THE PROPAGATOR

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 October General Meeting of the I.A.R.S. will be held on Monday October 11th 1982, at 7.30 p.m. usual location.

LAST MONTH'S MEETING: The September Meeting of the Illawarra Amateur Radio Society was attended by some 60 members, and three visitors received the usual warm welcome. Among matters raised were the large number of teletype machines (about 150), that Denis VK2DMR has been dealing with, and members were told to come and give a hand if they want cheap machines! Paul VK2ZQT announced that he has a teletype test program on his Tono, and anyone interested should call him on Channel 5 repeater.

Barry VK2FE moved in a letter that recognition should be given to Graeme VK2CAG for his work on the repeaters, by giving him life membership of the I.A.R.S. This was passed unanimously. Congratulations Graeme!

The raffle prizes were two Siemems teleprinters, one with a tape punch and the other with a tape reader. Ladies present drew the winning tickets, the first drawn being held by George VK2DHP who re-donated the prize for a further draw. This time Jock VK2JT won, choosing the tape punch machine. The next draw, by a different lady, was again of a ticket held by Jock, who sportingly also re-donated the prize for yet another draw. This time Tony, VK2KAJ held the lucky ticket and he became the owner of the tape reader machine.

Denis VK2DMR in his inimitable style conducted a mini-auction of various pieces of gear - ex-RAAF teletype demod., CRO's, Voltage Stabiliser etc - all of which went at bargain prices. Members were told that the Club Store is selling ribbons suitable for the teletype machines at $1.50 each.

The guest speaker, Sue Brown VK2BSB, President of the N.S.W. Division of the W.I.A., then gave an interesting and informative talk on the W.I.A., telling us that it is the oldest in the world, older than the R.S.G.B. or the A.R.R.L. by 5 to 10 years. As the W.I.A.'s 75th Anniversary is coming up, suggestions are invited on how best to celebrate this. Unlike some other countries, membership is not compulsory but D.O.C. say that 46% of amateurs are members. Sue then explained the new Constitution introduced in 1978, and the move from Atchison Street, Crows Nest to Parramatta, where the office is open 5 days a week. She explained the work of the State and Federal bodies, and showed graphs of each state's examination results, pointing out that N.S.W. scores consistently lower than the other states, particularly noticeable with the 5 w.p.m. Morse send and receive graphs. The reason given to the W.I.A. by D.O.C. was that the lecturer was no good (!), but since the W.I.A. query, results have been better. She also gave details of W.I.A. Contests, Awards and Competitions, and read out examples of motions (many from the I.A.R.S.) of particular interest.

Jeff Pages VK2BYY then took the floor and showed slides of the W.I.A. tx-repeater and gave a talk on the equipment there. The location is a 5-acre block at Dural, near Hornsby. Questions that led to lively discussion showed the interest the talks had aroused. Thanks Sue and Jeff for an interesting evening.

MOONBOUNCE REPORT - OCTOBER 1982.

A WORKING DAY WAS HELD AT THE DISH SITE ON SATURDAY 18TH SEPT.
IT WAS GOOD TO SEE THE INTEREST DISPLAYED BY CLUB MEMBERS, EIGHT
OF WHOM TURNED UP, COMPLETE WITH TOOLS AND EQUIPMENT.

ALL THE POWER AND CONTROL CABLES WERE PULLED THROUGH THE CONDUITS
FROM THE OPERATING BUILDING TO THE DISH, TERMINATION BLOCKS WERE
PREPARED FOR INSTALLATION, OLD WIRING AND REDUNDENT BITS REMOVED
FROM THE DISH CONTROL CUBICLE WHICH WAS MADE READY FOR REWIRING.

NEW HANDRAILS AND POSTS WERE MADE UP AND WELDED ON TO THE DISH
ACCESS PLATFORM AND NEW STEPS WERE MADE UP READY FOR PAINTING.
THE DISH CUBICLE ATTACHMENT ANGLES WERE ALSO REWELDED.

THE WEATHER ON THE DAY WAS IDEAL FOR OUTSIDE WORK AND THE BUSH
SURROUNDINGS MADE IT, IF NOT LIKE A PICNIC, AT LEAST QUITE PLEASANT
FOR WORKING. GOOD USE WAS MADE OF THE WELDING TALENTS AVAILABLE,
WITHOUT WHICH WE WOULD NOT, LITERALLY, BE ABLE TO' "GET OFF THE
GROUND.

THE NEXT WORKING DAY IS PLANNED FOR SATURDAY 23RD OCTOBER (THE
WEKEND OF 16TH AND 17TH BEING SCOUT JAMBOREE OF THE AIR), AT
WHICH IT WILL BE POSSIBLE FOR CUBICLE REWIRING TO GO AHEAD IF
OUR CUBICLE REWIRER IS AVAILABLE (HI BARRY), CABLES COULD ALSO
BE TERMINATED AT THE DISH CUBLES AND, PROVIDED ACCESS LADDERS
ARE BROUGHT ALONG, THEN WE CAN ALSO DO CABLE TERMINATIONS UP IN
THE DISH STRUCTURE. THE ACCESS PLATFORM RAILS AND RAIL MOUNTED
    SHELF COULD BE COMPLETED IF OUR WORTHY WELDERS AND SUITABLE
TUBING ARE AVAILABLE. THE WOODEN STEPS ETC. COULD ALSO BE PAINTED
AND THE DISH CUBICLES CLEANED DOWN AND REPAINTED, IF NOT DONE
BEFOREHAND.

THERE IS ALSO OTHER WORK, SUCH AS FREEING UP LIMIT SWITCHES,
CLEANING PAINT OFF DRIVE GEAR TEETH (AN ESSENTIAL JOB) AND MAYBE
EVEN STARTING TO REPLACE DRIVE MOTORS ETC. IF WE GET THAT FAR.

FROM THE ABOVE INFORMATION IT IS EVIDENT THAT, ON A PROJECT OF
SIZE- NOT ALL IS   ELECTRONICS- HI

PS. IF YOU WANT TO KNOW MORE ABOUT CHEESES, ASK VK2ZAG

                                        LYLE VK2ALU.

****
<u>NEW CALL</u>
            Congratulations to Wojciech, ex-SP7FTP, who is now VK2ETT.
****

LEAST SUCCESSFUL FILM SCREENING

Probably the most unsuccessful film show was said to have occurred at the La Pampa cinema in Rio de Janeiro in November 1974.

During a screening of "The Exorcist" the audience was entirely distracted by a rat scampering to and fro before the screen. What little attention they were paying to the film was further diminished when an usherette appeared and pursued the rat with a mop.

Since this blocked the audience's view and entirely ruined a crucial scene, the usherette was greeted with disgruntled cries of "Get them off."

Misconstruing the audience's wishes, she stunned the rat with her mop and proceeded to take all her clothes off. It was while dancing naked in the projector's light that she noticed the auditorium being cleared by armed police.

Explaining her behaviour, the usherette said afterwards, "I thought the audience was calling for me. I was as surprised as anyone."

LEAST SUCCESSFUL GERMAN BOMBER

On 22 February 1940 a Luftwaffe bomber flying off the coast of Borkum, sighted two destroyers. In a sustained bout of Hunnish aggression, it strafed, bombed and cornered the vessels.

