

GATEWAY

June 2011

NEXT MEETING: Friday June 17 at 8 pm

WHERE : Cranbourne Girl Guide Hall, Grant St off Sladen St.

SPEAKER : Bruno Tonizzo

TOPIC : Amateur Station Self-Assessment.

Fig 3. LC trap for 2 m. Overcoming pager interference. Starts Page 5

GATEWAY MAGAZINE IS THE OFFICIAL JOURNAL OF THE GIPPSLAND GATE RADIO ASSOCIATION

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When Johnny received his plate, he started eating right away. 'Please wait until we say our prayer.' said his mother.

'I don't need to,' the boy replied. 'Of course, you do.' his mother insisted. 'We always say a prayer before eating at our house.' 'That's at our house.' Johnny explained. 'But this is Grandma's house and she knows how to cook!'

A Rabbi said to a precocious six -year-old boy, 'So your mother says your prayers for you each night? That's very commendable. What does she say?'

The boy replied, 'Thank God he's in bed!'

The Sunday School teacher was describing how Lot's wife looked back and turned into a pillar of salt, when Jason interrupted, 'My Mummy looked back once while she was driving,' he announced triumphantly, 'and she turned into a telephone pole!'

Sunday school teacher said to her children, 'We have been learning how powerful kings and queens were in Bible times. But, there is a Higher Power. Can anybody tell me what it is?'

One child said proudly 'Aces!'

Joey was asked by his mother what he had learned in Sunday School. 'Well, Mum, our teacher told us how God sent Moses behind enemy lines on a rescue mission to lead the Israelites out of Egypt . When he got to the Red Sea, he had his army build a pontoon bridge and all the people walked across safely. Then he radioed headquarters for reinforcements. They sent bombers to blow up the bridge and all the Israelites were saved.' 'Now, Joey, is that really what your teacher taught you?' his mother asked. 'Well, no, Mum... But, if I told it the way the teacher did, you'd never believe it!'



Photo Albert Hubbard VK3BQO

OUR NEW PRESIDENT DIANNE JACKSON VK3JDI



MID YEAR DINNER

JUNE

SATURDAY 25TH

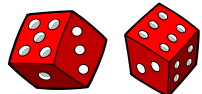


This years midyear dinner is coming up soon. The meal will be catered by Reddy Roast, the same as last year. If you want to come and enjoy a good square meal with good friends and a few laughs, then you must leave a \$5.00 per head deposit with the treasurer, at the May meeting. The full cost will probably be \$15.00 per head, payable on the night. You will need to bring your own drinks and glasses.

Last year we all had a lot of fun with a TV star dress up. This year we are going with a SQUARE theme. Use your imaginations and try something creative. Square hat, square, jewellery, square tipped shoes, or maybe just a checked shirt. You never know, there may even be a pair of checked pants in the bottom of your wardrobe.

There will be a square prize for the squarest outfit.

BE THERE AND BE SQUARE!



GIPPSLAND GATE RADIO & ELECTRONICS CLUB

Club meetings are held on the third Friday of each month at the Cranbourne Girl Guide Hall in Grant Street. Prac. nights are held on the first Friday night in the Peter Pavey clubrooms. Both nights commence at 8:00 PM. Visitors will be made welcome. Committee meetings are also held in the clubrooms.

President Dianne Jackson VK3JDI

Secretary Graeme Brown VK3BXG

Treasurer Ian Jackson VK3BUF

Committee : Paul Stubbs VK3TGX Russ White VK3MWR Michael Van
Den Acker VK3GHM

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Magazine Printer : David Wright VK3FW

Distribution Snail Mail : Rosalind Wright

Distribution Email : Graeme VK3BXG

Club Station VK3BJA located in the clubrooms.

6M Repeater VK3RDD : Freq. In 52.575, out 53.575 MHz

70cm Repeater VK3RLP Freq. In 434.475, out 439.475MHz

CTCSS 123Hz IRLP Node Number- 6794 (Using VK3RLP)

Call in Frequencies : HF on 28.325 MHz, USB, VHF 145.450 MHz, FM
and UHF on 438.850 MHz,

Visit our internet site at: www.ggrec.org.au

Current GGREC Inc. Membership Fee Schedule

Full Member \$37.00, Pensioner Member \$22.00

Junior Member \$22.00, Extra Family Member \$17.00

Fees due after each April Annual General Meeting.

