THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY
PO BOX 1838 WOLLONGONG NSW 2500

VOLUME 81, NUMBER 5. JUNE, 1981

MEETINGS ARE HELD ON THE SECOND MONDAY OF EACH MONTH (EXCEPT JANUARY) AT 7.30 P.M. IN THE CONGREGATIONAL HALL, CORNER OF COOMBE AND MARKET STREETS, WOLLONGONG. VISITORS ARE WELCOME TO ATTEND MEETINGS.

NOTICE OF MEETING:

The June General Meeting of the Illawarra Amateur Radio Society will be held on Monday 8th June at 7.30 p.m., in the Congregational Hall, Coombe Street Wollongong.

A guest speaker is being invited to the meeting, and the club store and tea and coffee will be there.

Q.S.L. INFORMATION:

Are you waiting for the odd card or two?? You and a lot of others!! The QSL Bureau has been taken over the the Westlakes Radio Club. They currently have 70,000 to 100,000 cards which have to be sorted!!!

It is expected that cards will start to flow this week (four amateurs have taken a week's holiday to sort cards). It is hoped that the backlog will be cleared within a fortnight.

If you are not a WIA member, you will not receive cards without paying for them FIRST.

From the 10th May 1981, the address of the VK2 QSL Bureau is -

VK2 QSL Bureau,
Box 73,
TERALBA 2284 Australia

and the Bureau Manager is D. Pearson VK2AVO.

The above information is from the Conference of Clubs at Goulburn.

- Denis VK2DMR

MULTICULTURAL TELEVISION

At a public meeting held to press for "improvement of the Channel 0 signal in Wollongong", Dave VK2VAV convinced those present that technically and economically a UHF translator for Wollongong would be far superior. A petition for such a translator has attracted some 9,000 signatures.

Good work, Dave!

WIA MEMBERSHIP CERTIFICATES

WIA members who have not previously received their membership certificates will be supplied if they submit a request in writing to the WIA.

THE QSL BUREAU

The QSL Bureau provides the cheapest way of exchanging QSL cards with other amateur around the world. It is usually also the slowest way - new amateurs are often discouraged by the waiting time for cards, and even the old-timers have not been unknown to voice the occasional complaint. In effect, the waiting time is the price being paid for the cheap service.

In a typical bureau operation, the cards received for outwards posting are sorted according to country. The bundles are allowed to accumulate until each reaches sufficient volume to allow them to be posted at the most economical possible rate by sea mail. Bundles may be posted at three month intervals even if they are less than optimum size. Mail may take up to eight weeks to reach the country of destination, and several weeks may be needed for sorting by the local bureau.

Remember also that the bureaus are manned by ordinary amateurs, who give their own time free of charge to sort, package and despatch cards. The VK2 bureau handles around 10,000 cards each week, both inwards and outwards - and that represents a lot of sorting time.

All told, about the minimum time taken by a card through the bureau is six months. Many amateurs will QSL only when they receive a card, so the time is easily doubled to a minimum of 12 months. Then look at the sorts of things which cause local DX enthusiasts to delay putting their own cards into the bureau (cards not printed yet, cards not written out yet, forgot to bring cards to the meeting, spilled coffee on the log and can't read the callsigns...) and remember that the same things happen to the overseas amateurs too! Then there are dock strikes, mail strikes, and all the rest of it, so it is hardly surprising that many cards turn up two or more years after the radio contact was made.

Finally, remember that because QSL cards are sent at a "commercial paper rate", no more than FIVE words of a personal nature can be accepted on cards. Write the callsign of the person to whom the card is addressed on BOTH the front AND back of the card. Sort all outwards cards into COUNTRIES.

For further information, see the article in the April "Propagator", or see Paul VK2DTZ or Mike VK2VXS.

BITS AND PIECES

Nowra repeater: expected to be on air for tests by the end of May. Frequencies are 147.8 MHz in and 147.2 MHz out - channel 12 on the old numbering system, and channel 7200 on the new system.

Callsign caution: It has been noted, from time to time, that there is a tendency to use partial callsigns, especially on VHF, such as "XYZ" instead of "VK2XYZ". Sections 6.34 to 6.44 of the regulations apply to callsigns, and the information therein should be noted and adhered to.
- from VK2TTY broadcast, 3rd May 1981.

Of Interest: The March issue of the Westlakes Journal reports that their club has accumulated assets of $27,439, fixed assets of $31,360 and a net operating profit for the four months to end of June 1980, of $2,155. Phew!
- from Orange Amateur Radio Club "Mini Tuned In", April 1981.

Raising the Roof: Rumour has it that Dave VK2VAV is having a Cape Cod conversion done to his shack, to accommodate all the gear. A Cape Canaveral Conversion would probably be nearer the mark!

FULL BREAK-IN CAPABILITY (QSK) FOR 520S

Gio Donk, VK2VPD/7

I have not been sending in many articles lately because the Associate Diploma in Marine Radiocommunication here in Launceston Tasmania has been keeping me quite busy lately. By the way, for anyone who wants to get in contact with me, my postal address for the next two years is:

Mr. G. Donk,
Investigator Hall,
Box 788 Launceston,
Tasmania. 7250.

