GATEWAY

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

June 2018

A Man with a broken Leg

Working In Isolation

A Night At The Museum

And More

Contents.

Note: - club meeting minutes are now on the club website

Event Queue

June:

15th	General meeting – Guide hall

July:

6th	Prac Night – Club rooms
20th	General meeting – Guide hall

August:

3rd	Prac Night – Club rooms
4th	GGREC Hamfest
11-12th	VK - Remembrance Day Contest
17th	General meeting – Guide hall
18-19th	Lighthouse and Lightship Weekend

From the President,

It was enjoyable to sit and have a really nice cappuccino and conversation at The Main café bar restaurant at Berwick and as the cold grey wet weather of winter sets in I think of more cappuccino's and sausages cooking on the BBQ. Yes, Hamfest is approaching fast and I wonder where the year has gone? I hope everyone finds something they are looking for at the Hamfest this year, that and the day is enjoyable and the weather Gods are kind to us.

Things to look forward to in the coming month(s) are the upcoming mid-year dinner, does anyone know when that will be? A date hasn't been fixed yet.

To our mates that are heading north for the winter, I hope you have an enjoyable and safe trip, send back some nice weather, though I doubt you'll be thinking of us back here in Melbourne, anyway with a bit of luck forty metres will treat us kindly so we can keep a track of your journey and stay in touch.

I hope you realise it gets awfully cold in those caravans?

From all reports, Graeme BXG is doing well, we are all thinking of him and we all wish him a speedy recovery.

Noel King VK3CJJ.

From The Editor – More Zaps, almost

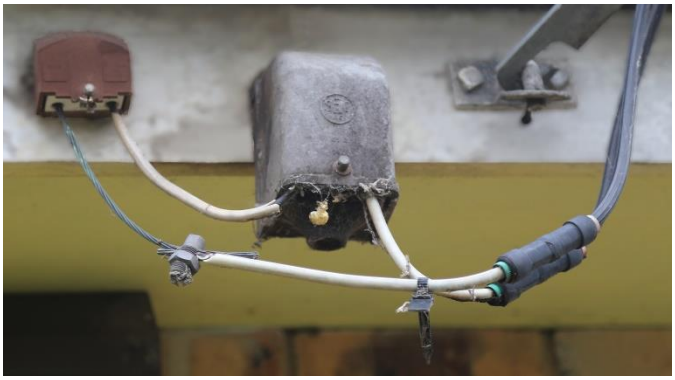
This month was almost a shocker, but on a bigger scale than the previous story.

The 'other day' we were preparing breakfast, we had the cookers range hood fan on, plus a large extractor fan as I had set off the smoke alarms, but then we noticed that when the electric jug was turned on, the fans became somewhat quiet. – Whats going on here?

I plugged a mains power monitor in and noted the AC voltage was varying from 226, all the way up to 262V. By flicking the jug switch I could make a real difference. Then all of a sudden the fault cleared and the mains settled back to 241V.

I had noticed the odd strange occurrence lately, the most perplexing was my loungroom subwoofer, it could run ok for hours, then unexplicable develop a hum loop type fault.

The next day I was in the shack (a repurposed backyard commercial granny flat) in which I have a video monitor showing the houses front door (security video system), when all of a sudden I had these whopping great hum bars in the picture, that almost washed it out. At the same time the clock out there, that is driven by a serial data line from the house went beserk, there was so much 'earth error' that the RS232 serial data was also getting swamped.



So was it a house fault, or was the street power system/feed to my house somehow 'broken'? I kind of wanted to know so I could figure out who to call for a possible fix.

On the AC supply to your house is just 2 wires, one called 'Active' the other 'Neutral'

The Active is where you measure 240V, with respect to the Neutral, or Earth, if that one breaks then you lose all power, but what about the Neutral conductor, normally it is connected to earth in your fuse box, so if it goes open all is not lost, the AC current enters your property via the active, and should return/leave via the neutral, but if there is no Neutral, it can exit via the house earth. It all started making sense, with no neutral return path the alternative is a lot more resistive explaining the big drop. But what about the 262V?, well that was courtesy of my 3KW solar inverter trying to push 10A back out to the grid, it too was working via the house earth. As for the crazy video feed etc. that was because some of the current was leaving not by the house earth stakes, but by the radio shack's earth & my Nally tower! The video feed is earthed both in the house and in the radio shack, the same goes for the audio system, so some of the fault current was obviously making it back up my audio feeds into my HiFi & subwoofer.

The next time it faulted I tapped the neutral line at the front of my house with a nice long plexiglass rod, and the fault cleared instantly. Aha, time for an electrician.

The local sparkie fronted up on Friday, called the power company for a temporary disconnect, and sat there waiting, and waiting, and waiting, they didn't come! So he gave up and left losing several hours of his time. That night as we watched the news we found out where all the power crews had gotten to, a downed plane in Mordialloc. I cannot complain, he paid with his life.

So we are going to try again tomorrow, so if your magazine arrives late, now you know why.

I cannot edit/email with no 240V.

Paul VK3TGX

A NIGHT AT THE MUSEUM

GGREC MEMBERS VISIT THE TELSTRA MUESEUM IN HAWTHORN

Last Wednesday evening about a dozen people in our group descended upon the Telstra museum in Hawthorn for a private tour of the facility. This was really worthwhile. The exhibits were extensive, covering all aspects of telecommunications as it expanded across Australia over the last century. The two guides were clear, informative and had a comprehensive knowledge of the culture behind the network.

We saw a sample of all the phone handsets that Australians may have encountered over the last hundred years, also switchboards, teleprinters, and early telegraph equipment. Plenty of short videos were streaming around the building, which was itself a purpose build telephone exchange from the 1950's.

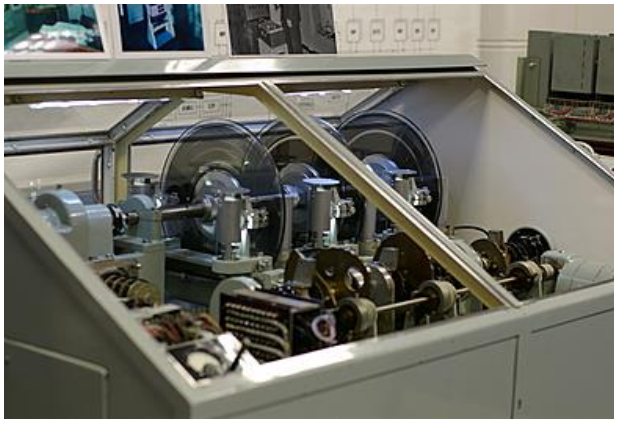
'A large range of early telegraph equipment

We also saw video clips of long distance cable installation and the construction of the Telecom tower in Canberra.

One of their centrepieces is the section on telephone exchanges where they had working examples of the different types of switching equipment that were used over the years. It was fun to get up close to the uniselectors and bi-motional switches as simulated dialling activity that recreated the sights and sounds of a working step-by-step exchange. Our guide took us through these networks showing how generated calls systematically passed through the exchange – entirely without computers.

All of the teleprinter types were represented

Another highlight was to watch the 'talking clock' machine that delivered accurate time information connected to the still operating 1194 service. Although now it is done digitally, if you dial the time today you still hear the same voice of Richard Peach that I heard as a kid. This was achieved by a machine with three large rotating glass disks and a form of stepper motor that could move between the optically recorded tracks on the disks.



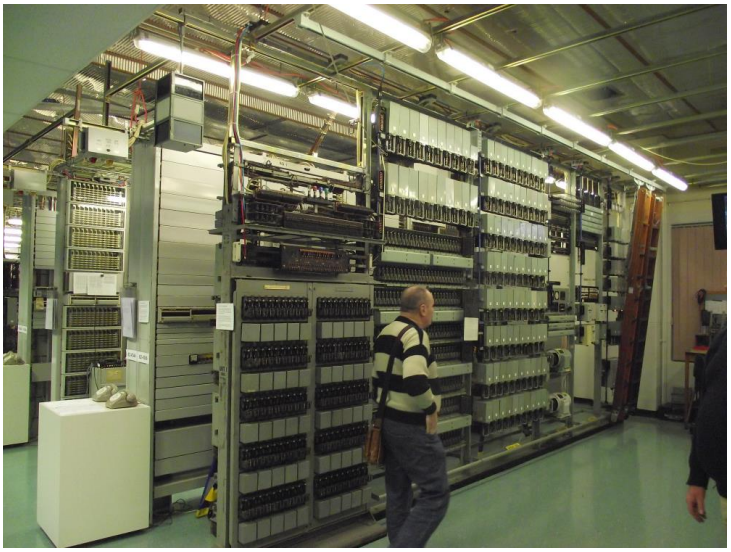
'George' the talking clock, still working

'A whole spectrum of mobile phones were on display

When I became an apprentice technician in 1977 I had just turned 16. After a year of training I was unleashed on the streets. (It was the same year that I got my Amateur license and joined the GGREC.) I spent 6 years in the central business district of

An old style mainframe in good order

Melbourne working with a lot of the old phone technology and was present when the electronic 'Commander' systems became available. I spent plenty of time in many businesses installing this stuff and was able to introduce a few inventions of my own. Then I transferred to Dandenong and Frankston where I spent a few years working with Peter VK3VB doing more field installation work. before becoming involved with a startup computer support group and general purpose skunk works. We named the section 'Computer Resources'. I tried to get it named 'Computer Resources And Projects', but they didn't like the acronym it made. One of our duties was to answer computer support calls from all the little line yards and exchanges, where the opening command was usually, 'Have you tried turning it off and back on again?' After 17 years in Telecom/Telstra, I left the job and tried my luck working for myself making gadgets for a living, which I still do today.



