



REGISTERED AT G.P.O. HOBART
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Bulletin issued by the Wireless Institute of
Australia, Tasmanian Division, Northern Zone

P.O. Box 1010,
Launceston, 7250.

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BULLETIN OF NORTHERN ZONE W.I.A. TAS. JUNE, 1971.

Page 1.

Q R M may seem a funny name for a bulletin that is to provide communication zones. It appears to be fulfilling that function OK - it does tell you what Joe Blow is doing.

Its title has upset a few people sinze Q R M stands for man-made interference. Interfere it will - but why be scared of that. It will interfere with the inactivity of some members; with the "I couldn't care less" attitude of so many others and with the ideas of some people who have their eyes on our bands. You may ask "How can we interfere with them" - the answer is simple - UNITY.

Amateurs, on the whole, are a nice mob of people. No doubt you have found out; a knock on the door of a Ham Shack is all that is necessary to make it swing open to be invited in for a very pleasant visit. And why not - you have so much in common. You ask for help and you get it. But why should it be necessary to ask. You knew he was going to erect that antenna. You knew that beginner was having trouble with his first tx or rx. Why should he have to ask when it is so much more satisfying to pay him a visit and make a few casual comments that will bring the questions flowing. You may even learn something yourself.

We may at times grumble about the benefits or the cost of subs, to the W.I.A., but remember it is being run by people like you and me and no matter what club you belong to, there is always some clash of personality and items on which people disagree.

Remeber - unity is strength and unity comes through the W.I.A.

Have you paid your sub. this year ?

JOHN 7JV

COMING EVENTS

June 1st	North West Meeting - Lakin's Hall, Ulverstone
June 11th	Northern Meeting - Films - A.E.B. Rooms, 51 York Street, Launceston
June 13th-14th	Mt. Gambier Convention.
July 14 ⁹ th	Launceston Council's Visit.
July 10th	Council Meeting Devonport.
August	R.D. Contest.

The general meeting of the W.I.A. Tasmania Northern Zone, was held at the Adult Education Rooms in Launceston on the 14th at 8pm, and was well attended by members and visitors. The minutes for the previous meeting were read and confirmed. The president congratulated two members Graham VK7GT and Brian VK7BY on arrival of harmonies.

Reports were presented by treasurer, councilor and Australis representative. The treasurer's report showed that the equipment store had really jumped off to a good start during the month. Councilor John reported on the May Council meeting in Hobart, and Peter passed on to members the latest information on the Australis Project (information in later part of this publication).

In General Business the publication Q.R.M. was discussed at some length. The main points from this being:-

- (A) It was a very good thing
- (B) Its production should be continued at an economical level
- (C) Members may contribute in \$\$\$ or items for publication
- (D) An endeavour be made to increase number of members in the Northern Zone

The meeting concluded at 10pm and the next meeting will be on 11th June, 1971.

LINDSAY 7ZLD

Y I P P E E E E E HE'S A FATHER!

CONGRATULATIONS to BRIAN 7ZBY who was presented, by his wife Diane, with their first baby : a boy. Could be the first of many more.

ALSO to GRAHAM 7ZGT who was presented by his wife - also Diane - with a baby - also their first - also a boy!

BEVAN 7CX had a close brush with licensing police. Seconds before they burst in he put an empty glass on the Bar and missed out on being booked.

REG 7KK has real novel ideas about beam instalation. He has 2 and 6 meter beams on the same mast 20ft. high - one aiming North the other South. Yes, he has a rotator on it!

WOULD you like to see a beaut little rig. Trevor (BUGS) 7TB has the FT101 plus ext. VFD. Also building a X beam for 20m. If you go to see him, a word of warning: BEWARE OF THE DOG!

NORM 7ZNR left Tassie for Melbourne and took out his old Call 3ZTC (TOP CAT). But after a month decided that he couldn't do without our company and came back. Now going to take his old Tassie call again 7 ZNR.

JOHN 7JV has taken up taming 6/40s on 2M. S.S.B. John has built the transverter described in A.R. March, 1967. He says it works beaut and is considering another one for 160M.

ERIC 7ZEC experimenting with the durability of Radio receivers and meter panels by leaving them out in our Tasmanian weather for 3 weeks or so. Results were disastrous but it made a good home for the spiders.

HAM school teacher is better known as KILLER among his pupils. The reason says an ex pupil, is that he is a dead shot with a piece of chalk and a killer with a blackboard duster.