Rarely has one plane caused so much damage. The destroyers, the Lebrecht Maass and the Max Schultz both belonged to the German Navy.

LEAST SUCCESSFUL WEAPON

The prize of all time goes to the Russians, who invented the dog mine. The plan was to train the dogs to associate food with the underneath of tanks, in the hope that they would run hungrily beneath advancing Panzer divisions. Bombs were then strapped to their backs which endangered the dogs to a point where no insurance company would look at them.

Unfortunately, they associated food solely with Russian tanks and forced an entire Soviet division into retreat. The plan was abandoned on day two of the Russian involvement in World War Two.

LEAST SUCCESSFUL COMPLAINT

In 1975 a thief stole a radio from a shop in Ashton-under-Lyme. When he got home and turned it on, he found that it was defective.

He then went back and demanded that it was repaired free of charge. Unable to produce a recepit, his request was turned down, so he went round to the police station and complained.

During his interview with the duty sergeant he was charged with theft.

LEAST SUCCESSFUL EQUAL PAY ADVERTISEMENT

In 1976 the European Economic Community pointed out to the Irish Government that it had not yet implemented the agreed sex equality legislation. The Dublin Government immediately advertised for an equal pay enforcement officer.

The advertisement offered different salary scales for men and women.

... from "The Book of Heroic Failures" by Stephen Pile; Futura, 1980.

IT HAS COME TO MY ATTENTION THAT UNFINANCIAL MEMBER OF OUR CLUB HAS RECENTLY LODGED AN OFFICIAL COMPLAINT TO THE DEPARTMENT OF COMMUNICATIONS REGARDING THE USE OF RTTY (RADIO TELETYPE) TRANSMISSIONS ON THE 6850 (CHANNEL 5) REPEATER.

THE CLUB PRODUCED ITS FIRST RTTY BROADCAST ON SUNDAY EVENING THE 5TH OF SEPTEMBER AT 7-00 PM LOCAL TIME. BY ALL ACCOUNTS IT APPEARS TO HAVE BEEN A SUCCESS, AS THERE WERE SEVERAL REPORTS OF GOOD COPY BY MEMBERS WHO HAVE GOT THEIR TELEPRINTERS WORKING AND HAVE WELCOMED THE 15 MINUTE BROADCAST TO CHECK OUY THEIR SYSTEM AND ALSO GET HARD COPY OF CLUB NEWS AND SOME ADVANCE IDEAS OF WHAT IS IN THE NEXT PROPAGATOR.

NATURALLY, SINCE THE CLUB CALLSIGN VK2AMW WAS USED, ALL STEPS WERE TAKEN TO ENSURE THAT WHAT WE WERE DOING WAS LEGAL AND HAD THE APPROVAL OF THE DEPARTMENT.

IT APPEARS THAT AS LONG AS THE NORMAL COURTESIES APPLY' SUCH AS CHECKING THAT THE CHANNEL IS CLEAR BEFORE TRANSMITTING, USING CW OR VOICE IDENTIFICATION AT 5 MINUTE INTERVALS, ETC., THE DEPARTMENT HAS NO OBJECTION TO THE USE OF RTTY ON ANY BAND WHICH THE AMATEUR IS LICENCED TO USE. THERE IS NO SPECIAL REGULATION THAT MAKES OPERATING THROUGH A REPEATER ANY DIFFERENT TO WORKING SIMPLEX.

THE CHANNEL 5 REPEATER IS OWNED AND OPERATED BY THE CLUB FOR USE BY ITS MEMBERS, AND WHAT BETTER USE CAN WE GIVE IT THAN FOR CLUB BROADCASTS?

THERE ARE SEVERAL REASONS FOR USING THE REPEATER RATHER THAN A SIMPLEX CHANNEL. FOR ONE, IT ENABLES THE ORIGINATING STATION TO RUN LOW POWER, REDUCING THE RISK OF OVERFEATING HIS FINAL DUE TO THE 100% DUTY CYCLE USED ON RTTY. ANOTHER IS THAT ALL CLUB MEMBERS WILL BE WITHIN RECEPTION RANGE. ALSO, THE REPEATER IS IN USE FOR AN AVERAGE OF 3.5 HOURS A DAY (THE RESULT OF A SURVEY CONDUCTED OVER A PERIOD OF 2 WEEKS), AND THE RTTY BROADCAST OCCUPIES ONLY 15 MINUTES A MONTH::::::: . ALSO, IT PRECEEDS THE VK2AMW VOICE BROADCAST ON THE SAME FREQUENCY, AFTER WHICH IS THE WIA RELAY, SO ALL THE BROADCASTS RUN CONCURRENTLY FOR A FULL HOUR OF NEWS.

WHEN REPORTS SUCH AS THE ABOVE COME TO LIGHT, IT CAN ONLY DAMPEN THE ENTHUSIASM WHICH GOES INTO THE PREPARATION AND ORGANIZING OF THESE ACTIVITIES, AND DOES LITTLE TO ENCOURAGE PROGRESS AND EXPERIMENTATION, WHICH ARE THE MOST IMPORTANT FACETS OF OUR HOBBY. IN THE MEANTIME WE PLAN TO CONTINUE WITH THE BROADCASTS ON A MONTH-LY BASIS, PRECEEDING THE CLUB VOICE BROADCAST.
IF, HOWEVEV, ANYONE HAS ANY OBJECTION TO RUNNING RTTY ON THE REPEATER FOR ANY REASON, BE IT FOR BROADCASTS OR COMMUNICATION NOT OTHERWISE POSSIBLE ON SIMPLEX, PLEASE LET THE COMMITTEE KNOW FIRST RATHER THAN TAKE IT DIRECT TO THE DEPARTMENT. THEY HAVE OTHER THINGS TO DO WITH THEIR TIME AND WE, THE COMMITTEE, DON'T WANT TO DO ANYTHING THAT THE MEMBERS DON'T WANT--- WE ALSO HAVE OTHER WAYS TO OCCUPY OUR TIME IF THE RTTY BROADCAST IS NOT WANTED.

OF COURSE, WE REALIZE IT IS NOT POSSIBLE TO PLEASE ALL OF THE PEOPLE ALL OF THE TIME. IF YOU ARE IN THE MINORITY, THEN PLEASE SIT BACK FOR A WHILE SO THE REST OF US CAN HAVE A BIT OF GOOD HONEST FUN AT OUR HOBBY... YOU WILL GET PLENTY OF TIME TO DO YOUR OWN THING TOO.

GRAEME VK2CAG

The Australian National Amateur Radio Teleprinter Society, publish a journal called Arewise, which is specefically devoted to Teleprinter communications and in addition can provide Technical assistance to its members. The annual subscription is a mere $ 3.00 and can either be sent directly to ANARTS at post office box 860, Crows Nest 2065, or via VK2YVF, Eric , who is also handling limited supplies of teleprinter paper (at $ 2.00 per roll) and punch tape as required for machines which have readers and punches (at $ 1.50 per roll). Please note that these prices apply only to ANARTS members. You can of course buy the materials from a stationers at about $ 18.00 per roll and $ 5.50 per roll respectively.

