

the PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

PO BOX 1838 WOLLONGONG NSW 2500

No. 50/8

AUGUST 1980

THIS MONTH'S MEETING:

Monday 11th August, 7.30 p.m. at the Congregational Hall, corner of Coombe and Market Streets.

*** Special feature of the meeting will be a trade display by Mike Kilpatrick of Scalar.

LAST MONTH'S MEETING:

Barry Hartley VK2FE of Macelec demonstrated the operation of the Tono Theta 7000E Communications Computer - out thanks to Barry. Over 60 people attended the meeting. In the double-barrelled raffle, Ian Callcott VK2VXN won two sets of storage drawers. Frank, VE7AV must go on record as the first VE to win a raffle at a club meeting; he donated the soldering iron back to the club, and it was re-won by John VK2BHO.

RED CROSS:

If your address label has a red cross, you are unfinancial and this could be your last Propagator. Rather than suffer this terrible fate, send your \$5 subscription to the Treasurer, Illawarra Amateur Radio Society, P.O. Box 1838, Wollongong, 2500; or see Geoff VK2ZHU at the August meeting.

AUCTION:

Remember that the NOVEMBER meeting will be auction night - start getting your equipment ready for auction now, and/or start saving your money to buy more.

SUNDAY NIGHT NET TO GO STATEWIDE:

Starting from Sunday 17th August (the Sunday after the meeting) the Sunday night net will be tried on 80 metres - on 3.565 MHz, plus or minus QRM, starting at 8 p.m.

It is hoped to secure more reliable coverage through Wollongong, and to enable members and others outside Wollongong to participate. The lower frequency should also suit some operators who prefer to avoid 10 metres and some of its TVI potential.

NEW CALLSIGNS:

Congratulations to Jim Verdon, formerly VK2VEN who has upgraded to VK2DLJ. Jim has acquired a Creed 7B teleprinter, which likes to linefeed irrespective of the input signal, so we hope he doesn't get buried in paper before being heard on RTTY.

DX COLUMN?

There have been many requests for a regular section on the DX being worked locally, so anyone who would like to put a short piece together for the Propagator each month would be VERY WELCOME!

EXAMINATIONS:

Best wishes to all those sitting for the forthcoming amateur examinations.

Remember, as you go into the examination room: If you can't convince 'em, confuse 'em.

NOTICE OF A PROPOSED MOTION FOR THE ALTERATION OF THE
CONSTITUTION OF THE ILLAWARRA AMATEUR RADIO SOCIETY.

It is proposed to add the following section to the constitution:

Section 6 (f)

.. The Committee shall be empowered to appoint a delegate to act as a spokesman for the Society at any General Meeting of the Wireless Institute of Australia New South Wales Division or at any Conference. Any such delegate shall be an ordinary member of the Wireless Institute of Australia New South Wales Division.

This proposed amendment will be discussed at the next General Meeting and if acceptable without alteration will be then held over until the following General Meeting for voting. If altered in any way then the alterations will be printed next month, with voting the month after.

W.I.A. BROADCASTS:

The Sunday morning broadcasts start at 11 a.m. local time, and around Wollongong are most readily heard on 3595 KHz, 7146 KHz, or repeater channel 5 (146.85 MHz).

The 7146 KHz transmission is A.M., so it can be received by almost any ordinary receiver which has a shortwave band. It has been found that an outdoor wire antenna about 10 metres long, attached at one end to the whip antenna of a transistor portable, provides ample signal strength. If you have trouble finding the frequency, it should not be very far away from the one-second pips transmitted by VNG on 7500 KHz.

The Sunday evening broadcast is at 7.30 p.m. local time, and can be heard around 3595 KHz, and again by the relay through repeater channel 5. There is no evening transmission on 7146 KHz.

For details of other frequencies used by the broadcast, see the Australian Call Book, or any issue of "Amateur Radio".

27 MHz INQUIRY

Closing date for submissions to this inquiry is 15th August, 1980 (the Friday after the the August meeting). Whatever your views, do make the effort to send in a submission.

Following the questionnaire in last month's Propagator, the society has sent in its own submission.

Elsewhere in this Propagator is a form letter which you can use for your submission if you wish. This letter contains the same submissions which the Society is making.

ITEMS FROM VK2TTY RTTY BROADCASTS:

The callsign of VK?GGA has been issued to the girl guides association in each state. This callsign will be used for all girl guide activities on amateur radio.

The 9th and 10th of August is the Remembrance Day Contest. See July "Amateur Radio" page 42 for the complete rules of the contest. Don't forget to send in two logs, one for SSB and one for CW/RTTY. You will need to have at least 10 contacts. So enter the contest and send in your logs.

If you heard YO0000 on RTTY and did not work him, you missed a mobile RTTY station who was following the Olympic Flame through Roumania. YO0000 ... yes there are 5 Olympic rings in the call.

Oscar 7 may be used in whichever mode it is found. It has been reported that Oscar 7 is now permanently in Mode "B" due to battery failure. Due to the battery problems the satellite is operating only while it is in the sunlight. The only power available is that supplied by the solar panels.

First Assistant Secretary,
Radio Frequency Management Division,
Postal and Telecommunications Department,
P.O. Box 5412CC,
Melbourne. VIC. 3001.

Dear Sir,

Re: Public Inquiry into Retention of 27MHz Citizens Band
Radio Service after June 1982

I am making this submission as a licenced amateur operator,
with callsign .

I wish to remind you that the segment of high frequency
Band Space now in use as the CBRS was taken from the Amateur
Service. Further, it was taken from the Amateur Service with the
promise that it would be returned to the Amateur Service after
June 1982.

I believe that, as a token of good faith, the Radio Frequency
Management Division of the P and T Department has no option but
to honour that promise.

I also recognise that it is an almost impossible task to
effectively police the regulations pertaining to the CBRS, and
that it is highly unlikely that the many thousands of CB operators,
licensed or otherwise, are going to accept the loss of the 27MHz
band after June 1982. I simply cannot see the owners of 27MHz
CB sets putting them aside and calmly accepting the associated
financial loss.