A Step by Step exchange, and behind that, a later Crossbar exchange

Within that 17 years I was gradually exposed to most of the places and equipment that made up the telecommunications industry.

As I worked my way around the museum in Hawthorn, I was immediately returned to the sights, sounds (and smells) of a technological culture that largely no longer exists. It was a time that was driven by the ingenuity of thousands of Australians, which was in turn a melting pot of people from all over the world. This is all mostly gone now and we use cheap imported hardware that comes out of cardboard boxes with a lifespan limited to just a few years before entering a landfill. It is nice to know that somewhere – a small chunk of this history has been preserved.

The museum is open during the day on Wednesdays and by special request at other times. If you are only just hearing about the museum now, I thoroughly recommend that you take the journey to Hawthorn and check this place out.

Repeater Upgrade Options

In the last month, members would have received an email from the repeater subcommittee asking you to review several options regarding the upgrading of the Club repeater VK3RLP.

Along with the upgrade came suggestions for adding digital functionality to one or more of the Club's repeaters, so the members needed to be informed about all the options currently available with the possibility of more options being discussed. As the Club needs to seriously consider the plight of VK3RLP, an option preferably needs to be decided upon at the General Meeting for June 2018 so that work can commence. If this is of importance to you as a member, it is suggested that you attend this meeting. If you have read the options email and consider you have a pertinent suggestion for a further option, you should have already put it in writing prior to now as verbal suggestions may not be accepted on the night due to viability assessment problems. A couple of important things to consider are:

If we decide to take one of the options to go to a networked digital repeater, there is the likelihood of "F" calls not being able to use the repeater unless and until regulations are changed. This is because dual mode (digital and analog) will most likely not be possible.

(also keep in mind that two Club repeaters in the listed options may be being considered for changes at the same time when talking about digital upgrades)

Some money and a lot of work is required no matter which option is selected. (unless you take the option to do nothing)

Several options will require a lot of possibly unnecessary work. Whichever way the Club goes, the members should get a say in the decision, therefore if you are attending the general meeting in June with the intention of joining this discussion, we ask that you spend some time to fully understand what each option will mean for you.

The email referred too…

POSSIBLE OPTIONS REGARDING GGREC REPEATERS

Discussion notes prepared by Albert VK3BQO & Rob VK3BRS

What is the aim of this discussion?

Is it.....

Should the Club make the move into the digital mode age? Possibly it should and probably we all will have to eventually. But is there an urgency to do so because analog modes are being deleted? (are they?) Or are we just wanting to upgrade the equipment at Cranbourne with minimal expense, work and fuss?Would we be merely subsidising the growing DMR network for the sake of the DMR network or for the benefit of GGREC members. Who gains the most?

Who loses the most? Is it only attractive because it is free?

As all members should be aware by now, the repeater equipment for VK3RLP repeater which is situated at the Club shack here in Cranbourne is coming to its end of useful life. We can either wait for it to die or do something about it now.There are quite a few options available to us as a Club to solve the problem. Some make sense and others are expensive but all need to be considered. As members (some of which actually utilise the repeaters in question) have a say in what is done but we urge you to consider what is best for repeater operation for the members and only use money as a final determining factor in your decisions.

Each option has Pro's and Con's to consider that may not be limited to the ones listed here. Information regarding digital modes should have already been studied by you if you wish to make an informed decision and although we can answer most questions as asked, would prefer you do your own study beforehand. A very important issue is that currently "F" calls cannot use digital modes so any changes involving digital only modes will exclude those users. Treat this as a Con for any of those options.

History: A couple of years ago when several members evaluated the DMR digital mode, an excellent talk was given to the Club about DMR by Peter Brennan. Following this presentation, an offer was made to the Club of the possibility of supplying free of charge, a DMR repeater, but at the time, the Club was not in a position to make decisions regarding whether or not it was warranted. Now that the Club has a dying repeater, it might be the right time to think about it again. A very important issue to consider is; will this repeater accept analog FM transmissions as well as DMR digital ones? Although the question has been asked and answered several times, the answer differs. The answer appears to be No if the repeater is linked to the DMR network but Yes if it is a standalone repeater. (I can only gather that it is a choice by the controlling group or maybe an internal software concern that means this is disabled. At this time I have no explanation - only the answer)

If you feel you have an input that may influence member's decisions, you will need to email it to "repeaters@ggrec.org.au" asap. Email submissions only will be accepted.

Consider the following options;

Option 1: Do Nothing. This is probably **not** the best option as 3RLP is on its way to the rubbish bin and will sooner or later die for good.

Option 2: Accept the "long term free loan" of a DMR repeater which does not include power supply or antenna or diplexer / cavities. The Club fills in the gaps. This would replace the existing equipment at VK3RWD which currently is an analog FM repeater and is working very well but gets little use by either Club members or outsiders. The existing RWD equipment would then replace the failing equipment at VK3RLP in the Cranbourne Club rooms.

Pro's
We get something for free although we don't own it.
It is a progressive move into the future by GGREC.
It may entice more use of RWD from those interested in digital repeater modes.
DMR radios are relatively cheap. (especially in comparison to other digital mode radios)
The protocol (mode) and equipment are not proprietary.

Con's
A lot of work to set up the new DMR system and revamp the existing equipment to go into the Cranbourne RLP location. Internet access is not readily forthcoming and so a 4G dongle would need to be used for data if the repeater were to be connected to the DMR network. GGREC would at this stage be responsible for the internet costs. The programming and operation would be under the control of the DMR control group (not us) which means although we are responsible for the repeater expenses, we do not control its operation. (This may not be a problem anyway as it saves us from having to continually make software changes to its configuration) Cheap(er) radios may not have great audio as can be heard many times in my tests. Where will we put the relocated RWD equipment as it takes up a lot more space than the existing RLP equipment. Take a look in the Clubrooms to verify this.

Option 3: Accept the "long term free loan" of a DMR repeater and install it at VK3RLP in Cranbourne. Although this sounds good, the DMR group have expressed their requirements as being in the Gippsland area so would probably not consider their kind offer for a different location.

Pro's
As said above - we get something for free.

Con's
IRLP will not be a feature any more.
Internet access will be required as mentioned above.
No analog FM operation so existing members' radios need to be changed.

Option 4: Buy another (commercial) FM repeater outright to replace RLP.

Pro's
Quick and seamless changeover.
Future repairs not required as we would not be able to repair it ourselves.
IRLP will still work.

Con's
Cost of the equipment could be $2000. (to be investigated)

Option 5: There exists a complete spare transmitter / receiver combination unit for repeater use but without a controller. The Club has kept this as spares for RWD as it is exactly the same as what is currently at RWD. To gain a controller, the Club's 6 meter repeater could be de commissioned as it utilises the required controller which once again is the same as at RWD.

Pro's
Club ends up with two repeaters of almost identical components so if you can fix one, you can fix the other.

Con's
The Club loses the 6 metre repeater (which gets very little use also.
IRLP continues to work.

Option 6: De commission RWD and use the equipment to replace RLP at Cranbourne as RWD gets no use anyway. One or two short conversations do not make a useful repeater. Maybe we need to push its use to the Gippsland amateurs to see if they really need it as well. Do they even know it exists?

Pro's
We get a full system to install at Cranbourne which will get used and solves the only problem the Club has at this time. The radios in the repeater although being old are very simple and easily repaired for the more advanced amateur tech. The controller is designed and built by GGREC members and so can be upgradedor re configured as required. This would be half of what is envisaged in Option 2 anyway. IRLP continues to work.

Con's
Several amateurs lose their local repeater.

Option 7: Install an alternative mode of digital repeater. Modes such as P25, DSTAR and Fusion exist and if we feel the need to go digital could the Club not investigate one of those modes instead?

Pro's
The Club has control of it. (Possibly)

Con's
Radios are either proprietary or commercial use so will be more expensive.
Experimentation is not really on the cards for the average amateur.
Probably expensive repeater equipment also.
IRLP probably will cease to work.

GGREC HAMFEST

Saturday 4th August 2018

Gippsland Gate Radio & Electronics Club invites you to our annual Hamfest at the CRANBOURNE PUBLIC HALL, located on the corner of Clarendon and High St. Melway Ref: 133 K4.

See our web page at ggrec.org.au/hamfest.html for full details.

40 tables of new and used Electrical, Electronic and Amateur Radio equipment.