The new president of ANARTS is Sid Molen VK2SG who is located at Pendle Hill, and we also have Ian Eddy VK2DGA at Waterfall, who is considering joining our Club. I hope to have both of them down for our next meeting to talk about teletype in general and ANARTS in particular.

If you are new to Teletype, try listening on the International band plan frequencies of 3600 $\pm$ 20 khz ; 7040 $\pm$ 5 khz ; 14090 $\pm$ 10 khz ; 21100 $\pm$ 20 khz and 28100 + 50 khz. The 20 metre band is subdivided as follows :-
14075 -14080   repeaters,   14075 - 14080 AMTOR,   14080 - 14090 MSO ,
14090 - 14100 general usage and 14100 - 14110 RRB.

Siemens M 100 machines from Telecom: Write to : W. Shaub, C/o Telecom Supply Branch, P.O. Box 6032, Sydney 2001. There is a reserve of $ 50.00 on the machines, so state in your letter what you will pay: you will receive a purchase form: complete it and pay at any Post Office, then take the receipt and authority to Telecoms Greenacre (Sydney) store and take delivery of your machine. The machines are set at 50 baud as received and may be KR, KRP, KRT, KRPT or KRPT1. Naturally there is no warranty.

Reprinted from Arewise for July 1982.

Kits from ANARTS : See the listing elsewhere. Prices as follows:-
ST6 - $50. Twint T generator - $11.   ZWL Digital generator - $ 22. Xtal generator - $ 39,   Active Filter - $ 17.   BVJ Power Supply - $ 22.   UE 2 Regenerative repeater - $ 39.   IF 2 Selcal unit - $ 39.   ETI 730 Demod - $ 33. ETI 731 Modulator - $ 22.   DT 600 Demod - $72.   BY 1 Power supply & keyer - $39. CW Ider - $ 39. All prices include postage & relevant paper work.

RTTY Broadcasts :- 0030 UTC sundays on 7045, 14090, 14095 & 146.6 Mhz 0130 UTC on sundays on 21095 and at 0930 UTC on 3545 and 146.6 Mhz. Call backs after the broadcast

RTTY Contests : October - German A.R.T.G. 9 & 10 - SSTV (All bands), 16 & 17 - RTTY -(all bands.) Dutch A.R.G. 30 & 31 - FAX -(all bands)

Reprinted with the permission of ANARTS,
73's Eric, VK2YVF.

Siemens M 100 plug connections -

Viewed from the rear of the machine, numbered from RIGHT TO LEFT, Top row is "A",
bottom row is "B".

1A Mains Active	1B Motor Stop circuit	(a) Call key on panel
2A No connection	2B Motor & Transformer active	
3A Mains neutral	3B Don't use	(b) Clear key on panel
4A Mains Earth	4B Mains earth	
5A Tape supervisory circuit	5B	
6A Normally closed contact	6B (Motor "on speed" circuit)	
7A Normally open contact	7B Common contact	
8A Normally open contact	8B Normally open contact	
9A Common contact (a)	9B Common contact (b)	
10A Normally closed contact	10B Normally closed contact	
11A Loop + Receiver magnet	11B -I	Note:- Strap 11B to 12B, 12A to 13A
12A Keyboard contacts	12B -I	for single loop operation.
13A Tape reader circuit	13B Loop -	

The loop requires a 40 ma supply - see notes below, and is not polarity
sensitive. NOTE THAT THE BYPASS CAPACITORS ARE 0.5 mfd and Not suitable for
high voltages. Suggested circuit is +60 V maximum.

The motor "On speed" circuit is normally disabled.

Note re Loop Supply:- It is possible to use the internal transformer for the
loop supply, but the following modifications must be made to avoid bypassing
the motor stop timer.

1. Cut the grey wire to the transformer 0 volt terminal & tape it up carefully,

2. Instal a new wire from the 0 V terminal to the pin 1A - keep it away from the
shafts and gears.

3. Fit a diode at the pin numbered 3 on the left side of the transformer and run
a wire from the diode and a second wire from the pin numbered 2. The circuit is
marked TZ 99 on the case of the transformer.

4. Put a 50 uF 100 V Electrolytic across the cable (having regard to polarity),
and fit a series 1000 ohm resistor of 10 or 12 watts rating.

5. Connect the supply to the pins 11A and 13B.

6. Your machine is now in Local Loop.
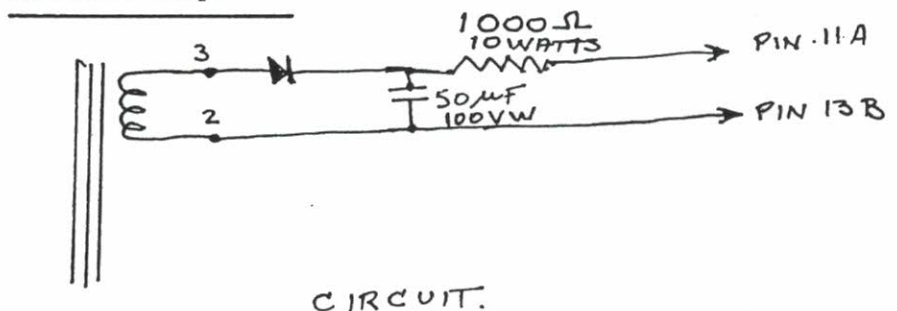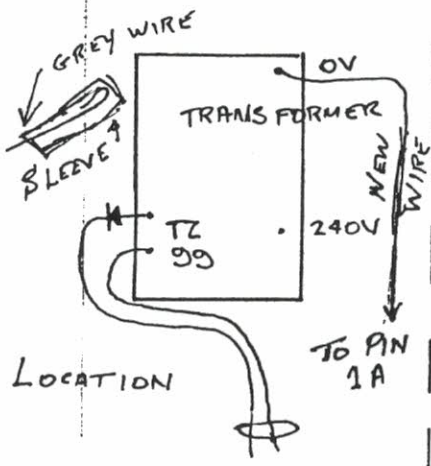
CIRCUIT.

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ST6 DEMODULATOR.........................$50.00
TWIN 'T' TONE GENERATOR.................$11.00
ZWL DIGITAL TONE GENERATOR..............$22.00
XTAL TONE GENERATOR.....................$39.00
ACTIVE FILTER..........................$17.00
BVJ POWER SUPPLY........................$22.00          VK2DGA   IAN
UT-2 UART REGENERATOR...................$39.00
IF-2 SELECTIVE CALLING UNIT.............$39.00          DATA   STAR
ETI 730 DEMODULATOR.....................$33.00
ETI 731 MODULATOR.......................$22.00
DT600 RTTY DEMODULATOR..................$72.00
BYI POWER SUPPLY AND KEYER CIRCUIT......$39.00
CW ID-ER (DIODE ENCODED)................$39.00
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ST6 REVIEW.
THE ST6 IS A LARGE OLD DESIGN TERMINAL UNIT. USING POT CORE TRANS-
FORMERS FOR THE MARK AND SPACE CHANNEL FILTERS. THE UNIT HAS ON IT
A LIMITER STAGE, FIXED FEQUENCY DISCRIMINATOR, TWO STAGE LOW PASS
FILTER, AUTOMATIC THRESHOLD CORRECTOR, COMPARITOR AND LOOP KEYER.

