

Bulletin issued by the Northern
Branches of the Wireless Institute
of Australia, Tasmanian Division

P.O. Box 1010
Launceston
Tas. 7250

December 1976
Vol.6 No.9

Registered at GPO Hobart
for transmission by post
as a periodical. Category B.

Price 40¢

MEETINGS

- Dec. 10th North West Branch, at the QTH of Jim Davis VK7N.....
Latrobe. (Don't forget, this is a Friday night)
- Dec. 11th Northern Branch, BBQ at the QTH of Peter Dowde VK7PD
77 Talbot Rd. (this is not a business meeting)
- Jan. 11th North West Branch, Lakins Hall, Ulverstone. 8 p.m.
- Jan. 14th Northern Branch, S.E.S rooms, Charles St. 8 p.m.

CONTEST

Dec. 11 to Jan 16 ROSS HULL VHF MEMORIAL CONTEST.

As usual there will not be a January issue of QRM, how about
you taking the time normally spent reading QRM to write an article
for a future issue ?

At this time I would like to take the opportunity to thank
all who have supplied articles and assisted in the production of QRM
this year, a special thanks to Joe Richter for devoting his time
every month to print QRM for us. On behalf of these people and myself
I wish our readers a MERRY CHRISTMAS and a PROSPEROUS NEW YEAR.

John VK7JV
Editor

January 20th Deadline for the February issue of QRM

Northern Branch notes by Joe VK7JG.

The Northern Branch held its last regular meeting for the year on the 12th November. There were 33 people present including several visitors namely, Robin Wooley, Kerry Black, Martin Harvey, Fred Bail, Greg Whyten and Brian Stevens, the last three mentioned are VK3's here for the Hamfest. Kerry Black VK7ZWB, Martin Harvey and Robin Wooley were all accepted as new members of the Institute at the meeting.

Apologies were received from VK7's, ZWX, ZDA, LZ, ZMC, AL and ED. Wally had a good excuse for not being at the meeting as his wife had just presented him with a bouncing baby daughter. Congratulations Wally and Shirley.

Peter mentioned that VK5 once again won the RD contest and said that with the present scoring system it is impossible for VK7 to win even with 100% participation. No doubt Peter will be looking into the matter before the next contest.

An evening broadcast was discussed and it was decided to have a tape replay of the Sunday morning broadcast on repeater 8 on a Wednesday evening.

The meeting finished with a equipment display and once again it appears that very little construction has taken place in the Branch as only 4 people displayed home constructed equipment. Peter VK7PF had his 2 metre FM synthesizer. Bob VK7ZRF showed a fox hunt receiver, SSB transceiver using the SL series IC's, a 2 metre power amplifier and a Barlow Wadley type of receiver. Peter VK7PD an ATV converter and a power supply using a electric blanket type transformer and a cross hatch generator. Joe VK7JG shoed his new 2 metre solid state transverter.

The big event of the month was the Hamfest at Evandale, this was very well attended with 20 extra people being present for the Saturday evening meal. As a result of the excellent catering service by the XYL's with Sue Dowl at the helm there was food to spare. A special thanks to Sue and Lindsay Dowl for the way in which the Hamfest was conducted. Also we must not forget the people who attended the function, because without them we would not have a Hamfest, Thank you for attending.

Dont forget the December BBQ at the QTH of Peter Dowde VK7PD, 77 Talbot Rd on Saturday 11th December, commencing at 5.30 p.m.. Bring your own meat and mug.

73 till next month

Joe VK7JG

Did you know?

That in the recent Novice exam held in Hobart 11 candidates contested the exam, only 2 of these came from the Hobart area.

That marking for the Novice exam was completed in Hobart and results were know within 2 weeks. Congratulations to the "Radio Branch" for a job well done.

That Alan Bourke is now VK7NAB and Jim Davis and Tony Smith have both passed.

That Norm VK7NR really has sold out everything. Apparently when the dog was in season recently he wrapped it with a nappy. He must have sold its chastity belt !

North West Branch notes by Lindsay Johnson.

The monthly meeting of the North West Branch was held in Lakins Hall Ulverstone on Tuesday 9th of November and was supposed to start at 8 p.m. but someone locked his keys in his car and naturally everyone became an expert at opening cars, so the meeting got under way about 8.15 p.m.

The president Ian VK7ZIE and secretary Max VK7MX were in the chairs. The president welcomed two visitors, Lance Burton and Kevin Henricks VK7ZAH from the Northern Branch. As usual there was a good turn out of members with 11 A grade, 7 associate members and 2 visitors. Apologies were received from VK7's, ZBL, ZKS, ZAT, and ZAQ. The president reminded all of the next meeting on December 10th, which will be held at the QTH of Jim Davis at Latrobe, and for all to bring along their YL and or XYL as well as a plate of supper.

Max VK7MX reported nil for correspondence, but talked fairly lengthy about the coastal beacon and the Scout Jamboree held a few weeks ago. It was suggested by Terry VK7TT that possibly next year instead of Scouts going to the operators QTH, the operators will have a suitable location picked out and set up their gear there and have the Scouts come to them. The meeting was fairly lengthy and finished at 9.30 p.m.