FOR SALE: Trio TS510 5 Band Transceiver S.S.B., A.M. and C.W. 160 watts P.E.P. Including power supply and microphone. \$450.00 O.N.O. Contact NICK LARSEN 7NL, 43 Upton St. Launceston. 7250.

NOTES FROM NORTH-WEST ZONE

The Monthly meeting was held on 1st May with a very good attendance. Routine matters were discussed but the meeting was a comparatively short one. It looks as though the affairs of the zone are running smoothly. At the conclusion we were treated to a most interesting lecture on a specialised type of communication. It was very ably given by Mr. Don Cunningham of the Department of Agriculture who told us of some amazing ways in which Honey Bees communicate, and their distance measuring equipment which would be the envy of any ham. Mr. Cunningham had a very attentive audience indeed and we are most grateful to him for sparing his time. Many of our chaps went away wondering why we need valves and things to do the same job!

At an odd moment we asked some of the chaps what they thought of the new QRM. Some replies are quoted: 7SF- "Wonderful". 7KH - "Very good". 7MZ - "All right- very good". 7AX - "Pretty good". 7LH - "Jolly good". "Would like a question and answer section". Associate Ian Ellings - "Extremely good". Graham Rand - "Fantastic!" Couldn't get any criticism at all!

Believe Tony 7AX has produced a picture on closed circuit T.V. Les 7LH has lost an element off the 2 meter antenna - can't hear any difference so it wasn't working maybe.

David 7MS was heard on the Sunday broadcast. It looks as though the moths and spiders were suddenly ejected from their placid living quarters.

A couple of the local lads operated on Ian's 7KB antennas one Sunday morning. Unfortunately the beam rotator had stripped the gears in one of the mighty gales experienced there lately. The trap vertical was lowered also, tuned up etc. and is now a going concern. Possibly Ian's monthly heap of cards will become a bigger heap now.

In the same gale, one of the main nylon stays on 7MX X beam sawed off on the chimney. Now it's a Y beam, almost.

Recently Terry 7TT phoned 7MX concerning subs. etc. Now here is a good ham going to waste! At one time he was the most enthusiastic operator on the coast. How about a comeback Terry.

News of John ex VK7JF now 3CDX. John was host for the night to ZL3DY and XYL on their way from 7MX to ZL. No doubt they would find something in common as John and Rex and XYL Margaret all pilot small planes at times.

7MX.

Q.R.M. FOR THE SOUTH

Since postal regulations state that 75% of the bulletin must be posted to members, it will be quite impossible to keep sending Q.R.M. to amateurs in the South. However, if you have enjoyed reading the two issues that came your way and you would like to remain on the mailing list it is only necessary to become a member of the Northern Zone. To do this - fill in the form below - of the \$1.00 received from people outside the Northern Zones - 25 cents will be donated to Australis-Oscar B.

SO kill 2 birds with one stone:

- (1) A donation to Australis
- (2) A sub. to Q.R.M.

ZONE FEES.

These are now due. Northern Zone W.I.A. members - remember your zone provides many of the facilities available in Hobart - help it by sending your dollar. Complete the form below if you're unfinancial.

TO:

Northern Zone, W.I.A. Tas.,
P.O. Box 1010,
LAUNCESTON.

NAME.....CALL.....

ADDRESS.....

During the past two months the zone has purchased from the VK3 division parts to the value of \$400.00. Most of this has already been sold. The following items are still held in stock.

Contact Kevin 7ZAH at 8 Clarendon Street, Young Town. Phone HOME 469772
WORK 321208
for your re-
quirements.

2N3563	0.60c ea.
2N3564	0.60c ea.
2N3565	0.60c ea.
MPF 102 FET	0.50c ea.
MPF 121 DUAL GATE MOSFET	0.90c ea.
2M5145 (TIS88) JFET	0.90c ea.
2N3819 JFET	0.70c ea.
0.7-6PF TRIMMERS	0.25c ea.
1.5-9PF P.T.F.E. TRIMMERS	0.25c ea.
1.5-12PF " "	0.25c ea.
MC 1550 I.C., RF., IF. AMP	1.30c ea.
9V ZENER LOW WATTS	0.40c ea.
470 PF BUTTON BYPASSES	0.50c ea.
EM408 DIODES 800V P.I.V. 1AMP.	0.50c ea.
NEOSID FORMERS	0.05c ea.
SLUGS F16 + F29	0.04c ea.
SINGLE CAMS	0.07c ea.
DOUBLE CAMS	0.08c ea.
XTAL SOCKETS D TYPE FOR	
PRINTED CIRCUIT BOARD	0.20c ea.
PACK OF 5 VALVES 1-6AK5 2-6Au6	
2-6BA6	1.00c ea.
B/LEE COAX SOCKETS FOR PRINTED	
CIRCUIT BOARD	0.20c ea.
RESISTORS $\frac{1}{2}$ W INDIVIDUAL VALUES	0.04c ea.
RELAYS 4 CHANGE OVER CONTACTS	
12V MINIATURE	2.50c ea.
SOCKETS FOR ABOVE	0.45c ea.
W.I.A. CAR TRANSFER	0.15c ea.
FIBRE GLASS BLANKS 4'6" LONG	
(FOR MINIWHIPS)	1.50c ea.
T.C.A. 1674 CIRCUITS	0.50c ea.
AIR DUX COILS	
HANDBOOKS AWA MR-20B FM CARPHONE	