TWIN 'T' TONE GENERATOR REVIEW.
A CHEAP AND NASTY TONE GENERATOR BUT IT WORKS, LOTS SOLD. A FEW
TRANSISTORS IN A 'T' OSCILLATOR CONFIGERATION WITH A VARIABLE O/P.

ZWL TONE GEN. REVIEW.
THE ZWL TONE GENERATOR PROVIDES PHASE COHERANT, SINE WAVE ASFK
MARK AND SPACE TONE SIGNALS. THE ADVANTAGE OF THIS CIRCUIT IS THAT
THE MARK AND SPACE TONES DERIVE THERE FREQUENCIES FROM THE ONE CLOCK.

XTAL TONE GENERATOR REVIEW.
AS THE NAME IMPLIES IT DERIVES THE MARK AND TONE FREQUENCIES FROM A
SINGLE CRYSTAL. THE CRYSTAL FREQUENCY IS DIVIDED DOWN TO GENERATE THE
CORRECT TONE PAIRS. REQUIRES NO LINE UP.

ACTIVE FILTER REVIEW.
THIS UNIT IS PLACED BETWEEN THE RECEIVER AND THE LIMITER STAGE OF
THE TERMINAL UNIT. IT IS USED TO SEPARTE THE DISIRED RTTY TONES
FROM THE NOISE AND QRM EMINATED FROM THE RECEIVER OUTPUT.

BVJ POWER SUPPLY REVIEW.
THIS UNIT IS USED TO POWER A ST6, DT600, ETI CIRCUITS ETC. HAS ON
BOARD +/-12 VOLTS AND +5 VOLTS REGULATORS, RECTIFIERS, FILTER CAPS.

UT-2 UART REGENERATOR REVIEW.
THE UT-2 USES A UART TO PROVIDE REGENERATION AND SPEED CONVERSION OF
RTTY SIGNALS. THE UNIT WILL CONVERT DISTORTED SIGNALS TO NEAR PERFECT
SIGNALS TO KEY A PRINTER. THE UNIT FITS BETWEEN THE TERMINAL UNIT AND
THE PRINTER ON RECEIVE AND THE PRINTER AND TONE GENERATOR ON TRANSMIT
THE CIRCUIT ACCEPTS FSK SIGNALS THROUGH AN INVERTER/BUFFER AND FEEDS
THEM IN TO THE INPUT OF THE UART CHIP. THE UART OUTPUTS THE REGENER-
ATED SIGNALS THROUGH AN INVERTER/BUFFER, TO DRIVE THE KEYER STAGE. 2
CLOCKS ON THE PCB ARE USED TO SET THE SPEED (SIGNAL AND LOOP) THIS IS
DONE TO ALLOW SPEED CONVERSION. INPUT FSK,TTL SIGNALS, STAND-BY LINE.
OUTPUT-LOOP KEYER DRIVER (MARK HIGH), TONE GENERATOR (MARK LOW).
COMPONENTS-IC'S 6, TR 1, DIODES 2, RES 15, CAPS 7. ADJUSTMENTS-TWO
POTS FOR MARK AND SPACE SPEED.

IF-2 SELCAL UNIT REVIEW.
THE SELECTIVE CALLING UNIT 'SELCAL' PROVIDES A SELECTIVE CALLING
SYSTEM THAT CAN BE USED ON HF OR VHF. THE UNIT CONTROLS 3 SECTIONS,
TANSMITTER, PRINTER, AND CW-ID. A PROGRAMMED SEQUENCE OF LETTERS
AND NUMBERS (EG-'LETTERS'-'D'-'G'-'A') WHEN RECEIVED FROM THE UT-2

REGENERATOR WILL (A) TURN ON A MACHINE AND COPY ALL TEXT TILL A
SECOND SEQUENCE OF LETTERS IS RECEIVED (NNNN) THEN SWITCH THE
PRINTER OFF. (B) TURN ON THE TRANSMITTER FOR A PREDETERMINED TIME TO
ALLOW CW-ID. (C) TURN ON A CW IDENTIFICATION UNIT. HENCE FULL
UNATTENDED OPERATION IS POSSIBLE.   INPUT- 5 BIT PARALLEL DATA FROM
A UT-2. OUTPUT- 3 OPEN COLLECTOR DRIVERS FOR PRINTER, TRANSMITTER AND
CW-ID CONTROL.   STRAPPING- 32 CODE COMBINATIONS WHICH ARE STRAPPED
TO THE REQUIRED SEQUENCE. COMPONENTS-IC'S 10, TR 4, RES 7, CAPS 11.

ETI730 DEMODULATOR REVIEW.
THE ETI 730 IS A RESONABLE PERFORMANCE DEMODULATOR OF AUDIO FREQ-
UNCY SHIFT KEYED SIGNALS. THE DEMODULATOR DRIVES A 40-60 MILLIAMP
LOOP.   THE DEMODULATOR USES A HARD LIMITER STAGE, LOW 'Q' ACTIVE
FILTER DISCRIMINATOR WHICH IS ADJUSTABLE, 2 STAGE LOWPASS FILTER,
AUTOMATIC THRESHOLD CORRECTION STAGE, NORMAL REVERSE SWITCHING,
AC COMPARITOR, LOGIC DRIVER AND KEYER DRIVER.   THE PROJECT IS A
VERY BASIC DEMODULATOR. THE CONSTRUCTOR SHOULD ALSO LOOK AT THE
SERIES OF ETI ARTICLES WHICH WHEN MATCHED TOGETHER FROM A COMPLETE
SYSTEM. INPUT- HIGH IMPEDANCE, 1-10 VOLTS. BAUD RATE-45 TO 75 BAUD.
FREQUENCY SHIFT-2000-3000 HZ, ADJUSTABLE.   OUTPUTS-LOGIC, PRINTER
AND LOOP ACTIVITY (LED ID) DRIVERS. COMPONENTS IC'S 6, TR 2, RES 34,
CAPS 17. AUTO-START ETI MAY-80. INPUT STAGE AND UART BD ETI MARCH-80.

ETI731 MODULATOR REVIEW.
THE ETI 731 IS A PHASE COHERANT TONE GENERATOR, SINE WAVE AFSK, MARK
AND SPACE TONE SIGNAL GENERATOR. MARK AND SPACE TONES ARE AJUSTABLE.
THE CIRCUIT IS USED WITH THE ETI731 DEMODULATOR. THE TONE GENERATOR
HAS THREE ADJUSTABLE LEVEL OUTPUTS. THE CIRCUIT IS OF TWIN 'T' OSCI-
LLATOR DESIGN.   INPUT-TTL MARK STRAPPABLE HIGH OR LOW. OUTPUT 0 TO 5
VOLTS. FREQUECY ADJUSTMENT- TWO POTS MARK AND SPACE. COMPONENTS
IC'S 2, TR 5, DIODES 1, RES 28, CAPS 9.

