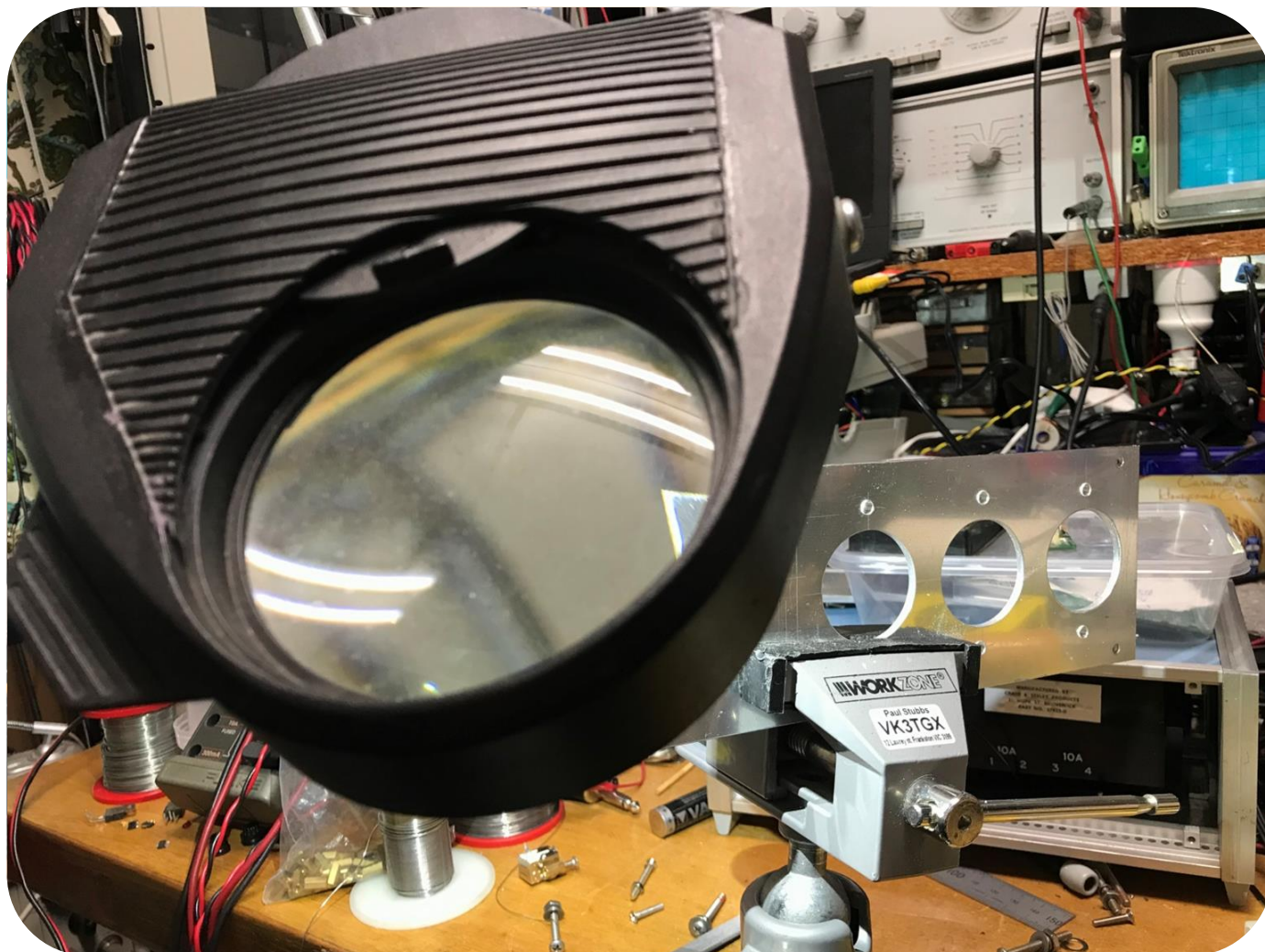




GATEWAY

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

July 2023



Patricia Pavey VK3OZ sk

A 13.8V 50 amp power supply

USB Power Delivery

And More

Cover photo, Paul VK3TGX's workbench, mid back panel filing.
(If you have any good photos, please send them in)

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Event Queue

July:

21 st .	8:00	General Meeting
22 nd .		Second leg of the 2023 Youth on the Air Contest – courtesy WIA

August:

4 th	7:30	Prac night
12-13 th .		Remembrance Day Contest – courtesy WIA
18 th .	8:00	General Meeting
26-27 th .		A.L.A.R.A. Contest – courtesy WIA

September:

1 st	7:30	Prac night
15 th .	8:00	General Meeting

<p>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</p>

President's Message

Hi Everyone,

I have just returned from a week in VK2, where Merimbula put on a week of fine weather. I was able to catch up with Richard Everett, a former GGREC member previously known as VK3KRE, but now uses VK2MO. Richard joined the GGREC as a class member when he was only 14. Now he is the lead radio Technician for all the radio stations along the South coast of NSW. The pursuit of Amateur Radio as a hobby crosses many boundaries and involvement has certainly given a positive edge to a host of technical careers along the way. Richard was certainly one such person.



I was saddened to hear the news that one of our long-term members Pat Pavey VK3OZ passed away last week. Pat had been an ardent Club member since the 1980's. Pat and her husband Peter (SK) ran the GGREC examination service for many years and many among us have progressed in the hobby through her dedication. Pat was an avid CW operator for a very long time. In 2010 and again in 2018 Pat joined the ILLW (lighthouse weekend) team to Wilsons Prom, which involves a 20km hike in and out, with a full pack. Pat was made an Honorary Member of GGREC earlier this year as she was an integral part of GGREC history and a fine friend. An article about Pat has been included within this edition of Gateway. We shall all miss her.

Last Saturday we had our annual Mid-Year Dinner, which this time was at the Dandenong Club. It was a pleasant evening with lots of fine food. Amateur Radio is a technology based hobby, but our connections within the Club are social. It was good to see so many new and old faces there. I am looking forward to the next one.