THE N.W. ZONE ALSO HAS A LARGE STOCK ON HAND INCLUDING METERS
CONTACT HAROLD VK7MZ.

LEST WE FORGET

It is with regret that we record the passing of Max Loveless VK7ML. Max is well known for his efforts during World War II.

The article below is from a book called "Signals" and was issued by the National War Memorial.

"WINNIE THE WAR WINNER".

In the dark days of 1942 when the tide of Japanese successes engulfed the islands of the Pacific practically down to the shores of Australia, very few people held out any hope for the troops who formed the garrison of Portuguese Timor. No word from them had reached the mainland for fifty-nine days and yet during that time the tiny force of less than 400 men had been waging a ceaseless and successful war of their own against some 15,000 crack Japanese troops. They continued to do so for almost twelve months altogether.

When the Japanese landed at Dilli on the 19th of February, twenty men of the 2/2nd A.I.F. Independent Company managed to blow up the airstrip and fight their way back into the hills to join the other units of the garrison in a bitter guerrilla war against the enemy despite the fact that contact with the mainland had been severed.

It was vital to re-establish communications with Australia and it was for this purpose that men of the Independent Company, the Fortress Signals section on the island and members of Signals 8 Aust. Div. pooled their resources to build a wireless set which would be capable of raising Darwin. They had to start from scratch without spare parts or new batteries. The sets they had were too weak; scrounging, the recovery of buried and damaged equipment and raids by fighting sections into enemy camps for materials all played part in the construction of the set which finally saw the light of day and served the Commandos well and faithfully under the name of "Winnie the War Winner".

The first plan was to build an oscillator with a stage of amplification to work on the frequency previously used in communication to Australia. Without a receiver and with no instruments this was a tall order, but under Capt. George Parker (Signals 8 Aust. Div.) four men - Cpl. John Sargent and L/Cpl. John Donovan (2/1st Fortress Signals Section) and Sigm Max ("Joe") Loveless and K. Richards (2/2nd Independent Company) - tackled the job. Loveless in civil life had been a technician with 7ZL Hobart.

He started by building a transmitter, using a crystal which by luck was close to the required frequency. Power supply became a problem and the couple of available accumulators were nearly flat. News was received of a charging plant in a nearby village and off went the accumulators under escort to be charged. This procedure occurred quite a few times until it was managed to make what naturally became known as a "boong" charger. This instrument of native torture consisted of a system of wheels, a belt driving a motor-car generator and, as the name implied, was turned by natives. Their enthusiasm for the job fluctuated and so consequently did the charging rate.

A broken-down 109 set was discovered and the transmitter was stripped for parts to provide an additional amplifier for the oscillator - more punch, stronger signals, better chance of being heard.

Three days after they had commenced to construct the new set, a Dutch sergeant stumbled into the camp with what he thought was a transmitter-receiver. It proved to be nothing more than the usual commercial medium-wave receiving set - and out of order, too. The sergeant's effort in carrying this set over forty miles through some of the worst country in the world was not in vain for there were many good parts in it which could be used in the new set.

Loveless planned to build a transmitter, powerful enough to reach Darwin, from all the spare parts on hand. He planned the circuit and asked all the Commandos to keep their eyes open for any parts that might be at all useful. Cpl. Donovan went on a scrounging trip to Attamboa, on the north coast, and returned with the power pack from a Dutch transmitter, two aerial tuning condensers, some sixty feet of aerial wire and a receiving set.