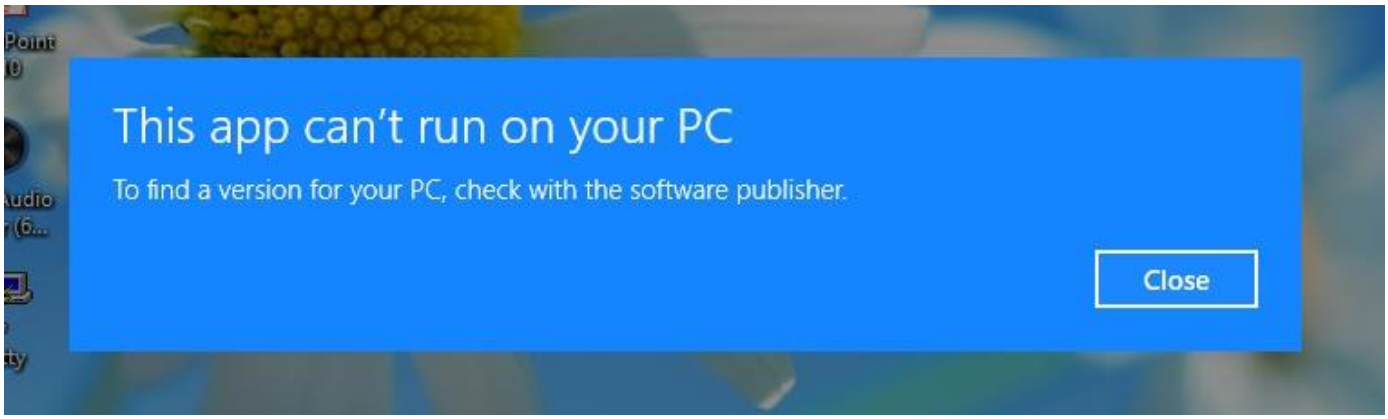
- All tables are under cover.
- Tea, Coffee and a selection of hot & cold food will be available during the event.
- Great Door Prizes will be drawn at approx. 1:00pm.
- Doors open to sellers at about 8.30am and the Public at 10am.
- The entry fee is $7.00 which includes a free door prize ticket.
- Tables are available for $22.00 each and must be booked in advance. Your booking will include entry for 2 sellers and door prize ticket per person. Tables are allocated on a first in basis so don't delay your booking.

Anyone wishing to reserve a table position should contact the Club soon, as tables go quickly.

Email to hamfest@ggrec.org.au

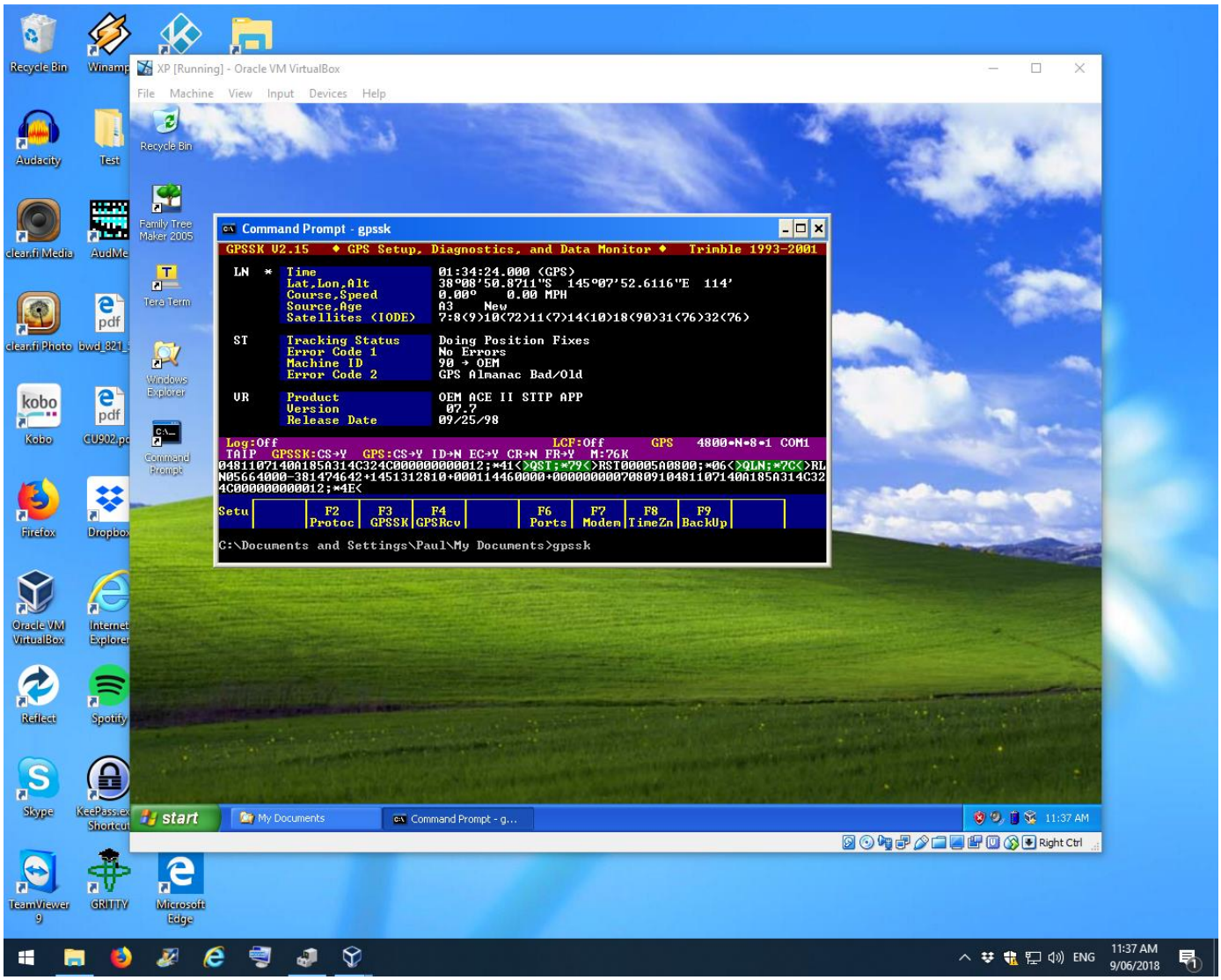
Windows 10 – The Serial Killer Part 3

Remember my last instalment, of getting old software to run (and doing serial comms).



Of course the supposed best ever version of Windows will not run it.

(And what is this 'app' crap, it's not an app, it is software!)

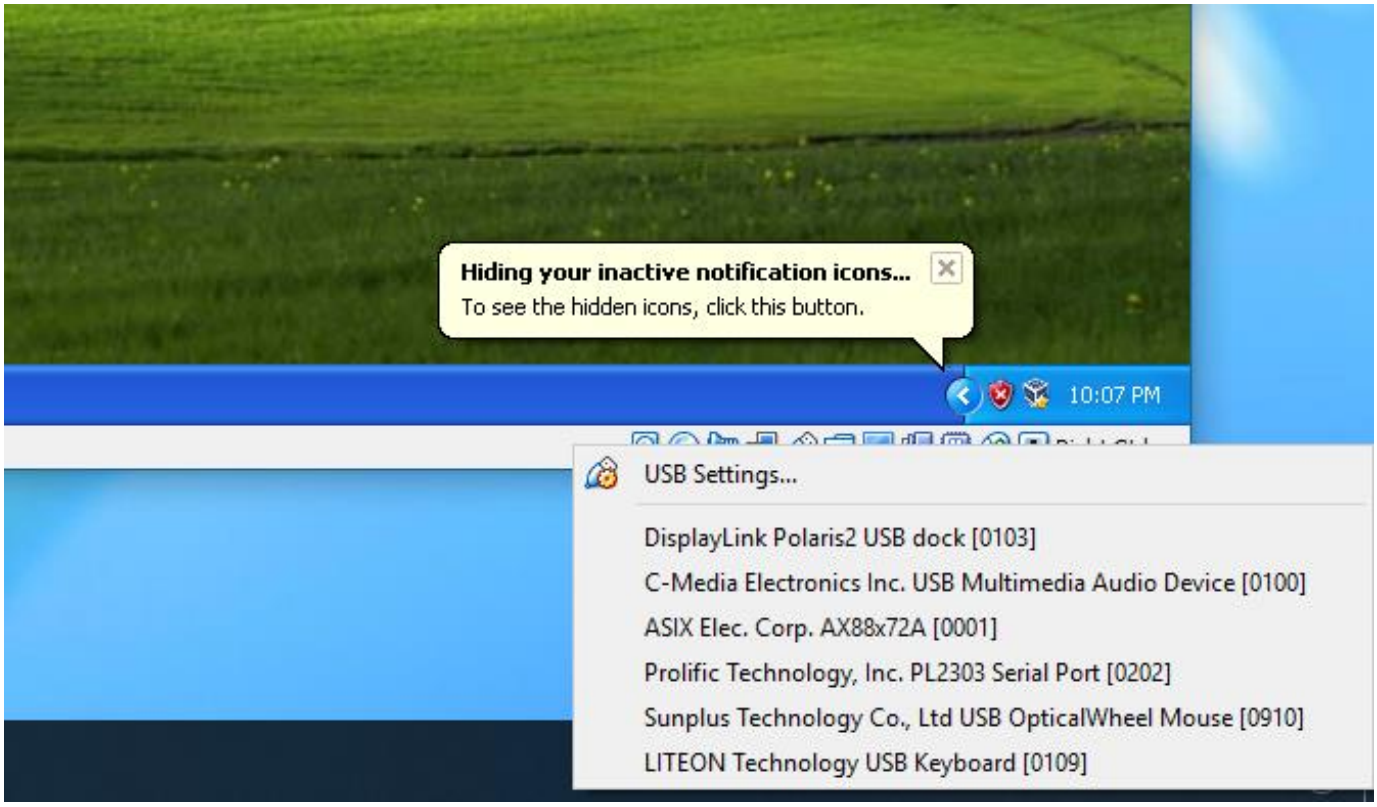


You need something like this, Gpssk (the desierd software, Trimble GPS) running is a DOS window, running in Windows XP, Running in Virtual Box, running in Windows 10.