An essential part of maintaining Club finances, particularly with our ever-increasing power bill for the Shack. We have been allocated a slot for a Sausage Sizzle out the front of Bunnings in Cranbourne next month. This is really important for us and if you are able to help out for even an hour, please make contact with Klaus our Treasurer quite soon. We can make good money in a few short hours, but we still need helpers to make it happen.

Lots of Amateurs know quite a bit about basic electronics and have made some excellent projects out of IC's, transistors, and a few basic components, but have not been able to jump at that steep curve where they can work with Microprocessors. This Friday night I will give a presentation on the modern one-chip microprocessor, how they are used and a little about what happens inside. It is not a programming session, as if you want to dive straight into Arduino, 'C' or Assembler languages, that is a longer conversation.

Join us on This Friday Night when we take a look at these devices and why it is so rewarding to start building software controlled projects.

See you there.

Ian VK3BUF

From The Editor



This month I received a bit of a shock when I inspected my lead acid battery charging setup. The plugpack charger tasked with keeping a float charge on the system had developed a bulge in its case, so much for the 'Battery charger' moniker on its label. A 'proper' battery charger should be able to take any form of overload and not try and self-destruct.

Obviously "Dong Guan GaoYi Electronics" don't subscribe to this thought, in my mind it should have at worse acted like many switchmode supplies do, and just shut down, awaiting a power reset to get going again.



I've had similar incidents with other plug pack style supplies, in particular Christmas lights supplies where the case has started to crack open during use. That one had sat quite happily in its box all year waiting for the next

joyous season, only to try and self-destruct during use. In both cases they didn't seem overly hot to me, I could easily keep a hand on them for an extended time, yes they were warm, but nothing like I've seen from some laptop power bricks.

The extra strange bit about the Christmas one was it was a conventional, or old school iron core 50Hz transformer job, it didn't even have a rectifier onboard, just outputting AC, so so-much for the "it's the switch mode's trying to kill us again" mantra.

Now I do have a few much older plug-pack supplies that run 24/7 here, like the supply to my burglar alarm, and an almost ancient ARLEC battery eliminator that is about 50 years old, they just keep chugging along with no signs of imminent catastrophic failure.

So is this more to do with modern construction techniques? I don't know, however it does bring back a favourite thought of mine that the only safe power supplies – or rather 24/7 powered gear is made in a metal box, preferably with no holes for the flames to get out when it inevitably dies. This is extra relevant in the case of battery chargers as you have this great bank of stored power just waiting to dump back into that supply/charger and blow the crap out of it and send any wiring cherry red with lots of toxic smoke, the type that gets fire brigades active.



After replacing the so called 'battery charger' with a nice metal boxed switchmode, I later noticed a nasty acid smell, which lead to a very warm 7AH sealed lead-acid battery, that had a small hole burned into its end, a dead cell as evidenced by that battery quickly dropping to 11 volts after disconnection. No excuse for that plug pack charger wanting to call the fire brigade though.

Paul VK3TGX



GGREC Mid-Year Dinner

On Saturday Night the 15th of July, 14 Club members attended the mid-year dinner at the Dandenong Club. We were lucky enough to be seated in a private room separate from the main restaurant area. Maybe they knew that even a small group of amateurs can still generate very loud conversations!!

It was great to see our newest members, Bruce Thorn, Glen Young, Steve Schnitzer and his wife come along and join in the fun. After a few drinks and conversations, our meals arrived, dropping the noise level markedly while we each enjoyed our delicious meals. It didn't take long for the conversations to start up again as we settled in for night.

Thank you to the members that came along to make the night a success.

Kind regards,

Bruno Tonizzo VK3BFT





Patricia Pavey VK3OZ (FDU #9070)

3/5/1944 to 11/7/2023



It is with sadness that I report the passing of Pat Pavey VK3OZ; long time FDU member, CW operator, friend to many, and mother to Phil VK3VB, Peter Jnr, Patsy, and Paula.

I first met Pat in 1984, following a QSO with her eldest, Phil (at the time VK3PMJ). Being about the same age, Phil and I became friends, worked on common radio projects, and joined Pat and Phil's Dad, Peter (SK) at the local radio club (FAMPARC). With two very active amateurs in the Pavey household, Pat succumbed to the hobby sometime around 1990 – I think her view was “if you can't beat them, join them”. I also recall something about the television being “out of service” whilst Phil and his Dad were busy on various radio projects.

Pat and Peter Pavey (VK3VB SK) immigrated to VK in 1976 when Phil VK3VB and his siblings were young kids. Pat and Peter enjoyed the hobby and were very active in education, exams, and the local club scene.



Pat was an active member of ALARA, Gippsland Gate Radio & Electronic Club and, of course, FISTS Down Under for many years. She was a regular fixture on the 80m Early Bird Net and encouraged many amateurs to learn and develop Morse Code skills. Since her passing there have been messages from amateurs recalling Pat's support in helping them master the code.

I recall Pat attending many club events and being very active in some of the more challenging activities, including the 18km hike to the Wilsons Promontory Light House for the International Lighthouse



Weekend – not once, but twice! I was fortunate to have a friend send me a photo of Pat operating the key at the Lighthouse in 2018.

In more recent years, Pat's operating was limited to the Early Bird Net on 80m.

Pat moved into Aged Care earlier this year. The tower and beams were dismantled a few weeks ago at the Tooradin QTH, and I've received a number of emails and phone calls from amateurs asking what happened to the radio tower landmark (Peter and Pat moved to Tooradin in 1986) as people head past on the South Gippsland Highway.

Pat passed away peacefully after a short illness on Monday 11 July 2023. On behalf of committee and members I extend our condolences to Phil VK3VB (#20002) and his family.

Vale Pat VK3OZ SK.

73, Chris VK3QB (#9085)

President FISTS Down Under



A 13.8V 50 amp power supply for less than \$40 ?