Following the meeting Kevin VK7ZAH gave a very interesting lecture on the new T.V. translator being installed up this end of the State, everyone agreed the lecture was very good, Kevin ably answered all questions put to him by the members. Ian VK7ZIE thanked Kevin for coming and extended to him an invitation to come again sometime in the future.

Supper was later served by the Burnie members and all agreed that Ken VK7KH, Sid VK7SF and Charlie VK7CF would definitely hold down waitress positions any time they cared to apply.

The evening closed at 11.00 p.m. with the usual 2 metre contacts on the way home.

My apologies to Jim Davis for spelling his name incorrectly (Davies) sorry OM. Taking pride of place in Jim's shack at the moment is a beautifully framed award from the Southern Californian Transmitting Society, this is an award issued to radio amateurs throughout the world who make two way contact with any six of their members, Jim was fortunate enough to obtain this award by receiving signals from that amount while engaged in two way contacts. He received this special SWL No 1 award, the only one ever issued, and in big print across the front is written, to Jim Davis No:1 SWL and future VK7 and is signed by the six members heard.

73 Lindsay Johnson

We boobed.

In the article by Daniel VK7ZDA "a simple 0-100Hz frequency meter" on page 10 of the November issue.

Diodes D2 and D4 in the circuit diagram should be inverted.

DX notes by Col VK7LZ.

Having been away from home more than half the month I was wondering what I could say about DX and from there to thinking of defining DX. The normal DX hound would say it was an amateur station in or at a rare location or country, on the DX bands which would be considered as from 3.5 to 28 MHz, however if you were to ask VK7JV if the YJ8KM he QSO'ed was DX I'm sure the answer would be in the affirmative yet the QSO was on the 52 MHz band, again I've QSO'ed VR1, VR4, VR8, JA, W and KL7 recently on 1.8 MHz and none of these would be acceptable for DXCC because they were not QSO'ed on the amateur bands specified namely, 3.5 to 28 MHz.

Although in compiling these notes we normally only take into account the stations heard on the HF bands, DX really covers every band used whether it be a KS6 by satellite or a VK4 on 144 MHz, so whatever you operate on be it MF, HF, VHF or UHF good DX and a Merry Christmas to you all.

Now the happenings of the month as gleaned from our DX gang and much snooping. Evidently due to problems in the postal department no QST's have been received for some time, however it appears that EA9 Rio de Oro, VQ9 Aldabra, VQ9 Desroches, VQ9 Farquahar, VS9K Kamaran and 8Z4 Saudi Arabia/Iraq Neut. Zone have all been deleted from the DXCC list.

"Break-in" the NZART magazine advises that Campbell Island will be re activated shortly on 3.5 MHz with a ZL4/A callsign, the QSL manager will be ZL4NH, also that ZK1BA visits Manahiki every two or three months and operates as ZK1BA/A, this is quite a rare one.

VK7BC and VK7JV report that conditions were good for the World Wide DX contest during the month, 7JV gave me a list of stations worked and heard and over 60 countries were listed including VP8, EP, AP, VQ9, EI, VP1, OA4, FC, HBØ, 4U and several other goodies.

VK7AK advises that conditions have improved of late and that 14 MHz has produced VU's of an evening, also several European countries have been logged around 11.30Z some nights, whilst 27 and 28MHz requires watching with 27MHz being quite busy at times with plenty of stations that shouldn't even be there. VK7AZ comments likewise and is convinced that conditions are once again on the up and up and his log seems to prove such to be the case.

VK7CH finds that CW signals from Southern and Eastern Europe start to come in on 14MHz at approximately 05.30Z whilst England and the Northern countries appear at 07.00Z. Charlie has been working ZS's around 06.00Z and even up to 08.00Z.

Stations listed during the month are as follows, all times are GMT.

3.5MHz- CW, 13.00Z, Only JA's

7MHz, CW, 05.30 - DJØYS

06.00 - 06.30 - YU1BCD, UP2BAO, OK1BL, LZ2ZX.

06.30 - 07.00 - SP9ICA, SV1DO, CN8AD, DJØUP/VP2S

07.00 - 07.30 - FO8EX, FW8CO, FK8AI, DJ2BJ, OZ1LO, VP1MPW, GM6VR, FO8EW, I6BQI.

09.00 - GW3KSQ.

12.00 - CM2HB, VE2BPT, OH9RU.

7MHz, SSB.

06.00 - 06.30, DJ9GB, DL8PC, TG9NE.
0.700 , CT1FL, DJ3ST, HC1SO, DJ5VV, OH1VR, KZ5HP.
07.30 , CT4AT, VR3AR.

14MHz, CW.

04.30 - 05.00, 4X4JS, UA6LAV.
06.00 , YU1NFP.
11.00 - 12.00, AJ3AA, FK8CD, HA5KFB, LZ2KB, KX6BS.

14MHz, SSB.