With the foregoing in mind, I submit that -

1. The CBRS be permitted to retain that portion of the High
Frequency spectrum from 26.960MHz to 27.230MHz after June
1982; and
2. The Amateur Service be recompensed in another area.

The Amateur Service should receive as compensation one of
the following:

- (a) 80 metre band: This allocation, currently 3.500MHz to
3.700 MHz should be increased to become 3.500 MHz to
4.000 MHz. This would bring the Australian Amateur
Service into alignment with the Amateur Services in
other countries, including the United States of America
and Canada.
- (b) 40 metre band: This allocation, currently 7.000 MHz to
7.150 MHz, should be increased to become 7.000 MHz to
7.300 MHz. This would bring the Australian Amateur
Service into alignment with the Amateur Services in other
countries, including Canada and the United States of
America.

I trust that this submission will receive careful consideration.

Yours faithfully,

By Mike Rivise

"A Beery Blast!"

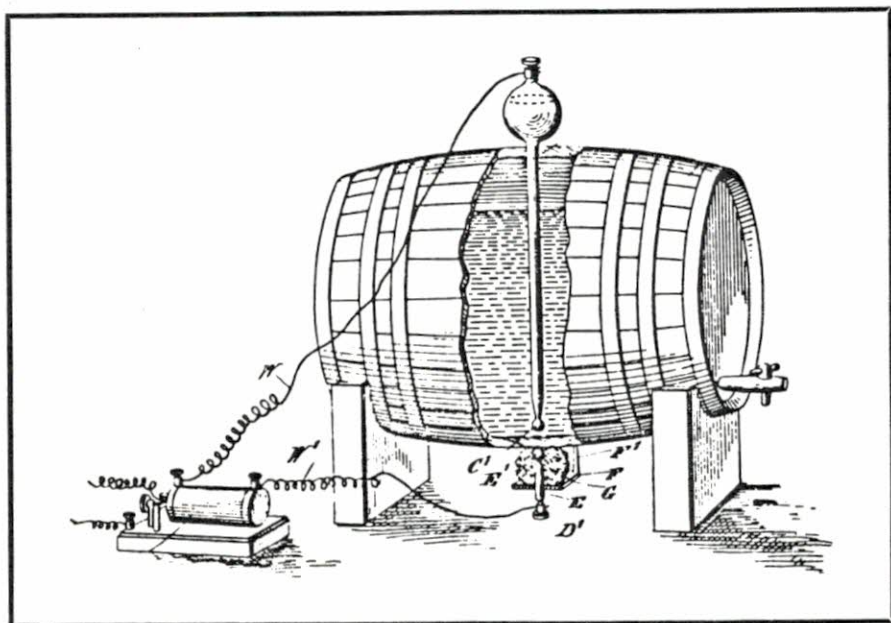
This is No. 133 in a series of odd and interesting inventions in the electrical/electronic field from the files of the US Patent Office.

We thought the drawing for this month's patent was rather interesting, so we conducted a poll to find out what various people thought the device might be. The results were very revealing, even though our interviewer did ask too many questions. The answers we received were: mechanism for making our polluted water drinkable—18%; device for preserving bootleg beer—11%; combination telegraph station and beer barrel—8%; not sure—1%; would make a good president—14%; would make a bad president—13%; would prefer someone more conservative—20%; would prefer someone more liberal—20%; too early to tell—9%; none of the above—24%. From this poll we learned the following: people are very sure of themselves even when they are wrong; 11% of the population are bootleggers; and next time we should hire professional pollsters since our man asked too many irrelevant questions and interviewed 138% of the people.

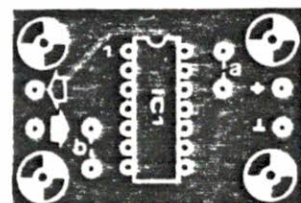
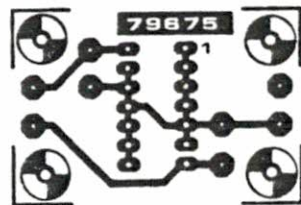
Actually, this invention by F. Crotte is for preserving beer, though not just the bootleg variety. It involves the use of

electric current for transferring "preservative substances" from a porous container into the beer. It should be noted that the device was patented in 1903 (No. 734,305) when most beer was of the draft type, and it probably wasn't intended for today's pasteurized beer. But you might consider using Crotte's salubrious brain child if you are interested in preserving a barrel of draft beer (for either taste or tax purposes). However, we hasten to warn you about one fellow who ran into difficulty when he applied too high a voltage to his barrel of draft. The result was a beery blast which blew his spigot and distributed his malts and hops all over the community.

While reading about Crotte's invention, I realized that I didn't know what the aftereffects were from drinking spoiled beer—though I was sure they must be pretty terrible, particularly since the results can sometimes be pretty bad from drinking good beer. Anyway, I asked a friend whose lifelong association with beer indicated that he might know. His reply, however, indicated that his last association was a little too recent since he assured me through droopy eyes that spoiled beer would put hop in your hips, ferment your feelings, malt your manners, and rummy your tummy.



inclusive always/ exclusive never gate



With the printed circuit board design given here, it is possible to obtain an 'inclusive always' gate by mounting wire link 'a', or an 'exclusive never' gate if wire link 'b' is mounted. The circuit will operate satisfactorily with several different IC types (see parts list). For reasons of cost, it is advisable to mount defective ICs, although if good ICs are used the circuit itself will usually remedy this.