Rob VK3BRS

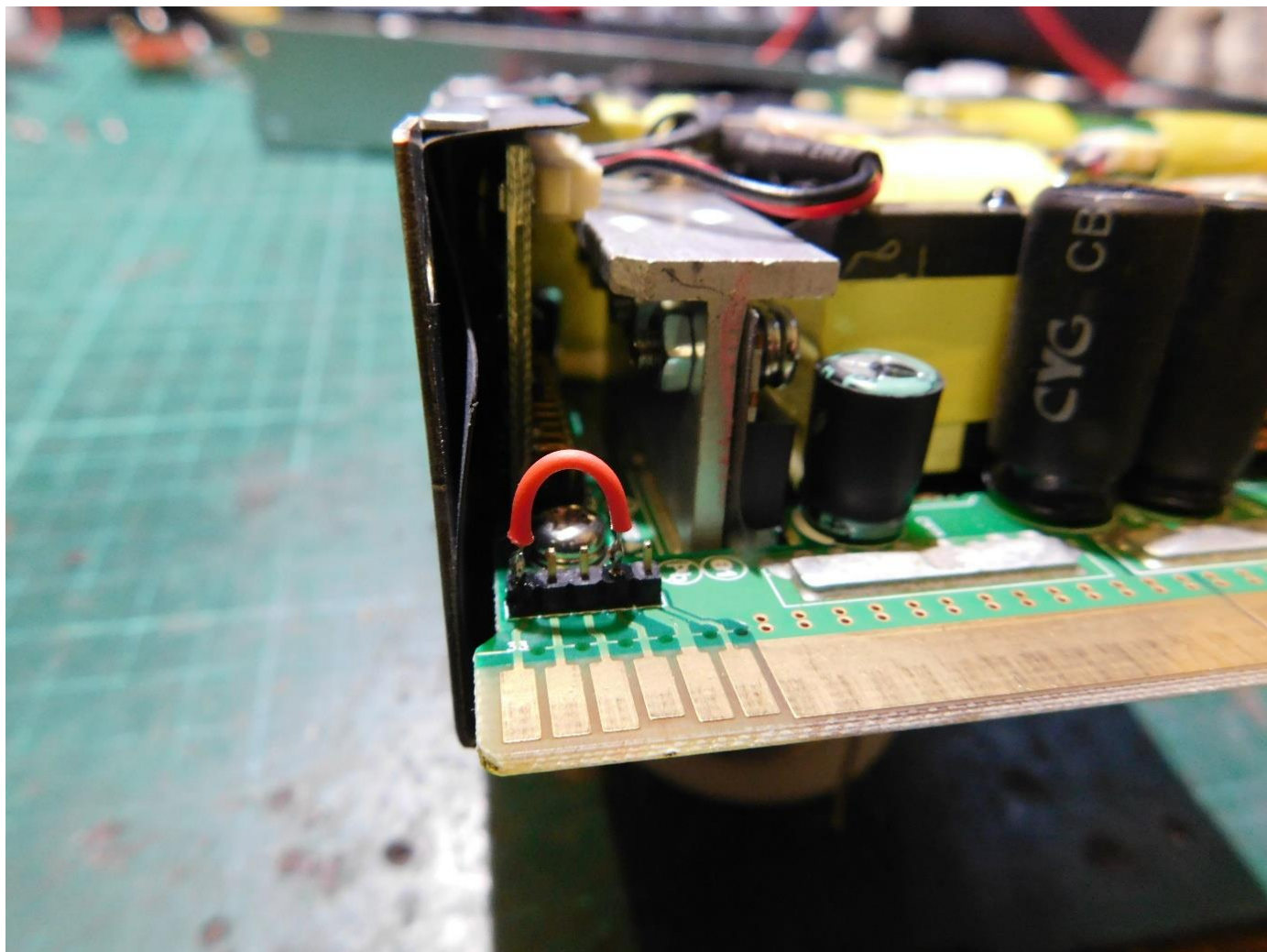
After having worked at KPMG for a few years as a National Network Administrator I was constantly in the server room carrying out my duties including the upkeep of the servers here in Melbourne. I looked at these servers and was amazed at what was shoehorned into them, including “hot swappable” raid hard disk arrays, memory, CPU’s, cooling fans and power supplies to name a few. I took particular interest in the power supplies because at the time (nearly 20 years ago) they were formidable in their capacity, 3, 4 or 5 times of what domestic computer power supplies were capable of. Back then it was common to have a server power supply capable of 750, 1000 or even 1200 watts output at 12 volts... all in the size of a box smaller than a carton of smokes...

Move forward 20 years and a lot of this gear is on the second hand market now, including the power supplies. Great I thought, I wonder if anyone has done anything with them? I was originally looking at a high current charger for my tractor as it sits for long periods and the batteries need a quick top up occasionally before doing a bit of slashing. While looking at chargers I stumbled across some information showing how to convert the above mentioned power supplies into 13.8 volt power supplies.... Interesting I thought, I wonder how much they cost? A quick look on Ebay and I was really surprised, \$30 to \$40 ea. and local. I quickly snapped up a couple 😊