04.30 - 05.00, JY9CR, 4Z4GH, SV1CT, HC1HV, VR3AK.
05.30 - 06.00, UO5DN, HI8EDC, HI8CDS.
06.00 - 06.30, OE3NH, SV0WZ (Rhodes)
07.00 , I0FOV.
10.00 , YV4AVJ.
11.30 - 12.00, 8P7FU, YB0ACB, YB0ACK, P29DW, UA3AAK, C21PS, KG6RL,
3D2GA, GM3GRX, VS5MC, also VU's and JA's.
13.00 , JY5MB.

21MHz, CW.

10.30 , OH1NI, OH1GO, SM4GND, SM5AKS, AP2TN, also DL's & G's

28 MHz, SSB.

22.00 , KH6 and W's also short skip VK and ZL.

QSL information.

4X4JS via WA2KWP, SV0WZ via OE3NH, 8P7FU via W3HNC,
DJ0UP/VP2S via DJ0UP, 9M6MU via DJ8XW, WB4ZKG/KC6 via WA7ZTL.
JY5MB, P.O. Box 299 Amman, Jordan.
KG6RL, Box 189 Saipan, Mariana Islands.

All the best of luck, health and DX untill we make it again
in 1977.

Col VK7LZ

This QSL Business

QSL Bureaux have been with us for so long that they are probably taken for granted, so a few comments on their operation and on QSLs in general may be of interest.

In most countries both inward and outward cards are handled, one exception being the U.S.A. where 11 different Bureaux handle inward cards only. On the 1st November 1976 the A.R.R.L. established an outgoing service for their members who previously had to send their cards direct or through one of several private forwarding agencies. This will no doubt be appreciated by the W boys, but we will still have the expense of sendings to the 11 Bureaux. Untill recently Canadian cards had to go to their 10 different Bureaux but now a central depot is operating with a consequent saving in our postage costs.

I have not seen any recent figures regarding the number of cards handled in other countries but about three years ago the total inward through the 11 U.S.A. Bureaux was averaging over 330,000 per month and Germany's DARC in and out was 15,000 per day. Japan's JARL and the U.S.S.R. CRC must also handle a huge number. At the other end of the scale VK7 has averaged about 700 a month this year to date, an increase of 100 on last year.

These days many DX stations have "QSL Managers"- a friend

who takes on the QSL chores for him. He would have to be a friend to take on a job like that voluntarily! This has undoubtedly meant you'll get cards from stations who otherwise would not bother sending QSLs or find the job to big for them.

It is of course impossible to forward on all cards immediately they reach me but as far as possible I try to get them on their way without too much delay and even two or three for any particular country are sent within a reasonable time. With an increase in the number of outward cards the financial side is now a bit easier and should enable me to get them moving quicker. The minimum postage for printed matter is 20¢ for 50g. and for this we can send 13 to 14 cards. The special envelopes cost 2¢ so unless we have 11 cards we show a loss which is usually the case as most sendings come within the weight range. However a profit on larger batches especially to J, U and ZL offsets these losses and enables us to remain in business.

Inward cards for the North and North West Branches are sent in bulk to VK7LZ and VK7MZ each month shortly before the respective Branch meeting dates. Some are collected at the Southern Branch meeting and a few who have made special arrangements have theirs sent out periodically. The rest are just cluttering up the files waiting to be claimed.

Quite a lot of cards are received for non-existent stations (a packet of 65 from U.S.S.R. today contained 14 of these). No doubt some are due to difficult conditions, but it surprised me to find that of 108 of these cards which have not yet gone into the WPB, 93 showed R5 reports and 39 of them S9. This may indicate that there are a lot of pirates posing as VK7's overseas or more likely a large proportion of reports we get are not worth a bumper. After all R5 means "Perfectly readable" so there should be no excuse for not copying correctly.

QSLs are a necessity for a number of Awards to provide proof that the QSO has taken place and for this the following information is essential; your call sign and that of the station worked, confirmation of QSO, band and mode, signal report and date and time (always use GMT).

Do not expect quick replies to cards sent through Bureaux. Surface mail is very slow these days, three months from U.S.A. is usual for instance. There are also inevitable delays at Bureaux some of whom only send batches at long intervals. For a quick reply send your card direct with a SAE and IRC for return postage. Current call books are held here and full QTH may be obtained from me. And now a few hints for new users of the VK7 Bureau.

Firstly and most important as far as I am concerned is to keep the size of your card no larger than $5\frac{1}{2}$ "X $3\frac{1}{2}$ ". Not only do these weigh less but they will fit in a normal sized envelope and are much easier to pack in bulk. You try and tie up a packet of say 100 cards when 2 or 3 are oversized. It is hard to make a good job of it and these 2 or 3 are sure to be damaged.

Cost is 2¢ per card which pays for postage, envelopes and other incidental expenses. Send some cash with your first lot of cards and any surplus will be credited to you and used for future sendings. If you are given any special instructions at time of QSO put this on the back of your card so I will know where to send it.

VHF notes from Kevin VK7ZAH.

6 Mx Band. Since the opening to Japan on the 23rd of October, quite a number of openings have occurred on this band. Mostly the openings have been to the Northern VK2 and VK4 areas.