When you send CW, and finally have a break because your arm is almost falling off, you will often have found the annoying experience that the person at the other end lost you after the third word and wants a repeat. This of course does not happen if you are using split frequency and a separate receiver, but not many of us work in this fashion. If your transceiver were to switch back to receive every time the key was not held down, you would be able to hear him the instant he pushed his key when he tried to signal you to stop. In commercial traffic handling this is done, and the moment you hear a tone in between your dits and dahs that you know you didn't produce you stop and listen. But unfortunately most amateur transceivers when used in the VOX mode still have too long a delay constant even in the most sensitive setting when the vox delay is at minimum.

This problem can be cured. I own a Kenwood 520S, and if you have one too you might like to make the modification shown. The Vox Delay system works more or less on the principle of a time constant being produced by an RC circuit, and the length of this time constant (T) may be shortened by decreasing the value of either the resistor or the capacitor. The manufacturer has chosen to vary the delay by the use of a small potentiometer because it is easier and cheaper to put in than a variable capacitor. But this pot still has quite a large amount of resistance even when set at minimum, and unfortunately the pot cannot be substituted with one of a lower value because if the resistance drops too low then Q6 will take-off.

What I did was to take out the 3.3 uF capacitor shown in the diagram and replaced it with a 1 uF cap. But one bit of care must be taken in selecting the right type. The existing cap is rated at 50V but when a smaller cap is put in its place the voltage across it increases somewhat. I replaced it with a 1 uF greencap, and this seems a little large in size at first but there is plenty of room in that part of the transceiver. If you do on the other hand decide to replace it with another electrolytic, then make sure that you observe the correct polarity.

I have been using this system for a number of months now and it has made the world of difference. I no longer have to repeat large slabs in CW because I now tell the other party that I have full QSK so that I can hear him the instant he buts in even if I am half through a single letter. Another advantage is that if a third party wants to join in he does not have to wait and wait for that elusive break in the converstation. If he puts his call in I will stop and listen.

The modification on the 520 only takes about 5 minutes when you have removed the top cover, and that is only held on with eight phillips screws anyway. You will find the board in question just next to the small removeable panel which houses the vox controls on the left hand side.

- continued next page.

BREAK-IN FOR 520S - contd.

The number of the board is X54-0001-00 and the schematic diagram may be found on page 32 of the operating manual. To make things simpler still, there is a photograph showing the position of the vox unit on the back of the fold-out sheet. The diagram given should clear up most problems anyway.

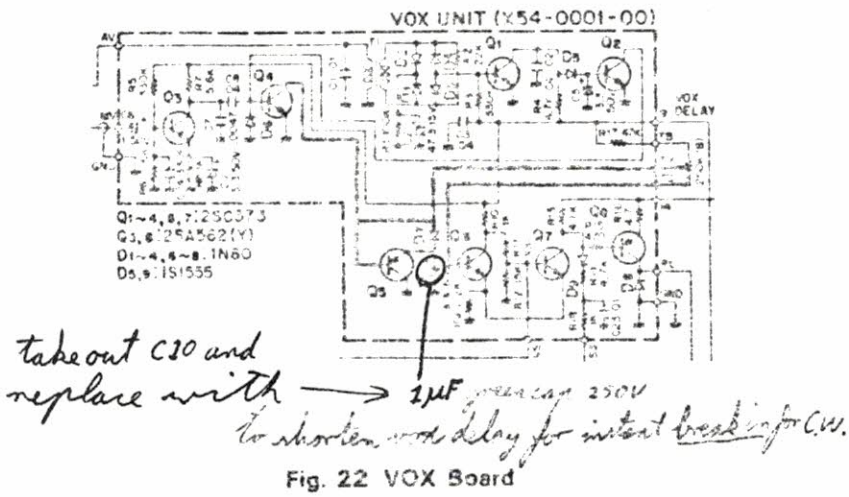

Fig. 22 VOX Board

I hope to hear many more stations in the near future operating CW using full QSK. You didn't know what to do other than read the Propagator tonight anyway, so hurry up and make the modification.

P.S. I would like some feedback from those who built a heavy duty power supply after the design I put in the February issue. Let me know what sort of changes you made and how well (or not) it works and what you thought of it.

73's, Gio.

25-W ADD-ON AMPLIFIER FOR HAND HELD VHF RADIOS

Prepared by
Helge O. Granberg
RF Product Group

A booster amplifier for low-power VHF radios, using the new Motorola hybrid amplifier module MHW252, is described in this bulletin. Data is given only for operation in the 144 MHz to 148 MHz amateur radio band, but the unit is usable up to 160 MHz. An input attenuator (R1, R2, R3) is incorporated, allowing operation with up to 5.0 W of power input.