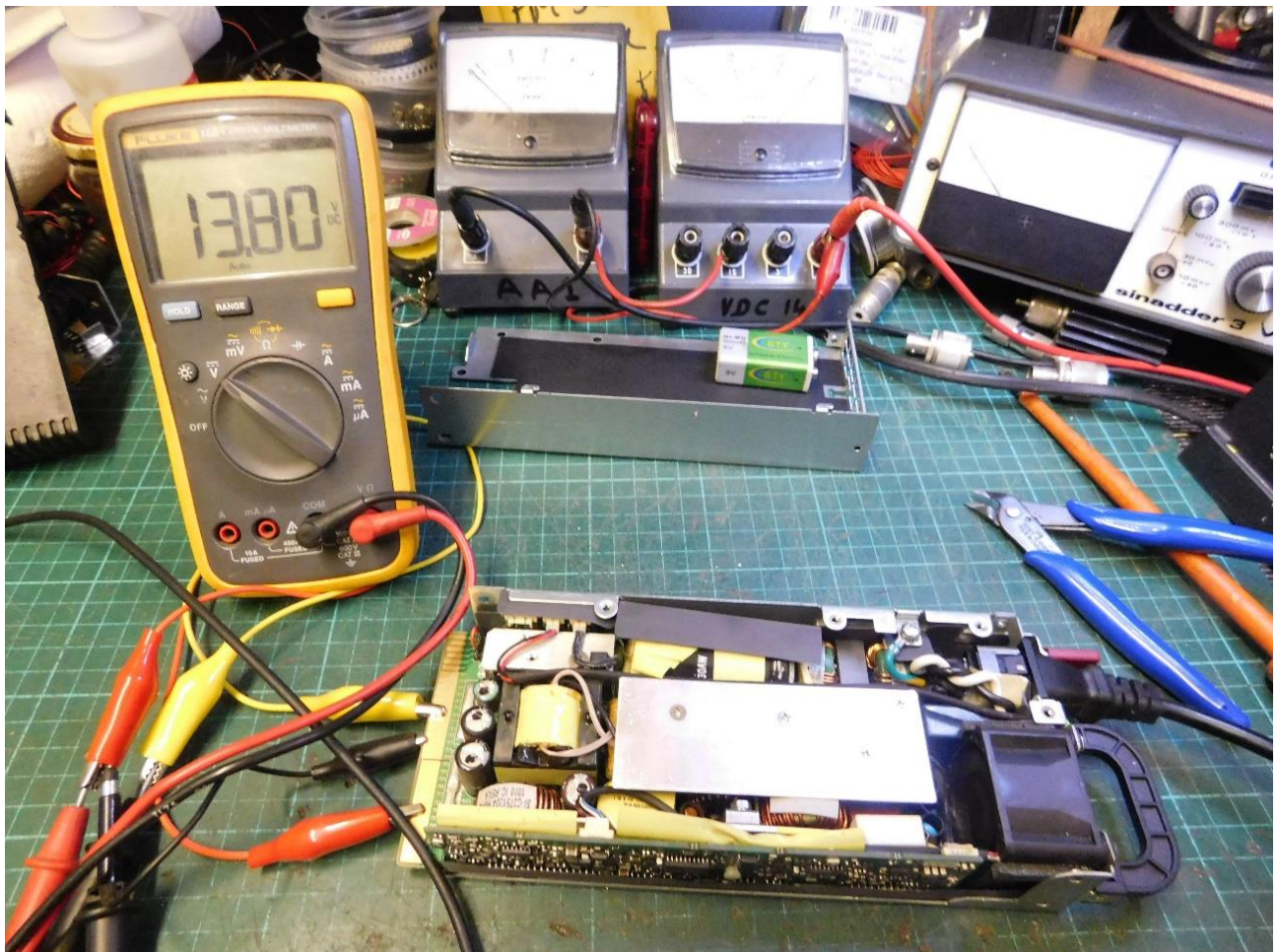
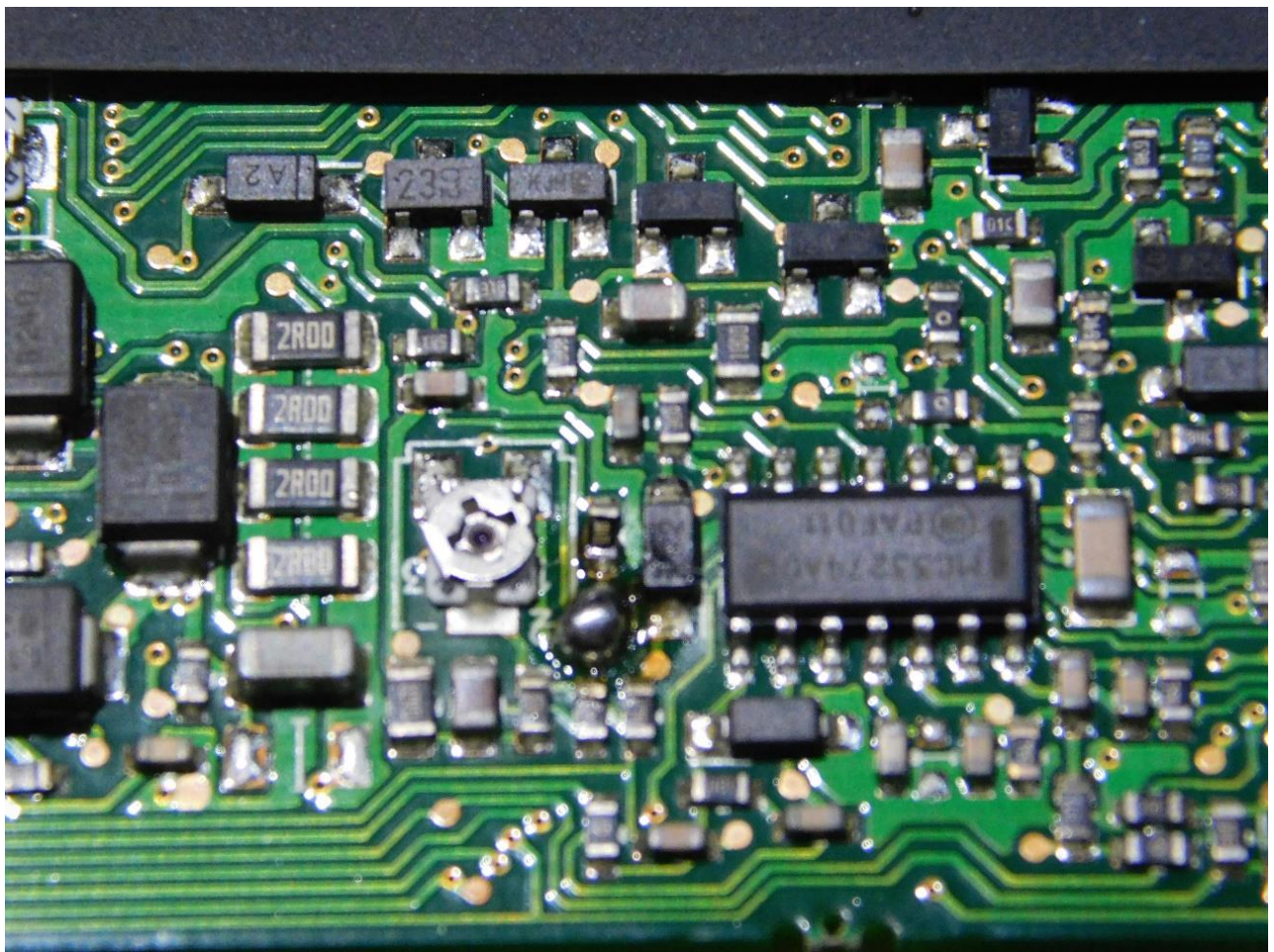
They duly arrived and the first test was to make sure they were working. After shorting 2 terminals I measured 12.3 volts on the output, and fitted a 55 Watt car headlight that worked fine, so far good enough. I then opened up the power supplies and started the modifications.