The deadline for magazine items is the third day of each month

Please direct magazine articles to:

Susan Coleman email editor@ggrec.org.au

All other Club correspondence to P.O. Box 1098, Cranbourne 3977

or Email : secretary@ggrec.org.au

Disclaimer. The opinions expressed in this publication do not necessarily reflect the official view of GGREC Inc and GGREC Inc cannot be held responsible for incorrect information published.

Incorporation Number A0016893M

At the April General meeting, an article which appeared in Moorabbin Radio Club's magazine was shown interest by several of our members as it dealt with ways to reduce or eliminate pager interference from 2 metre receivers. With the kind permission from APC magazine editor, Ron Cook, we reprint 2 articles written by Gerard VK3GER and Ron Cook VK3AFW. We acknowledge those authors and thank them for allowing us to reprint their articles.

HOW TO OVERCOME PAGER INTERFERENCE

By Gerard Werner VK3GER

See also the following article "A Miser's Trap" for more on this topic.... Ed

Here in Melbourne we have serious pager interference from transmitters just above 148 MHz. Given the power levels and locations of the damned things they cause problems a lot lower, namely on the FM part of 2m. The primary reason is the broad band front ends of modern transceivers. A possible solution is the inclusion of a stub filter between your radio and the antenna to notch out or at least reduce the pager signals.

But be aware that as the offending frequency is no more than say one or two Megahertz away from your normal operating frequencies, the filter will also affect the antenna VSWR and may have an effect on your vhf tx. You should check that with an SWR/power bridge.

To overcome this problem you may need to set up a manual switch, which bypasses the filter on tx, or an RF sensing relay system. Otherwise you will find that your power out level is reduced, as the transmitter sees a higher SWR.

There is a simple way to work out what the length of a 1/4 wave of coax is. It was shown to me years ago, and I am quite surprised not to have seen it in the various handbooks. Reading back on it, it seems quite complicated, but when you have done it once, it is a breeze. Also you don't need to know the specifications of the cable you use.

You can use any radio which produces rf on the band you need. Turn it down to its lowest rf output level. Even a hand-held will do.

Use a short patch lead and connect it to a coaxial T-connector. (Normally this will be suitable for PL-259's, but you could also use a BNC t-connector, as is commonly used in the pc networking world. The only drawback is that you then need BNC connectors for the patch leads and the top end of the stub).

Connect the TX to one side of the Tee and a dummy load to the other.

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HOW TO OVERCOME PAGER INTERFERENCE By Gerald VK3GER

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Cut a length of coax a bit longer than a quarter wavelength. A length of say 50 cm will be more than enough. (remember, 2m, divided by 4 is 50 cm).

Fit a PL259 plug (or a BNC plug) to one end. The other end can stay open. Then connect the coax cable length which will become the stub to the 90 degree port.

Apply TX power to the radio, most of it will go in the dummy load with the correct impedance. But the radio will also see the attached stub which is too long, resulting in a higher SWR on the bridge.

Let the TX button go, and use a pin, needle or a thin nail to push from the side through the braid so it touches the centre of the coax. Press the TX button again and check the VSWR. You may want to write down the reading. It should be a little lower than before.

Now move say 5 mm up the coax (towards the connector) and take another reading. There should be a slightly lower reading. If not, then you are still too far away from the critical point, or for some reason there is no proper electrical contact between the braid and the core.

Continue to move upwards and take more readings, until you find the point with the lowest SWR. That is the point where you can cut the cable.

Check the cable end after cutting to see that it is a clean cut and to make sure there are no bits of braid touching the inner of the coax. There should be NO electrical contact.

A guideline to calculate the length of the quarter wave stub:

Refer to the ARRL Antenna Compendium, vol 6 p 167. It gives the following example:

length (in feet) = $984 \text{ over } f \text{ (in MHz)}$

so: 984 divided by 148 is 6.648 feet

divided by 4 = 1.66 feet, times 12 (inches) (over foot) is 19.92 inches.(506 mm)

Now multiply 19.92 inches by the velocity factor of your coax,
(for most common cables such as RG58 and RG59 this is 0.66).