Phew, what a saussage

To get serial comms working (Via a USB<->Serial converter), first, after starting Windows XP in virtual box, you have to 'grab' the USB port

In the bottom of the Dropbox/Windows XP session is a little icon that looks like a USB plug, if you click on it it will probably say you have no USB devices attached, However if you right click on it you should see -



a list of the USB devices attached to the host PC, in my case I want the "Prolific Tech PL2303 Serial Port".

USB devices can only be connected to one computer at a time, the Windows XP session is as far as USB is concerned, a different computer, so you have to transfer control from the host PC, to the virtual PC session. As soon as you do this, Windows XP will make its 'Bing Bong' sound effect, that you would normally hear when you plugged a physical USB plug into a 'real' Windows XP machine.

Now you need the appropriate driver for Windows XP, (the one on your host is irrelavent) once that is sorted out, any program on the virtual XP box should be able to see and use that port.

I have had this setp work with 'ancient' hardware that Window 10 has never heard of, like my old UMAX desktop document scanner.

Paul VK3TGX

Gippsland Gate Radio & Electronics Club Inc.

AN INVITATION TO STALLHOLDERS

On Saturday the 4th of August 2018, the Club will be conducting its annual HAMFEST for the sale of new and used electronics and radio equipment. As it was last year, the venue will be at the Cranbourne Community Hall on the corner of Clarendon and High Street, Cranbourne. High Street is part of the South Gippsland Highway Melway 133-K4.

The Club takes pleasure in offering you the opportunity to become a Seller at our 2018 event. Forty one tables will be available for stall holders and can be booked online.

Details can be found on our web page athttp://ggrec.org.au/hamfest.html

- Table hire remains unchanged at $22 per table. A limit of 4 tables per Stall Holder applies. Table Hire provides access for 2 people to operate the stall and includes 2 tickets to the door prize and free tea/coffee throughout the day

- The $22 fee must be paid in full to the Club within 7 days of booking your table. Cancellations made more than 14 days prior to the event will be given a full refund by Direct Transfer (EFT) or by cheque if Direct Transfer is unavailable.

- T o make a booking please contact us by email at: hamfest@ggrec.org.au. Payment may be made by direct transfer (EFT) to: **BSB 633000 ACC 146016746** or by sending a cheque or money order (payable to 'GGREC') to: GGREC c/- Dianne Jackson 408 Old Sale Road Drouin West VIC 3818. If paying by direct transfer (EFT), please include your call sign/name as the reference.

- When making a table booking, Stall Holders will need to provide a **Name**, **Postal Address** and **Contact Phone Number** with a **Return Email Address** if different to that in a reply. Table requirements will include **quantity** and if **240v power** is needed.

- Upon receipt of the $22 per table fee and contact details, a **Booking Number** will be sent as a receipt of payment. IMPORTANT! **No booking is confirmed until this number has been received by the Stall Holder.**

- Access to the Hall shall be from 8.30am (earlier if ready) for Stall Holders (and not later than 9:30am unless by arrangement).

- Transfer of your booking to another person is not permitted. Please contact us if you cannot attend or wish to discuss your booking at: hamfest@ggrec.org.au .

- The doors will open for buyers at 10am with a $7.00 entry fee.

Each year, this event is a great success with many hundreds of people through the door in our large Cranbourne venue making it a premier event for radio markets in this state. We look forward to hearing from you.

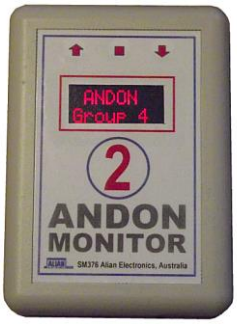
WORKING IN ISOLATION

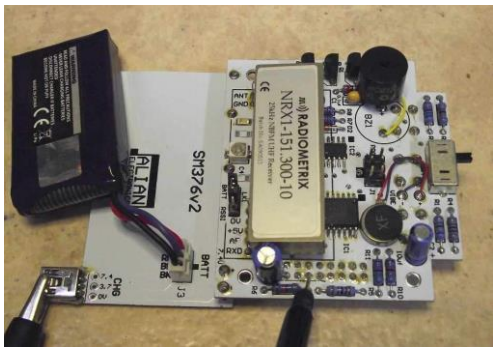
Increasing the life expectancy of Lithium Ion batteries

by Ian Jackson VK3BUF

This article could have been subtitled "*Something to write about while sitting around a campfire along the 90 mile beach*", but that would just sound sad, so I won't do that.

Recently I had occasion to develop a small pager unit for 151 MHz. Not rocket science. Just a receiver module, a small OLED display, a few buttons, a beeper, a vibrator motor and a small microprocessor to glue it all together in a box a bit smaller than a pack of smokes. I figured that I could get enough energy to get me by with a 7.4V, 450 ma/h Lipo battery. To charge the unit I sourced some off-the-shelf balancing chargers. (I can buy the complete charger unit cheaper than I can buy the parts to build my own – but that's just a sign of the times.)





Inside the pager unit

These pagers were for use by support staff in factories to be informed if a production guy has a faulty part or a broken fingernail etc. I figured that the operators would like to be informed when the battery was getting down, so I added a voltage measurement routine where the unit would beep and flash a 'Battery Low' message when it got down to 6.4V. Seemed like a reasonable ting to do at the time. So after that I put about 3-4 of them into the field for a trial period and waited…

Two weeks later I had a call where they claimed a couple of the units had died and the charger wouldn't do nuthin. Despite the affirmative double negative, I assumed they had a charger problem and checked it out.

The problem is that the users were leaving them on, putting them down for a weekend, where the low battery alarm would go off, be ignored, then the battery voltage would continue to go down the toilet. Comes Monday, they would pop it onto the charger, which would say nah, I'm not charging that, it's too far gone. (Actually it's not a talking charger, but you get the idea.) So my cute little 7.4V Lipo battery packs were being stuffed after just 2 weeks of use.

Cute little 7.4V, 450ma/h LiPo batteries

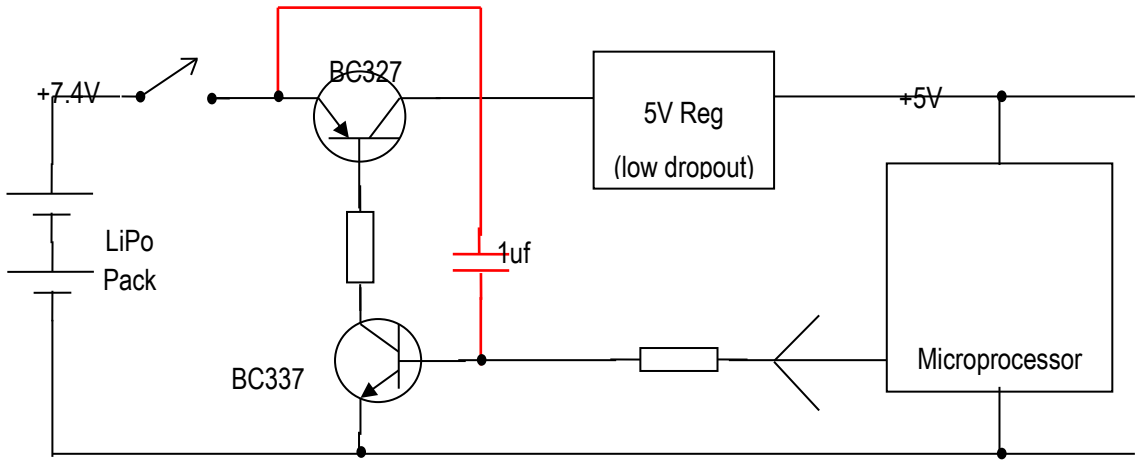
Welcome to dead battery heaven…

By the time I had resolved the issue and recalled the pagers for an upgrade, nearly all of the pagers had been left turned on by the operators until about a dozen batteries were dead and refused a recharge.

It was obvious that something had to be done, because they had to be able to withstand this type of abuse over an extended period of time.

There is a design lesson here, which is really the essence of this article. Lipo batteries suck a little bit and anytime you use them for a project or an LED lamp or on some portable radio equipment, you really have to include a little circuit that will totally isolate the pack automatically when the volts begin to go south. If you don't then your shiny, expensive new LiPo pack is going to permanently die it and expletives will follow.