The first step is to install a jumper which turns the power supply on. This jumper is required because the power supply is “hot swappable”, in other words nothing gets turned off when replacing a faulty power supply in the server. The new power supply automatically starts when inserted back into its slot.

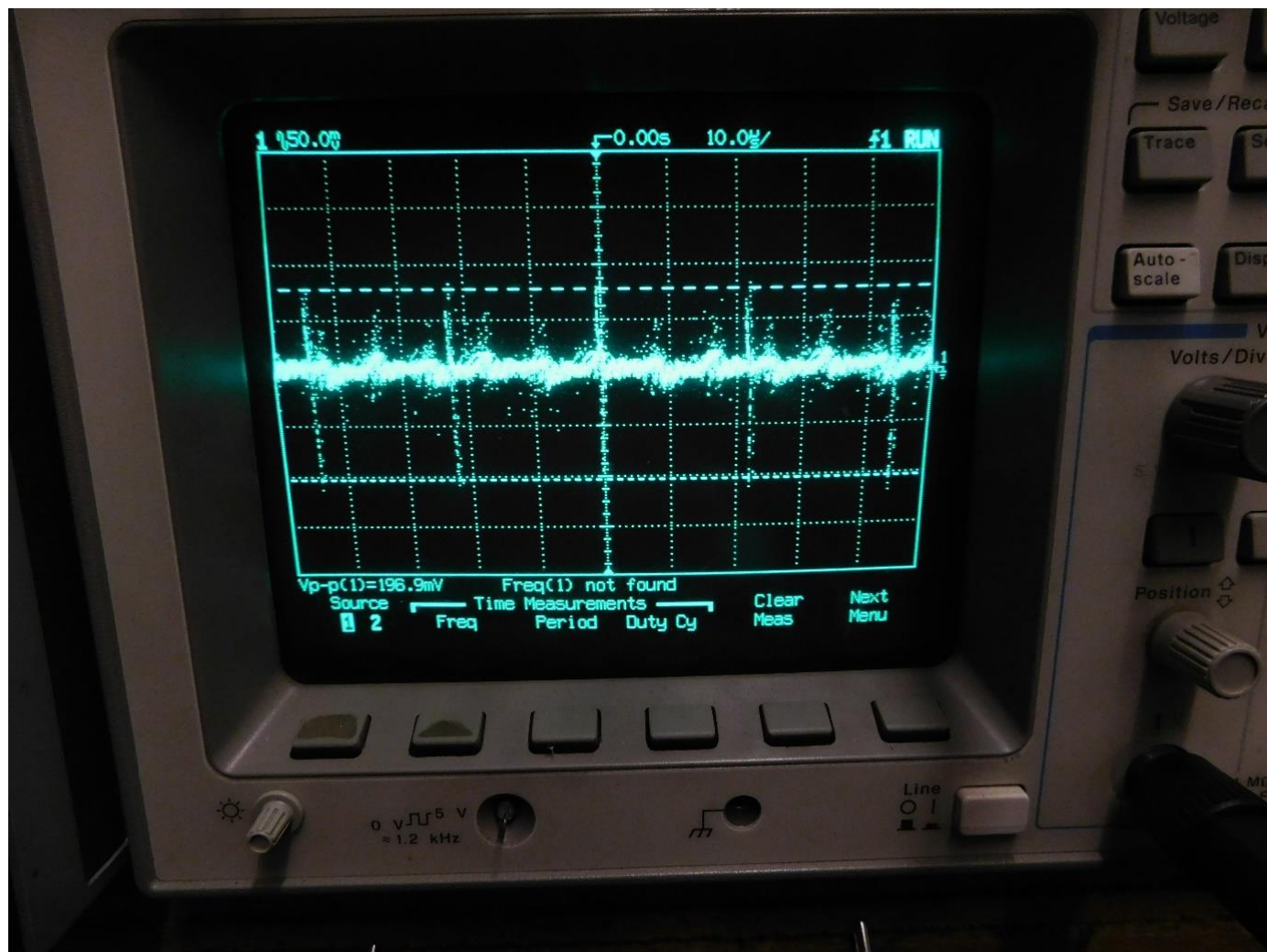


The second modification is to increase the output voltage unless you are happy with 12.3 volts. The voltage adjustment pot doesn't have enough range so by shorting out one of the “range” resistors on the pot this gives you enough adjustment to get up to 13.8 volts.

Note: this was about the highest voltage I could achieve in this configuration. There is an approximate voltage sag of 200 mV (down to 13.6 volts output) when current is drawn from the supply so if your happy with that lets continue.



Being a switchmode power supply I thought I had better see what sort of “noise” was on the output because some switchmode supplies have a bad reputation of being very noisy and introducing this noise into a transceiver or “load”. I was a bit surprised at what I measured but this was with the output of the power supply “open circuit”, in other words nothing except for the multi meter and the CRO were connected.