On the 14th of November at approximately 22.30Z the band opened to VK4 and VK2 with very good signal reports being exchanged. At approx. 02.00Z on the same day YJ8KM was worked by VK7JV and VK7ZDA. This station was heard at the Hamfest site but unfortunately no QSO's were made. I believe YJ8KM listens every lunchtime on 52.050MHz.

To my knowledge the band opened to VK's 2, 4, 5 on the 17th November and to VK's 2, 5 on the 18th November. Probably the best opening occurred on the 20th and 21st Nov. On the 20th all States except VK6 were worked and on the 21st YJ8KM was worked by VK7JG as well as VK's 1, 2, 4 as well as lots of very strong VK5's, on this day we also had the first opening to ZL with ZL3QK being worked.

I am typing this just after the band has closed to ZL's 1, 2, 3, 4 and VK2 and 4. (VK7JV 23rd Nov.)

I believe that VK2FT is operating from Lord Howe Island but he has not been heard to date. Two stations are active in Darwin these being Trevor VK8ZTW and Neil VK8ZCU.

2 Mx band. The openings to date on this band have been few. The band did open to the Gippsland area on the 11th, 12th, 13th and 14th of November. The most prominent station worked Ian VK3YJI. Bill VK7AK got his first taste of 2 metre SSB DX by working Ian. Tony VK7AX must take first prize for the longest contact on 2 metres SSB when he was talking to VK3YJI for one hour on the 11th November. John VK3ZBG was worked from his portable QTH at Mt. Oberon using an IC202 with attached whip horizontally polarised.

432MHz band. The only news regarding this band is that VK3AKC was heard in Launceston on the 12th of November at 5-9+, Ron was using his pair of 4CX250B's. Winston VK7EM and Ron VK3AKC exchanged ATV pictures on the same evening.

Thats all the news for this month

73 Kevin VK7ZAH

Continued from page , This QSL business

Sorting your cards alphabetically and numerically makes my job a bit easier as does the writing on the back of the card the call sign of the station it is for.

Let me know if you do not want cards and they can be destroyed.

Send your cards either to G.P.O. Box 371d, Hobart 7001 or preferably to my home address, 95 Wentworth St., Bellerive 7018 which saves the wife having to carry them home as she usually clears the box!