In my instance, despite it's allure, doing nothing was not an option. So I added a suicide circuit where a small PNP transistor was placed between the positive terminal of the battery and power switch, to the 5V voltage regulator. This transistor gets turned on by a second transistor, an NPN one, by switching the PNP base to ground via a resistor. In turn, this second transistor gets turned on by a spare microprocessor port going high as soon as it wakes up.
So now when the battery hits 6.4 volts, unit beeps and the display says LOW BATT with a 30 second countdown. When it hits zero, the pager gives a final squeal of defiance and promptly sends the control port LOW, which in turn shuts off the transistors and completely disconnects the battery, even though the pager power switch is still ON.



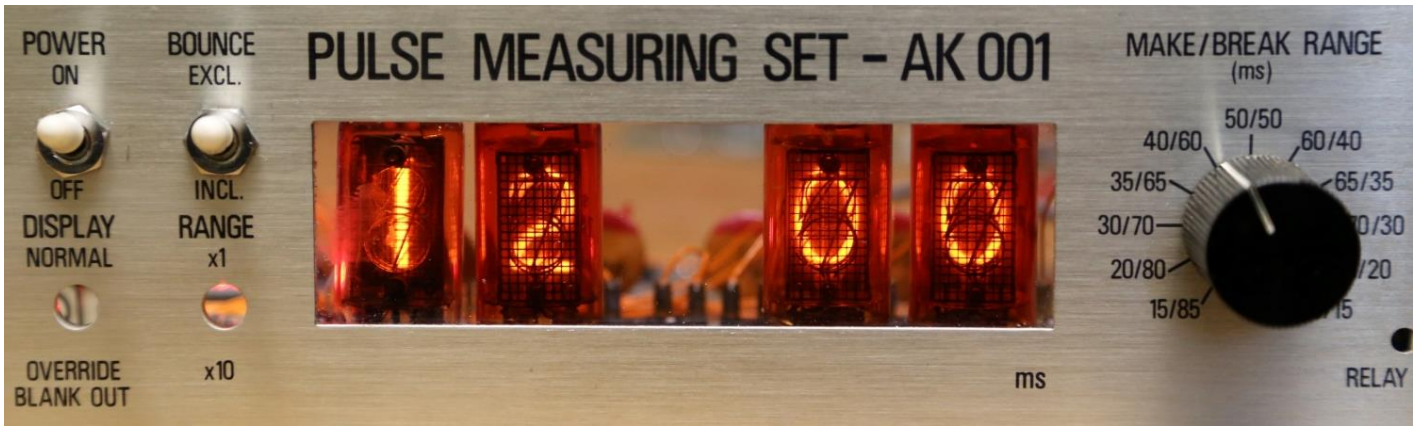
But with your index finger raised in the air, I'm sure you're saying "*How can you turn the unit back on if the power switch is already on and there's no power?"*
Well, I'm glad you asked that question, or at least I assume you just did. The trick is to add a 1uf electrolytic cap between the power switch and the base of the second (NPN) transistor. (Shown in **Red**) With this in place the transition of the power switch from OFF to ON will also deliver a small spike to the base of that transistor, just enough to turn the power back on for 100 milliseconds or so. In this time, the microprocessor wakes up, turns the power control port back to HIGH and the power rail is restored until the microprocessor decides its time to die again.

This little circuit could be useful for anyone contemplating the use of LiPo batteries in the field. In my case, the pagers are going back to the field to embrace the next round of abuse.

If you don't want to use a microprocessor for threshold control, the same thing could be achieved with a zenner diode and a couple more transistors, so that when a low voltage threshold falls below the zenner reference voltage, the same auto-shutdown thing can happen.

Still, it is a perfect application for a little Arduino module. It only has to save a half decent battery pack once and it will have totally paid for itself.

Arduino & Nixie Tubes part 2



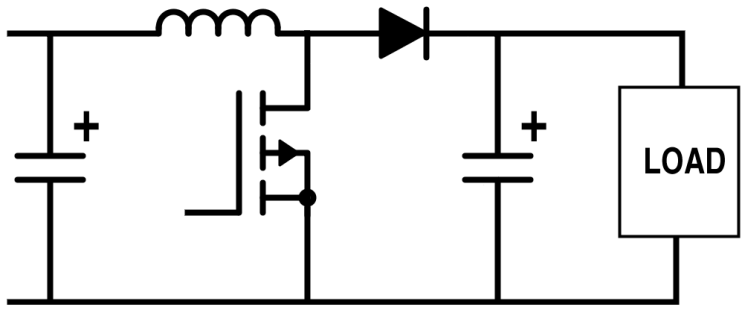
Now that my code is more or less complete (it may need a tweak by the time it's ready for its box) I need to find a suitable high tension power supply (B+ in old school valve talk)

Looking through my junk box I spotted an 'CCFL' inverter out of an old LCD screen, CCFL stands for Cold Cathode Florescent Light, basically a 'floro tube', I played around with it for several hours, and had it lighting my tubes, but it didn't like the variable load presented by the Nixie tubes, as in sometimes 3 tubes, then 4 tubes at 10:00 etc. The dip in brightness was almost acceptable, that was till I connected the two neon's for the colon. I have seen some awful designs out of China etc. where the segment/dot brightness was all over the shop, but I wasn't having it for my design. Yes I could have persisted with that inverter, but I was really pushing it – the transformer was getting quite hot even without the colon, Time for an alternative.

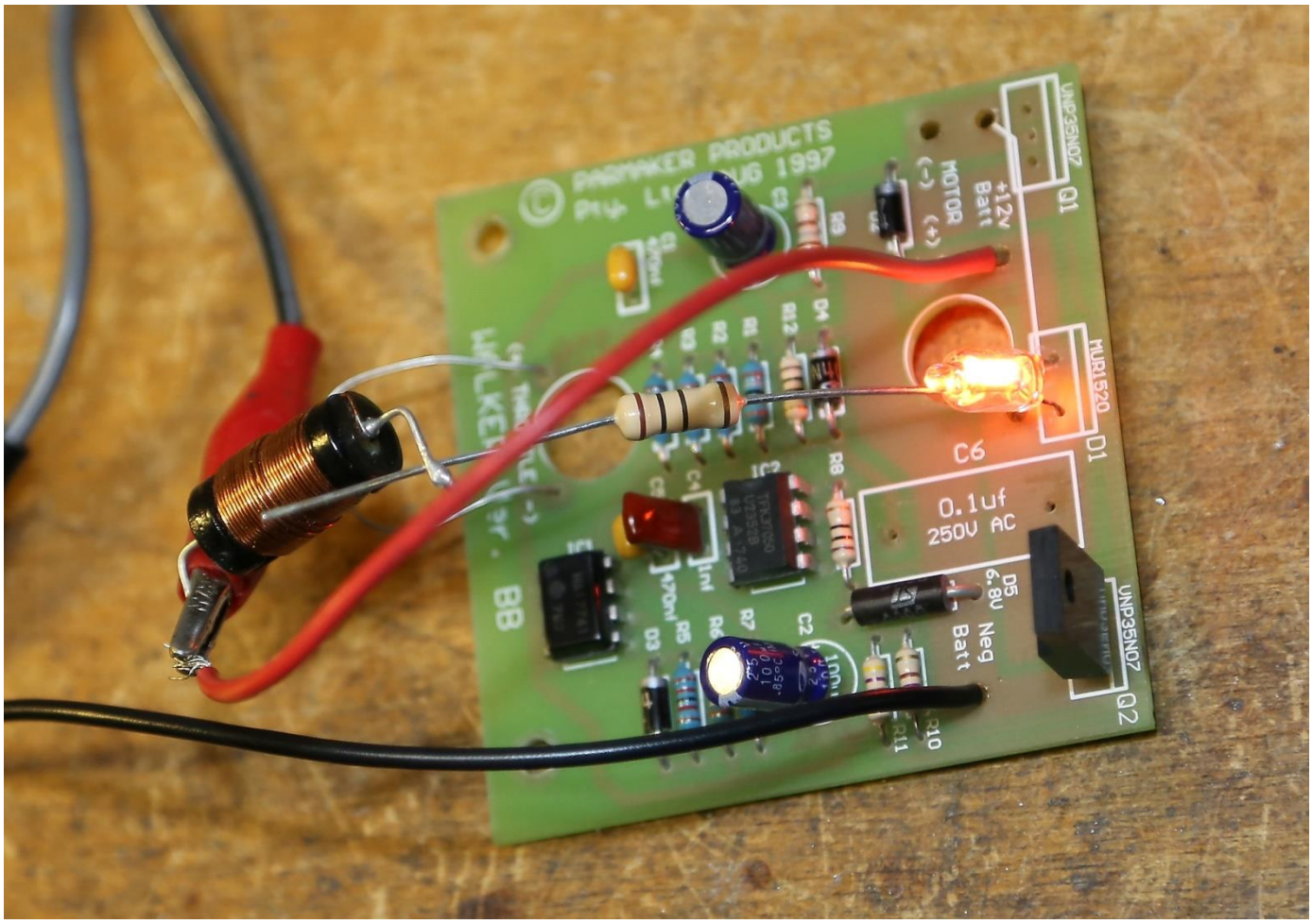
I had a small collection of switch mode regulator IC's courtesy of Ian VK3BUF (years ago I was fixing his golf caddy controllers), so I dug out two, a 16 leg SG2524, and an 8 leg U2352B. So after downloading a data sheets off the internet, I popped one into my proto board, hooked up some 12V power and started to play, well almost, the IC promptly tried to burn my finger and started to melt my proto-board. So some more in-depth reading showed me the error of my ways, the value-less resistor and capacitor shown on the sample circuit was not to supress switching noise as I had presumed (quite a common configuration), but was for the IC's internal 7 volt shunt regulator. The IC was trying to shunt my 12V supply down to 7V – ouch, literally.