Parts list:

semiconductors:

IC1 = 7400, 7401, 7402, 7403, 7404, 7405, 7406, 7407, 7408, 7409, 7410, 7412, 7413, 7414, 7415, 7416, 7417, 7420, 7422, 7425, 7426, 7427, 7428, 7430, 7432, 7433, 7437, 7438, 7440, 7450, 7451, 7453, 7454, 7460, 7470, 7472, 7474, 7480, 7481, 7486, 7487, 7495, 74104, 74105, 74107, 74110, 74115, 74121, 74122, 74125, 74126, 74128, 74132, 74164, 74176, 74177, 74178, 74180, 74183, 74196, 74197, 74278 (or equ.).

miscellaneous:

wire link (see text).



LOAD SIMULATOR FOR BATTERY TESTING

It's often inconvenient to test the voltage of a 9-volt battery under its normal load, and testing one with a low-current voltmeter gives a reading that is almost meaningless.

Here's a way to make up a handy little device for providing a load to the battery. The next time you're ready to toss out a dead 9-volt battery, take a pair of diagonal cutting pliers, pry off the top, and detach it from the interior cells. You'll note that this top will mate with the connections on a new battery. So, just solder a half-watt resistor of somewhere between 500 and 1000 ohms across the connectors of the old top.

Now, when you're ready to test a battery, just clip it on the new battery, and apply the voltmeter. The load of the resistor will place a drain typical of the average device powered by a 9-volt battery, so you'll be reading the voltage under a typical operating condition.

If it's under 8 volts, discard the battery.

- "73" Magazine, November 1978.

LOGICAL RF?

"Amateur Radio Techniques" (edited by Pat Hawker) points out on page 40 that there are many applications for logic devices in r.f. generators and modulators. A NAND gate with pull-up resistors may give some 15 mA (over 1.5 watts) of drive from 7400-type TTL devices. Normal TTL devices will operate well at 10 MHz, 7400H up to 30 MHz, and MECL devices at hundreds of MHz.

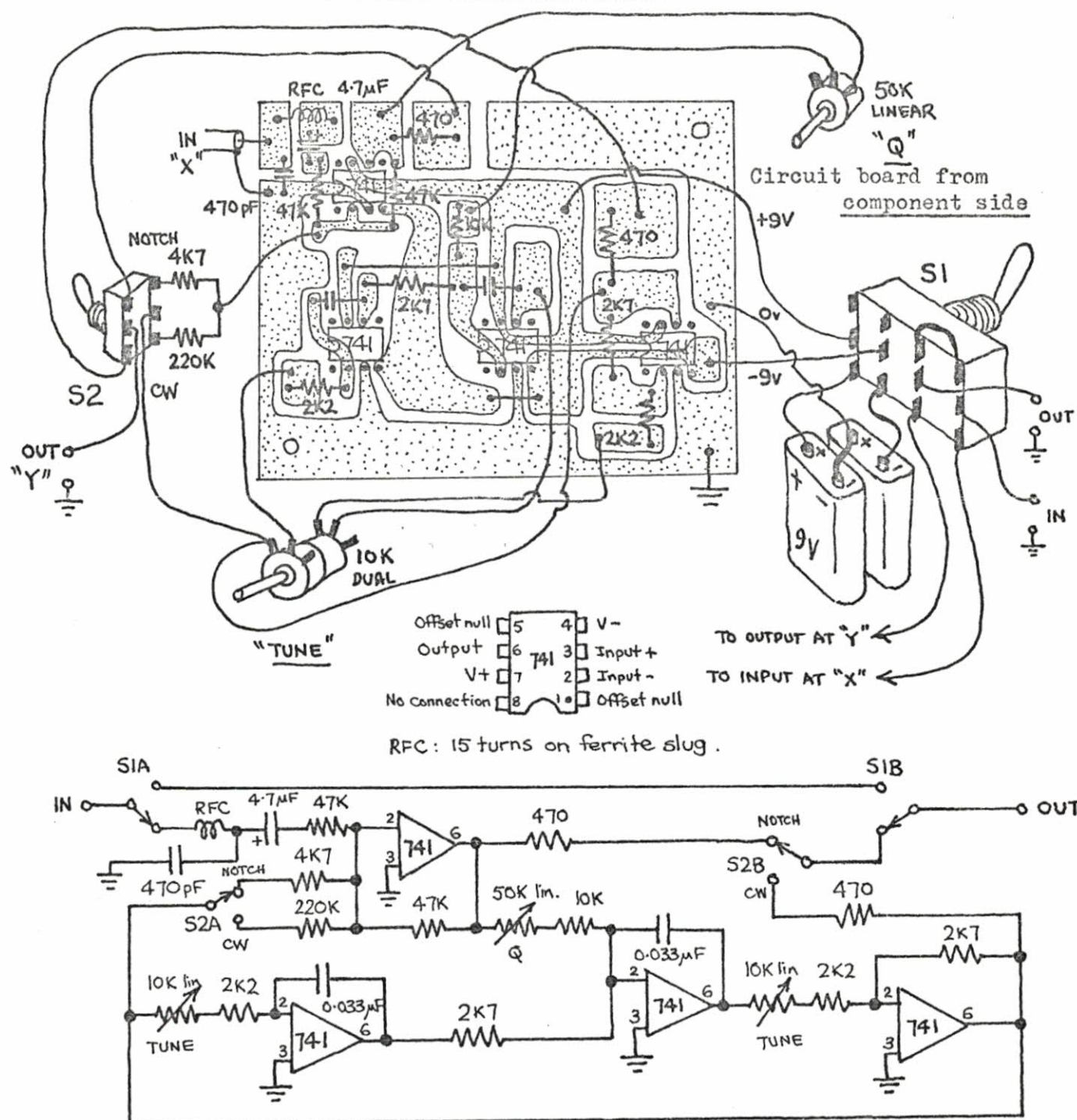
With the 7400 i.c. now around the princely price of 30¢, who will be first on the air with one?

LOWERING POTENTIOMETERS (Or Dropping Pots).

The lowest value of carbon potentiometer commonly available is 500 ohms. Some local pot droppers report success at lowering this value to around 100 ohms, as required in some circuits, by opening up the pot and drawing on the carbon track with a very soft grade of pencil (at least 2B, but 4B is even better). The graphite in the pencil lead (there is no lead in the pencil lead) reduces the resistance of the track.



