



Illawarra Amateur Radio Society

Propagator JULY 2021

Upcoming Meeting on the 13th July 2021

If the COVID19 conditions and restrictions for NSW do not change

The next meeting **will be at the** Blue Scope Steel visitors centre 7.30pm.

Blue Scope Northgate entrance off Springhill road



THE FOLLOWS A COVID19 SAFE PLAN

There will be distancing and preventative measures still in place with hand sanitisers available for use, please adhere to info below as a minimum.



Wash your hands
regularly



Avoid contact



Keep a safe distance
of at least 2 metres



Avoid touching
your face



Cough or sneeze into
the crease of the elbow
or in a tissue



Stay at home if
you are ill

Our last meeting 8th June 2021

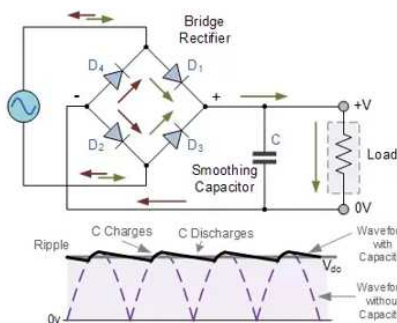
Power supplies, linear and switchmode

I had the privilege of sharing my power supply work experience with all the IARS members at the last meeting. Thank you for giving me the opportunity to share some interesting points about power supplies with you. I hope that everyone enjoyed the presentation and thanks to all that attended. If you are interested in more information about the presentation or circuit diagrams, please email me at iars.keithb@gmail.com



❖ Basic Transformer rectifier smoothed

- Transformer selection (**Voltage, Current**)
- Capacitor selection (**Size, Volts**)
- Diode selection (**PIV, Current, FwdV**)



Transformer points : Open circuit voltage, current capacity

Would be nice to know the impedance but not critical

Capacitor "Rule of thumb" $1A = 1000\mu F$?



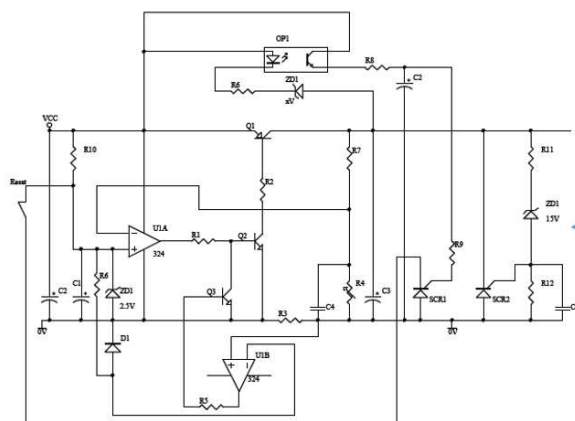
The Charge Q (Coulombs) removed from the capacitor is $Q=I*t$, where I is current and t is time.

Q also = $C*\Delta V$, where C is the capacitance and ΔV is the voltage drop as the current flows out, the "ripple valley"

So $C*\Delta V = Q = I*t$ rearranging gives $C = I*t/\Delta V$.

Example : 3 Volt ripple (drop) 50Hz supply(100Hz ripple) at 10Amps

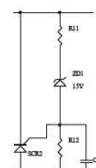
$$C \text{ (Farads)} = 10 * 0.01 / 3 \quad ; \quad C = 33,000 \mu F$$



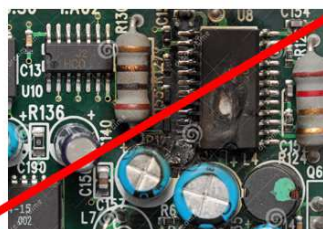
Remains simple but we continue to build protection

YOUR FRIEND THE "CROWBAR"

NO POWER SUPPLY SHOULD BE WITHOUT



+15V



CROWBAR

Questions ?

NEXT MEETING 13th July (Tuesday)

Hands on building project!