Chas. Harrison VK7CH

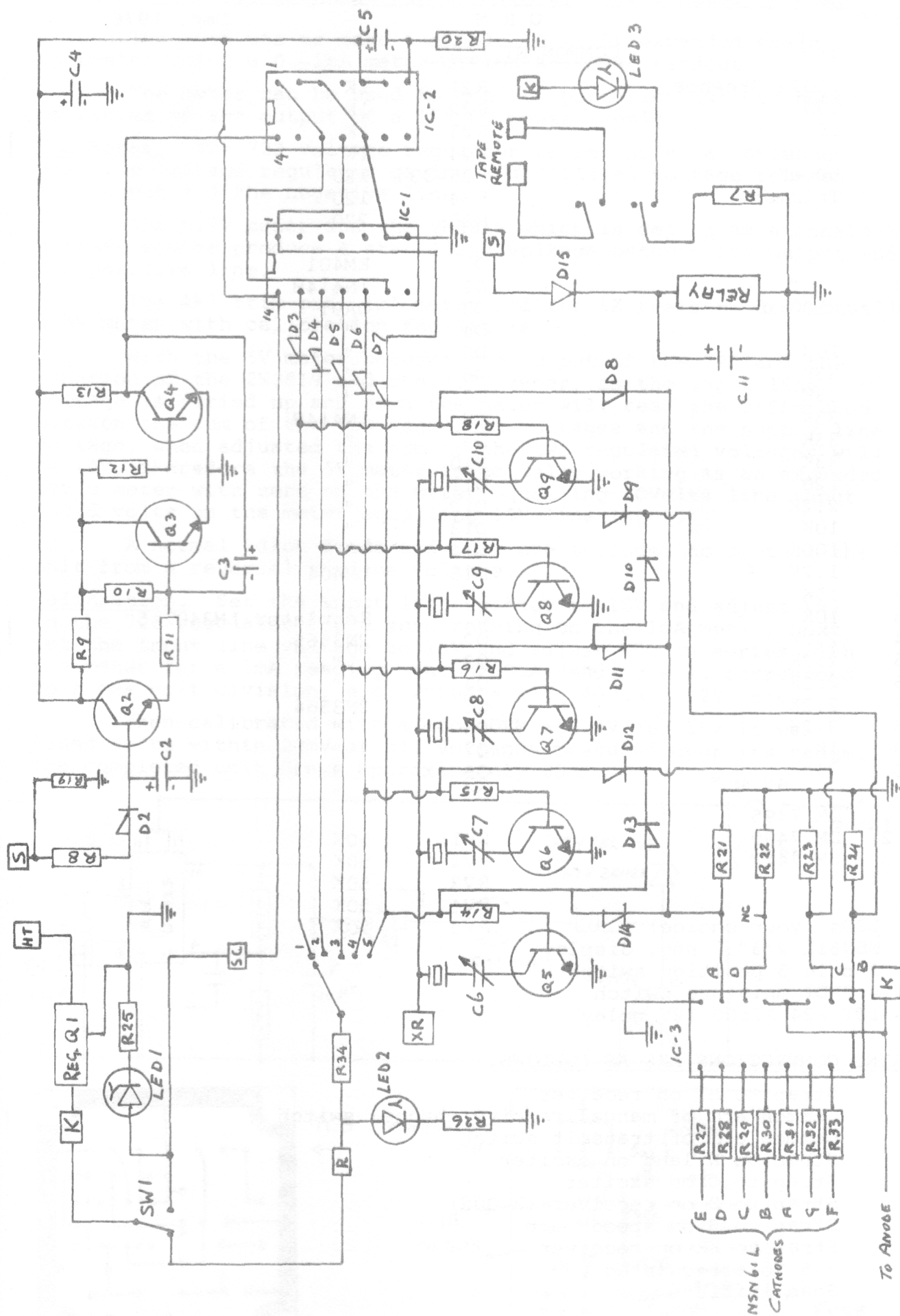
QSL Manager

MODIFICATIONS TO IGL FOR 5 CHANNEL OPERATION
AND 7 SEGMENT DISPLAY. by Roy Austen.

- 1) The circuit has been extended to 5 channels and operates in the following manner. Plus 5 volts from regulator Q1 is switched via SW1 to either the scanner or through the 120 Ohm resistor R34, which drops the voltage to the same value as that which is produced by the scanner, to the common arm of the manual receive switch. LED1 and LED2 indicate the mode selected and while on scan LED1 will be on while LED2 will pulse on as the scan passes the manual selected channel. On manual only LED2 is on.
- 2) When a signal is received the mute opens and terminal S is raised in potential, charging C2 via R8 and D2. This potential is extended to the multi-vibrator via Q2, turning Q3 on and stopping the oscillator. Thus the scan is stopped. The potential from S is also extended to the relay and C11 via D15 operating remote start of tape recorder and LED3 (mute LED).
- 3) When the signal is removed the mute shuts and C11 discharges for approximately one second then stops tape and LED3. The value of C2 was selected so that discharge time is also approximately one second, discharging through the base of Q2, after which the potential is sufficiently low enough for the multi-vibrator to start again and the scan is continued.
- 4) The potential from the channel positions, which is picked up before resistors R14-R18, is applied through diodes D8-D14 to the inputs of IC3, which are grounded via resistors R21-R24, this applies voltage to the segments of the display through resistors R27-R33, required to give the numbers 1,2,3,4,5, by either the scan or manual mode.
- 5) In any of the 5 manual positions, the appropriate transmit crystal is switched to the modulator diode D1, also voltage via resistors to the base of the switching transistors Q5-Q9 for receive selection. In the scan position 5 volts is extended to the multi-vibrator Q3 and Q4 and to IC's 1 and 2. The multi-vibrator pulses the counter IC2. The IC1 shift register then turns on each switching transistor in turn to "search". For this to occur the mute must be closed.
- 6) While in the scan mode any one of the 5 transmit crystals may be selected manually and used.
- 7) Audio into the cassette recorder was picked up from the speaker terminals and fed via R35 to the mike input of the recorder as no auxiliary input was available. Alternatively audio could be picked up prior to the volume control so that the volume setting has no effect upon the recorded signal.

CONNECTIONS TO 7 SEG. DISPLAY NSN61L (all anodes common)

<u>Pin</u>	<u>Function</u>	<u>Pin</u>	<u>Function</u>
1	N.C.	10	N.C.
2	Cathode A	11	Cathode D
3	Cathode F	12	Anode
4	Anode	13	Cathode C
5	Cathode E	14	Cathode G
6	Anode	15	Cathode B
7	Cathode DP	16	N.C.
8	N.C.	17	Anode
9	N.C.	18	N.C.



COMPONENT LIST

C1	.0022 Greencap	R21	1K
C2	.33	R22	1K
C3	.5	R23	1K
C4	50 uF	R24	1K
C5	50 uF	R25-33	120
C6	Trimmer	R34	120
C7	"	R35	220
C8	"		
C9	"	D1	EM401
C10	"	D2	1N4148
C11	2500 uF	D3	OA91
		D4	"
R1	10K	D5	"
R2	33K	D6	"
R3	33K	D7	"
R4	33K	D8	1N4148
R5	33K	D9	"
R6	33K	D10	"
R7	120	D11	"
R8	2.2K	D12	"
R9	10K	D13	"
R10	100K	D14	"
R11	1.2K	D15	EM404
R12	15K		
R13	10K	Q1	Regulator LM340T-5
R14	2.2K	Q2	2N3565
R15	2.2K	Q3	"
R16	2.2K	Q4	"
R17	2.2K	Q5	2N3564
R18	2.2K	Q6	"
R19	1K	Q7	"
R20	220	Q8	"
		Q9	"
IC-1	DM 7495		
IC-2	DM 7490	RV1	50K
IC-3	DM 7447	RV2	50K
		RV3	50K
		RV4	50K
		RV5	50K
3 - LEDs (your choice)			
1 - NSN61L 2/3" 7 seg. display			
1 - 2 pole 5 position switch			
SW1 - SPDT mniature switch			
1 - ITT P24 A2600 12V relay			

WIRING CONNECTIONS ARE AS FOLLOWS.