Note the switching frequency is around 500 KHz.

I connected up a few rigs which included AM and found no degradation of the received signal via SINAD testing and no perceived noise on the received signal as well. TX was tested back into an IFR500A with no noticeable noise on the transmitted signal. These power supplies have a good pedigree being of Hewlett Packard design, and coming from H.P. and COMPAQ servers I believe low noise was one of the design parameters when they were made. At the Melbourne computer room we had over 80 of these servers, most had dual redundant power supplies with a few having 3 so I can imagine what KAOS / data corruption / network issues could be had if the noise of these supplies wasn't kept in check. I have ordered some edge connectors to make a neat connection to the supply itself and offer a low resistance connection on the high current terminals. From here we can install an on/off switch and due to the high currents involved and

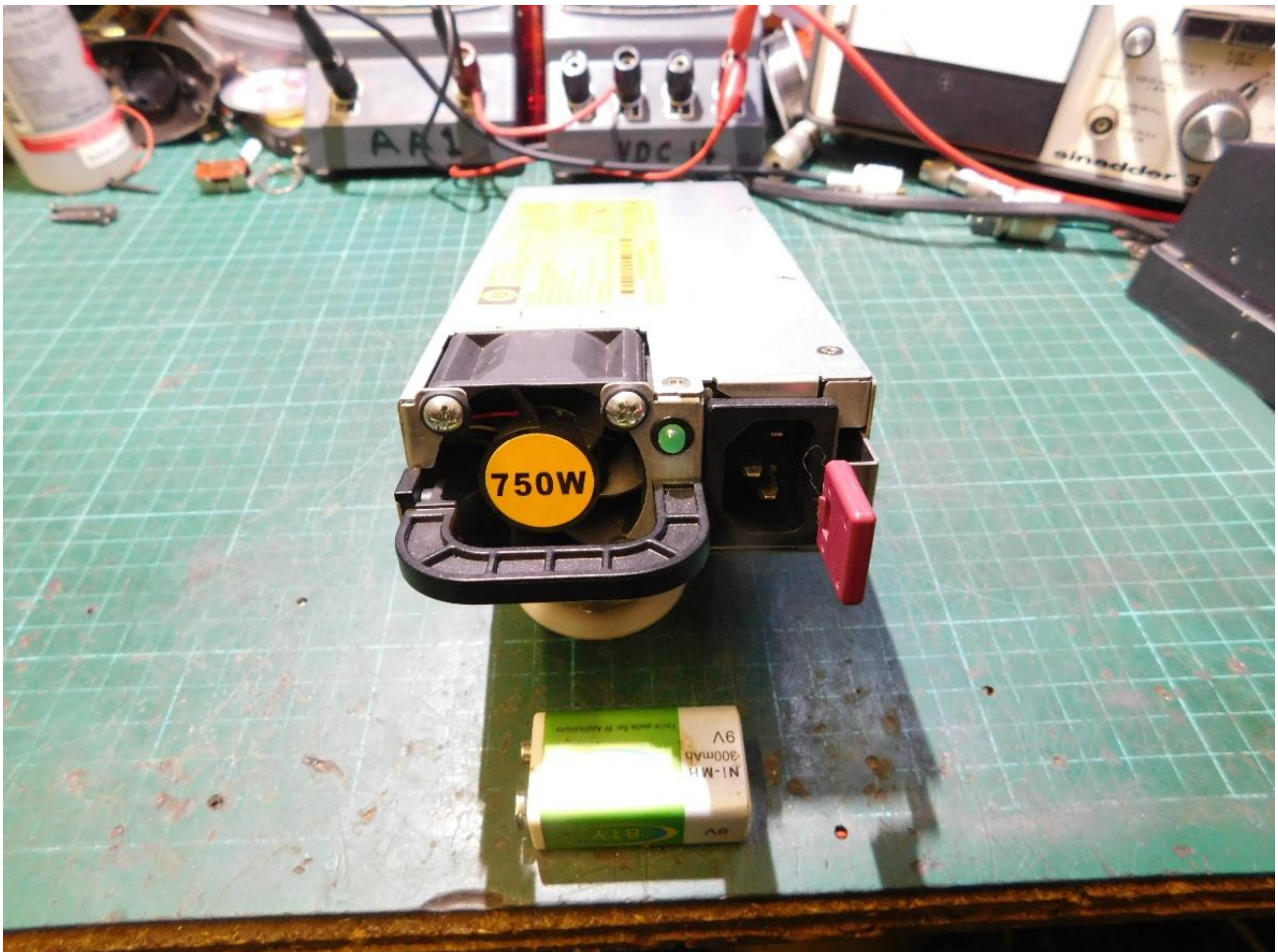
(I would strongly recommend) an overvoltage crowbar circuit to the setup because we are not dealing with a couple of amps now.

You can wire 2 of these supplies together to obtain 24 volts **BUT** you must modify one supply first. The 13.8 volt negative terminal on each supply is earthed to the chassis / sheet metal enclosure which is then earthed back to the 240 volt A.C. input. With 2 supplies connected in series this places a **Dead Short** across the +12 volt output of the “first” power supply. To get around this the power supply PCB must be removed from the sheet metal chassis and the spigots on the 3 mounting posts must be filed down flat. 3 insulating washers are placed between the 3 steel mounting posts and the PCB and then plastic screws are then used to secure the main PCB back onto 3 mounting posts / sheet metal chassis. This keeps the earth intact to the sheet metal chassis in case of a failure.

Do not cut the earth on the 240 volt input as this will leave anything that is connected to the power supplies exposed to 240 volts if something fails in the power supply. You do this modification at your own risk.

Also there are ways of increasing the output voltage much higher than 13.8 volts. This is also not advised as the very large electrolytic capacitor across the output in the supply is only rated at 16 volts and I would hate to see one go BANG !

(I am now starting to wonder where my brown corduroy trousers are....)