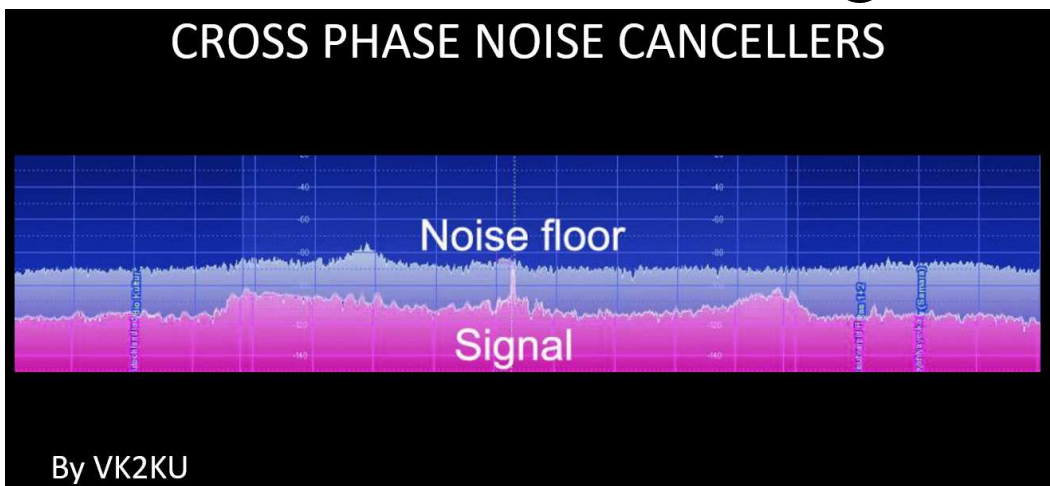
Does anyone recall the IARS Surface mount assembly workshop?

Well..... this is even better!

We are actually building a complete VK2KU noise canceller

... or two or three or four or 😊

CROSS PHASE NOISE CANCELLERS



We will be assembling the noise canceller kits on the evening, so bring along your bi-focal lenses and soldering skills to the next meeting. There will be a few of us offering a helping hand if you have forgotten what a soldering iron is,



or which way to put the resistor in.....

As always, there will be refreshments like tea, coffee and cookies. (maybe some muffins 😊)

Come along and build a noise canceller unit. 13th July 2021

SNOWBALL



WAZZA !!! VK2MWK

Congratulations to Wazza, who went home with \$106 for a \$5 entry

If you feel left out, DON'T!!, just jump on the IARS Snowball bus next meeting for your chance to win some cash,

- You will need to be a IARS member to participate
- If you not, then speak to John VK2EJL on the night and he will be more than happy to fix you up.

Simon VK2KU, the good looking fellow with BALLS and NOISE Canceller will book you in for \$5



As always all monies received goes straight back into your club for your enjoyment 😊

Don't forget the two weekly IARS nets as below



to the IARS NETS



IARS Tuesday evening weekly 80m NET on 3.666MHz at 8.30pm hosted by Mal VK2DXM and Rob VK2MT

Don't forget to join us every Tuesday evening, *expect the second Tuesday of the month* for a great get together on 80m. Signal reports, news and general discussions are the agenda. All you need is 1 x HF rig, Piece of wire + tuner, good cuppa and good chair.

There have been some really good conversations so if you are bored on Tuesday evenings, pop in for a chat.

Saturday Morning EAST COAST NET hosted by Steve VK2BGL

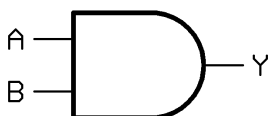
You are invited to join Steve every **Saturday at 9.30am** on our **146.850MHz** repeater (linked to 146.675MHz) or **VK2BGL-R** on Echolink for a very enjoyable morning of general discussions from amateurs who log in from all over the world. This is a great net which is growing in popularity due to the wide range of subjects that get discussed.



Looking to Upgrade your Foundation or Standard licence?