C.W. AND NOTCH FILTER



This versatile active filter is described in "Amateur Radio Techniques", 1978 edition, by Pat Hawker, on page 130.

The design is by H. Pietsch, DJ6HP, and includes a notch facility and continuously variable frequency and Q factor. The filter can be tuned over 450 to 2700 Hz, and the Q varied over a range of 5 to 1 without affecting the resonant frequency.

This type of inductor-less filter is not only useful to c.w. enthusiasts but, with its notch mode, also to phone operators. It will cope with incoming signals up to about 4 volts, maximum input impedance of 20K ohms and output impedance is about 500 ohms.

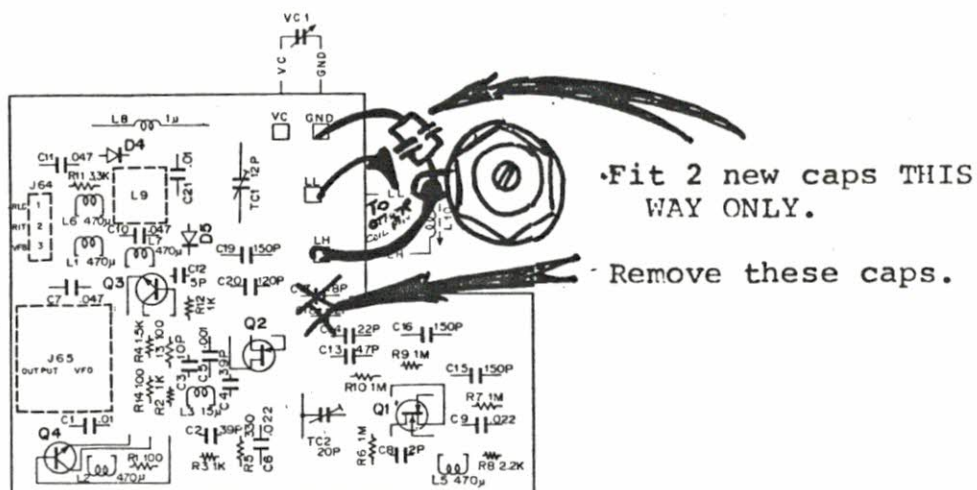
The circuit board shown has been designed by Dave VK2VAV/YKQ.

Input to the filter can be taken direct from the headphones socket of most receivers, and the output will work successfully into ordinary 8-ohm headphones. Switch S1, a four pole double throw switch, switches the filter in or out of the headphone line, and also applies power to the circuit. Switch S2 gives a notch (bandstop) or c.w. (bandpass) function. The 10K dual potentiometer alters the centre frequency of the filter, and the 50K potentiometer alters the Q or bandwidth.

For c.w., the filter can remove unwanted signals close to the wanted one; for phone, the notch facility can remove a nearby unwanted c.w. signal or carrier.

FREQUENCY DRIFT IN TS-120S/V.

Some TS-120 owners have complained of excessive "VFO Drift".

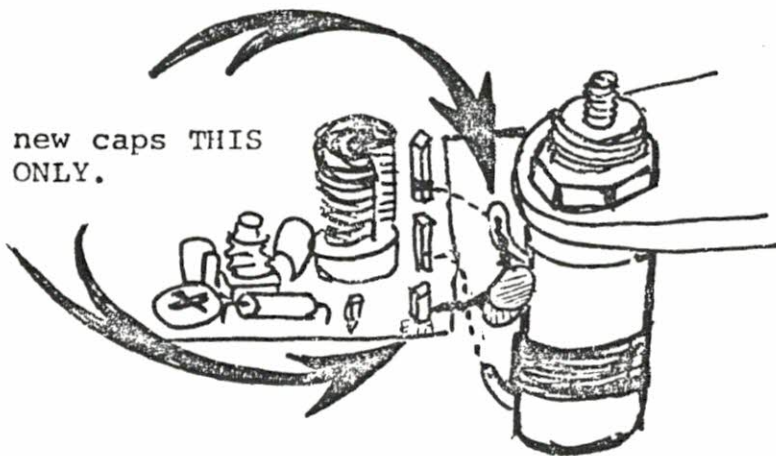


To remedy this problem, remove C17 and C18 from PCB X40-1130-00 (located inside VFO housing) and discard. Fit two new capacitors from pin LH on L9, to ground terminal as shown in the above diagram.

The two new capacitors are 10pF SG type (green) and 18pF RG (Yellow) and these capacitors are wired in parallel.

After this step is completed reassemble VFO and set mechanism to xx 250 and adjust TC1 (after peeling back aluminium tape) so digital display reads xx 250. Refit tape and VFO to unit.

Fit 2 new caps THIS WAY ONLY.



TRIO-KENWOOD (AUSTRALIA) PTY. LTD. 31 WHITING STREET, ARTARMON, 2064

- Thanks to Rick VK2DAP for forwarding this information from a Trio-Kenwood Service Bulletin. Rick found that in his TS-120, two 10 pF capacitors gave the best results.

OSCILLOSCOPE TIP

One of the main disadvantages of low priced and home-built oscilloscopes is hum, particularly in the vertical amplifier and that caused by direct pick-up in the cathode ray tube. Not everyone can afford a MuMetal screen, but much can often be done by re-positioning the major sources of hum fields, including the mains transformer and those of nearby instruments. A push-pull amplifier for the vertical amplifier can also help; another tip is the use of d.c. on the vertical amplifier heaters.