The result is 13.15 inches. (or 33.4 cm).

The metric formula is $300 \text{ over } f \text{ (MHz)}$ so 300 divided by 148 is 2.027 (meter).

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From the president *Dianne Jackson VK3JDI*

Hi everyone. As you know this is my first time as President of the Radio Club. Well, it's really the first time that I've been President of anything at all. I don't know how I will go, but I am willing to give it a red hot go. I hope you will forgive my nerves and the occasional blunder in protocol as I settle in.

This is a very busy time for the Radio Club. We have the Mid Year Dinner on Saturday the 25th of June. The preparations are well under way for our square themed dinner. The June meeting night will be your very last chance to book in. It should be a lot of fun.



Also, the Hamfest Sale on Saturday the 16th of July. we will need all hands on deck to help this year's event go as smoothly as possible, even if you can only spare a few minutes, every effort is appreciated.

The committee is a team to keep the business part of the Club working, but it takes the members' participation to keep the GGREC going as a GREAT Club.

You could help by finding a Guest Speaker for a future meeting, organising a function or field event, or even seeking like-minded members to explore a fresh aspect of technology.

Looking forward to seeing you all at the general meeting.

Di. VK3JDI

AVR CLASS RESULT

By Ian Jackson VK3BUF Course Convener

The final class for the 10-week AVR Microprocessor course was held last month. It has been a great success and now there are many micro-processor based projects underway.



The participation rate was excellent. Of the 20 starters for the course, only one was unable to complete the entire course, and that was due to illness.

Good feedback was received from all participants about course depth and content, which is very reassuring as much of the material was quite complex in nature.

It shows that there is a good case for running other specific-topic training courses in the future if we can gain access to suitable training staff. There has been some interest shown in the possibility of a course on basic web page design. Is there anyone out there who can or would know of a person capable of conducting such a course? If so, please contact the Club committee with whatever information you have.

GGREC Calendar

Event Queue

Upcoming Events

Fri Jun 17th	8:00pm	General Meeting	Guide Hall
Sat Jun 25th		Mid Year Dinner	Guide Hall
Mon Jun 27th	7:30pm	Committee Meeting	Club Rooms
Sat Jul 16th	10:00am	GGREC Hamfest	Cranbourne Public Hall
Sat Aug 13th		RD Contest	Club Rooms
Sat Aug 20th		ILLW	

TREASURER STUFF

Ian Jackson VK3 BUF

A reminder to all Club Members that have not already paid this year, that membership fees are now due.



Full Member, Standard rate	\$37.00
Full Member, Pension/Concession rate	\$22.00
Full Member, Student rate	\$22.00
Family Member	\$17.00

This will be the last magazine for those who do not renew. Also Electronic key-fob Club Shack access will soon be updated to reflect the current membership list.

Another reminder:

If you intend to come to the Mid Year Dinner, you will need to pay a deposit (\$5) or pay in full (\$15) pretty much straight away, or you will miss out. As a catered event, we can only admit those who have made a partial or full payment in advance.

Payments and Reimbursements to Members

There has been a change in how this is being handled by the Treasurer. All reimbursements to members for expenses - regardless of value - will be made by cheque.



The May meeting was a very vibrant affair with lots of suggestions and ideas and willing would-be participants.

HOW TO OVERCOME PAGER INTERFERENCE

By Gerard Werner VK3GER

Cont 'd from page 7

Divide that by 4 gives 0.506. Now multiply with the velocity factor of the cable, assuming 0.66.

This will result in 0.3339m or (33.4 cm).

I find the metric formula a lot easier. But that is probably because I never used imperial measurements until I came to Australia in '86. You may think otherwise!

This 33.4 cm (or 0.334m or 334 mm) is the length where you should have the lowest SWR on the stub.

If it is different on your stub, then that is caused by a difference in the cable specifications for your cable.