DT600 DEMODULATOR REVIEW.
THE DT-600 RTTY DEMODULATOR IS DESIGNED TO PROVIDE HIGH PERFORMANCE
DETECTION OF AUDIO FREQUENCY SHIFT KEYER SIGNALS.   ACCEPTING AUDIO
SIGNALS FROM A COMMUNICATIONS RECEIVER, THE RESULTANT OUTPUT IS
USED TO DRIVE A STANDARD 40-60 MILLIAMP LOOP OR ONE OR MORE TTL
LOGIC CIRCUITS.   IN ADDITION THE DT-600 PROVIDES A PROVEN AUTO
PRINT SYSTEM WHICH DISCRIMINATES AGAINST VOICE AND CW SIGNALS
WHICH CAUSE 'RUNNING OPEN' EFFECT ON THE PRINTER, SOMETHING THAT
IS FOUND IN MANY DEMODULATORS OF LESSER QUALITY. THE DEMODULATOR
USES AN INPUT MATCHER, LOWPASS FILTER, HARD LIMITER AMPLIFIER,
FIXED FREQUENCY DISCRIMINATOR, TWO STAGE LOW PASS FILTER, AUTO-
MATIC THRESHOLD CORRECTOR, COMPARITOR, TTL DRIVER, PRINTER DRIVER,
ANTI-SPACE, AUTO-START (MOTOR CONTROL)(ON/OFF-FAST/SLOW) WHICH
PROVIDES FULL MOTOR CONTROL WITH IMMEDIATE TIME OUT, STAND-BY,
LEVEL METER DRIVE(TUNING METER), CENTER ZERO METER DRIVER, MARK/
SPACE LED DRIVER, PRINT-LED DRIVER.   THE DT-600 WILL PROVIDE THE
BEST PRINT AVAILABLE FOR THE PRICE, AND ONLY SLIGHT IMPROVEMENT
IS AVAILABLE WITH HIGHER PRICED DEMODULATORS.   INPUT- UNBALANCED
8 OHMS. INPUT LEVEL-0.2 TO 10.0 VOLTS. BAUD RATE 45 TO 75 BAUDS.
FREQUECY SHIFT-170HZ, MARK 2125/SPACE 2295. BPF BAND WIDTH 260 HZ.
AUTO-START NORMAL 3-5 SEC, FAST 1-2 SEC. TURN OFF TIME 30 SECS.
STAND-BY-FORCES THE PRINTER TO MARK, HOLDS MOTOR ON WHEN INPUT IS
BROUGHT LOW (TRANSMIT). OUTPUTS- 40-60 MILLI AMP LOOP, TTL DRIVER,
MOTOR CONTROL DRIVER, PRINT LED, SIGNAL METER, CENTRE METER, MARK/
SPACE LED. COMPONENTS-IC'S 8, TR 8, DIODES 30, RES 73, CAPS 29,
POT CORE TRANSFORMERS 5.

BYI POWER SUPPLY AND KEYER REVIEW.
THIS CIRCUIT PROVIDES ALL THE NECESSARY POWER SUPPLY REQUIREMENTS
FOR RTTY TERMINAL UNITS. A ISOLATED TTL LOGIC LEVEL OUTPUT OF
LOCAL KEYBOARD SIGNALS IS PROVIDED FOR TONE GENERATORS. THE UNIT
PROVIDES +/- 12 VOLTS AND 1 AMP, +5 VOLTS AT 1 AMP AND 45 VOLTS
AT 60 MILLIAMPS FOR LOOP CURRENT. AN OPTO COUPLER IN THE KEYER
PROVIDES AN ISOLATED TTL OUTPUT TO DRIVE A TONE GENERATOR. A LOOP
KEYER TRANSISTOR (BF338) IS LOCATED ON BOARD AND IS USED TO KEY THE
LOOP. SPECS, VOLTAGE OUTPUTS, -12, +12, +5 AND 45 VOLTS, TTL LOGIC
MARK LOW. VOLTAGE REQUIREMENTS- 15-0-15 VOLTS AT 2 AMPS. INPUT-TTL
TO DRIVE THE LOOP KEYER. OUTPUT- TTL MARK LOW. COMPONENTS- REGS 3.
OPTO 1, TR 1, DIODES 7, RES 1, CAPS 14.

CW IDER. REVIEW.
TTL CCT WHICH IS DIODE ENCODED TO PROVIDE CW ID.

I HOPE THAT THIS IS WHAT YOU HAVE BEEN LOOKING FOR AND HELPS YOU
MAKE THE RIGHT SELECTION WHEN BUYING YOUR RTTY GEAR. IF THERE ARE
ANY FURTHER QUESTIONS SEND A LONG ANOTHER LETTER AND WE'LL SEE IF
WE CAN HELP YOU OUT. (SASE TKS).

                                    IAN EDDY VK2DGA.

### Teleprinters — SUPPLY OF Siemens M 100's Locally.

The Club has as a service to its members assisted in the sorting and selection
of the machines available at Cavions, Bulli. These machines were selected on
our limited knowledge and sold "as is". We have now decided to call it quits —
before there are any divorces in our families, so if you were slow and still
require a machine you should hurry out to the supplier. He is selling the
machines as is for $ 20. Incomplete machines (for bits and pieces) are $ 10.
Dont take your screwdrivers and pliers scrounging is definitely OUT. Going on
our observations today the rain has probably put paid to most of the remaining
machines in full working order, but you could no doubt select two machines for
one good compssite — but be warned it isn't always possible to just exchange
sub-assemblies without subsequent mechanical adjustment.

For tone tests Graeme VK2CAG, Denis VK2DMR and Eric VK2YVF are all on
the air and can check out your signals for you or alternatively send you test
signals. At present contact is being made via voice on the repeater (Channel 5)
and then transferring to 147.550 Mhz simplex for working frequency. Please
remember that you must identify in voice (if you are a limited call licencee) or
C.W. if you hold a full call in addition to identification by teletype, at the
usual intervals, as prescribed in the Regulations — see clauses 5.26 & 5.27.
Please note also that the Log book requirements still apply: the printer paper
roll record is not sufficient.

SPEED ADJUSTMENT FOR SIEMENS M100 TELEPRINTER MACHINES.