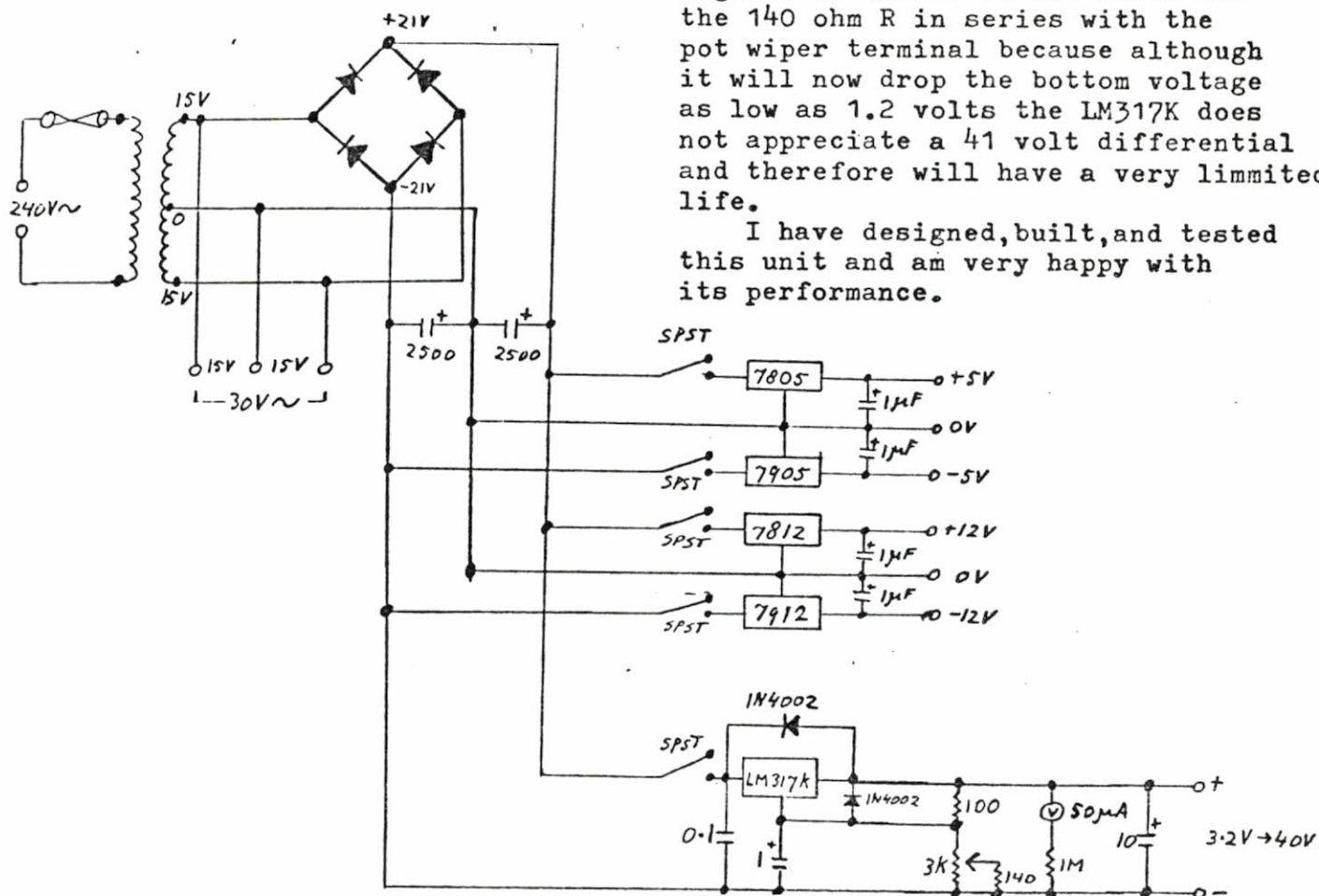
I spent a lot of time thinking of how to make an all purpose low current power supply for you experimenters, and this was the way I finally designed it.

This power supply should get you out of trouble for most experimental work. It has +5V, -5V, +12V, -12V, for op-amps and most TTL and CMOS chips, it also has 3.2V to 40V variable output. There is a dual AC outlet of 2 lots of 15V or one of 30VAC for checking the turns ratio of transformers etc or you can use it as a source of perfect sine waves (it does not display any of the spikes and irregularities so often seen on the 240V curve). The two 15VAC outlets can also be used to get 2 sine waves 180 deg out of phase with each other for experiments (but don't hook them together out of phase because for a very brief moment the fuse will work like a very bright light).

If you use the exact values shown, for the variable output supply you will have a 50 uA meter on which you won't have to change the scale because it will now read exactly 50 volts fsd ; It will

drop as low as 3.2V and go as high as 40 volts. Do not leave out the 140 ohm R in series with the pot wiper terminal because although it will now drop the bottom voltage as low as 1.2 volts the LM317K does not appreciate a 41 volt differential and therefore will have a very limited life.

I have designed, built, and tested this unit and am very happy with its performance.



UNEXPECTED REBOUND.

During the recent electrical power strikes in Victoria, a group of workers at one SEC power plant attempted at lunch time to operate the emergency auxiliary generator.

They were unable to do so as it was out of petrol and the only petrol pump available was electrically operated.

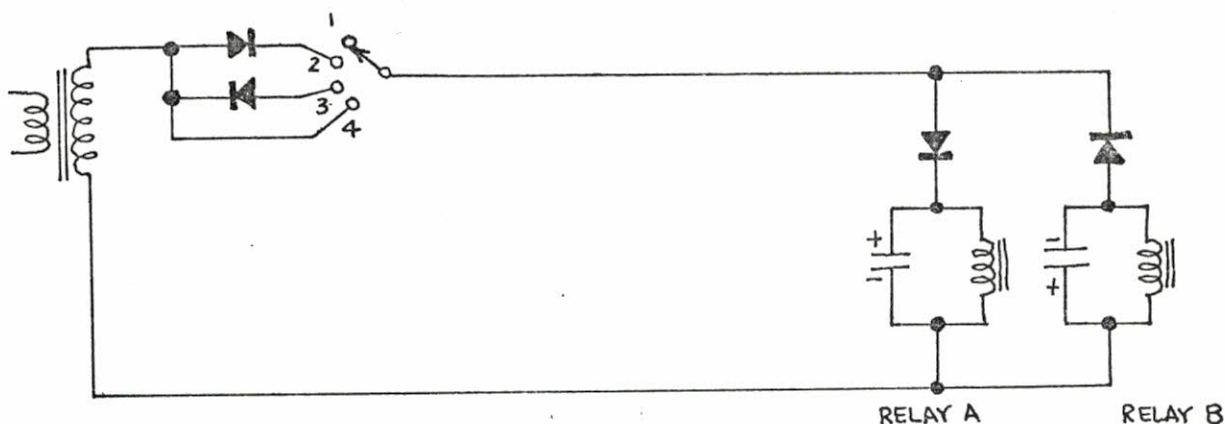
BETWEEN THEM.