After having no success with the next IC, I remembered I had a box of assorted dead golf caddy controllers, so I dug out one that used the U2352B. This one had obviously been grossly overloaded as the FET's and flyback diode were physically 'blown' – 'off with their heads'

The original FET's were 60V devices, ideal for a 12V motor, but I wanted to build a simple flyback style voltage booster, so the FET would have to withstand the full 200-300V. So I gutted a dead 12V plug pack supply, and pinched its 600V 2A device – now we're talking.

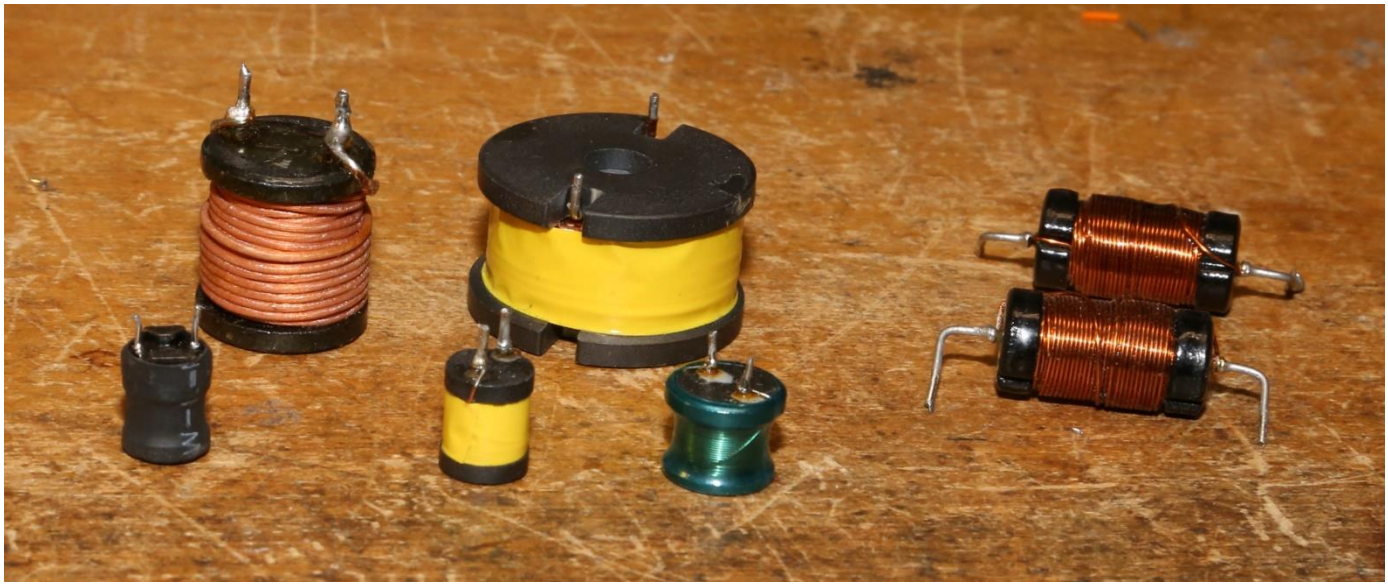


I could have used a step-up transformer, that way a low voltage switching device would have sufficed, but I wanted to go for the simpler approach using just an inductor to produce the high voltage. Sourcing the appropriate ferrite materials and winding a transformer seemed overkill as no electrical isolation was required, and electrically, this has to be more efficient.

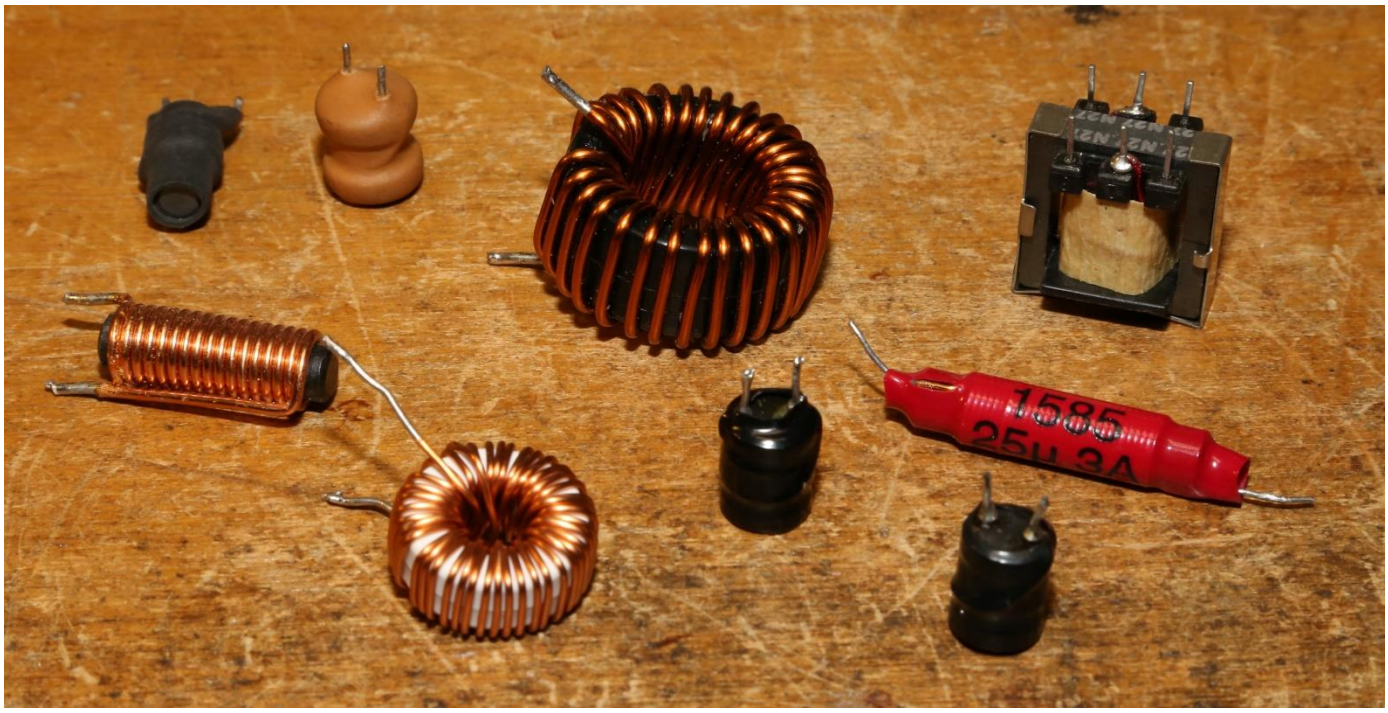


This is the ‘old’ 3BUF golf caddy motor controller, being used to evaluate a pile of inductors I had in my junk box. There are all sorts of parameters that go with ferrite cores, the easiest solution when it comes to second hand coils is to make up a test jig and see how they perform.