For 2.5 W or greater power input, 2.0 W carbon resistors must be used for R1 and R2. The attenuator also provides the radio or any other drive source with a good, 50 Ω resistive load. Component values for up to 14 dB of attenuation for this network are given in Table 1.

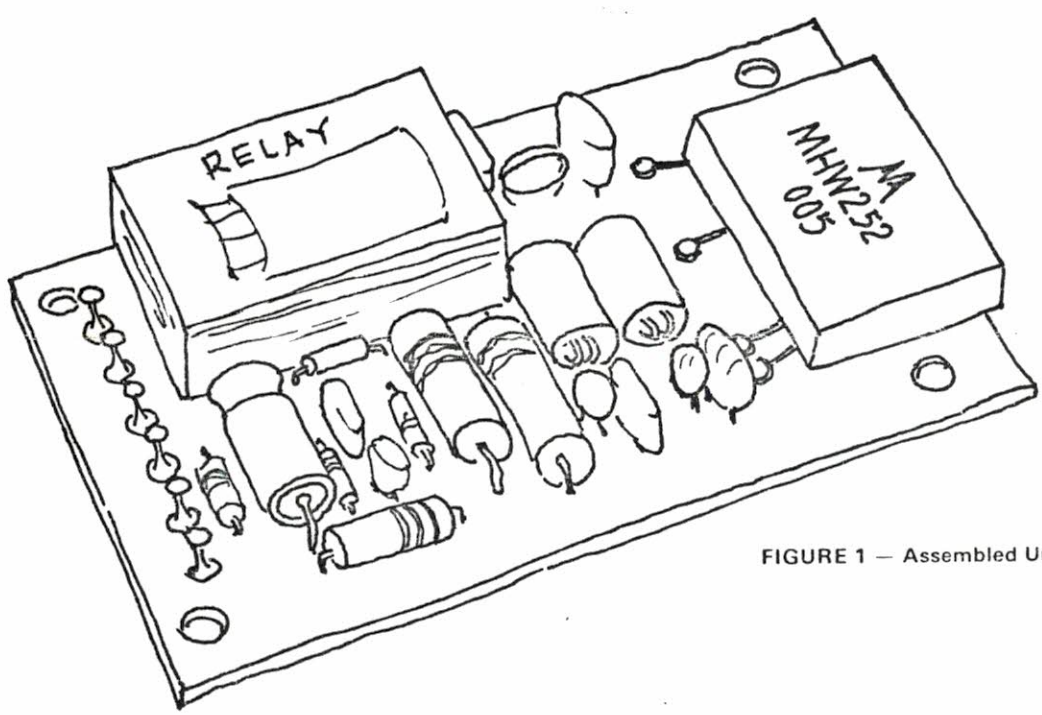

FIGURE 1 — Assembled Unit

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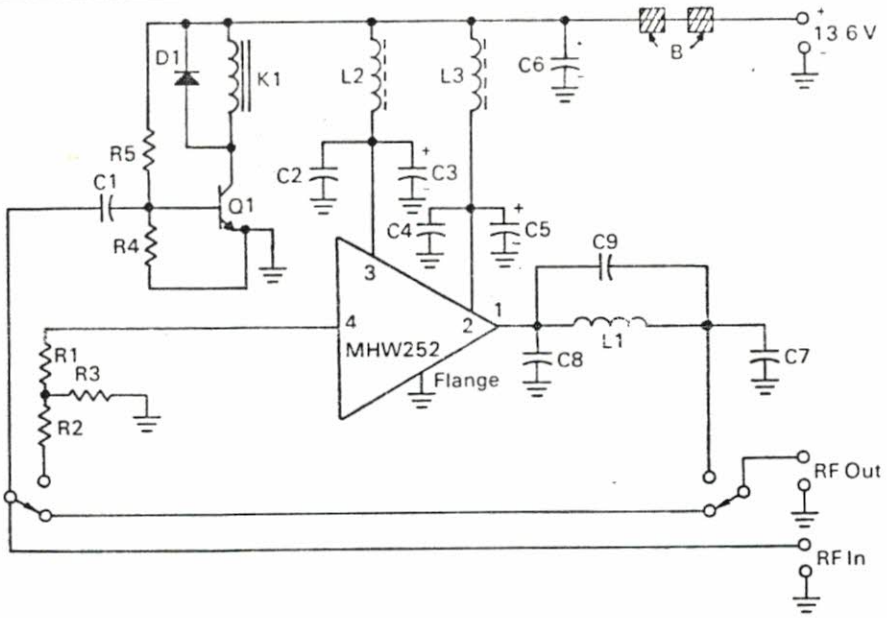

R1, R2, R3 — See Table 1
R4 — 1.0 kΩ/1/4 W
R5 — 27 kΩ/1/4 W
C1 — 5.0 pF Dipped Mica
C2, C4 — 0.01 μF Ceramic Disc
C3, C5 — 1.0 μF Dipped Tantalum
C6 — 10 μF/15 V Electrolytic
C7 — 24 pF Dipped Mica
C8, C9 — 10 pF Dipped Mica

L1 — 1-1/4 Turns AWG #18 Enameled Wire 5/16" ID
L2, L3 Ferroxcube VK200 — 20/4B or Equivalent
K1 — Arrow M NFZ - 12, Omron LZN2-UA-DC12 or Equivalent
Q1 — 2N4401
D1 — 1N4001
B — Ferrite Beads, Ferroxcube 5659065/3B or Fair-Rite Products Corp. 2673000101 or Equivalent.