... For a moment he stood there looking into her eyes. Between them was a bowl of hyacinths.

- A women's weekly.

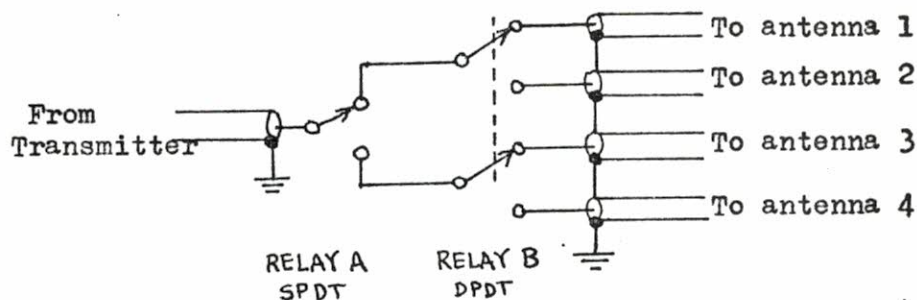
REMOTE SWITCHING - MAXIMUM FUNCTIONS FOR MINIMUM COST.

Using an AC power supply and steering diodes, four separate functions can be switched with only two connecting wires.



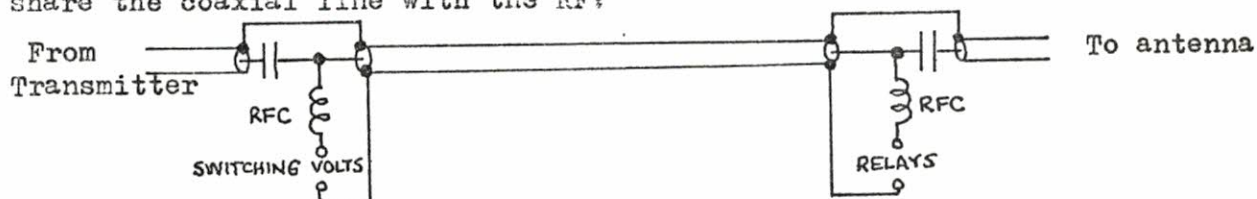
SWITCH POSITION	RELAY A	RELAY B
1	Open	Open
2	Closed	Open
3	Open	Closed
4	Closed	Closed

The relay contacts can be used to switch whatever you like, but a useful amateur application is the remote switching of antennas. With this device, one run of coaxial cable can be remotely connected to any one of four different antennas - which can be a worthwhile saving at today's prices for coax.



The transformer voltage should be appropriate for the relays used, allowing for voltage drop along the connecting wires. The filter capacitors across the relay coils prevent contact chatter and will probably be about several hundred microfarads.

If isolating chokes and capacitors are used, the switching signals can share the coaxial line with the RF:



However, it is certainly simpler (and probably cheaper) to use a separate wire to carry the switching voltage. The braid of the coaxial cable can be used as the earth return.

At HF, and at typical medium power levels (say 100 watts) almost any relay with reasonably sized contacts will do. (Just look at the antenna relay in any typical commercial rig to get an idea of what will suffice.) It is not worthwhile getting high-priced coaxial relays. Mount the relays in a weatherproof box with coaxial sockets, and keep connections between relays and sockets as short as possible.

Obviously the system can be extended as needed - for example, two control wires with a common earth return would be able to switch sixteen antennas.

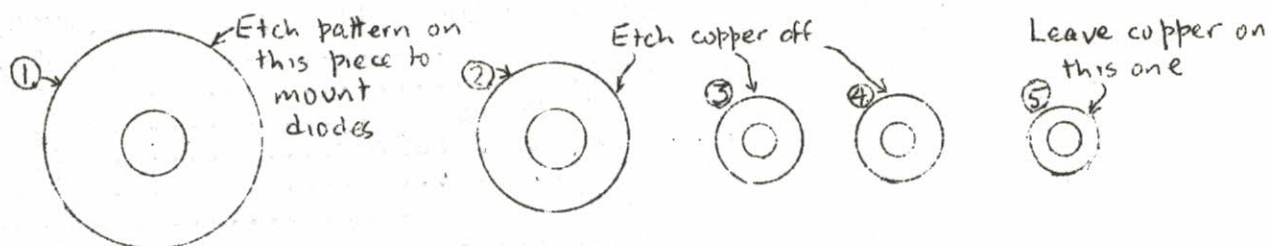
- Brian Wade, VK2AXI.

A Direction Indicator for that Home-Brew Rotator.

So you've made a home-brew rotator. Now how are you going to tell which way it's pointing from inside the shack? Mark I Eyeball looking out of the window? Potentiometer geared onto shaft, and a meter on the bench? How about a super deluxe model with pretty red lights?