A.N.A.R.T.S. HAVE RECEIVED A NUMBER OF REQUESTS FOR ASSISTANCE IN ADJUSTING THE SPEED OF THEIR 50 BAUD MACHINES TO 45.45 BAUD, THUS THE FOLLOWING INFORMATION IS OFFERED. SOME MACHINES WILL SPEED DOWN TO 45.45 BAUD BY ADJUSTMENT OF A SMALL SET SCREW ON THE MOTOR GOVERNOR. OTHER MACHINES, BECAUSE OF GOVERNOR SPRING TENSION, CANNOT REACH 45.45 BAUD AND IF THE SCREW IS ADJUSTED TOO FAR, THE INTERNAL MECHANISM WILL COLLAPSE WHILE IN OPERATION AND RUIN THE MOTOR, TO OUR KNOWLEDGE ONE AMATEUR HAS HAD THIS UNFORTUNATE EXPERIENCE. TO OVERCOME THIS PROBLEM THE GOVERNOR SPRING MUST BE STREACHED SLIGHTLY SO AS TO GET MORE CONTROL OVER THE ADJUSTING SCREW. THE QUESTION THAT NOW ARISES IS HOW TO TELL THAT YOU HAVE ADJUSTED CORRECTLY TO 45.45 BAUD. TO ACHIEVE THIS YOU MUST BE ABLE TO MEASURE THE MOTOR SPEED. WHEN THE MOTOR IS ON SPEED AT 50 BAUD IT IS ROTATING AT 3750 RPM, AND WHEN ADJUSTED CORRECTLY TO 45.45 BAUD IT SHOULD BE ROTATING AT 3408.75 RPM. SOME FORM OF STROBING DEVICE WILL BE NECESSARY TO MEASURE THE MOTOR SPEED, THIS CAN BE DONE AT TWO POINTS ON THE MOTOR, ONE IS ON THE GOVERNOR COVER AND THE OTHER A SMALL STROBE WHEEL NEAR THE HELICAL GEAR. THERE ARE FOUR (4) STROBE MARKS WHICH WILL RESULT IN 4 PULSES PER REVOLUTION. FOR AN ON SPEED 50 BAUD MACHINE WITH A MOTOR SPEED OF 3750 RPM, THE STROBE FREQUENCY WOULD BE 3750 DEVIDED BY 60, TO GET REVOLUTIONS PER SECOND, THEN MULTIPLIED BY 4, THIS EQUALS 250 PULSES PER SECOND OR 250 HZ. NOW FOR A MOTOR WITH SPEED ADJUSTED TO GIVE A MACHINE BAUD RATE OF 45.45 BAUD, THE STROBE READING WOULD BE 227.25 HZ. THERE IS A SIMPLE CIRCUIT AVAILABLE FOR A PULSE SHAPER USING A SINGLE OP/AMP AND A SILICON PHOTO TRANSISTOR (FPT100). THE PHOTO TRANSISTOR IS HELD NEAR THE STROBE MARKS AND A LIGHT IS DIRECTED TO THE SAME LOCATION AND THE OUTPUT OF THE PULSE SHAPER IS CONNECTED TO A FREQUENCY COUNTER. IT HAS BEEN FOUND MORE SUCCESSFUL TO USE THE STROBE MARKS ON THE GOVERNOR COVER. A SIMPLER BUT LESS ACCURATE WAY TO PUT YOUR MACHINE ON 45.45 BAUD IS TO ADJUST THE GOVERNOR SET SCREW ABOUT TWO TURNES ANTI-CLOCKWISE. THEN HIT THE KEYBOARD SPACE BAR AND THE REPEAT KEY ON THE CONSOLE ABOVE THE KEYBOARD AND RECORD THE TIME TAKEN FOR THE PRINTER CARRIAGE TO OPERATE THE BELL. FOR THE MOTOR TO BE ON SPEED WITH A MACHINE BAUD RATE OF 45.45 BAUD, THIS TIME WILL HAVE TO BE 9.9 SECONDS.

WHEEL OF FORTUNE: Bruce Swain, of Richmond, Virginia, got a lot of publicity in America earlier this year when he offered to serve 10 months of a jail sentence that had been given to his wife for possession of cocaine. The judge agreed to the swap, and Mr Swain entered Enrico County Jail. This week Mr Swain was released from jail five months early for good behaviour. His wife wasn't at the jail to meet him. He found out she has moved to North Carolina with their son, and is suing him for divorce. "I would love for the judge to tell her to serve all the time I served, because she has done me rotten," he said.

How come you offered to serve your wife's sentence?

I thought I'd be in a women's prison
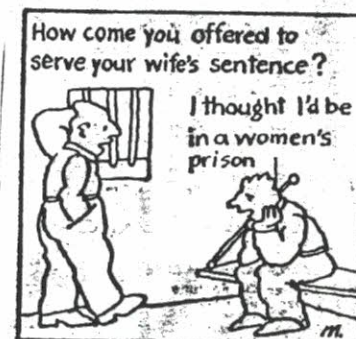
SYDNEY MORNING HERALD

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GETTING INTO RTTY NO.1

With the advent of the large numbers of cheap Siemens Series
100 Teletypes it is hoped that many club members will have
decided to take their first initial steps into the RTTY
mode.

This then is the first of what we hope is a continuining
series of RTTY article. If you have any advice,
information, circuits etc please feel free to share them
through this column. The object is to have as many of
these units up and running and for obvious reasons we
will try to make specific references to the Siemens
machine.

First Principles

The teleprinter uses a code of 7 pulses to represent the
letters, numbers and symbols. The code is called the
Marry or Baudot code. Five of these pulses represent
the code and final bit called a "stop bit". For amateur use
each code pulse is 22 msecs long and the stop pulse is 33
m/secs long. In addition there is a start bit which is
22 m/secs long. e.g.

START M -S M S M STOP
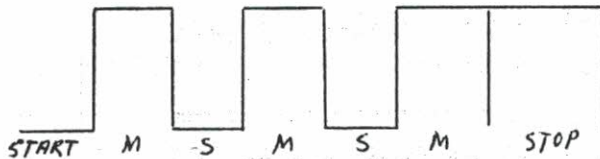
Teletypes are current operated devices and no current flow is
called a space and current is called a mark. The Siemens
loop current is 40 mA. Because the selector magnet
represents quite a large inductance the loop voltage should
be as high as possible (more than 80 VDC).

1) Getting Started

    The cover can be removed by unscrewing one screw
    each side of the case. First, check to see if the
    machine is complete i.e. there is each of the
    following:

    1. a motor
    2. a type basket
    3. a paper roller
    4. a selector magnet (at the front/left)
    5. a complete set of keys

    Don't panic if it isn't complete, the club may be
    able to arrange spares. A wise move is to be a
    spare machines to enable you to "rat" it for spares.

2) **Mains Input**

The machine requires 240 VAC to run the motor.
This is delivered through the socket at the machine
rear. The pins on the socket are numbered with
the top row having a subscript a) and the bottom
row subscript b) i.e. there are 26 pins

   (1a - 13a & 1b - 13b)

Attach mains active to Pin 1a, mains neutral to
Pin 3a, mains earth to either 4a or 4b (4a & 4b are
linked internally). Finally link Pins 1b & 2b
together using a wire jumper. Now insulate these
pins. Mains voltages have a way of biting you to
remind you they're there.

Switch on the mains and you will be rewarded with
the sound of the motor running and clattering type
bars. This is because you have no loop current and
therefore all spaces (i.e. no stop pulse). However
there is an automatic motor - stop feature fitted to the
Siemens 100 (also on the Creed 7B). Depress A ...
(letters) will restart the motor. If you wish to
disable this feature connect mains active to Pin 2b.

3) **Adding a Loop Supply**

You require a reasonably high (more than 80 VDC)
loop voltage to operate the machine reliably. This
should then have a 2K5 25 watt potentiometer in series
with the loop to limit the current to 40 ma (20 ma
for Creed 7B, 60 mA for Teletype Model 15).