HT	Strap to HT on receiver
R	Common arm of manual receive channel switch
T	Common arm of transmit switch
XT	Strap to X land on exciter
C	Strap to C on exciter
S	Strap to S on receiver (R-002)
B	Strap to B on speech amp
XR	Strap to XR on receiver
K	+ 5 Volt regulated
SC	Scan initiate

A SIMPLE 10 - 15V EXPANDED SCALE METER by Daniel Apted VK7ZDA.

The idea was to make a simple 10 - 15V expanded scale voltmeter using a 0 - 1mA meter giving a linear readout.

The meter can be used to monitor portable, auto or home batteries or the output of a 12V DC power supply.

The Works. The 723 voltage regulator is set up as a variable positive voltage regulator giving a stabilised voltage between its output and the negative line.

The 4.7V zener and the 2N3819 which is set up as a constant current source produce a stabilised voltage between its output and the positive line.

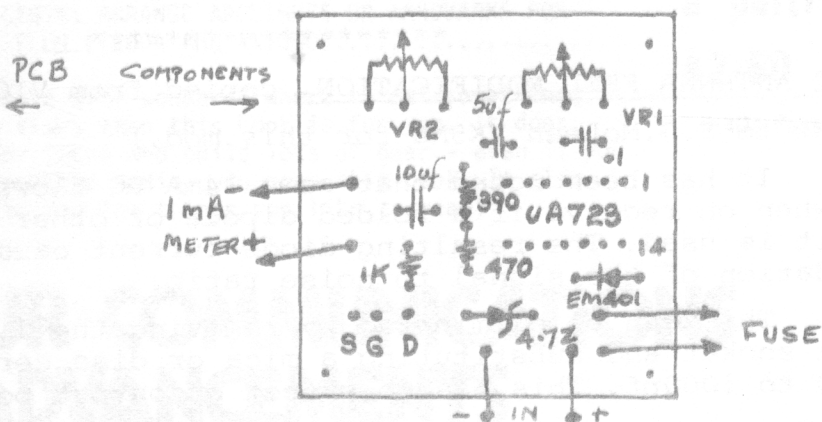
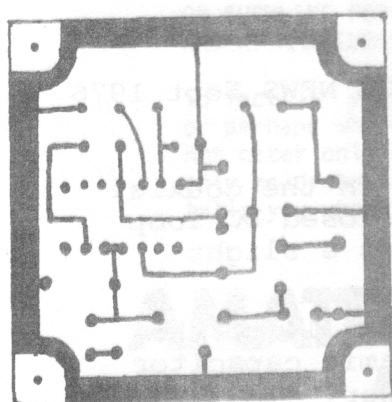
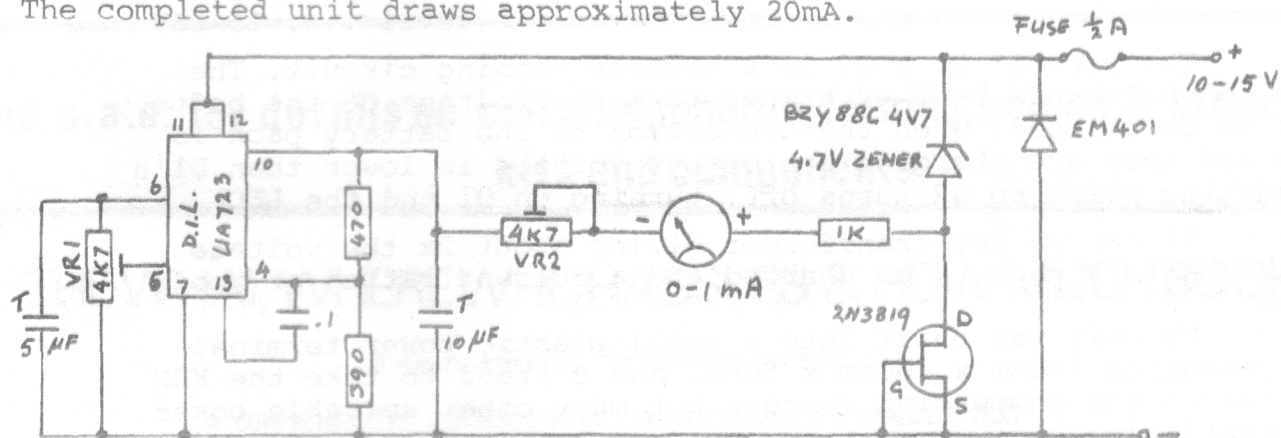
The 4K7 trim pot, 1mA meter and the 1K resistor are actually a 5V meter with calibration facilities.