FIGURE 2 — Schematic Diagram

The low-pass output filter is designed for a cut-off frequency of 200 MHz with a Q less than unity. This results in low value capacitors which facilitates the use of inexpensive dipped mica types, because their parasitic inductance is proportional to capacitive value. C7 resonates with L1, at 300 MHz to give an attenuation notch at the second harmonic frequency. The effect of this can be seen in Figure 4, where the 2nd harmonic is about 10 dB lower than 3rd. C7 must be larger than the calculated value, (same as C8) in order to compensate for the relay inductance. Single-sided printed circuit board is used to minimize component cost. Some power gain is lost due to lack of a continuous ground plane, but the gain of the hybrid amplifier module is still more than sufficient. The minimum gain specification is 25 W output for 0.3 W input (19 dB), but most units exhibit gains 3.0 dB higher than this. This high power gain (22 dB) makes it necessary to decouple the B+ inputs (pins 2 and 3) separately. However, the by-pass capacitors (C2, C3, C4 and C5) do not have to be as large as recommended in the data sheet. Also, the VK200 chokes can be replaced with 4-5 ferrite beads if desired.

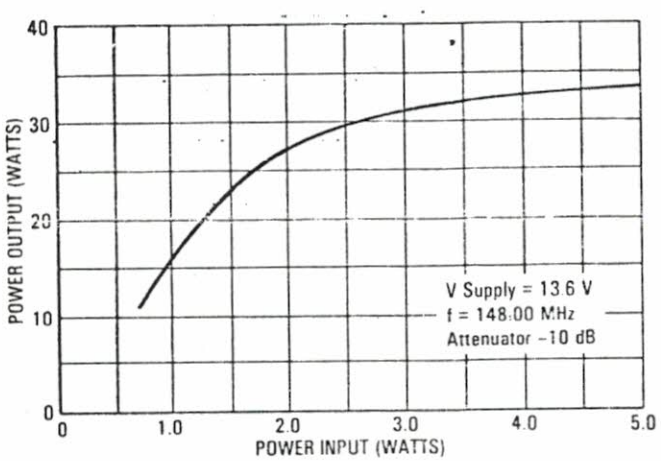

FIGURE 3 — P_{in}-P_{out} of the Unit With 10 dB Attenuator

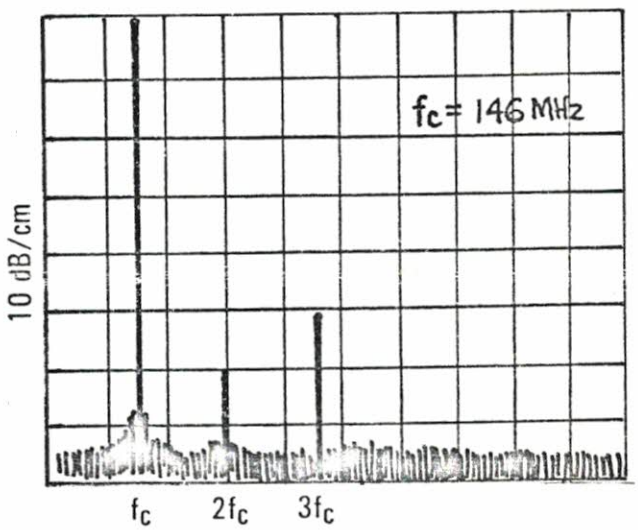

FIGURE 4 — Harmonic Output of A Typical Unit

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The carrier operated relay circuit consists of transistor Q1, relay K1 and their associated components. The RF signal passes to Q1 through C1, and is rectified by the base emitter diode of the transistor, which goes into conduction and in turn energizes the relay coil. The base of Q1 is biased to about 0.6 V positive to make the circuit more sensitive. The purpose of D1 is to suppress voltage transients from the relay coil, which could damage the transistor.

Typical current consumption of the module at an output power of 25 W and 13.6 Vdc supply voltage is 4.5 A to 5.0 A. The input VSWR is generally less than 1.5:1, but varies slightly depending on the input attenuator selected.