(As a matter of interest, in this case the ideal length of the patch lead between the transmitter and the T-connector should also be close to this length. If you apply 146 MHz to the formula, you will end up with a length of 33.9 cm, so 5 mm longer than the previously mentioned 33.4 cm)

I rather prefer the needle and SWR method as mentioned above. That way you don't have the risk of cutting the cable too short. And if you have gone too far with the needle method, and the SWR goes up again, just work your way back through the previous pin holes.

You can now use the same T-connector and the stub. Just remove the dummy load and connect your antenna. Then go to the frequency you normally want to use. The pager interference should be much less. If it has reduced but not enough, make two more stubs.

Fit another two PL-259 connectors to one to make a resonant 1/4 wave patch lead to connect to a second T connector. Connect it between the first T-connector and a second one. At the opposite side of the second side connect the cable to the antenna, and then connect the second stub to the off-side of this second T-connector.

The resulting dual stub filter will provide a lot more attenuation on the offending frequency.

Good luck!

Gerard VK3GER

A MISERS TRAP

By Ron Cook VK3AFW

The two stub trap has been described by Gerard VK3GER in some detail. This article describes a cheaper and quicker to build version. No it doesn't look as nice but it is CHEAP.

The nicely engineered version looks something like Fig 1 with the two open stubs appearing as shorts across the coax. The quarter wave spacing between the two stubs makes the shorting of one appear to be an open circuit at the position of the second, thereby increasing the effectiveness of them by isolating them from each other. Notches in excess of 50 dB can be expected using Gerard's tuning method.

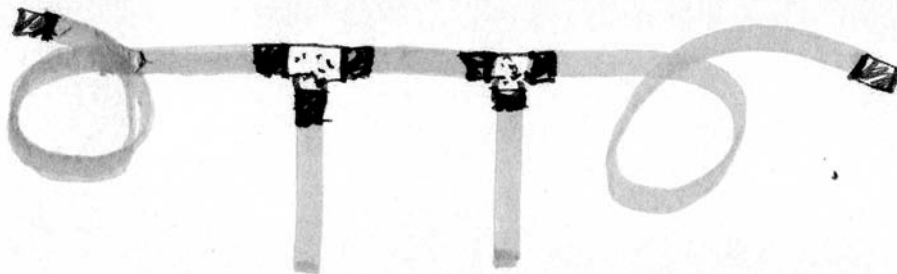


Fig 1. Arrangement for two quarter wave stub traps to notch out interference as described in previous article by Gerard.

The two Tee connectors and the six or seven male plugs can run up the cost to \$20 plus, especially if new good quality connectors are used. John Patterson VK3ATP described a cheaper method to me many years back. The first Tee is formed from a piece of PCB material. The three lengths of coax are soldered together with their centre conductors forming a Tee and the braids twisted and soldered to the copper of the PCB. Don't forget to clean up the copper surface first so it solders more easily.

To secure the cable two cable ties are laced through two holes in the PCG and pulled up tight. Two ties per cable ensure it won't come apart. Fig 2.

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A MISERS TRAP

By Ron VK3AFW

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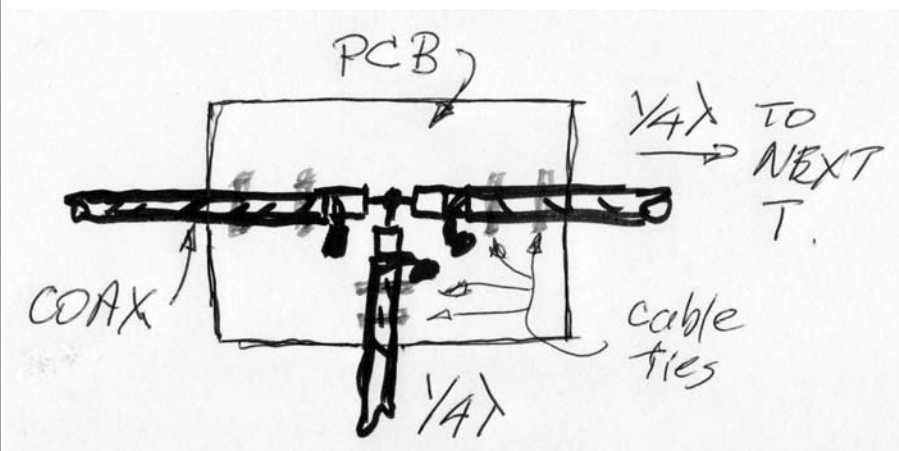


Fig 2. Arrangement for one Tee connection.