With the 5V meter between the output of the 723 and the junction of the 2N3819 and the 4.7V zener, as the input line voltage is varied up and down the meter will read the difference between the sum of the two regulated voltages and the supply line voltage, when adjusted the sum of the two regulated voltages will be 10V, therefore the 5V meter is actually working as an expanded scale meter with zero on the meter equalling 10Volts line input and 5 volts on the meter equalling 15V line input.

A normal idiot diode and fuse are included to protect the unit from a reversal in line voltage.

Calibration. Set the input line voltage to 10V and adjust VR1 on the 723 regulator for a zero reading on the 1mA meter, next set the input line voltage to 15V and adjust VR2 in series with the meter for a 1mA reading, each 200uA reading will correspond to a one volt division, e.g. 200uA = 11V, 400uA = 12V etc.

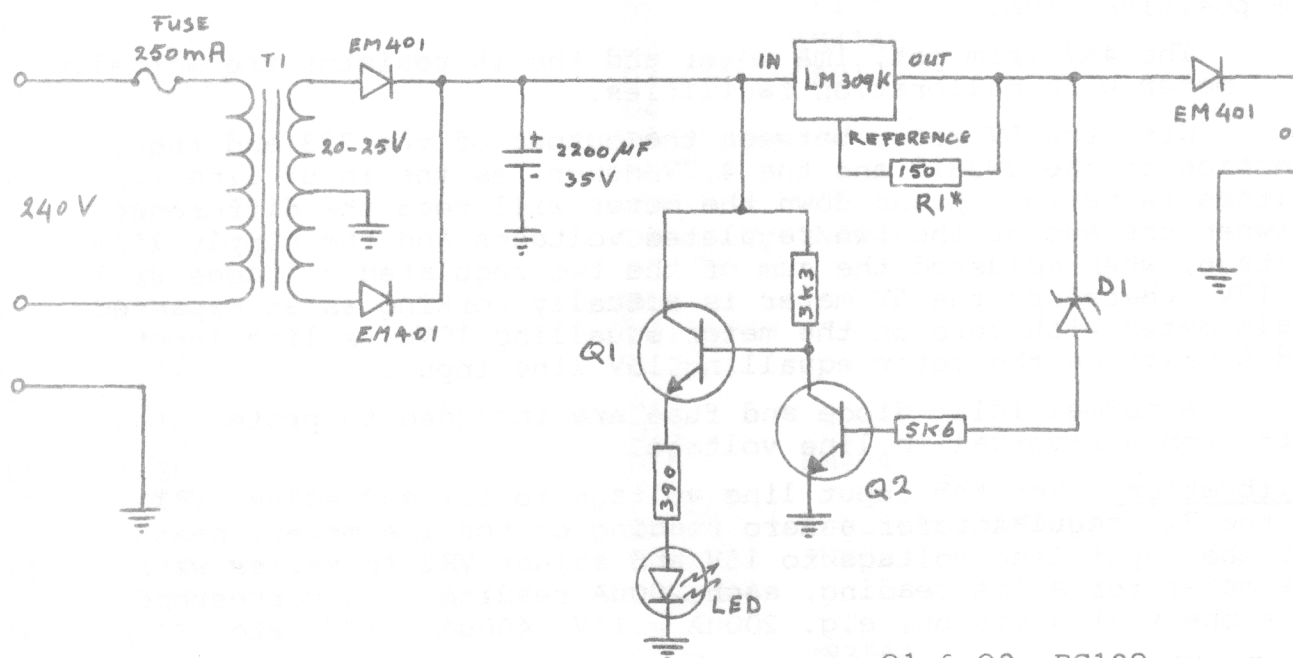
When calibrated with a good DVM at 10V and 15V it was found to be within 20mV at all voltages measured over its range. The completed unit draws approximately 20mA.



KEN Ni-Cad Charger, by Adrian Sherrif VK7ZAT.

The following is a simple charger circuit designed to charge KEN batteries but capable of charging any small Ni-Cad battery.

The unit uses the 309K, 3 terminal regulator in a constant current mode. The value of R1* determines output current, with a 150 Ohm resistor current is about 40-45mA, ideal for charging Ni-Cads.



Q1 & Q2 BC108 or eq.

D1 zener to set trip level i.e. 15-16V

The circuit Q1 & Q2 is a voltage sensing circuit. The value of D1 should be 3-4V higher than the voltage of the battery pack to be charged. When the connection to the battery pack is good and they are charging the output voltage is lower than D1's conducting point so Q2 turns off, turning on Q1 and the LED.

T1 can be any transformer giving about 2x the voltage of the battery pack to be charged and a current rating of about 500mA.

My unit was built into a small plastic power terminal box measuring 100mm x 100mm x 50mm. and a stand to take the KEN similar to the commercial charger but many other suitable boxes are available.

IC202 ANTENNA FEED MODIFICATION. copied from VICOM NEWS Sept 1976
(thanks to S.G.McLean VK5ME for this mod.)

It has been noted that some 14mA DC flows in the coaxial line when on receive if a folded dipole or other closed DC loop circuit is used. The resulting diode current causes a slight degradation of the signal to noise ratio.