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The task of building "Winnie" went ahead without delay. Coils were wound on bamboo formers, accumulators were recharged, points were soldered and valve sockets were made. Just about everything had to be guess work in the absence of precision tools and instruments, even to the perusal of a Portuguese radio manual to determine the color code of resistances and condensers. A battery charger was recovered from the enemy when fourteen Commandos went through the Japanese lines to the old Australian H.Q. at Villa Maria. Only a hundred yards from the Japanese they dug up a charger which

had been buried there when the H.Q. had been forced to move.

The set was ready to go on the air by the 13th of April when the operator tried to raise Australia with "C.Qs." and "Xs" but no reply was heard. Turning the dial of the receiver, the sounds of music floated into the small shack. Some troubadours were amusing the listening public with a song about "The Last of the Hill Billies". The transmitter was revised and on the 18th of April another attempt was made to contact the mainland. No reply was received but the disappointment of the men would have been allayed had they been aware that their signals had been picked up and passed on to Darwin. All Australian transmitting stations were warned to keep off the air and listen for Timor on the following night.

Some days prior to the 19th of April the H.Q. of "Sparrowforce" (as the Commandos were known) had given the operators a couple of encoded messages "just in case". On that fateful night, "Joe" Loveless tuned up the rig and everybody stood by listening to the chosen group. With suppressed excitement the "brass was pounded" and the highest priority put into the call. The operator was prepared to do this for a couple of hours but a hefty answering signal came back in reply. He was so nervous that he could not tap out the answer fast enough. Although he did not know it, all Australian stations on the group were ordered to stand by and after some hours the messages were passed. A tin of Australian tobacco which had been kept for such an occasion was opened in celebration and a toast in coffee was drunk to "Winnie".

On the following night contact was established again but this time Darwin was suspicious and demanded proof of the guerrillas' identity. Questions and answers were flashed across the Timor Sea: "Do you know Jack Sargent?" "Yes, he is here." "What rank? Answer immediately." "Corporal." "Bring him to the transmitter." "What is your wife's name, Jack?" "Joan." "What is your street And house number?" The correct answers were flashed back and the mainland accepted the fact that the Australians in Timor were still alive and fighting. Strengthened by the assurance that their homeland was making every effort to help them, the men in Timor fought on. They lived like natives, scrounged their food in the villages, out-fought the Japanese and mocked the surrender notes with which the enemy regularly assailed them. The Japanese commander paid them a hard-won tribute when he said: "You, alone, do not surrender to us."

On the 26th of April, an Allied plane came over searching for the party but missed the smoke beacons. It returned just on dusk the following night and dropped parachutes with precious food and stores. Bush wireless took up the glad news and men who had been going barefooted to save their boots for more active work were issued with new pairs. It was then that all knew that "Winnie" had made good.

The mainland wasted no time in asking for bombing targets which were promptly and happily supplied. The men then enjoyed the sight of Allied bombers passing overhead on their way to give the Japanese a taste of their own medicine. A remarkable instance of co-ordination occurred when interference halted a message regarding bombing targets that was being passed one night to Darwin. When conditions improved at 7 o'clock the next morning, the message was completed. As the operator was receiving an acknowledgment from Darwin, our bombers were overhead on their way to the target. On another occasion, an enemy convoy of three ships was sighted and a message promptly despatched to the mainland. The R.A.A.F. sank all three and relieved an ugly situation.

"Sparrowforce" took fresh heart from such things. The men realised that they were no longer a lost unit but another link in the chain that was then being welded for the final overthrow of the enemy.

"Winnie the War Winner" did noble work and as a fitting climax to a useful career guided the rescue party that eventually took the guerrillas home from Timor.

This weird but wonderful set now resides in the Australian War Memorial where it occupies an honored place as a relic of the ingenuity of signalmen in the face of odds and difficulties.

AMSAT NEWS.

Their latest newsletter tells that there could be three repeaters launched together. NASA Headquarters have approved the launch of AMSAT - OSCARB as a secondary (piggyback) payload. A mission with which OSCARB can ride has not yet been identified but it is hoped this will be done shortly so that a tentative launch date can be announced.

The equipment to be included in the A-O-B satellite is (subject to change):

For the Australis Repeater:

Uplink: 145.800, 145.850, 145.900 and 145.950 MHz

Downlink: 432.200, 432.250, 432.300 and 432.350 MHz

4 FM paired channels

For the DJ4ZC/DJ5KQ Repeater:

Uplink: 432.150 MHz Center Frequency

Downlink: 145.950 MHz Center Frequency

50 kHz Bandwidth, Linear Repeater

For the 2/10 Repeater:

Uplink: 145.950 MHz Center Frequency

Downlink: 29.500 MHz Center Frequency

100 kHz Bandwidth (minimum) Linear Repeater

Details of the Australis Repeater have been fairly well covered but the other two devices are not so well known.