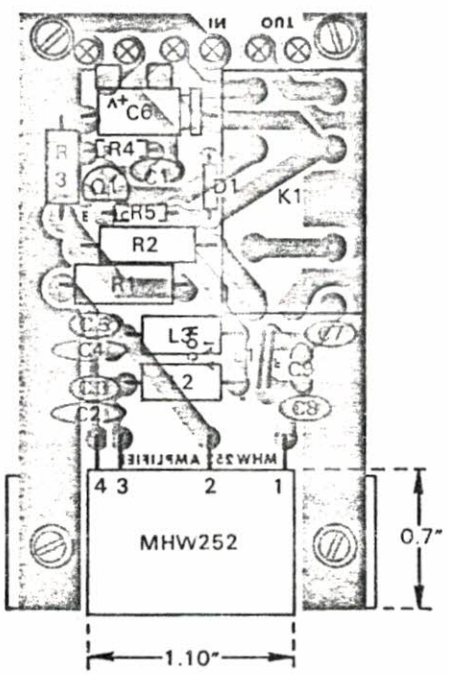


FIGURE 5 — Component Layout Design

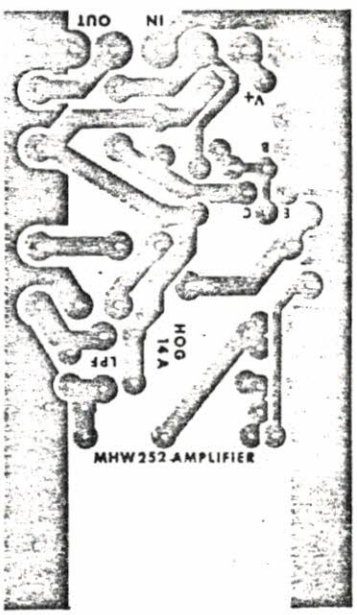


FIGURE 6 — Full Size Printed Circuit Board Pattern

Note: An opening for module cap must be made at the end of the board as shown above. The module flange is used to support the board at the end.

TABLE 1

Power Input (Watts)	Power Ratio	Attenuation dB	R1, R2 (Ohms)	R3 (Ohms)
0.20	1.0	0	Short	Open
0.50	2.5	4	11	100
0.80	4.0	6	16	68
1.00	5.0	7	20	56
1.50	7.5	9	24	39
2.00	10.0	10	27	36
2.50	12.5	11	30	30
3.00	15.0	12	30	27
4.00	20.0	13	33	24
5.00	25.0	14	36	22

Attenuator resistor values are rounded to the nearest standard value.
(R1 -R2 = 1 to 2 W Carbon, R3 = 1/2 W Carbon.)

PCB, Hybrid Modules, other components including ferrite beads are available from: COMMUNICATIONS CONCEPTS, 2648 N. Aragon Ave., Kettering, Ohio 45420. Telephone: (513) 294-8425.

Thanks to Ron VK2VOE for passing on this information from Motorola Engineering Bulletin EB-92.

Pixilated Patents

By Mike Rivise

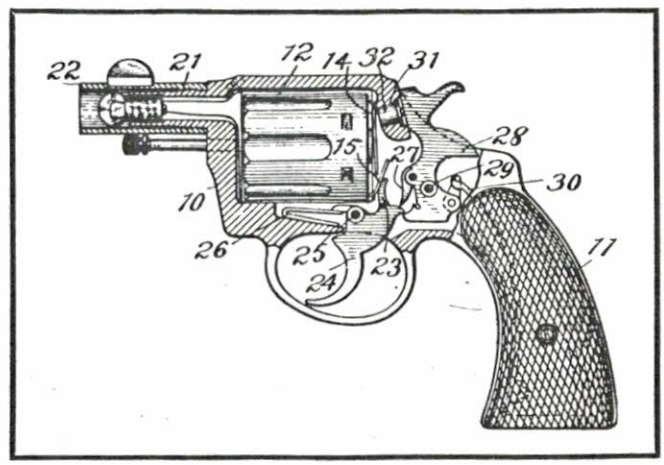
Bang! Bang! You're Amused

This is No. 119 in a series of odd and interesting inventions in the electrical/electronic field from the files of the US Patent Office.

We hasten to assure the loyal readers of this column—all four of you (including my wife and niece and myself)—that this has not become the "Funny Firearms" department. You may recall that last month's patent had a drawing of a handgun similar to the one for this month. The difference is that this month's device will not fire real bullets. Instead, it produces a loud bang and a simultaneous flash of light, sort of like a combination child's cap pistol and photoflash gun.

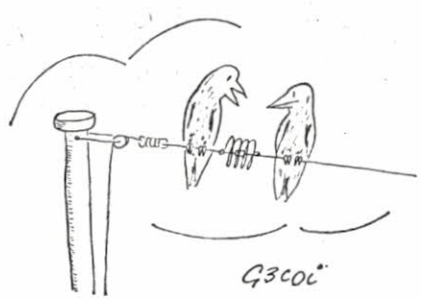
The battery-powered pistol was patented in 1908 (No. 876,088) by E. O. Pfeil " . . . for the purpose of amusement, or to frighten persons or animals as may be required." Although I don't personally know any animals that require frightening, the device certainly might come in handy in protecting a person from a mugging on the city streets. You could try frightening the would-be mugger with the pistol; then, if he doesn't frighten that easily, you could try "amusing" him with it—although we don't guarantee the results.