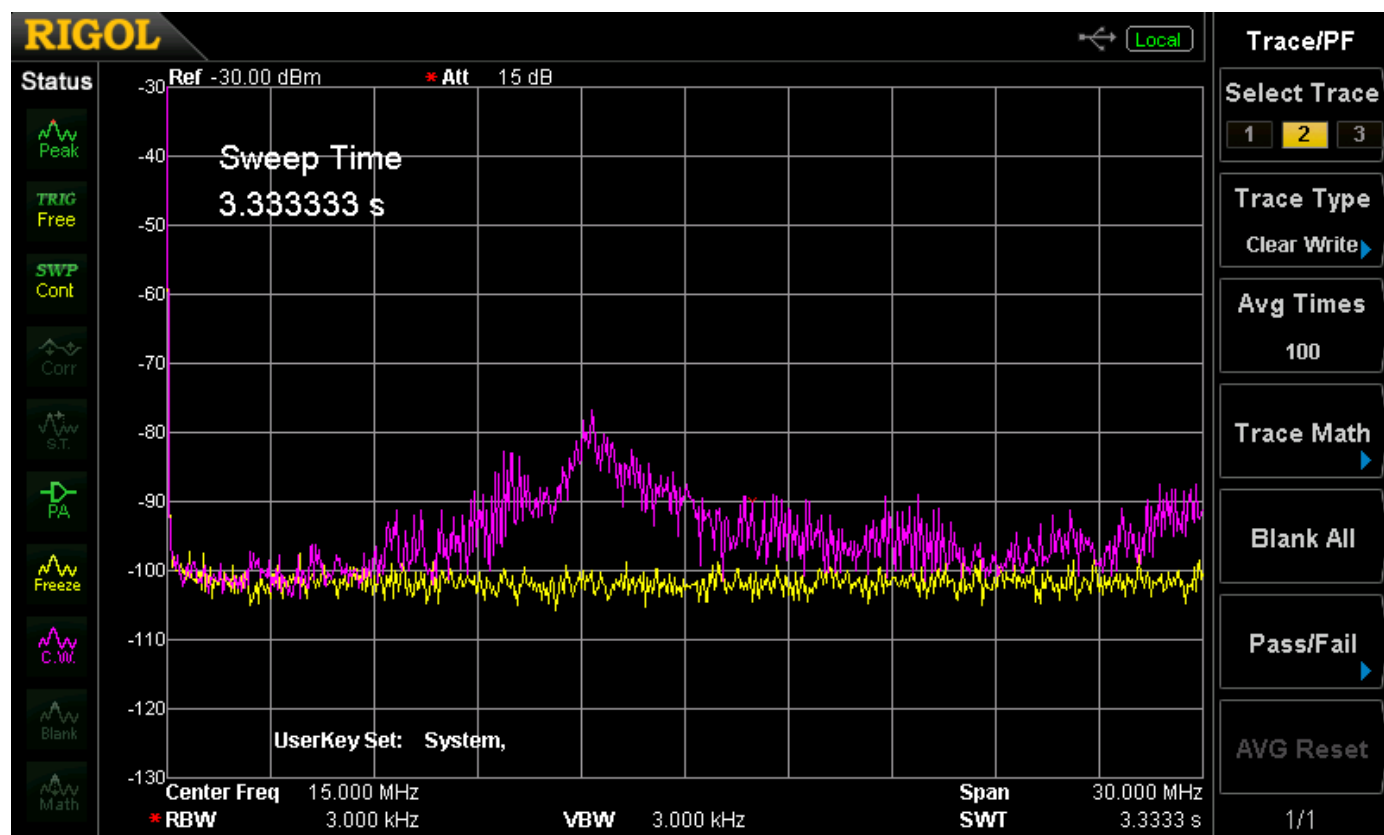




Upon initial tests with a decent load (Thanks for the loan of the test load A1) a squeal was heard from the supply when drawing over 10 amps.. It was discovered that the supply was trying to shut down on the over voltage safety. A quick adjustment of a second pot stopped the supply from trying to shut down and was as quiet as a mouse when loaded up to about 38 amps, the maximum the load could draw from the power supply.



Out of curiosity I stoked up the spectrum analyser and had a look at the broadband noise being emitted from the supply from 10 KHz to 30 MHz, a very rudimentary test due to me just waving an antenna around the power supply under all loads. I did not have enough space on the bench to properly set up and test the EMI/EMC being radiated with my LISN (and the specy set up in EMI/EMC mode). Below is the result with the antenna positioned at the “noisiest” part of the supply.



The yellow trace is the noise floor with the power supply turned off, a bit under -100 dBm which is an ambient noise level of 1.77 uV. The purple trace shows the power supply tuned on, the -80 dBm peak at 12 MHz is about 22.36 uV which all fairly modern radios should reject with ease and not fill up the shack with noise. I had no trouble with my 30 and 40 year old rigs 😊

So, for an outlay of about \$40 AU, an hours work (including a coffee) we have a formidable 13.8 volt power supply that will supply over 50 amps and satisfy 95% of your shack requirements. Not bad for less than an afternoons work 😊

If there is any/enough interest we could make this into a Prac. night project Bruce ? 😊

73

Rob de VK3BRS

Caveat: I have purposely left out some specific information due to the high voltages and currents involved, if anyone is interested, this would need to be supervised at a Prac. night and the Safety aspects explained before attempting this project.

NEWS FROM THE TREASURY

from Klaus VK3IU

Membership status

This should server as a quick overview about our member ships.
As of this month the Club official number of members is 53, we lost 8 members most who didn't respond to the club communications, despite multiple attempts to contact them. One former member let us know in advance as he moved to Queensland.

Since April we where able to attract 3 new members into the club.

We welcome :

SWL Benito Schnitzler as Junior member who is the sun of our member Steven, VK3OZI

VK3DAK Damien Kuzek

VK3MDL Mark Lowe



Fundraiser Bunnings Sausage Sizzle

As for last year we again will do a fundraising activity with Bunnings Cranbourne which is critical to our club finances and to keep the membership fees at current level.