AMSAT 2/10 REPEATER

Australis - Oscar 5, with its ten meter beacon provided the stimulus for this unit. Listed below are the basic characteristics of the 2/10 repeater "breadboarded" version.

Input Frequency: centered at 145.95 MHz.

Output Frequency: centered at 29.5 MHz (note - this represents a change from the previously announced frequency of 29.6 MHz which turns out to be the national ten meter FM frequency in the USA.)

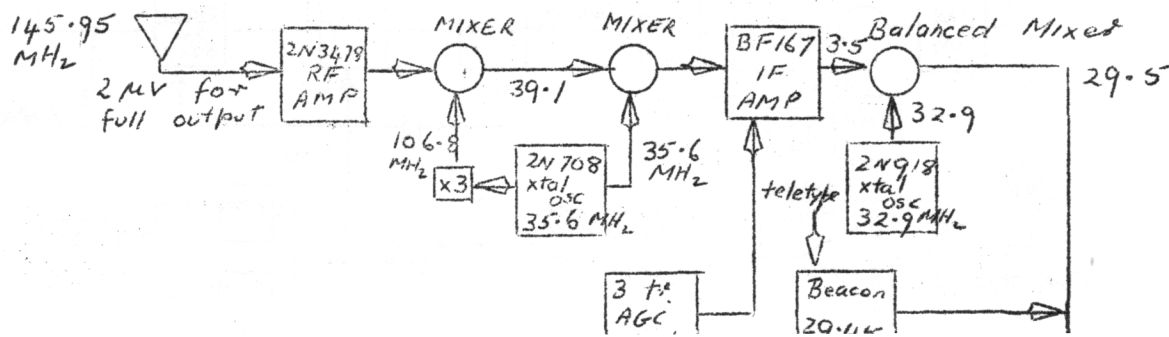
Beacon Frequency: 29.45 MHz (Same as Australis -Oscar 5).

Repeater Bandwidth: measures 120 kHz at 3 dB-down points, 150 kHz at 6 dB down, and 240 kHz at 10 dB down. This means that stations capable of operating with higher power than that normally required to operate through the repeater can operate further from the repeater center frequency thereby avoiding QRM from other stations using the repeater. In other words, the usable bandwidth for high power stations is approximately 240 kHz.

Repeater Output Power: presently measures approximately 1.3 watts; final goal is two watts PEP.

Input Sensitivity: approximately 100 dBm (2 microvolts/meter) for full repeater output.

Ground Station Power Required to operate through the Repeater: 80 watts of effective radiated power develops full output from the repeater, assuming a maximum distance to the satellite of 2000 miles. An eight watt transmitter and 10dB gain antenna should be sufficient, or a 80 watt transmitter and an omnidirectional antenna. Antenna Gain Required for Reception: 0 to 8 dB. A ten meter dipole or beam should give good results at a maximum distance to the satellite of 2000 miles.



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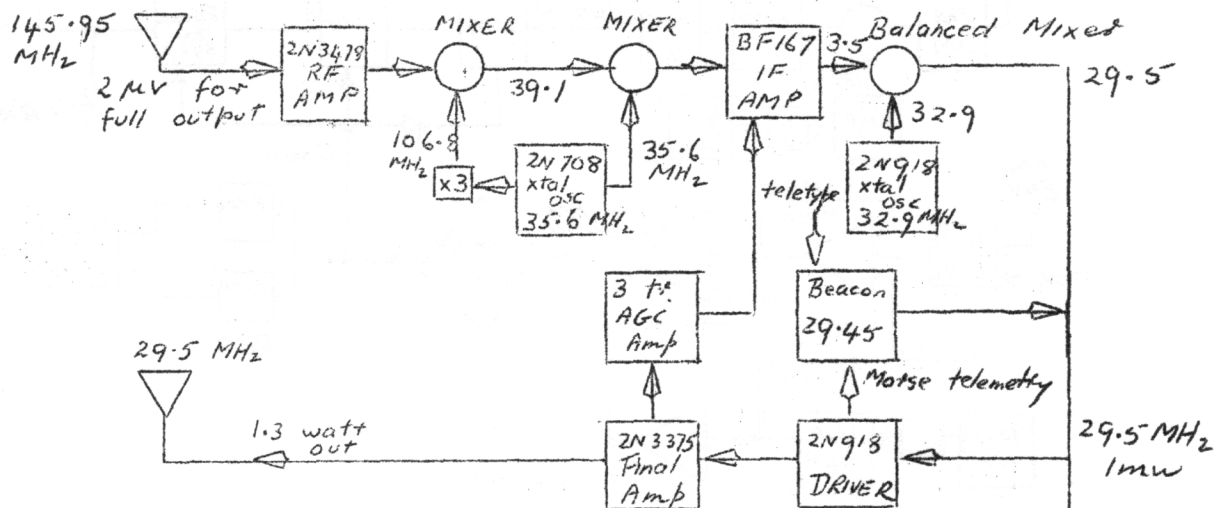
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THE DJ4ZC TRANSLATER

