this charger just puts out a kind of constant current charge, as was done in the old NiCad battery days, they've just taken the same design and applied it to a Cell that more or less needs a voltage limited charge. A 4.2 V power supply with a current limiter would be way more appropriate.

So how much of this all but deadly junk is out there – just waiting to pop a cell and start a fire. It makes me wonder how the chargers of those supposed hover boards were designed – the same way?

How about e-bikes and scooters -

"To date [this year](#), 130 reported fires involving lithium-ion batteries in electric bikes and scooters in New York have been reported. Five people died. Comparatively, this time last year saw only 65 ebike and scooter battery fires." TNW - <https://thenextweb.com/news/the-cause-of-lithium-ion-battery-fires-ebikes-escooters-new-york>

In a lot of crowded city's overseas, people live in tiny apartments with no car park, hence they buy an electric bike and often these end up in the apartment – there's nowhere else to put them – lest they be stolen, and of course that's where they are charged (or they can secure them downstairs – but take the battery upstairs for charging). Charging often takes several hours, so who is going to sit there watching them charge? Maybe some with the battery next to the TV as they watch a movie, but most probably don't.

So stick to reputable brands, with cars this is kind of easy, but with torches and other gadgets... unfortunately you're at the mercy of an engineer, been screamed at by a bean counter demanding it be built to a cheaper price.

Yes EV's do catch fire, however stats from the USA indicate they are way less than ICE vehicles.

*"I felt exactly how you would feel if you were getting ready to launch and knew you were sitting on top of 2 million parts — all built by the lowest bidder on a government contract."*

*— Attributed to John Glenn" NASA astronaut before a US rocket launch*

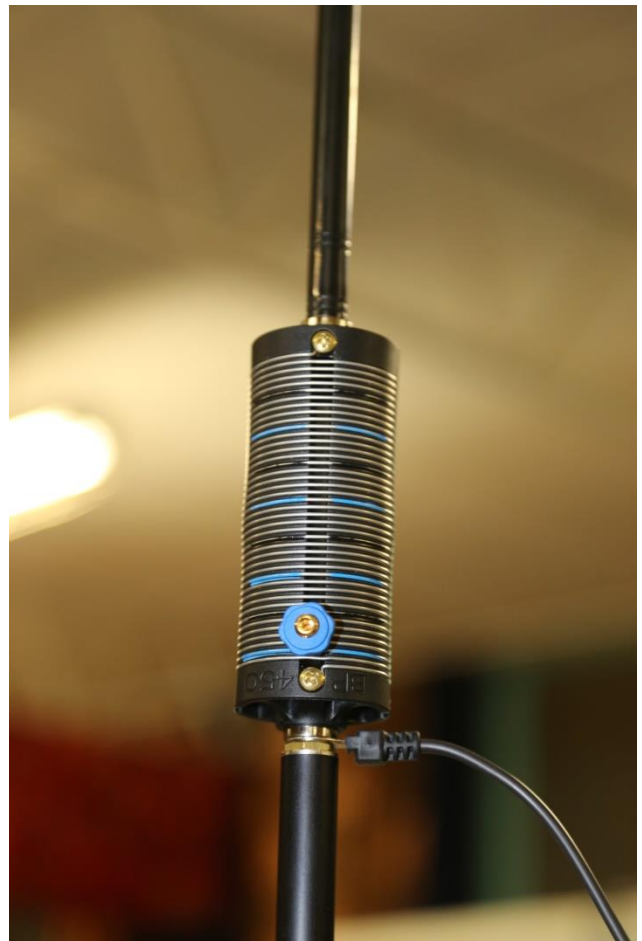
For me, this means that my charger is going to be reduced to just a cell holder that will be powered by a bench supply, and monitored by a decent multimeter.



*Paul VK3TGX*



# Meeting 4/11/2022







Send us your  
Photo's  
And  
Magazine  
Articles  
Please !