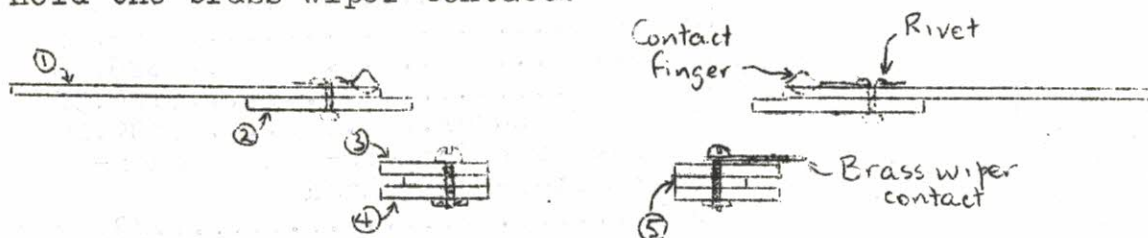
The idea for this pretty thing germinated when I was presented with a long length of 30 core telephone cable. How decorative it would be if red LED's were mounted at 10° intervals around a Great Circle map. All we'd need would be a 36 position wafer switch....why not? Who's afraid of the big bad Wafer Switch?

Have a good look at an old wafer switch. The spring fingers are held on by little tubular rivets, easily drilled out and easily replaced by a pop rivet. The $3/32"$ aluminium rivet type TAP D 320 BS is just the size. Why not make a big 36-position wafer out of fibreglass PC board? Table and diagrams show the sizes of the 5 pieces I used.



Piece Number	1	2	3 & 4	5
Outside diameter	150 mm	90 mm	53 mm	47 mm
Inside diameter	53 mm	47 mm	24 mm	24 mm

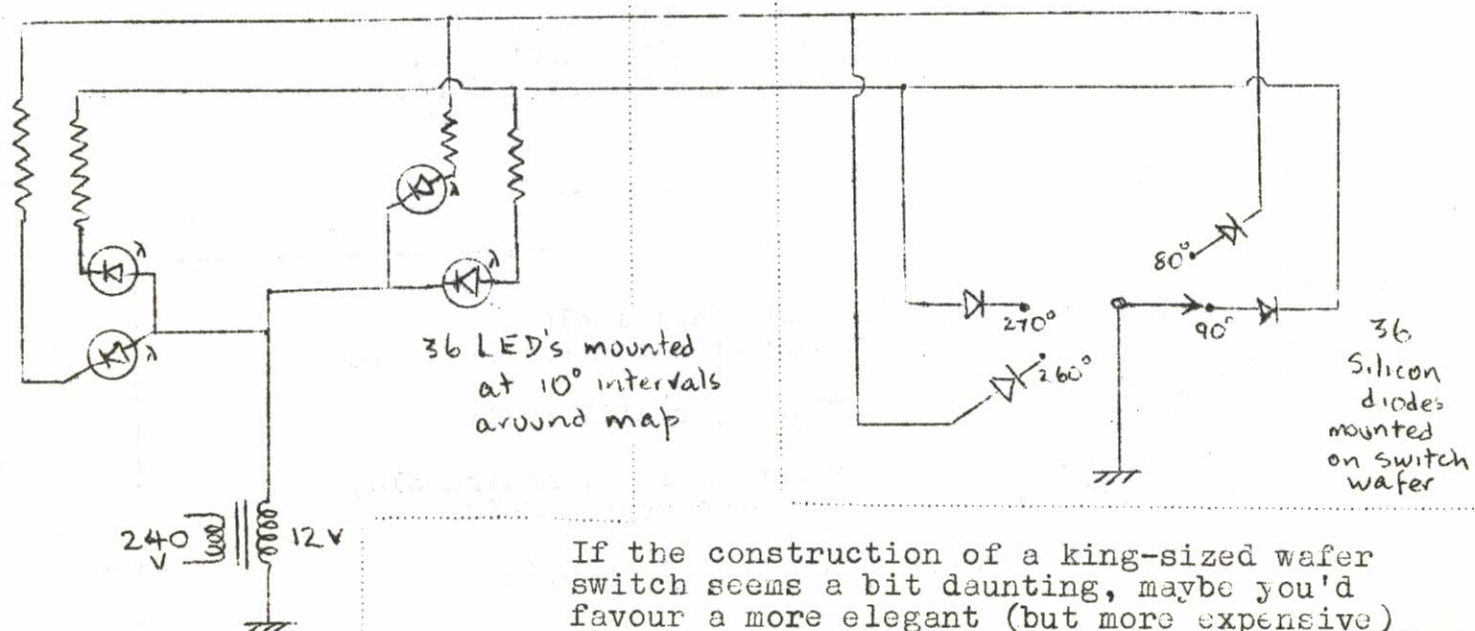
The 36 contacts are riveted to piece No.1 (which needs to have 36 little recesses cut into it, similar to those on the original cannibalized wafers). The rivets go right through both pieces 1 and 2 as in the sketch. Pieces 3, 4 and 5 together make up the rotor, held together by small bolts which also hold the brass wiper contact.



I made the wiper wide enough to touch 6 fingers at a time, since the beam width of quad was taken as approx. 60° . This way 6 LED's will light up at a time. You could use 36 core cable to connect to the 36 LEDs, but use of AC and a "diode steering" circuit requires only 18 wires (plus earth return via tower for the wiper.)

These parts in control unit

These parts in rotator



If the construction of a king-sized wafer switch seems a bit daunting, maybe you'd favour a more elegant (but more expensive) version with 36 reed switches in a circle, and a magnet mounted on the rotator shaft?