The figure gives a system diagram of the translator and demonstrates a relatively new technique of elimination and restoration of the envelope of a signal to obtain high modulation efficiency for the limited power system on the satellite (SOLAR CELLS).

In a conventional converter the 432 MHz signal from the ground is heterodyned twice to a 10.7 MHz IF. A 50 kHz crystal type band-pass filter made especially for the purpose sets the bandwidth of the repeater and limits the noise through it.

After amplification and insertion of a beacon signal for telemetry and tracking purposes a twofold detection is used to obtain:

- (1) Regular AM-diode detector to yield a signal envelope;
- (2) A phase angle signal component similar to demodulation recovered from a high gain amplifier-limiter.

Other practical refinements to assure low power drain and linear operation were used by DJ4ZC.

Specifications of the "TRANSLATER-H" as they are now follow:

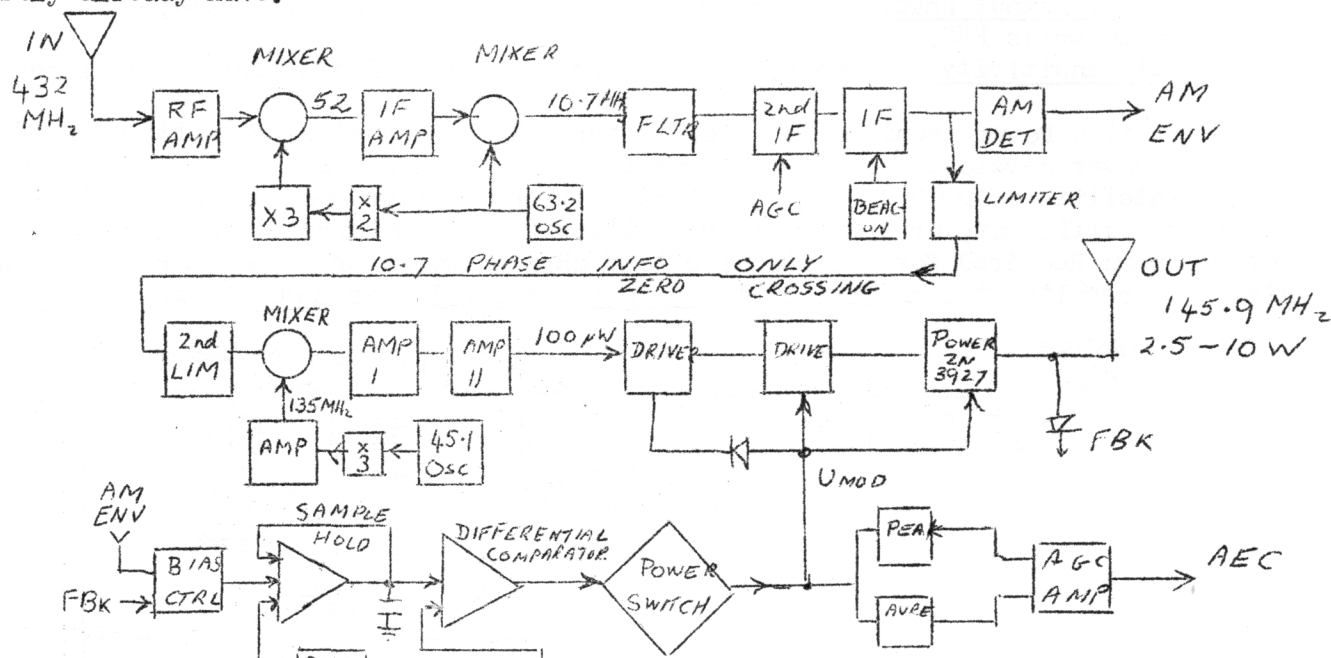
Center Frequency in.....	432.15 KHz
Center Frequency out.....	145.95 MHz
Passband.....	50 KHz
Max. Output Power.....	10 W PEP
Low Power Mode output power.....	2.5W PEP
Beacon Frequency.....	145.975MHz
Input Sensitivity for full output.....	1.5 uV (-103dbm)

CW, AM, FM, or SSB can all be used.