Also, if you sometimes stumble home late after having a few too many drinks, Mr. Pfeil's invention might help you find your way through the darkness. The only difficulty would be that you would have to pull the trigger every few feet to provide a flash of light (and a loud bang!) with which to see. And you could expect some complaints from some of your grumpy neighbors who might be trying to sleep while you were stumbling and shooting your way home. You would likely become known as the "shooting sot," or, if you were unlucky, the "shot-at sot."

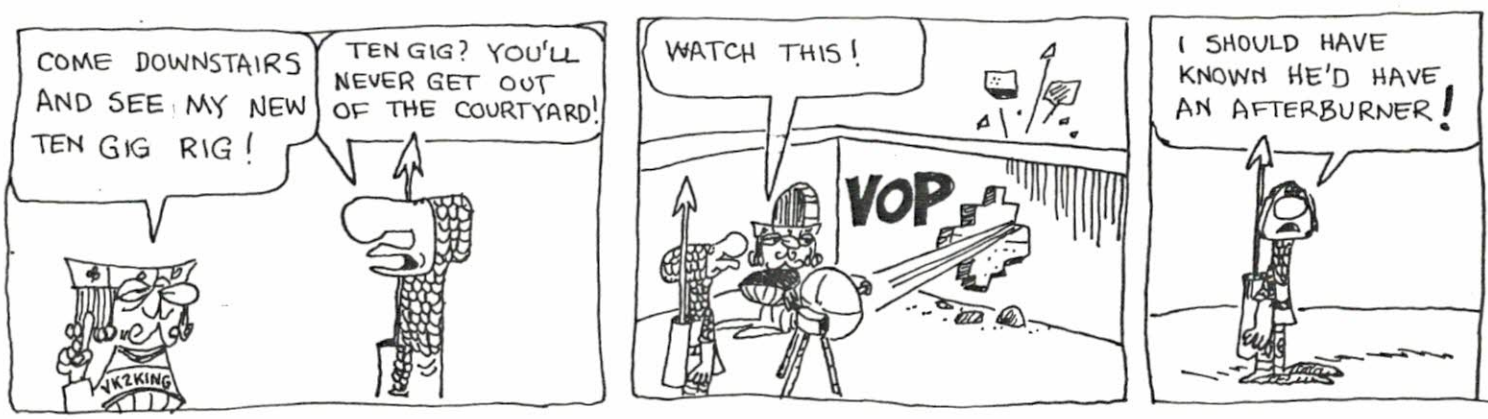


Pfeil's invention could even have photographic use as a temporary replacement for your broken flash gun on the night of your big party. Don't be dismayed, though, if you overhear your guests say something like, "Quick, find the earplugs! Ralph is going to take our pictures again."

The device might also have some merit as protection against a burglar. You could confidently challenge the intruder with, "Don't move. I've got you covered." However, don't be too surprised if he looks at the gun and says, "You wouldn't try the old fake gun trick on me, would you?" In that case you could have some clever reply ready for him, such as "I was only kidding," or "Could I help you find something?"



"Watch it, it may be a trap!"



Tips on making Amateur Radio news

"Amateur Radio itself is not news, but its effect on others is." — Jay Reisman, KB6IZ

— Appoint a Public Information Chairman who will: 1) encourage activities of community interest and service; 2) learn "who did what; 3) obtain news coverage and publicity.

— Establish a regular net to exchange info between members, other clubs and divisions plus ARRL PIO.

— Sponsor classes or urge local adult schools to give them. The ARRL Club and Training Department will cooperate.

— Stage special meetings for the public and in schools, such as an evening "Introduction to Amateur Radio" featuring hams with their specialties. Present ARRL films "The World of Amateur Radio" or "Moving Up to Amateur Radio." Send a speaker with a film to service club luncheons, women's clubs, etc.

— Present Field-Day demos in parks and shopping malls, exhibits in library. Donate ham books to your library (special low price from the League). Pass out literature plus class information.

— Maintain a box and phone, publicize frequently. Post on bulletin boards. Print up "business cards" with such info and hand out, inviting all to meetings. Run an ad in the Classifieds.

— Become friendly with newspaper, radio and TV editors and reporters. Supply them with accurate info well in advance. (If they err, never berate; politely correct for future.) Obtain ARRL Publicity Kit. If reporters are invited to an event, have prepared hand-out with all info correctly listed. Start events on time.

— Send brief double-spaced copy to radio "Community Bulletin Boards" well in advance of free public meetings. Contact program directors of talk shows to offer interesting guests; visual material to TV.

— Sponsor a club photographer of black-and-white prints, send pix to Amateur publications. Maintain a scrap book to show elected officials to whom you write frequently to keep them informed of Amateur exploits and needs. Ask your city or state officials to issue "proclamations" on our behalf.

—Supply radio and TV with our celebrity PSAs (Public Service Announcements.) Ask all to jot down time and station if used. Send thank yous. Find someone to write or collect material for a local paper column about our Public **Service,** as we're more than a hobby.

— Keep well-organized and trained for emergencies by volunteering for walk-a-thons, runs, jamborees, bike-athons, etc. Make certain your local Red Cross is availing our help, in keeping with ARRL "agreement." (Each unit makes its own arrangement.)