MACELEC PTY LIMITED

99 Kenny Street (P.O. Box 1755)

WOLLONGONG. 2500 PH. 29 1455

TS120S	80-10 Metre Transceiver 100 watt.....	\$725.00
TS120V	As Above 10 Watt.....	\$550.00
PS20	Power Supply for 120V.....	\$85.00
PS30	Power Supply for 120S 20 amp.....	\$205.00
R1000	General Coverage Digital Receiver.....	\$498.00
SP100	Speaker for R1000.....	\$44.00
AT200	Antenna Tuner-SWR-PWR Meter.....	\$160.00
SP520	Extension Speaker.....	\$33.00
MA5	80-10 Metre Mobile Helical System.....	\$99.00
HS5	Deluxe Headphones.....	\$33.00
MC35S	50K Noise Cancelling Microphone.....	\$26.00
MC501C	Economy Base Microphone 50K.....	\$29.00
HC10	Digital-Programmable World Ham Clock.....	\$95.00
TR2400	Digital L.C.D. 2 Metre Transceiver H. Held....	\$342.00
TR9000	The Latest all Mode 2 metre Transceiver with Memories-Scanning-SSB-FM-CW.....	\$540.00
DIGITAL	Capacitance Meter Measure 1PF to 1 Farad within +/- 1PF.....	\$136.85
LEADER	LDM-815 Transistorised DIP Meter.....	\$89.00
BECKMAN	Digital Multi-Meter LCD Display.....	\$159.85
B & K	50 MHZ Digital Logic Probe.....	\$63.25
MC501	Economy Base Microphone.....	\$29.00
B & K	40 MHZ Frequency Counter.....	\$126.50
TONO-THETA	7000E Communications Computer.....	\$899.00
COAX	Switches-Impedance Matching Transformers-Dummy Loads-	
LEADER	Model LMP880 R.F. Power Meter-Dummy Load 1.8 - 500 MHZ 120 Watt.....	\$139.00
LEADER	T.R. Dip Meter 1.5 - 250 MHZ.....	\$89.00
DAIWA	Automatic Antenna Tuner.....	\$269.00
DAIWA	DR7500R Rotator with World Map Centered on Australia.	

*NEWLY APPOINTED DEALERS FOR OHIO SCIENTIFIC CHALLENGER
SERIES MICRO COMPUTERS. SYSTEMS FROM \$385.00 to \$15000

We also stock a Wide Range of
Professional Test Equipment, And
Amateur Products Not Listed Here.

FOR SALE:

1. TH6DXX Hygain 6 element Triband Yagi including Balun.
Tailtwister heavy duty rotator with control unit and
power supply.
Both units never used. \$540 (or will split).
2. Yaesu FT301 10-160M 200W transceiver. 7 months old,
as new condition, with speech processor. \$680.

Contact Jim Smith VK2VPS Phone (042) 84 6735

MOONBOUNCE REPORT AUGUST 1980

The foundations are being dug for the dish at its new site.

MICROWAVE REPORT

A six foot diameter dish has been obtained for use at 10 GHz. The gain is 45 dBi at this frequency and will give an ERP of approximately 300 watts from the 20 mW source. This dish will also be useful at 23 cm as it has a gain of 27 dBi at this frequency. It is intended to use it as part of the radio telescope system on 23 cm.

SATELLITE REPORT

Thanks to those members who indicated their interest in becoming members of AMSAT following my information in the last "Propagator". It is noted that the new annual membership fee is to be \$US 16-00 and not \$US 20-00 as had been understood. Anyone else interested in joining this very worthy organization and assisting in financing the next satellite is welcome to contact me at the next meeting.

- Lyle VK2ALU.

FOR SALE:

Kenwood R-300 0.17 - 30 MHz Communications Receiver (3 years old), plus Tandy 55 - 220 MHz receiver together \$190.
Contact George Meldrum, Phone (042) 843153.

FOR SALE:

2 car cassettes, 2 car radios, 1 8-track car cassette, 1 Connoisseur turntable with Shure cartridge, 1 single-channel chart recorder, 1 2-channel chart recorder, 4 mercury-dipped 15 amp relays, 1 23" black and white TV (working), 1 National portable stereo cassette including microphone.

Also plenty of bits and pieces.

Contact Tony Mowbray, Phone (042) 28 5296, or at the club meeting.

FOR SALE:

Realistic AX-190 Amateur Communications receiver, provision for one additional band, unmarked condition. \$150 (cost \$350 new).

Realistic DX-160 0.5MHz to 30 MHz General Coverage Receiver. Good order. (Current new price \$240) - \$100.

Contact John Doherty VK2NHA (042) 289638 (home).

FOR SALE:

A.W.A. Cathode Ray Oscilloscope, working order. \$65 o.n.o.

Contact Gio Donk VK2VPD at the August meeting.

W. NET

One of the less publicised club activities is a C.W. net on 28.46 MHz, on Tuesday nights at 8 p.m. local time. The net provides an ideal opportunity to get started on morse code contacts without the noise, QRM, and overcrowding on the other bands.

So if you are nervous about starting C.W., give it a go on 28.46 MHz... you'll probably find that everyone else on the net was a bit nervous when they started too!

THE ILLAWARRA AMATEUR RADIO SOCIETY - SERVICES

1. Monthly meeting: Second Monday of each month (except January) at 7.30 p.m., Congregational Hall, corner of Coombe and Market Streets, Wollongong (between Kembla and Corrimal Streets).
2. Monthly broadcast: 7.15 p.m. on the Sunday night before the monthly meeting, on VHF repeater 5; UHF repeater 1; 28.46 MHz.
3. Slow Morse Broadcast: From VK2AMW, on Monday nights (except meeting nights), 7 - 8 p.m., on 1.805 MHz.
4. Monthly newsletter: The Propagator is usually posted to reach members during the week before the monthly meeting.
5. Amateur Radio Classes: Designed for those intending to sit for the Novice, Limited, or Full licence examinations - held on Friday nights, 6 - 9 p.m. Contact Keith Curle VK2OB or Denis McKay, VK2DMR.
6. Club nets: 6 metres: 8.30 a.m. Sundays - 52.525 MHz FM.
10 metres: 8.00 p.m. Sundays - 28.46 MHz USB.
7. VHF Repeater: VK2RAW, Channel 5 (146.25 MHz in, 146.85 MHz out).
8. UHF repeater: VK2RUW, Channel 1 (433.225 MHz in, 438.225 MHz out).
9. Club Station: VK2AMW.

THE PROPAGATOR

Newsletter of the Illawarra
Amateur Radio Society.

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