As mentioned previously, let 2021 be the year. The IARS has two options, Ted VK2ARA who is our club tutor and the Radio and electronic school or both 😊. Your society supports further learning, please find out more on how we can help you.

We also have approved AMC assessors and can get your upgrade fast tracked. Please email iars.keithb@gmail.com or return email if you wish to receive more information on how the IARS can help you achieve this goal in 2021.



The RES is a non-for-profit school helping amateurs obtain their licences and has been assisting for many years

REPEATERS



VK2RUW (Knights Hill)



VK2RMP (Maddens Plains)

STATUS

- 438.225 with a - 5MHz offset. **Currently off air due to local interference at the repeater site, working on a solution**
- 146.975 with a -600kHz offset NO CTCSS, C4FM enabled **OK**
- 146.850 with a – 600kHz offset (linked to 146.675) NO CTCSS **OK**
- 146.675 with a – 600kHz offset (linked to 146.850) NO CTCSS **OK**
- 53.650Mhz with a – 1Mhz offset 123Hz CTCSS (or key PTT 5 times to open squelch) **OK**
- 438.725Mhz with a -5mHZ offset DMR only **OFF AIR due to upgrades and improvements**
- 1296.850Mhz Beacon with simplex repeater function – **OK**

The IARS welcomes any feedback on our repeater systems.

Please send all your feedback to iars.keithb@gmail.com and it will be passed on to our repeater team.

Any donations to help us maintain our great repeater system will be greatly appreciated. Please check our banking details on our website at www.iars.org.au under the Contact details page.

As reference of the donation please add your Call sign and the words "Repeater Donation"



LOOKING FOR SOMETHING to SWAP, BUY, SELL, an OLD PART
Parts you may need for repairs or some radio gear you no longer need
that could go to a new home.....?

Email secretary@iars.org.au or iars.keithb@gmail.com



We Have access to vacuum tubes (Smaller type not high-power output). So, if you need a valve, send the details to iars.keithb@gmail.com and we will see if we can help you 😊
(free to IARS members)

Disposables Donation Table

Each meeting we have the disposables table with items donated to the club.

Please keep the support for this going and bring oddities in and take some home for a small donation to the IARS.

With the next meeting please bring along an donate those old items that you no longer use and may even have thought about throwing it in the bin, someone else may be looking for that very part.

Wire, pieces of coax, old parts, plug packs, power supplies, capacitors, resistors, coils, tubes, knobs, anything that someone can use.





Share it with us, this could be suggestions, technical ideas, circuit diagrams, IARS community projects, pictures of your latest shack project

Let us know by return email or secretary@iars.org.au

Also, if you have some IARS related pictures or information that we can put on the **IARS website**, please let us know and we can get that happening.

This month's idea comes from the interest generated after last month's presentation CROWBAR protection

True that no power supply should be without one. We can have excess of \$1000 RF gear connected to our trusty and reliable linear power supply or that nice new 700Watt switch mode power supply.

All these devices can fail, placing much more than the recommend maximum of 15Volts on to your radios.

Think about the amount of damage and cost if this were to happen in your shack right now.

For less than \$10 and 10 minutes, you can put a feeling of ease back into your system with a very easy to build CROWBAR.

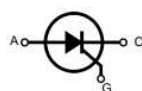
What do we need?

QTY, 1 x 1 Watt Zener diode 15Volts, 1 x 10k ¼ Watt resistor, 1 x 0.1uF 50V and 1 x SCR rated at the power supply current

Phase Control Thyristor

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
900	800	CS 45-08io1
1300	1200	CS 45-12io1
1700	1600	CS 45-16io1 CS 45-16io1R

$V_{RRM} = 800-1600 \text{ V}$
 $I_{T(RMS)} = 75 \text{ A}$
 $I_{T(AV)M} = 48 \text{ A}$