— Seek out the handicapped, encouraging them into Amateur Radio. Attend antenna-height hearings with support. After running a phone patch or delivering a message, say "this was by Amateur Radio."

— Notify ARRL Newsline recording machine of big news — (203) 667-0138.

— Respond to FCC Dockets, NOIs.

— Be ready with a **specific** definition of Amateur Radio, such as John Brown, W7CKZ's: "Amateur Radio is a volunteer worldwide public service, scientific experimentation and emergency communication service that is recognized in almost all countries of the world by International Treaty."

— Urge everyone to keep a clean station to avoid RFI/TVI. Keep cool if it strikes; cooperate with friendly help. Have copy to show of "How to Identify and Resolve Radio-TV Interference Problems" from Superintendent of Documents. Also, get a free copy of similar material from EIA, 2001 Eye St., NY, Washington DC 20006.

— Advise your Chamber of Commerce and Convention Chamber of us; list our events in their tourist calendars. Take OSCAR programs to schools, stressing early technical training. Interest girls . . . boys may follow!

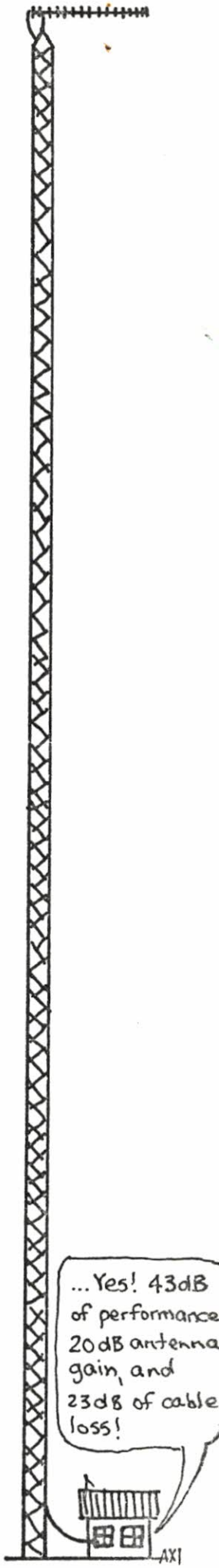
— All hams should cooperate with their PIAs by passing on newsworthy info **promptly.** Check out TV and radio programs which might be likely opportunities. Check out company publication for spots for stories of ham employees; ditto trade magazines.

— Have a great club banner to use in photos. Carry ham literature in glove compartment to hand out. Display the two magic words **AMATEUR RADIO** on portable rigs, bumpers, license plate holders, mailboxes, lapel pins and . . . ?

— Take advantage of "public access" times on cable TV to present programs. Help your foreign exchange student organizations.

— The bottom line? Maintain the highest standards of operating.

(Ed: How 'bout **your** club doing something like this?)



D.X. REPORT FOR MAY 1981

A lot of activity on the bands this month but unfortunately my activities on the bands have not been very much, due to other commitments.

10 metres:

9M8PW in Sarawak at 2300Z.

YV5BTS in Caracas Venezeuala around 2300Z.

J73PP C/Wealth of Dominica (there's that "J" prefix again), at 0600 Z.

Ten metres has been very good again this month with good openings to the Carribean and South America from around 2300Z to about 0600Z. Then from 1000Z to well after 1400Z the short path to U.K. and most European stations is generally open, BUT mostly below 28.500. I have worked G stations from 28.290 up to 28.490 most evenings.

A late one of interest, N5CBC in Dallas is the Club Station of the "Collins Radio Factory" using "S" line equipment and the antenna is a new "Hi-Gain" log periodic array. Dimensions are approximately -

Boom: 13 metres
Longest element: 15 metres
No. of elements: 18
Bandwidth: 6 to 30 MHz at 1.2 - 1.4:1 SWR.
Weight: 182 Kilograms.

Not a bad little antenna.

15 metres:

F6DKQ Moncay France 0530Z. 5/9 +10 sigs both ways.

F6ATZ Lyon France 0600Z. 5/9 + 20 sigs both ways, and we went QRP with 5 watts each and still had 5 x 4 signals.

EA2KZ Irun Spain was 10 watts into a vertical, with 5 x 7 each way. So you can see the band is wide open at this time. All contacts were longpath.

As usual at this time of year the band is starting to die. For the next 3 months or so 15 will start to be very quiet at night, so you will have to work most stations in late afternoon and only for about two hours.

Japan is still very strong and some good areas from J are popping up, so if you are working any of the many awards from J.A.R.L., now is the time.

There is a rumour that a Japanese Opp will activate "Spratley Island" from 26-5-81 but is not yet confirmed, so look around 10 and 15 metres and listen for him.

80 metres:

Quite a few good C.W. contacts into U.K. and a lot of J stations on phone. Thanks to Paul VK2VVS for the CW info. Also listen for CEØAE and AC on 80 from Easter Island, possibly from 2100 to 2400Z.

continued next page.....