The cost of this trap system is zero for most hams who do a little building as they will have a couple of scraps of PCB material in a drawer somewhere and some lengths of RG58 to make up the stubs.

Tuning can be done as per Gerard's instructions if your Tx will tune to the pager frequencies.

I have used this design to make up a number of 2 m traps for TVI elimination. The coax used was 75 ohm as it was to go in the TV aerial line. I have a signal generator capable of 100 mW output and a microwatt power meter so was able to adjust for a good null at 144.5 MHz. The null was not much different than an older design shown in Fig 3.

So if your TX does not tune above 148 MHz and you do not have a sig. gen. etc., what can you do? Well you could set your Tx to 147.995 MHz, reduce power to 5w or 1 watt to protect the PA when operating into a high SWR and tune for minimum transmitted signal. Then nip off about 2 mm of coax with a sharp pair of side-cutters. This will move the notch frequency up to where the pagers are.

Another slightly more expensive trap can be built with two tuned circuits in a diecast box. The one in Fig 3[see page 1] has a lead and a connector and again was designed to trap out 2m signals for TVI reduction. The coils were wound on a 6 mm drill bit and 3 – 22 pF capacitors used to resonate them.

Continued opposite

The box has a piece of PCB material laid on the bottom. Two other pieces of PCB material are soldered to this to make shields. The coil in the middle forms a series resonant shunt across the line performing the same function as the quarter wave stub.

A 10 pF (from memory) capacitor couples the line through to a parallel resonant circuit in series with the line. Rough tuning is done with the lid off. More precise tuning can be done through holes in the lid, or by iteration. That is tune, lid on, note detuning, lid off, retune and repeat.

Gerard referred to switching for transmission as otherwise the rig might spit the dummy after seeing a high VSWR.

An automatic change-over is recommended as otherwise, one day when you forget,

A simple RF sensing change-over circuit is shown in Fig 4.

The two relays should have low RF losses and at least 25 dB isolation; otherwise they will defeat the trap. You can use the well-engineered coax stub trap (Gerard's version), the miser's version, or the LC version.

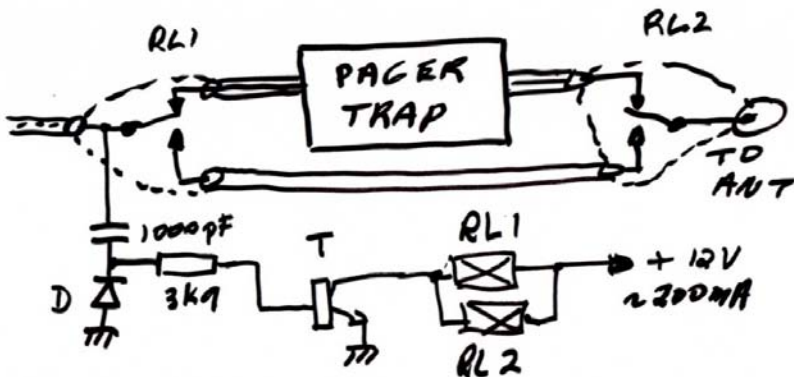


Fig 4. An automatic Trap Bypass Circuit for FM transmissions

T1 should be a reasonably high gain NPN transistor capable of switching 300 mA. 2N2222 or similar would do. Diode D could be any diode capable of rectifying 2m RF rated at 70 V PIV, such as the original 1N914 series should be OK up to 30 watts.

The relays could be almost any small relay such as the HM4101F on special from Rockby at only 50 cents (cat no 32815). These require less than 40 mA each for switching.

Don't forget you need a 12 v dc supply for this cct. Ron VK3AFW

FOOTNOTE. A small power diode (1N4000 series) should be connected across the switching transistor with the cathode to the collector and the anode to the emitter to protect against relay back emf.

GENERAL MEETING MINUTES MAY 2011

has been drawn out, it is well in order now.

Volunteers are now needed to help on the day and to be listed by Bruno.