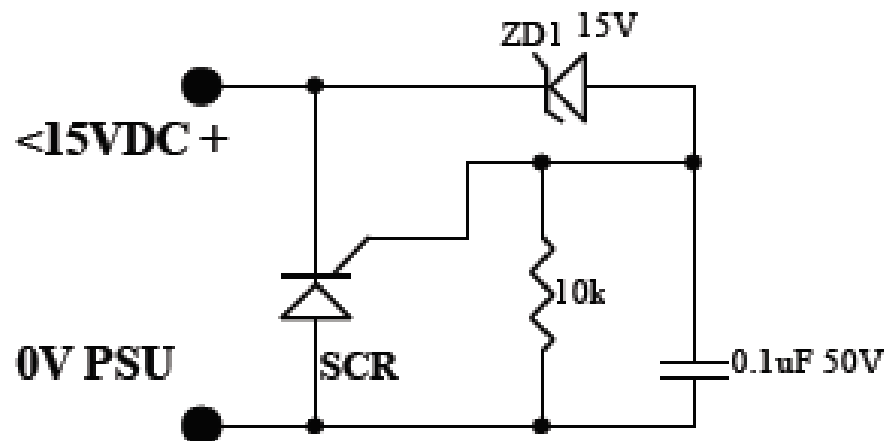
* Patent pending
 C = Cathode, A = Anode, G = Gate

For \$5 to members, the IARS can supply these parts, which includes the SCR above, 48Amp SCR CS45-12IO1

If you require the prepack bag of parts, please send order to iars.keithb@gmail.com .

You can collect at the next meeting, all proceeds go to the IARS

Crowbar circuit below

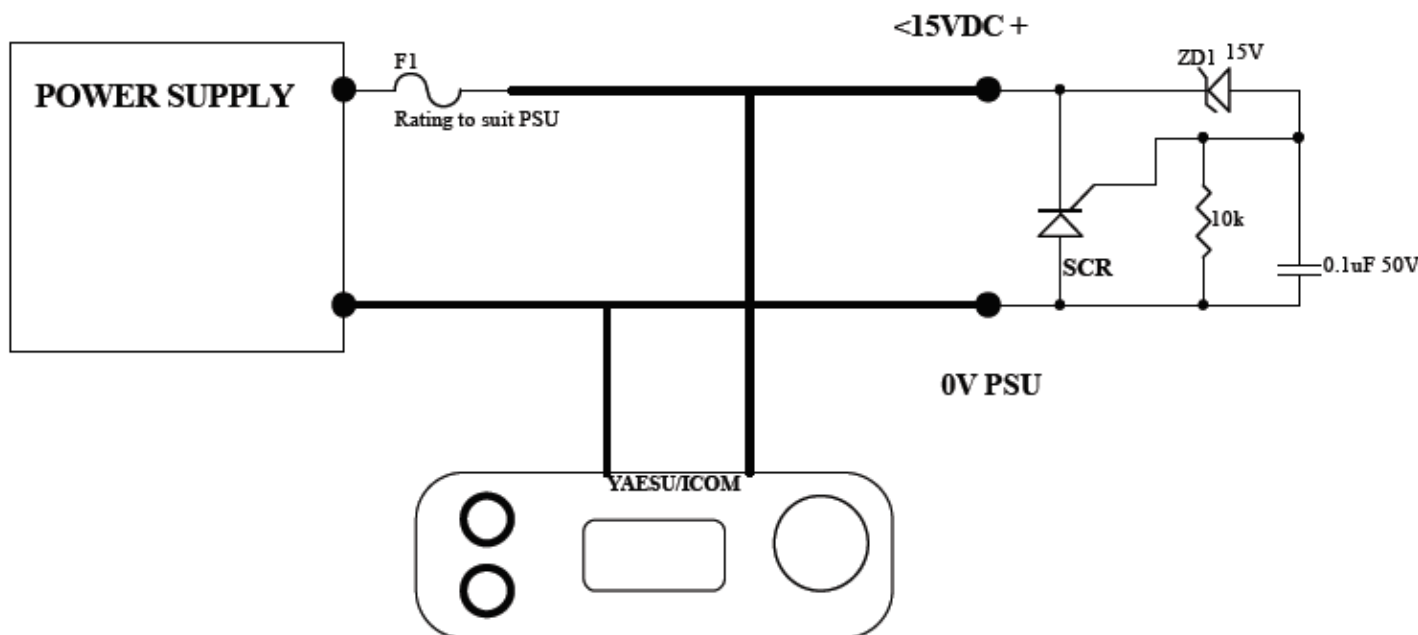


This circuit is suited for the CS45-12IO1 SCR, if you are using a SCR with a higher sensitive gate with low current, then a Resistor of approx. 10R ~ 47R can be inserted in series with the Zener diode.