FOR SALE: TS120V and accessories, A1 condition, no mods, in original cartons with handbooks, service manual, MC35S mic, SP120 Speaker and MB100 Mobile Mount - $500.
13.8 volt 8 amp power supply - $60.

Ron VK2VOE, QTHR, Phone (042) 294480

WARNING ON ERROR IN "AMATEUR RADIO" ARTICLE:

Due to a drafting error, a hazard exists on Page 42, Figures 1, 2 and 3 of the May issue of "Amateur Radio".
In the article "Curing TVI" the wall socket described relates to a T.V. antenna socket and NOT a 240V mains socket as depicted.

Under NO CIRCUMSTANCES should the circuits be used in a mains wall socket.

Please change your copy of A.R. now to prevent any possibility of danger.

- from W.I.A. broadcast, Sunday 12-5-81

BEGONIA AWARD

The Ballarat Amateur Radio Group have provided the following information about their "Begonia Award".

Requirements to obtain this award are:
VK... contact 10 Ballarat Amateurs.
DX...(outside Australia) contact 5 Ballarat Amateurs.
Any band, mixed and any mode.

Send direct to:
Maurie Batt.
R.S.D. Rokewood Junction,
Victoria. 3351. Australia.

Cost of award: $2-00 Australian or equivalent.

List of Ballarat Amateurs:

VK3DS	VK3AAG	VK3BMH	VK3NBN	VK3NVC
GM	ABI	BML	NCU	NVF
GR	ADT	BNC	NGL	NVJ
HW	AGL	BNT	NGY	NWZ
IV	AJR	BPK	NHN	NWN
KU	ALM	BQE	NHT	NWV
KY	AMH	BSC	NIH	NWS
LJ	ANH	BTX	NLH	VEE
NU	AQM	BWC	NLY	VEZ
PH	ARS		NLZ	VEI
SE	AXH		NRS	VOM
VU	AGY		NTG	VON
ZL	AZE		NUI	VMO
			NUC	VQA
			NUY	VQQ
				VSE

The award is mailed in a carboard tube.

FOR SALE:

Kenwood TS130S. Built in speech processor. New W.A.R.C. bands. Kenwood PS-30 20A power supply. - $825

Dentron Jr. monitor all band A.T.U. brand new, never used. - $70

Mike Ramsay VK2VZQ P/H 843139.

REPEATER LINKING

A motion moved by VK5 for federal council discussion, and some of the proposer's comments, may be of interest:

Motion that - The Executive negotiate with the Department of Communications to delete that part of Paragraph 4.13 of the Amateur Operator's Handbook Revised (Dec. 1978), which states "There is no intention that repeater/translator systems shall be used as a means of long distance communications", and that any regulations or practice prohibiting the cross-linking of repeaters be replaced by conditions under which such operations may take place.

Proposer's Comments - If we take the wording of the Regulation at face value, it is apparent that many of today's repeater users regularly contravene it; e.g. if one station at the extreme western end of a repeater's service works another at the extreme east, surely he is using it as "a menas of long distance communications", certainly longer than he would be able to work direct. Why should not a repeater be used specifically "as a means of long distance communications"? The original justification for the first 2 metre repeaters was to provide improved quality and range between mobile stations. But this has not stopped the licensing of repeaters for other modes - for example, Amateur Television, a mode where mobile operation is certainly the exception.

So, what would be a typical justification for using a repeater, or even several cross-linked, "as a means of long distance communications?" A number of amateurs cut off from one another by a mountain range, or dotted along a river or lonly highway, may only be able to communicate in their chosen mode via one or more repeaters erected for that purpose. By doing so, they advance the aims of Amateur Radio, defined as "a service of self-training, intercommunication and technical investigation".

The mere challenge of devising a system to control several linked repeaters is a worthy technical goal in itself, but one which is denied to us under the present regulations.

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The proposers go on to say that even a repeater network which linked Cairns to Perth could not threaten Telecom revenue, or substantially change amateur's operations, since Full and Novice licencees can already work such paths on the High Frequency bands - and with many more channels available that a repeater network might provide.

Would repeater-linking have any applications in the Illawarra Area ? Forget about long-distance links for the moment, and think about the more mundane problems of mobile-to-mobile and mobile-to-base operations. The rough local terrain makes it impossible to keep up constant mobile communication on any of the routes between, say, Helensburgh and Kiama. Even with the repeater in a prime VHF location, there will be shadowed areas for mobiles and bases.

But suppose for a moment that we had two repeaters - one on the mountains (like the present repeater) and one out on a coastal point (like Hill 60, or even Bellambi Point Sewerage Works). The coastal repeater would give blanket coverage into central Wollongong, as well as pockets like Stanwell Park. The mountain repeater gives the capacity to get out over the scarp. If both repeaters were linked, there should be virtually blanket mobile-to-mobile contact available throughout the area, since an operator who can access either repeater can talk to operators using both repeaters. Hand-held 2 meter transceivers would become incredibly more useful.

Linked repeaters are worth pushing for!

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