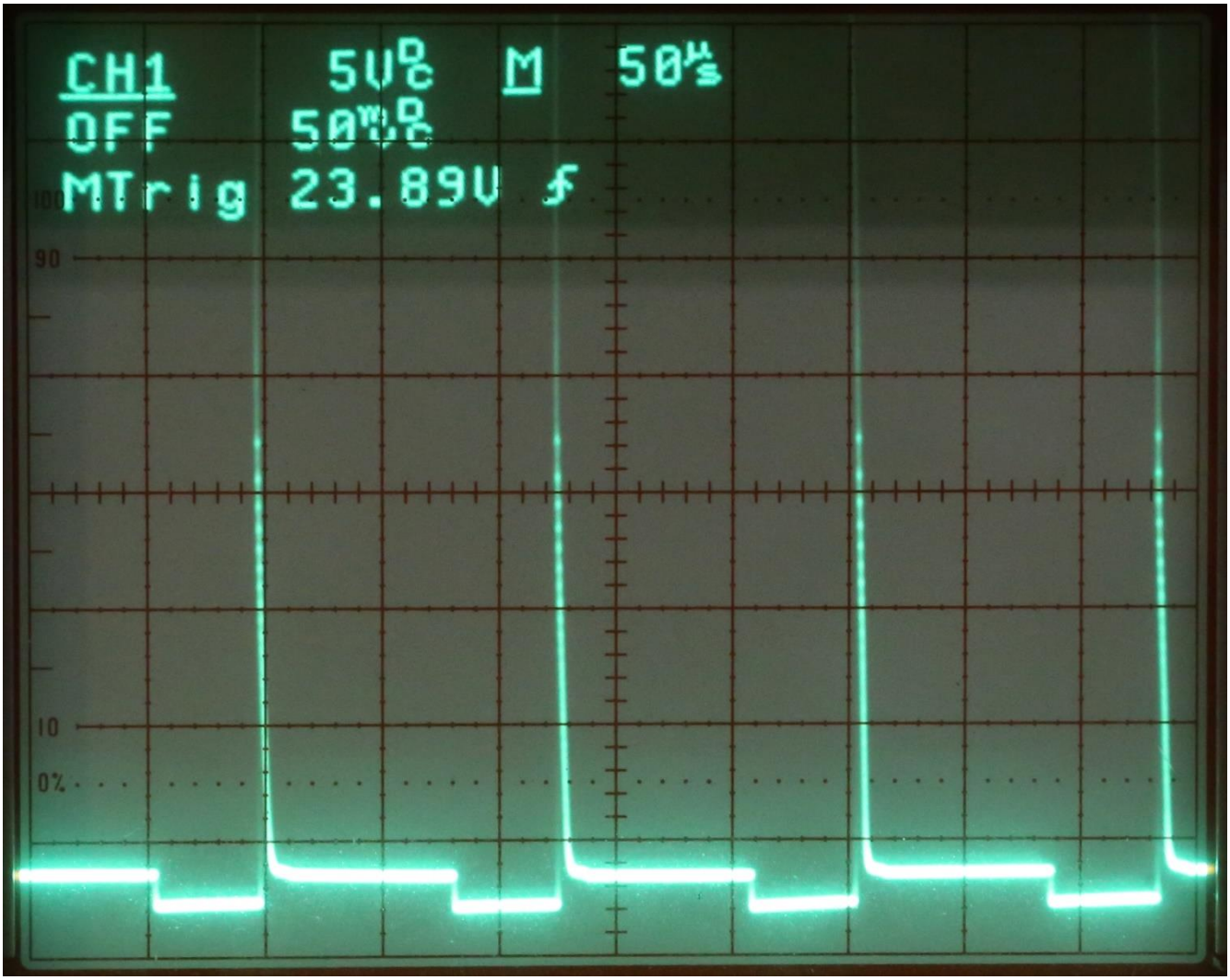
The big 10 ohm resistor in series with the coil is to save the FET from destruction should the selected coil look more like a short than anything else.



Here are a selection of the inductors that worked just fine, that poor neon bulb used as a test load was shore getting a thrashing, even with the limit resistor in place, this all bodes well for the final design delivering the goods. Hopefully I won’t kill the neon, it’s meant to be used as one of the colon dots.



And here are some more inductors/chokes that didn't work. Note the two small black units, they look all but identical to one in the other group, but boy do they behave differently.



A scope shot, this is with a X10 probe, so the scale is 50V a division, the spikes are going off the top of the screen. (Hopefully I won't blow my scope's front end!)

Paul VK3TGX

How mobile can a man with a broken leg be?

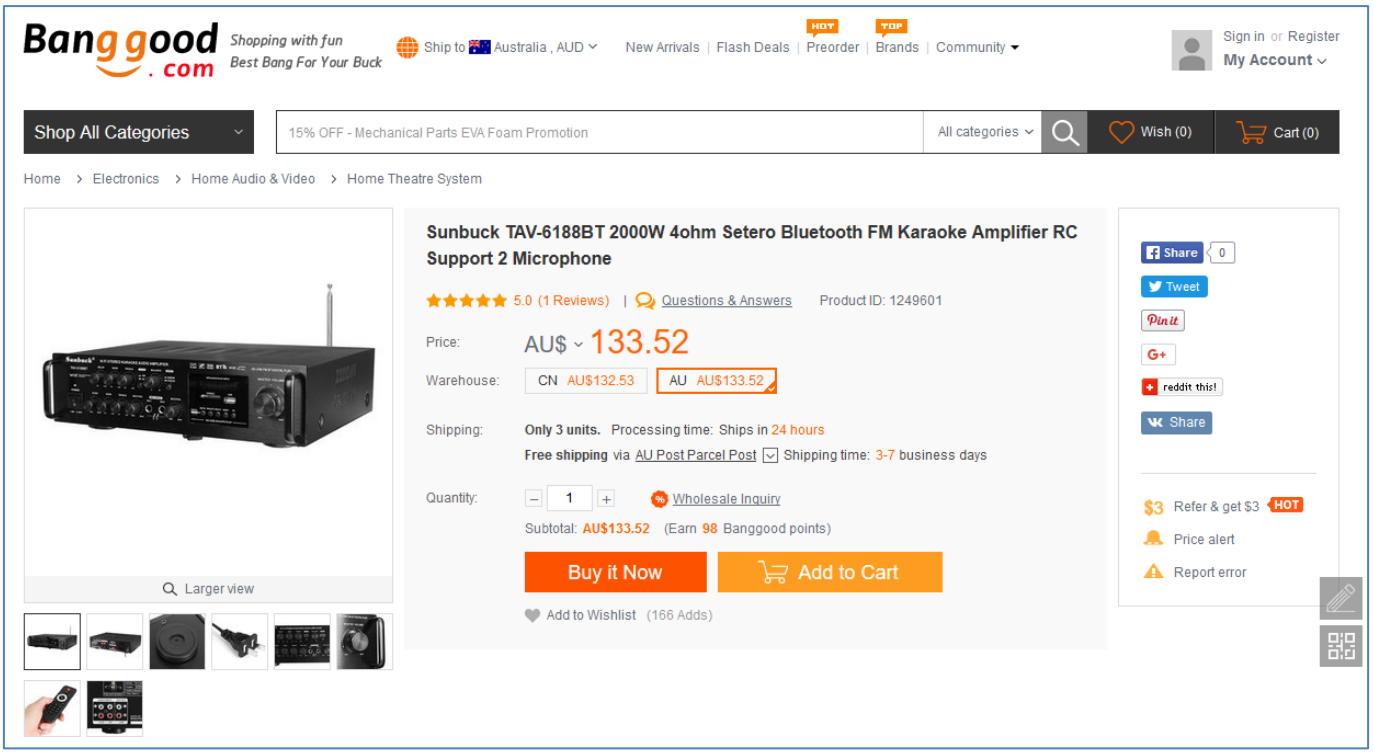
How mobile can a man with a broken leg be?

Well, after a couple of attempts to visit Graeme Brown, we finally tracked him down to the Dandenong Private Hospital.
Our previous attempts to visit him were met with a wall of Privacy silence from the hospital staff. "He was here but we have moved him to somewhere else and we can't tell you where that is." Graeme's room, clothes and belongings were there but he wasn't!! After a bit more questioning, we were told that he was alive and well but that's all we could be told. We left the hospital wondering what was going on. A few days later, on the night of the Telstra Museum visit, Albert received a call letting him know that Graeme was back in his hospital bed in Noble Park after an unplanned stay in Berwick hospital. Andrew Clinkaberry, Ron Lacey, Albert Hubbard and I went to Dandenong Private hospital and finally met up with Graeme. He was in good spirits and he told us about the series of events that resulted in his leg being broken. His leg wasn't in plaster but he told us that he will set off metal detectors for some time now. Graeme is home now resting and waiting for the all clear from the doctors so that he can get around on his own. All the Club members wish Graeme a speedy recovery.

Bruno Tonizzo
VK3BFT

Dodgy Electronics

And now from the 'what the heck' department.



A 2000W amplifier for $133, it sounds too good to be true.

That is till I had a close look at another image. (The last one of course)