This can be eliminated by removing the link J14 to the aerial socket and substituting a mica or disc ceramic capacitor of 500 to 1000pf. This has no effect on output power.

Vicom News is produced by VICOM INTERNATIONAL PTY LIMITED.

MODERN SOLID STATE CONVERTERS

VHF CONVERTER KITS

Modern solid-state, high performance converters for 28/52/144 MHz bands. Featured in February E.T.I. p.63.

28 MHz/ETI707B\$11
52 MHz/ETI707B\$11
144 MHz/ETI707A\$14

These converter kits are simple, easy to construct and align.

• 28/52 MHz (ETI 707B)

This is a tried and proven design and was featured in the January issue of ELECTRONICS TODAY INTERNATIONAL. Noise figure on 10 m or 6 m is a little meaningless but this converter produces a noise figure of around 2 dB. Gain is 20 dB or greater, bandwidth is 3 MHz on 6m, 2 MHz on 10m, spurious responses — 50 dB or better. Choice of IF frequencies to suit yourself. Please specify 28 MHz or 52 MHz operation. Crystal not supplied. Fibreglass p.c. board. Value at ... \$11 or just the p.c. board ... \$3.10

• 144 MHz (ETI 707A)

Naturally another simple converter. An original 6UP design, this was also featured in the January 1976 issue of ELECTRONICS TODAY INTERNATIONAL. This converter was designed for low noise (3 dB or better) and low crossmod. performance. Gain is adjustable, with a maximum of about 20 dB. Bandwidth is also adjustable between about 0.5 MHz and more than 1 MHz. Spurious responses are down 50 dB or better. Choice of IF frequencies to suit yourself. No neutralization. Crystal not supplied. Fibreglass p.c. board. What more could you want for ... \$14 or p.c. board only ... \$3.50

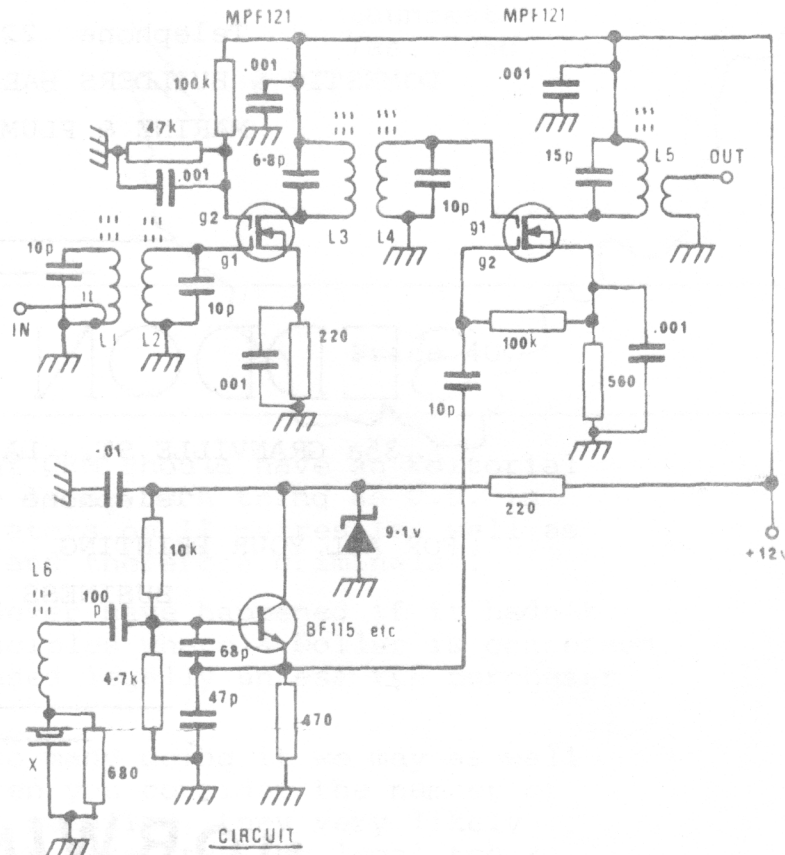
• 432 MHz (6UP-004)

The famous design by VK5QZ — now a standard of sorts! Improved p.c. board. This is probably the simplest way to begin on the UHF bands. A simple and straightforward design that produces good performance ... noise figure approx. 4 dB, JFET front end, gain of 10-15 dB, IF of 28 MHz or 52 MHz although some constructors have used 146 MHz successfully for FM net operation. Bandwidth approx. 4 MHz. Fibreglass p.c. board. Crystal not supplied. Complete with straightforward instructions. Head for the frontiers for ... \$14 or p.c. board only ... \$3.35

• MARKER (6UP-006)

This provides harmonics to 1296 MHz from a 1 MHz crystal or to 432 MHz from a 100 kHz crystal. Can accept crystals to 15 MHz. Uses 5 transistors. Crystal not supplied. Find the band edge for ... \$7 or p.c. board only ... \$2.55

PACK & POST on kits is 60c per kit.



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