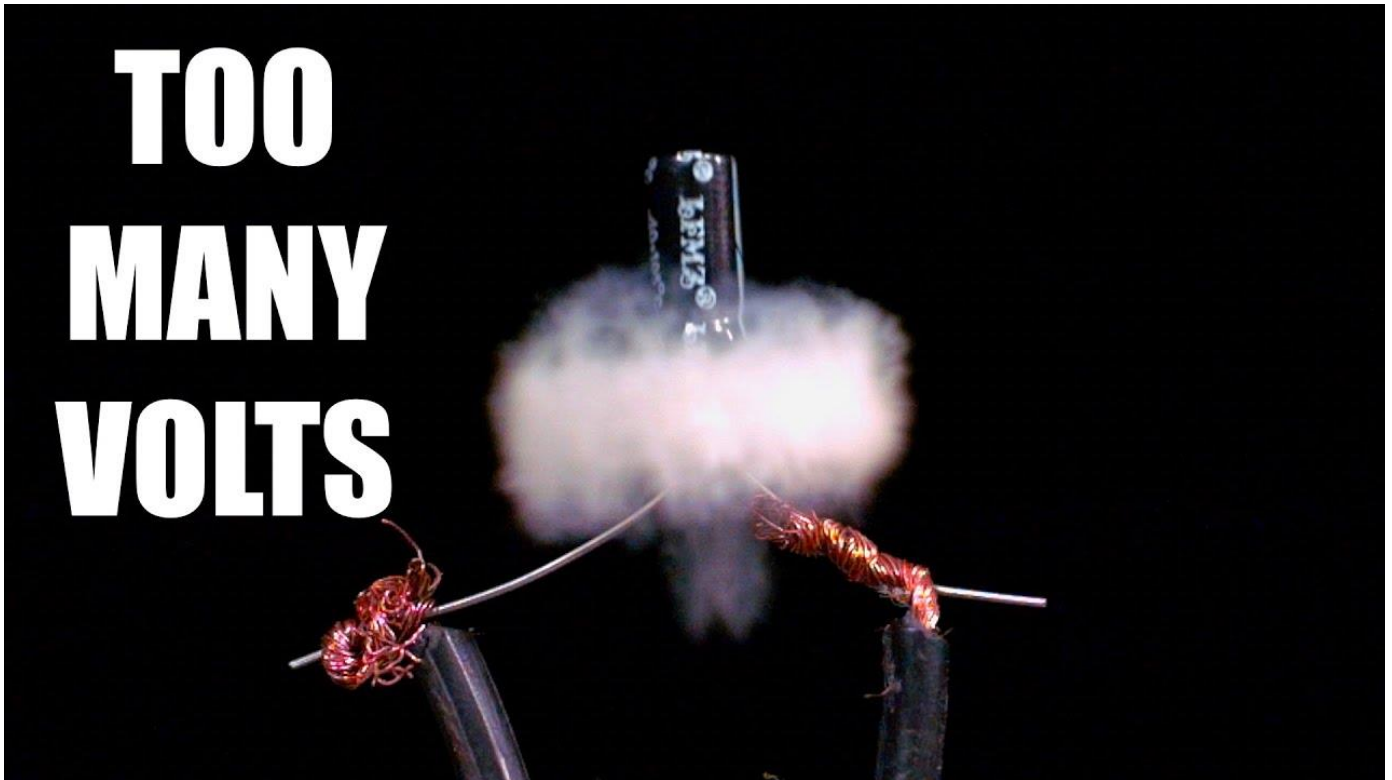
Where were you?