This circuit can be connected directly behind the radio or at the power supply.

It is recommended that a fuse is placed in line as the drawing below to operate once the crowbar has operated.

If the power supply is a switch mode or constant current limit and won't blow the inline fuse, then a heat sink needs to be fitted to the SCR as the current will be maintained until turned off. Heat sinks not required if fuse installed.



VK Shires adventure Rob VK2MT

The last contest held was the VK Shires contest which our club president participated in.

We asked Rob VK2MT if he could share some pictures and information of his adventure..... **Thank you Rob**

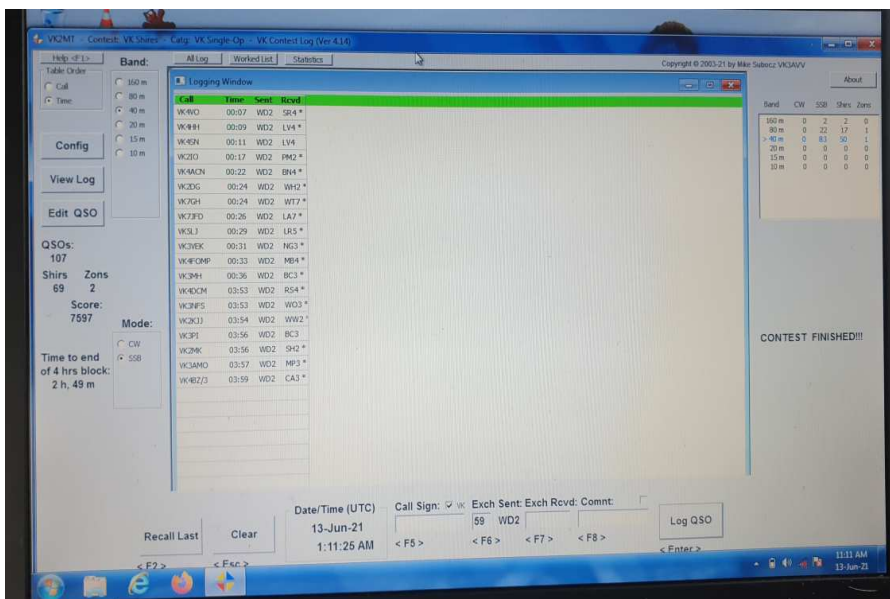
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Over the June long weekend I travelled 4 hours to a sheep farm about 15klms NE of the town of Grenfell in central NSW. It's an annual camping trip that we've been doing for many years to catch-up with some old Scouting friends.

The temperature is usually very cold, but nothing a big campfire and some red wine can't fix.



The June long weekend also hosts the VK Shires Contest, so of course some Amateur equipment gets brought along to participate in the contest when not sitting around the campfire or off on hikes exploring the surrounding countryside. I took an Icom IC-7100 radio, feeding into an AH-4 ATU which is then connected to a G5RV on a 10m Squid pole. Unlike the other Contests I participate in, this one is more just for fun.



It is really enjoyable using the Amateur bands when the noise levels are so very low. In fact the noise levels are so low that a preamp has to be turned on to register signal strength on the noise when listening to 40 & 80 metres, while 160 meters had about 1 S-point of noise.

Our camp location is on top of a covered granite hill, which I think aids with radio propagation. From the start of the Contest at 10:00 local on Saturday for the next 24 hours I had 107 contacts, with 69 different Shires & 2 Zones (NZ & New Caledonia) for a claimed total score of 7,597, which will be way down on the winner's scores.