For an amateur to communicate through the orbiting "TRANSLATER-H" a 10dB antenna gain with 20W transmitter power at 432 MHz should be available according to our calculations. For receiving a 10 dB gain antenna connected to any of the commonly available 2 meter converter or receiver arrangements suffice.

To judge from comments of all those involved during that December test period quite an education resulted and it should benefit in better ways and means for constructing satellite transponders. Many insights were gained, such as: during the transition to vacuum corona occurs if the transmitter is on and can damage components if they are not located and chosen properly.

Since the coming Oscar hopefully will stay up for more than a year, all active VHF amateurs should be able to make transcontinental contacts with equipment they mostly already have.



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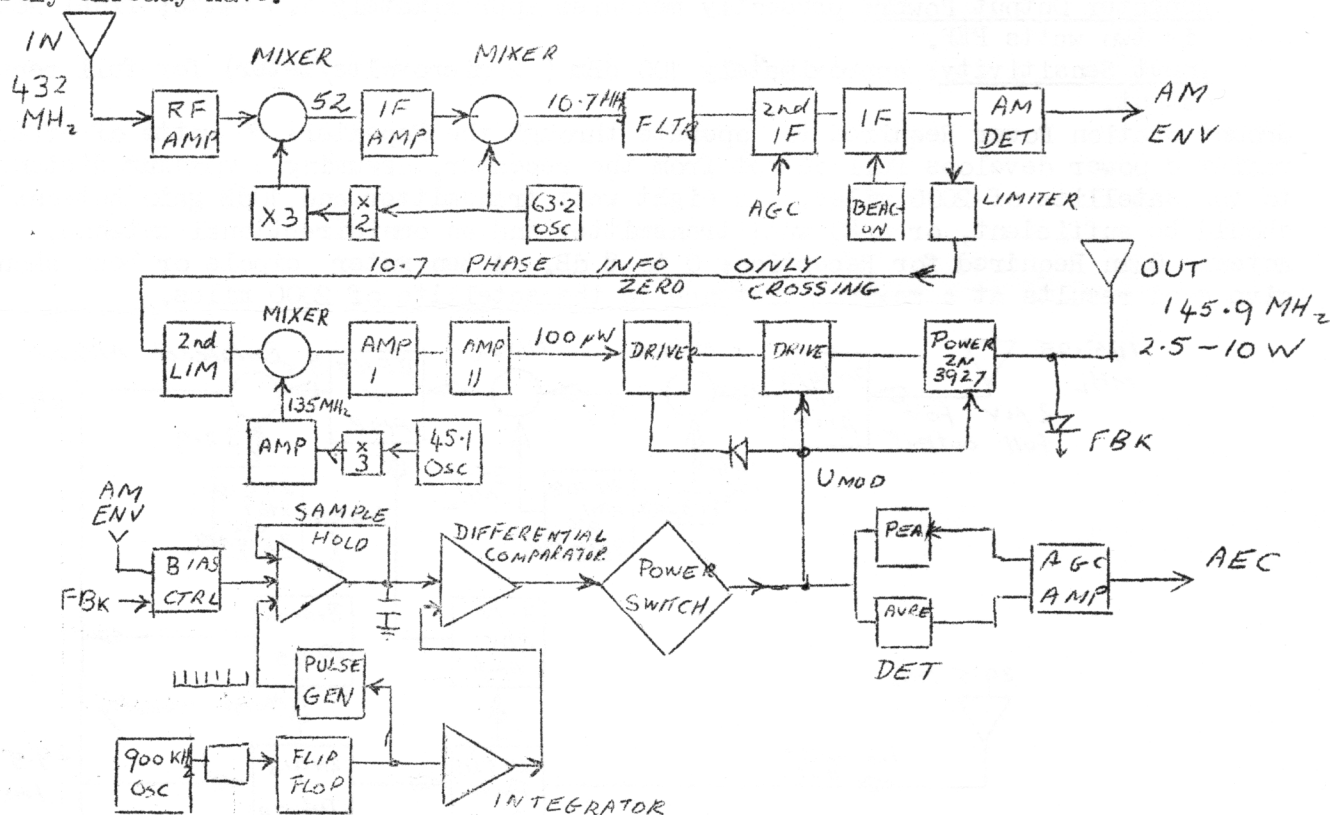
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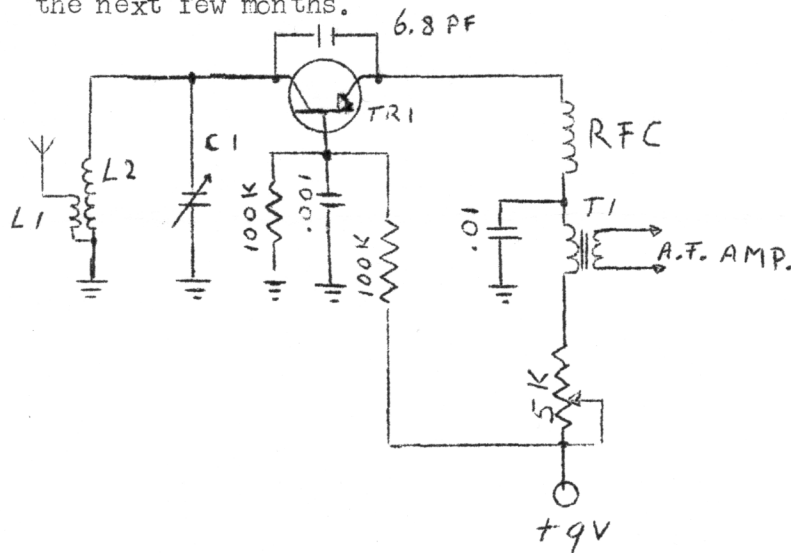
To judge from comments of all those involved during that December test period quite an education resulted and it should benefit in better ways and means for constructing satellite transponders. Many insights were gained, such as: during the transition to vacuum corona occurs if the transmitter is on and can damage components if they are not located and chosen properly.