A good night was had for all

See you at the next meeting



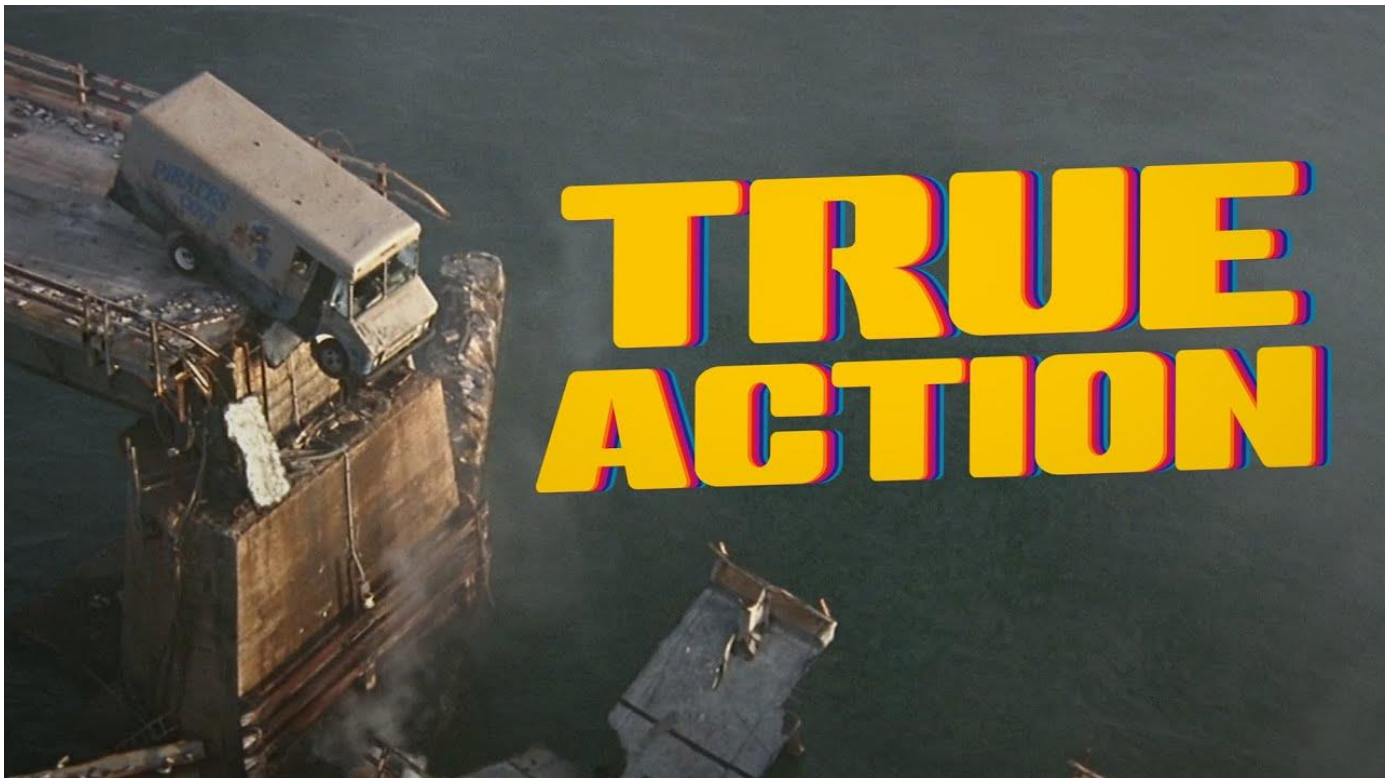
## Interesting YouTube Videos



**TOO  
MANY  
VOLTS**

Blowing up Capacitors at 187,000FPS (With a Variac)

<https://youtu.be/6WUxgmMDts4>



**TRUE  
ACTION**

How James Cameron Destroyed a Real Bridge Without CGI

<https://youtu.be/PcFbgZFRRT4>





The GGREC is an affiliated club of the WIA  
<https://www.wia.org.au/>

## **WIA** Affiliated Club

We also give Thanks to



<https://www.jaycar.com.au/>

&



<https://www.altronics.com.au/>

For their generous support over the years



## Club Information



Meetings 20:00hrs on third Friday of the month at the  
Cranbourne Guide hall, Grant Street Cranbourne  
Prac/Natter nights first Friday in the Peter Pavey Clubrooms Cranbourne 19:30hrs  
Visitors are always welcome.

### Office bearers

President	Bruno Tonizzo	VK3BFT	General 3	Bruce Williams	VK3BRW
Admin Sec	vacant		Web Master	Mark Clohesy	VK3PKT
Treasurer	Klaus Illhardt	VK3IU	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Yarn Oncken	VK3NOV	Property Officer	'committee'	
General 2	Helmut Inhoven	VK3DHI	Assoc. Secretary	Bruno Tonizzo	VK3BFT

### Call in Frequencies, Beacons and Repeaters

The Club Station VK3BJA operates from the Cranbourne Clubrooms.

6m Repeater Cranbourne VK3RDD, In 52.575 Out 53.575 CTCSS none

70cm Repeater Cranbourne VK3RGW, In 431.425MHz Out 438.425MHz CTCSS 91.5Hz

VK3RGW Repeater supports Remote Internet access (IRLP), Node 6794 **offline**.

70cm Repeater Seaview VK3RWD, In 431.575MHz Out 438.575MHz CTCSS 91.5Hz **'Testing'**

Simplex VHF - 145.450MHz FM, Simplex UHF - TBA

VK3RLP Beacons 1296.532MHz & 2403.532MHz (**currently offline**)

### Membership Fee Schedule

Pensioner member rate \$40.00, Extra family member \$20.00

Standard member rate \$50.00, Junior member rate \$25.00

Fees can be paid by EFT to BSB 633000 - Account 146016746

• Always identify your EFT payments

• Membership fees are due by each April Annual General Meeting (AGM)

Magazine Articles to [editor@ggrec.org.au](mailto:editor@ggrec.org.au) Cut off, 10<sup>th</sup> of the month

All other Club correspondence to: [secretary@ggrec.org.au](mailto:secretary@ggrec.org.au)

or via post : GGREC, 408 Old Sale Rd, Drouin West 3818

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