It was a fun weekend & operating in such low noise levels is fascinating. If you just sit for 10 to 15 minutes listening to any low-band frequencies, you hear stations from all over the world float in & and out as propagation changes. They're probably not workable and would normally be way below what you would hear in town with urban noise levels.

I encourage IARS Members to get out and enjoy noise-free Amateur radio operation. Our Penrose site is perfect and has many creature comforts.

Cheers & 73 - Rob VK2MT

Thank you for sharing Rob, if anyone has similar radio adventure stories for our future Propagators, please send info to iars.keithb@gmail.com

Upcoming events

Trans Tasman Low Bands Challenge

Next contest - 17 JUL 2021

The Trans-Tasman contest, held on the 3rd weekend in July, aims to encourage Low Band activity between VK and ZL

<https://www.wia.org.au/members/contests/transtasman/>

Only contest bands 160 80 and 40M are allowed with SSB, CW and Digital (RTTY OR PSK)

Winter VHF UHF Field Day

The next VHF UHF Winter Day will be held 26th and 27th June 2021.

The overriding aim is to get away for the weekend and have fun!

But next after that, the aims are to encourage more activity on VHF and microwave bands; to encourage people to work greater distances than usual by operating portable, and to provide opportunities for people to activate or work into new grid squares.

Further information on WIA site, <https://www.wia.org.au/members/contests/vhfuhf/>

International Lighthouse Lightship Weekend.

00.01 UTC 21st August to 24.00 UTC 22nd August 2021 (48 hours) ... 7th as their National Lighthouse Day and during that first week in August

<https://illw.net>

There may be a opportunity for the IARS to have a joint lighthouse weekend with the MSCARC.

Rob VK2XIC has advised that the MSCARC had booked lighthouses for the lighthouse weekend.

If you are interested in taking part in this contest **please contact Rob VK2XIC** vk2xic@wia.org.au

Remembrance Day Contest

Next contest 14th & 15th August 2021

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area. A perpetual trophy is awarded annually to the Australian state or territory with the best performance. The name of the winning State or Territory is inscribed on the trophy, and that State or Territory then holds the trophy for 12 months. The winning State or Territory is also given a certificate, as are leading entrants.

<https://www.wia.org.au/members/contests/rdcontest/>

Contest scoring

In case you are unaware the scores achieved by you, in each contest you submit logs they are added to the

WIA Contest Champion list, which can be checked out on the WIA site,

<https://www.wia.org.au/members/contests/contestchampion/> . If nothing else have a look at the performance the members of the IARS is like.

Joint Picnic 25th September 2021



IARS Remote station clubhouse Bundanoon

The IARS and MSCARC will again be having a combined picnic and fox hunt on the 25th September 2021 weather and Covid 19 permitting. Pencil this date into your diary, we will be sending out more information closer to the time.