The fundraiser is planned on Sunday August 13, 2023

We need to cover the period from 08:00am to 16:00h and need firm commitments from the membership for the day and for the preparation towards this event.

Please contact your committee@ggrec.org.au for expression of interest.

We need people willing to organise the events prior and on the day to BBQ, serve customers and handle the sale (cash/efpos).

Volunteer needed to review Club Electricity Supplier

We have been served an increase in our electricity rate and supply charge. We need one volunteer to scout out a better deal for the club. This would involve to search out all suppliers, besides the ones fund under the <https://compare.energy.vic.gov.au/> .

Please contact myself for details needed to shop around Treasurer@GGREC.org.au

Digitizing Video Tapes, Pt 2



A bit of an update on my video tape digitizing, OBS studio proved to be a bit too much of a resource hog for that old i5, so I switched over to NCH's VideoPad software. I had put us onto that one many years ago at a club meeting.

Whilst it did not like doing full HD on that cheapie capture device – or was it more PC limits?, I was able to capture at a HD res, then use the editor to resize it to 'PAL' format, at 25fps. As this was all

happening in the same software, I was less concerned about degradation from moving the video from one session to another (I was probably over cautious here thou)



I did do some captures at 800 x 600, and I couldn't really tell any difference to the proper 575 line native format of PAL.

Maybe one day I'll come across a better way of doing things, however given the slow degradation of my tapes, I figured now was a better time than waiting any longer. The main issue seems to be the tape shedding its oxide coating, as evidenced by there being more dropouts

than I remember on the VHS, however the Video8 seems to be faring better.

Then I uploaded a few to YouTube and got a bit of a shock, people actually want to watch my old videos. The first to see almost instant success was a train ride to Frankston..... Amazing!

A screenshot of a YouTube channel's content page. The channel name is 'vk3tgx'. The page shows a list of videos with their titles, thumbnails, and statistics. The videos are: 'Lake Goldsmith Steam Rally '92', 'Train Melbourne loop to Frankston 199...', 'DuraLeak rides again', and 'Fr Denis thankyou'. The interface includes a sidebar with navigation options like Dashboard, Content, Analytics, and Comments. The bottom of the screen shows a Windows taskbar with various open applications.



Paul VK3TGX

For Sale

Hi from VK3BQO

Over the last 12 months I have been compiling a list of items that I no longer need, but the space they take up is needed.

The link below takes you to a list with descriptions and prices of the items.

<https://drive.google.com/drive/folders/1OaUXEnAkmx4yDulCNdw1GbudqLFTlN2j?usp=sharing>

If you have an interest in an item, please contact me at:

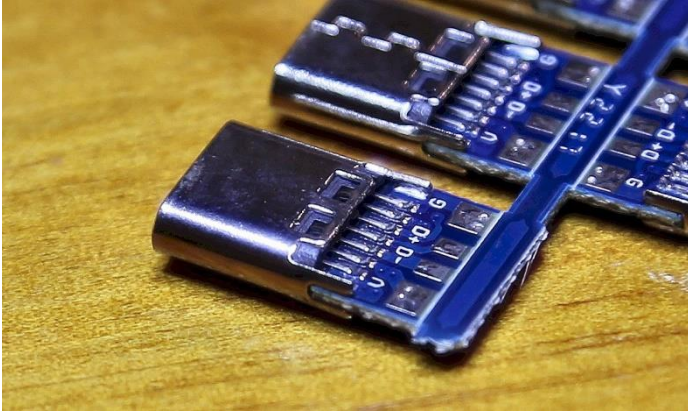
other@hubbatech.com.au



USB Power Delivery

USB seems to have become the standard for 5V power, originally designed for computer peripherals, however that has been drastically upgraded by the new 'USB-C Power delivery' standard where you can get up to **48V** at **5A** from a supporting power source.

This was originally intended for fast charging mobile phones, then later laptops, However with a big push from the EU block, it is fast becoming the main way to run most things.



If you just use a bare plug, or lead you will get your regular 5V output the same as the good old USB-A plugs we have been using all along,



However if you use a

"USB-C PD Trigger Board Module"

Only \$0.92 plus \$1.88 from AliExpress.

The link is too long to print (or type in) but if you click on this pic it should take you there.

Then you can have a choice of 9, 12, 15, or 20V, however if you select something in excess of your supply it will give you the best it has, at a worst case, just 5V.

At least it shouldn't send 20V to a 12V device.

Voltage drops on 5V lines have always been a bit of a pain with good old USB, however with these increased voltages you now have a lot more of a margin for a regulator for a way more precise lower voltage.

Yes, you can always step up an old school USB supply to a higher voltage, however that generally results in increased current at the 5V level, aggravating the voltage drop even more.

If you only need a few mA, then this is viable, otherwise try USB-C, just remember that seeing a USB outlet on something (PC etc.) does not mean you'll get the extra volts, however as time moves on all the 5V only power adapters will become few and far between.

You can also get USB power packs (batteries) that do this, primarily for modern phones that need the extra juice, however it also makes taking your home built projects on the road way easier - no more custom battery packs.



Paul VK3TGX

Meeting 16/06/2023



Interesting YouTube Videos



ZAP! Mr C's Worst Electric Shock Explained In Detail!

<https://youtu.be/WNes9blcFGk>



Abandoned Cold War Radar Base in the Fog!

<https://youtu.be/7zL5MoZF1nE>

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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	Ian Jackson	VK3BUF	General 3	Gerard Watts	VK3ZXC
Admin Sec	vacant		Web Master	Mark Clohesy	VK3PKT
Treasurer	Klaus Illhardt	VK3IU	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Fred Reid	VK3FWR	Property Officer	'committee'	
General 2	Bruce Williams	VK3BRW	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
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 Cut off, 10th of the month
All other Club correspondence to: secretary@ggrec.org.au
or via post : GGREC, 408 Old Sale Rd, Drouin West 3818
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