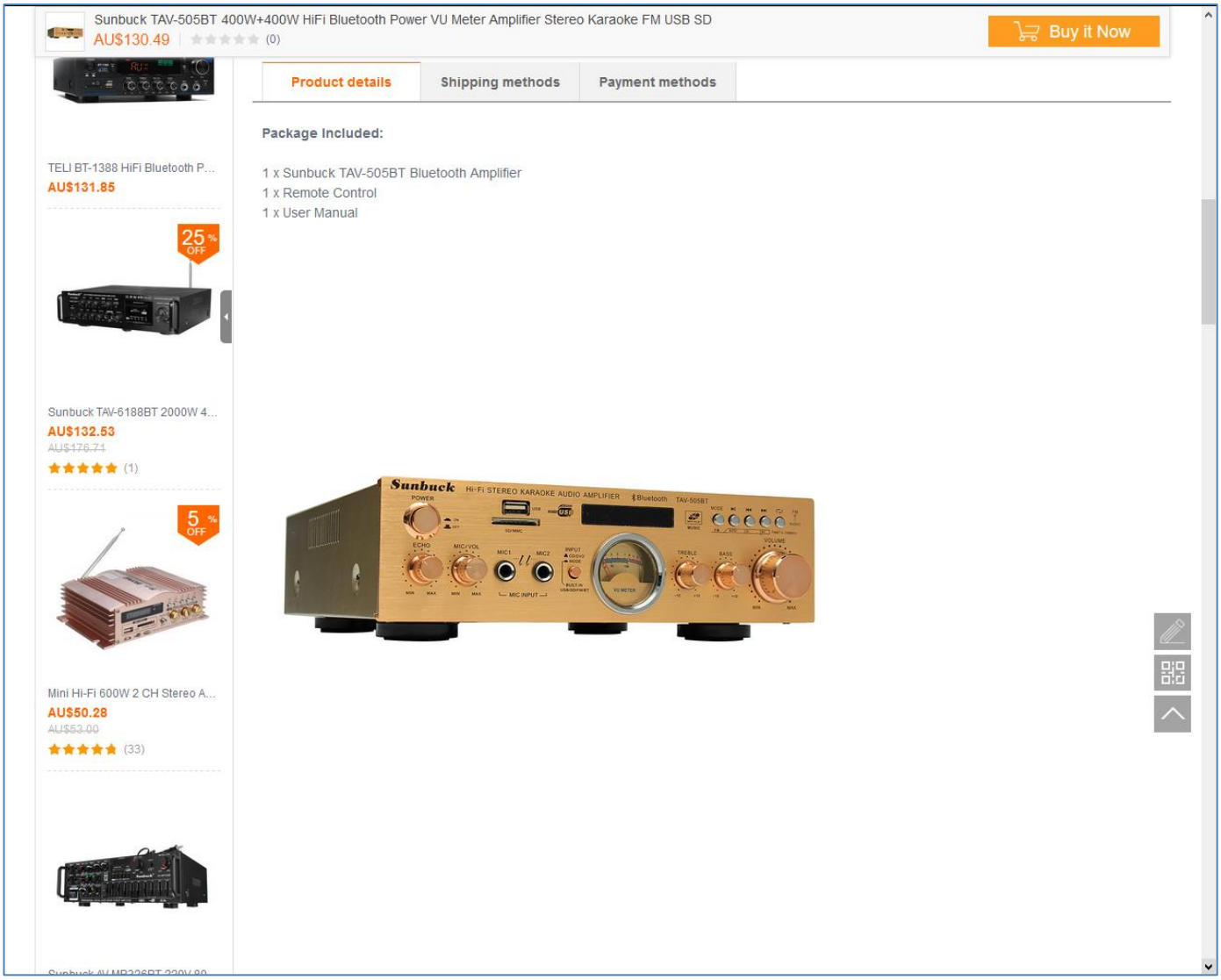
Almost cropped off, but quite readable, the distortion figures, at 10 watts into 8 ohms.
(Distortion figures are usually quoted at full, or near full output)

Now I have heard of PMPO power, or 'Peak Music Power Out', which as far as I can gather is an attempted technically based method to elevate the power numbers of an amplifier.

A total waste of time in my book, before that everyone used RMS power, and it was quite easy to compare various competing systems although one REALLY needs to look at the speakers to get an idea of how loud it will sound.

Sure, for one release cycle, or two you will have better numbers, but as soon as the opposition sees your trickery the games up and you've lost your advantage – and the poor customer is just left more confused than ever. So why do they bother, a bonus in some sales exec's pocket?

Now we have 'Chinese watts', there appears to be no rules whatsoever, just bullshit as fast and hard as you can. As you can see from above, nothing would appear sacred over there, if you ordered this amp, then used the quoted figures on the website to get a matching set of speakers you'd be up 'Ship creek' (AAMI advert). The poor amp would be overloaded by the wrong impedance speakers, and assuming you bought 'High Power' speakers, there's a chance they'd be somewhat inefficient, just what you need for a 10W amp!

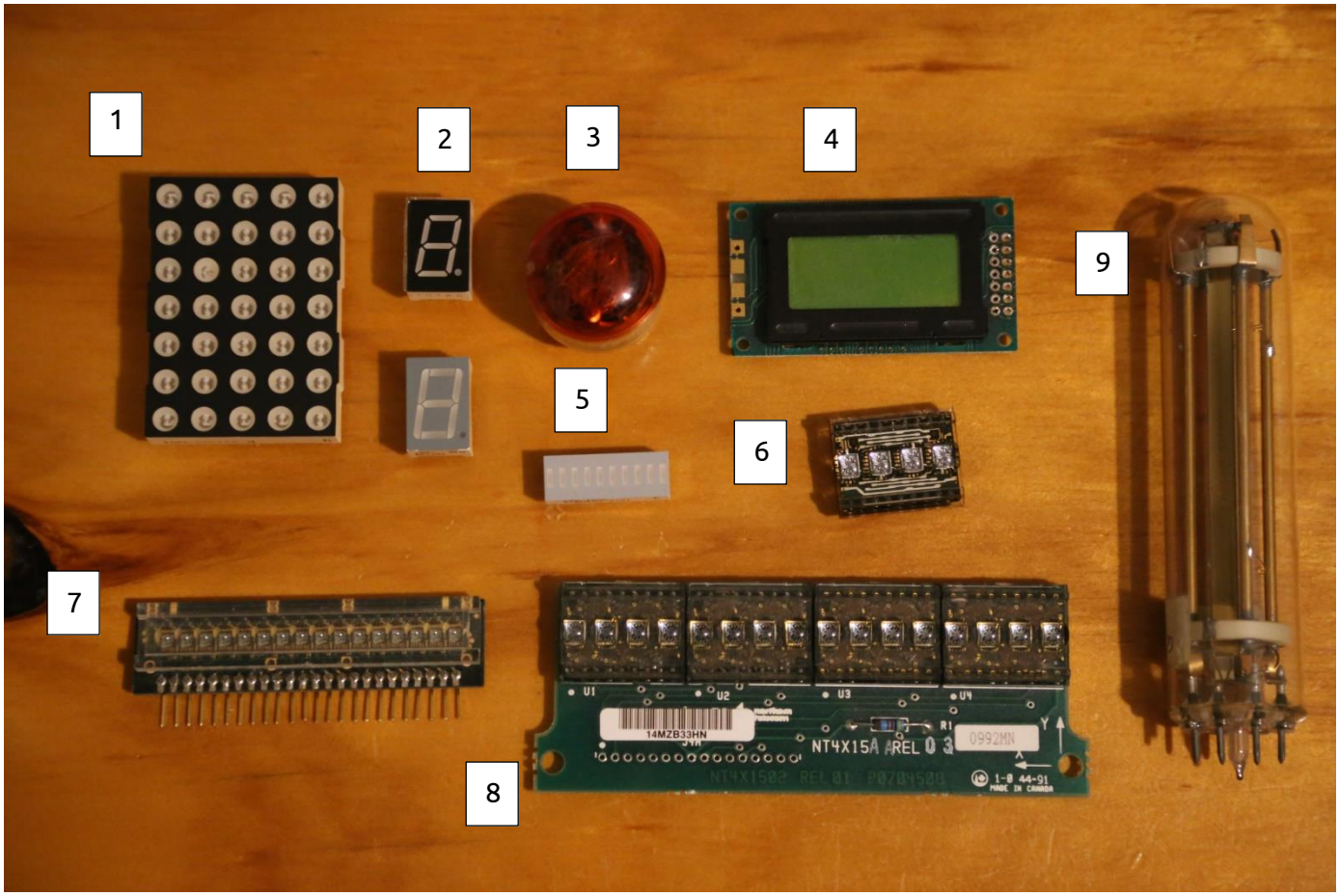


Also on this site was a nicer looking gold amp, with all the 'modern' inputs, if nothing else it could have served as a front end to a larger old style system, to bring it up to current spec.

But with all the blatant bullshit in these ads, you'd be a fool to buy it.
They haven't gained a sale; they've just lost one – idiots.

Paul VK3TGX

More Displays etc.



A selection of displays plus one imposter from my collection

1. 5 by 7 LED module – commonly used in 'moving message' displays
2. Two 7 segment LED's
3. Mullard ZM1020 Nixie tube
4. 2 line by 8 character intelligent LCD (direct Arduino drive, nothing else to buy)
5. 10 segment LED bar-graph display
6. Intelligent star-burst 16 segment 'bubble' display (Direct Arduino, no interface IC's)
7. 16 digit calculator style 7 segment LED display
8. 16 digit intelligent star-burst (16 segment) display module
9. And one imposter, a 4.0KHz crystal.
   No test equipment needed to test this one, just use your ear!

Paul VK3TGX

Club Information

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

Office bearers

President	Noel King	VK3CJJ	Web Master	Mark Clohesy	VK3PKT
Admin Sec	Michael Van DenAcker	VK3GHM	Magazine Editor	Paul Stubbs	VK3TGX
Treasurer	Chris Chapman	VK3QB	Property Officer	Bruno Tonizzo	VK3BFT
General 1	Barry Hamilton	VK3ABH	Secretary	Ian Jackson	VK3BUF
General 2	Ron Lacey	VK3FRDL			

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 VK3RLP, In 434.475MHz Out 439.475MHz CTCSS 91.5Hz
VK3RLP Repeater supports Remote Internet access (IRLP), Node 6794.
70cm Repeater Seaview VK3RWD, In 433.575MHz Out 438.575MHz CTCSS 91.5Hz
Simplex VHF - 145.450MHz FM, Simplex UHF - 438.850MHz FM
VK3RLP Beacons 1296.532MHz & 2403.532MHz (currently inactive)

Membership Fee Schedule

Pension 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 at each April Annual General Meeting.

Magazine Articles to editor@ggrec.org.au or vk3tgx@gmail.com Cut off, 10th
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