This is best checked by temporarily connecting one side
of the loop supply with the limiting resistor to 11a and
the other side to 11b through a miliammeter and adjusting
the potentiometer to give 40 mA current flow.

After this is complete wire one side of the loop to
Pin 11a, the other to Pin 12a and wire a link between
11b and 12b.

Now when the mains are one the motor should run and the
machine will act as an electric typewriter. (Please
put paper in the machine so as not to mark the rubber
roller with the type). This will enable you to check
all key functions. Remember to punch the figures key
(1 ....) if you wish to type a letter or punctuation.
Even more important is to remember to punch letters when
changing from a letter to figures. (This is the classic
RTTY mistake).

This method of connection is called LOCAL LOOP.

If you have a TAPE READER fitted then you must wire this in series with the loop as well. The reader contacts are across Pins 13a and 13b. To add these lift the loop connection off 12a, connect it to 13b and add a wire link between Pins 12a and 13a.

Now by press the key . you will start the reader printing in direct loop. The whole circuit can be drawn as follows:
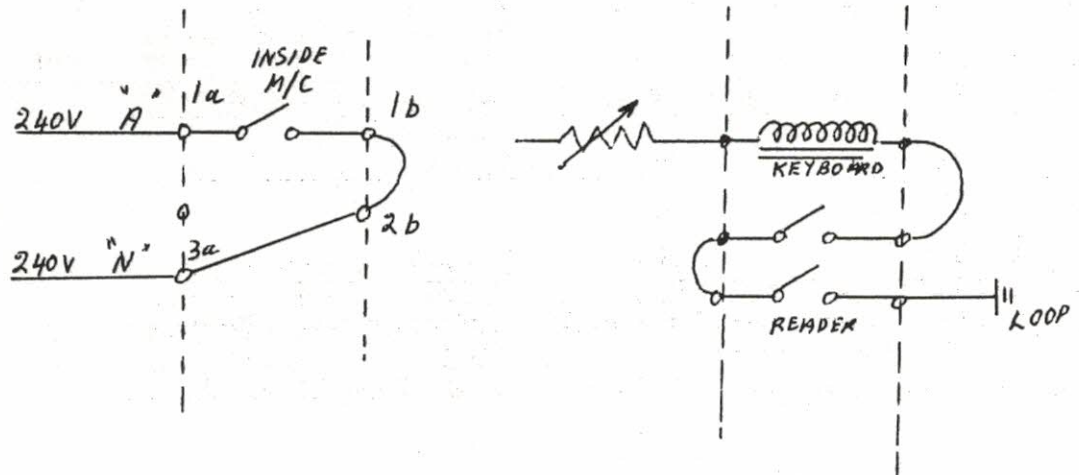
4.   Correcting for Speed

The teleprinter normally operates on 50 Baud whereas amateurs use 45.5 Baud.

50 Bd on the Siemens machines in 3780 RPM of the motor. You need to reduce motor speed to 3440 RPM. This is best checked using a tachometer. The speed is adjusted by means of a governor on the end of the motor.

Remove the die cast shield (4 screws) and rotate the motor until the screw on the governor is visible. (The governor is furtherest from the rear connector). About 3 ¼ turns anticlockwise will get the motor close to the required speed. If you can't beg or borrow (stealing is not allowed) a tachometer then once you have built a demodulator you will have to fine tune the correct speed by a series of trials and errors.

Does any local amateur have access to the Siemens method and equipment for checking motor speed???

Hoping to print you soon.

                                        Denis VKZDMR

Many thanks to John VK2BHO for information on Pin connections.

A SIMPLE RTTY MODULATOR

I have had many problems getting my ZWL based RTTY
Modulator up and running and finally, in a fit of pigue I decided
to scrap it and build a newer, simpler modulator.

The design was based on an idea and circuit from VK2CAG
Graeme. It is about as simple as possible and I have included my
version of a P.C. Board for you to copy if you wish.

Basically the circuit is a Colpitts Oscillator with two
transistor switches. The first allows the keyboard to switch in a
parallelled capacitor to decrease the frequency of the oscillator
and the second is used to switch the same capacitor using a morse
key for CW.ID. I have used an opto-isolator to isolate the loop
supply from the modulator.

No attempt has been made to switch at zero transitions
and this seems not to matter. No problem was found in getting the
circuit to work and I used junk box transistors. The inductor was
a pot core type of unknown vintage which was marked "450 mH". You
will have to experiment with the tuned circuit capacitance values.

I tuned the oscillator by measuring the mark frequency,
calculating the "effective inductance" of the inductor (in my case
346 mH) and then calculating the extra capacitance required to
produce a space tone. I used the formula:-

$$f = \frac{1}{2 \pi \sqrt{LC}}$$

This gave me tones almost exactly on frequency, and in
addition I can use my key directly for CW.ID.

Polystrene capacitors should be used for the two frequency
determining capacitors.

                                    DENIS   VK2DMR

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THOUGHT FOR TODAY:

Low SWR is not proof of a good quality antenna system or that it is efficient.
Lower than normal SWR exhibited over a frequency range by a straignt dipole or
a vertical over ground is a clue to trouble, in the form of undesired loss
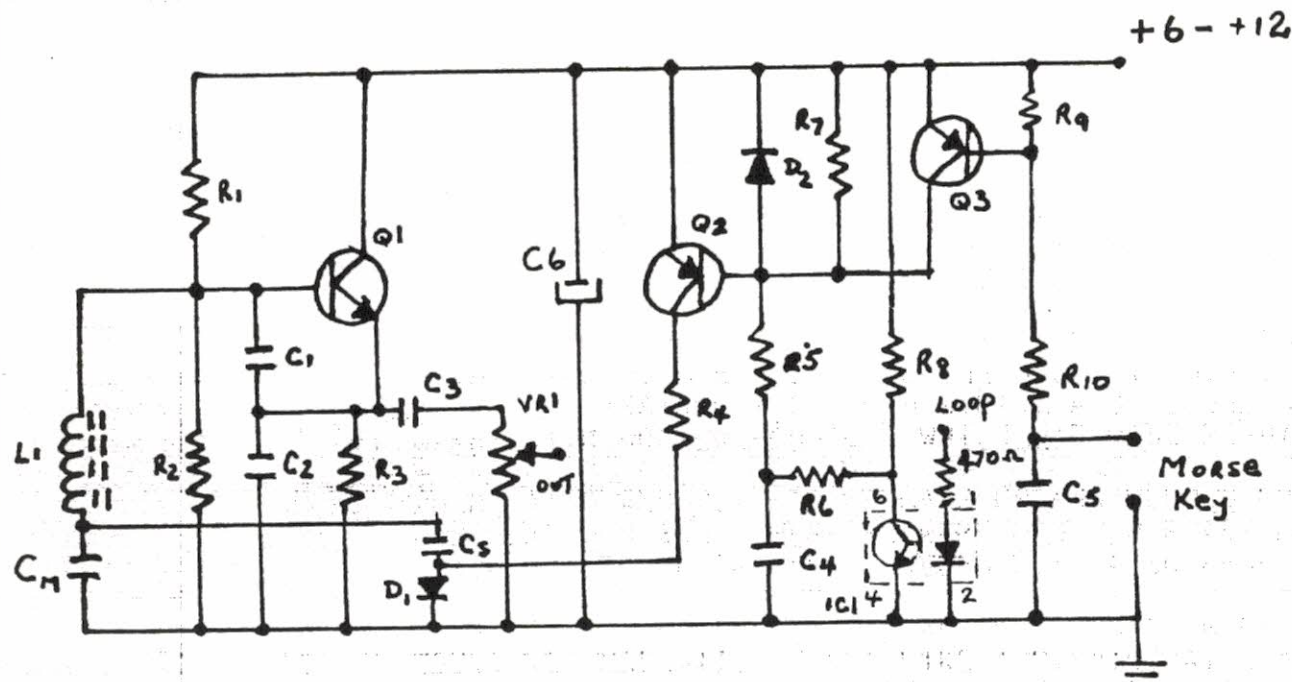resistance.