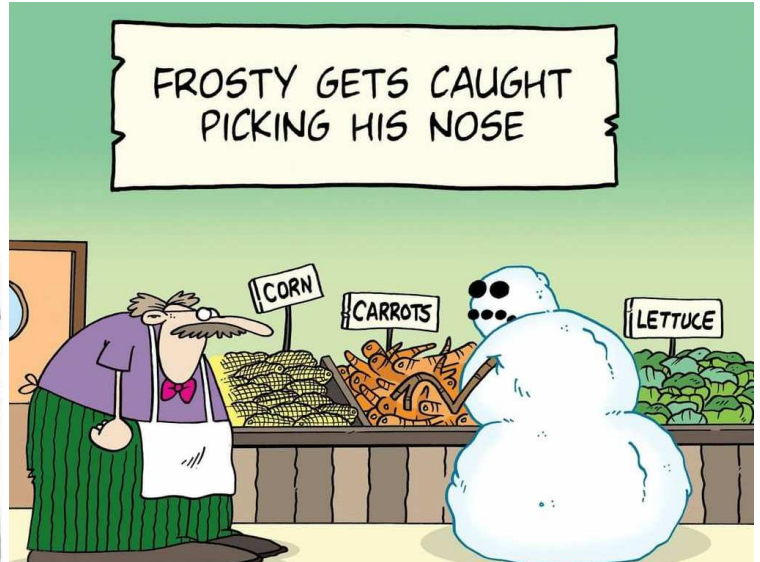
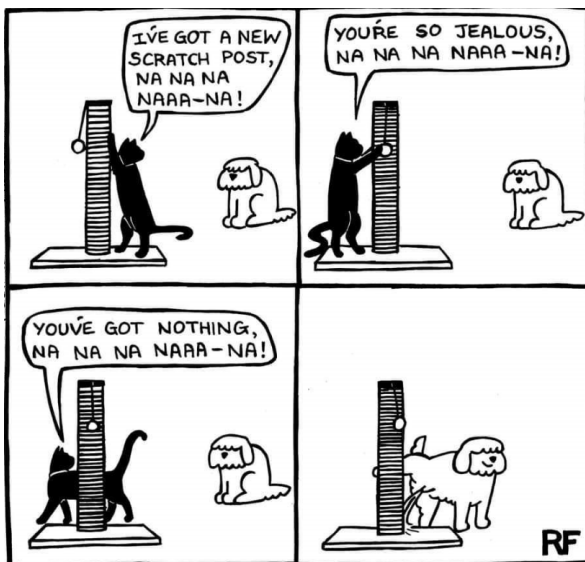
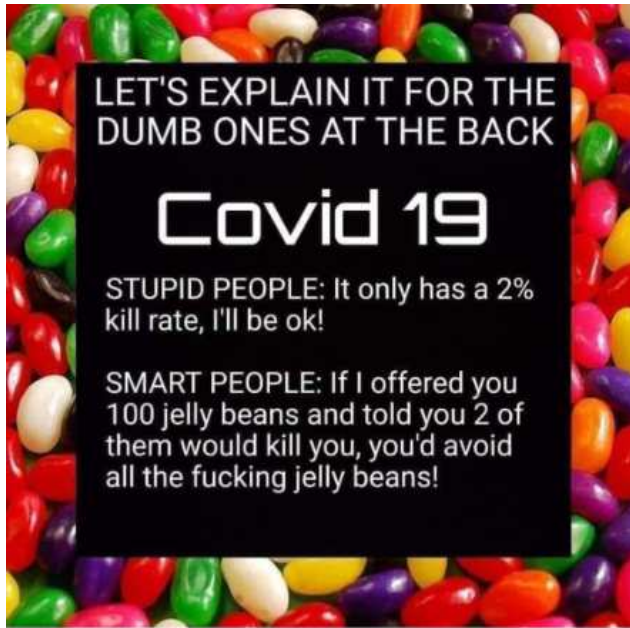
Don't miss this opportunity as there will be a great opportunities to hone your DF tracking skills in at this location.

Upcoming meeting presentations

- **July 2021** : Construction night. We will build a VK2KU noise canceller kit on the night.
- **August 2021** : AGM with SHOW & TELL, bring along videos and pictures of your latest projects.
- **September 2021** : SDR (Software Defined Radio) Evening, we look at this technology and how it is growing among AR operators.
- **October 2021** : Our Annual Trivia evening, with great prizes and laughs to be had.
- **Novemebr 2021** : The famous IARS auction night with our host Simon VK2XQX, letting us get away with some great bargains.
- **December 2021** : Pizza night dinner with a show and tell, perhaps a surprise this year 😊

Fun Corner

Please send in your funnies to iars.keithb@gmail.com



Thank you John and Alan

That's all for now, hopefully see you at the Blue Scope Visitors centre on Tuesday evening, 13th July 2021 at 7.30pm.
Stay Safe

73's

Keith VK2KQB

IARS Secretary IARS, Amateur Radio in the Illawarra since 1948