Since the coming Oscar hopefully will stay up for more than a year, all active VHF amateurs should be able to make transcontinental contacts with equipment they mostly already have.



2M SUPEREGEN

Northern members - let's all build this unit and have some transmitter hunts in the next few months.

L1 $1\frac{1}{2}$ T. $\frac{1}{4}$ "D T.C.W.L2 $3\frac{1}{2}$ T. $\frac{1}{4}$ "D T.C.W.

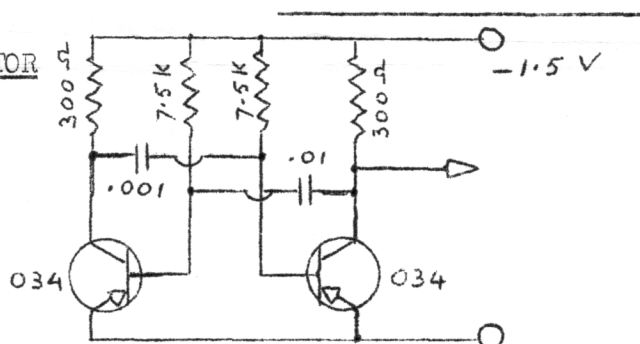
C1 2-10PF CERAMIC SCREW TYPE TRIMMER

RFC 24T. $\frac{1}{4}$ "D 26 SWG EN.T1 INTERSTAGE TRANS.
EX TRANSISTOR RADIO

TRI OC170 ETC.

(BF115 REV. POL.)
(2N3564)

The original receiver was built in a mustard tin with the screw type trimmer & pot. together with a phono type female socket mounted on the lid. A gamma matched dipole soldered to a plug fitted directly on the lid. The amp. used was a single OC71 driving 2000ohm headphones. Other suitable high frequency transistors should work equally as well. Sensitivity was such that 2-3 uv was a readable signal.

SIGNAL INJECTOR

The injector uses components available on some of the computer boards. The astable multi circuit provides clean square waves with risetimes fast enough to produce a herringbone pattern on a T.V. receiver tuned to Channel 3.

The original was built in an aluminium tube with an insulated probe on one end and a push button mechanism on the rear to contact the 1.3v mercury cell. With a supply of 1.3v the current drain is approx. 4mA and a voltage output at least 1 volt.

BOB 7ZRF

MINIWHIP

A note from Doug, 7AB, tells of his experience with these antennae. He uses it on his Swan and has it mounted on a ski rack across the top of the case. On 80 metres he uses a base load into which is screwed the 40 metre whip.

Results on all bands are "fantastic" according to Doug - to prove it he works ZL mobile on 80, G on 40 metre phone and the best on 20 being mobile to mobile with G3JAF! He also mentions a QST article which is apparently, the original source of information. Thanks Doug. for this information and your interest.