                              Ref: W. Maxwell. QST. June 1973

AND....A THOUGHT FOR TOMORROW:

The radiator of an antenna system need not be of self resonant length for
maximum resonant current flow; tne feed line need not be of any particular
lengtn and a substantial mismatch at tne line antenna junction will not prevent
tne radiator from absorbing all real power available at the junction.

                              Ref: W. Maxwell. QST June 1973

        From Oxley Region Amateur Radio Club Magazine - "OXTALES" - Xmas 1981.

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+6 - +12

R1, R2, R5, R6, R7, R9, R10.   10K ¼ watt

R3   2K2 ¼ watt

R4   4K7 ¼ watt

R8   270R 1 watt

Cm Cs   see text (polystyrene)

C1   0.47 mF greencap

C2 C4 C5   0.1 mF greencap

C3   0.01 mF greencap

C6   25 mF electro or TAG.
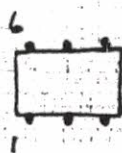
Q1 NPN Silicon (audio)

Q2 PNP Silicon (audio)

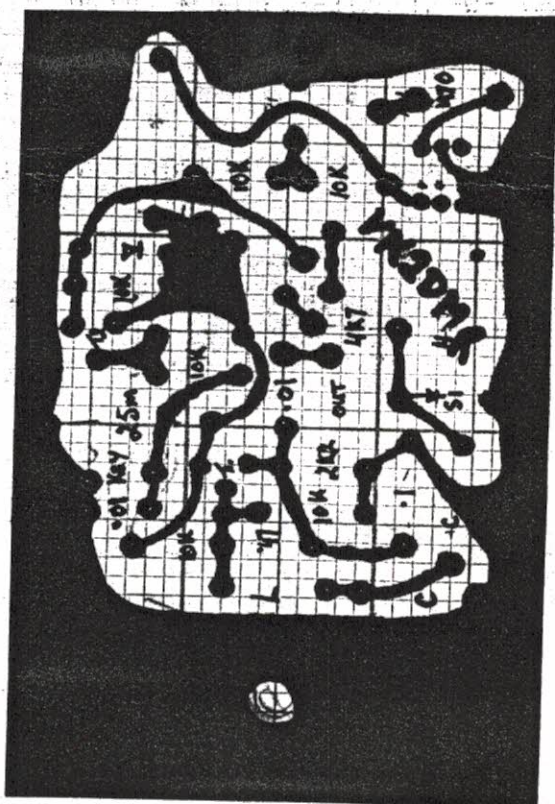Q3 PNP Silicon (audio)

VR1   10K

D1 D2   1N4148

IC1   4N28 opto-isolator

Component Side

Copper Side

THE ILLAWARRA AMATEUR RADIO SOCIETY

Meetings: Second monday of each month except January at 7.30 PM in the Congregational Church Hall, Coombe Street, Wollongong.

Postal: The Secretary, I.A.R.S., P.O. Box 1838, Wollongong 2500.

Repeaters: VHF 6850 (146.250 in / 146.850 out) - VK2RAW
UHF 8225 (433.225 in / 438.225 out) - VK2RUW

Broadcasts: Club news on VHF 6850, UHF 8225 & by relays via VK2PBP on 28.460 Mhz and VK2YKQ on 3.565 Mhz at 7.15 PM on the sunday night preceeding the monthly meeting. News to Eric Fien VK2YVF on telephone 71 6364 by 6.30 PM. W.I.A. relays via VHF 6850 at 11.00 AM & 7.30 PM every sunday.

Nets: 3.565 Mhz SSB on sundays at 8.00 PM & 28.440 morse at 8.00 PM every tuesday.

Newsletter: The Propagator is mailed to reach members in the week preceeding the meeting. Editor Leo Kleeborn, VK2YJK, telephone 84 9751 for news items and advertisments. Copy deadline is the last tuesday of the month.

Membership: Write to the Secretary or contact any committee member. Annual dues are $ 7.00 full member & $ 4.00 pensioner or concessional member.

QSL Service: Available to members of the I.A.R.S. who are ALSO members of the W.I.A. Bureau managers - Mike Keech (Inwards) & Ian Calcott (Outwards).

Award: The Award of the I.A.R.S. is the Lawrence Hargrave Award. VK stations must work 10 different I.A.R.S. members: Overseas stations must work 5 I.A.R.S. members. Alternatively any amateur who works the Club Station VK2AMW qualifies for the award. Send details of contacts - stations worked, day date, time and frequencies together with $ 2.00 or 4 I.R.C.'s to the Secretary. QSL cards are not required.

Store: The store operates at each meeting. Contact Paul Ferguson for stock details.

Committee: President - Keith Curle, 24 Beach Drive, Woonona 2517. VK2OB
Vice President - Denis McKay, 17 Doncaster Street, Corrimal 2518. VK2DMR
Secretary - Dave Myers, P.O. Box 1838, Wollongong 2500. VK2PBP
Treasurer - Geoff Cuthbert, 2 Nioka Avenue, Keiraville 2500. VK2ZHU
Repeater Chairman - Graeme Dowse, VK2CAG. Repeater sub-committee :-
Pat Jordan, VK2KEY; Denis McKay, VK2DMR; Mike Keech, VK2VXS, Eric Fien, VK2YVF; Mark Ryan, VK2KFI.
Broadcast Officer: Eric Fien, 331 Cordeaux Road, Mount Kembla 2526. VK2YVF
QSL: Mike Keech VK2VXS & Ian Calcott VK2EXN.
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Publicity: Dave Henderson, VK2YKQ.
General Committee: Jock Taylor, VK2JT; Ray Ball, VK2PHD & Morry Van de Vorstenbosch VK2EMV

Battery current measuring test probe

Here is a device to facilitate measuring current consumption in radio or cassette players, using batteries with spring contact connections.

It is almost impossible to insert test meter probes between the batteries and the contacts as the springs in the holder force them together. To overcome this problem, cut a strip about 10cm long and 7mm wide, of double sided copper clad board, or two strips of single sided board glued together. The copper sides should be thinly tinned to prevent oxidation. When completed the strip is sharpened at one end and can be inserted between the batteries and contacts. The meter probes can now be touched against the sides of the strip and the current read.

(By N. J. Moyes, in "Everyday Electronics".)