The advertisements have gone to Amateur Radio (magazine).

There are only ten tables left for booking.

(ii) *VK3RDD*. Albert reports that RDD will go back into position when Geoff VK3ZGW arrives back home from Timor. RDD is still being tested with the desensing problem now cured but experimenting is continuing. Its diplexer is now tuned as well as tuning will allow.

(iii) *Mid – year dinner*, Dianne VK3JDI, reports that she needs to know who is going to attend and needs a deposit for the event. All “going square” is the theme and part of the fun.

(iv) *Rotator service report* – for hold over for the next committee meeting.

New business :

(i) *New President nomination*; formal, written and submitted by Dianne Jackson VK3JDI and seconded by myself VK3BXG, tabled.

No further nominations, carried by consensus.

(ii) *Mail*, by committee resolution, is now being diverted to 408 Old Sale Rd Drouin West for the next 12 months. This is for ease of administration of secretarial and treasurer duties.

(iii) *Museum Weekend* at Koo Wee Rup, I, VK3BXG, propose to be reconsidered as a means of local Shire newsletter article for publicity for the club. I propose that I write to the secretary of the Koo Wee Rup Historical Society asking if we may use their premises for the museums' weekend 18th and/or 19th June 2011. Consensus – carried.

(iv) *The AVR course* has now been completed Ian VK3BUF reports. There were 20 attendees and although it ran at a loss, the outcome is in no doubt profitable to those who did attend.

(v) *A DXpedition* again to Vanuatu in late September is being organised by Chris VK3QB and those interested should let him know.

(vi) *Brian VK3BSN* inquired as to the situation with Bass Hill repeater VK3RSG which had not been heard in over 18 months? Would Bass Hill group hand it over? Answer – probably no!

Consensus – no!

(vii) *Bruno VK3BFT* suggested that a repeater group should be set up to assist Albert VK3BQO, repeater officer.

Moved Steve VK3EGD. Seconded Brian VK3BSN. Carried. Albert to approach members who may be interested.

(viii) *The ILLW* needs to be paid up to cover the costs the club has made to secure the accommodation for that weekend. To make up the numbers of participants, other clubs will now be approached to join us.

Pat VK3OZ, reminded all that the tracks on the southern part of Wilsons Promontory still may not be open by August. In that situation another lighthouse venue may have to be found and payments reimbursed.

Meeting closed 8:55 pm

Next General Meeting 17th June 2011

GENERAL MEETING MINUTES MAY 2011

Date 20th May 2011

Start time : 08 : 00 pm.

Location Guide Hall, Cranbourne

Chairperson Ian Jackson VK3BUF

Minute Taker Graeme Brown VK3BXG

Preamble: Following tonight's general meeting, Geoff VK3HGG has two 1957 archival 16mm films to present — one on the conditions of Australia's roads and the other on land clearing in Tasmania using International Harvester equipment.

Present Attendance sheet

Visitors Eric Jackson.

Apologies Chris VK3QB, Paul VK3TDX, Grahame VK3XK, Doug VK3KMN, Ron VK3EXJ and Judy Robertson, Mike VK3KTO and Naree Ide, Graham VK3KCS and Geoff VK3ZGW

Correspondence received :

Sundry payments for the hamfest table bookings – see treasurer's reports.

Tru Energy – electricity account

WIA for AR magazine

ACAMA Licence fee and renewal.

Newsletters from EMDRC, NERG, FARMPARC

Correspondence sent :

Email to the club's list regarding the hamfest

Email to all members regarding the annual dinner

Electronic and mailed copies of Gateways magazine.

Annual report to Corporate Affairs.

Letter to Cranbourne Hall Hire Committee.

Emails to Hamfest store holders

Treasurer's report : Read out by out-going treasurer Brenton Vowles VK3CBV

Read and Moved Brenton VK3CBV Seconded Helmut VK3DHI Carried.

New Callsigns nil

Previous Minutes :

Read as distributed Moved Albert VK3BQO Seconded Henry VK3FHTV

Approved.

Business arising from the previous minutes :

(i) *Hamfest*. Bruno VK3BFT reported on the Hamfest sale that there has been a steady flow of bookings, and although the hall hire process

Continued opposite