

THE WORLD BELOW

400 GHz

The Periodical Newsletter of the
WAIKATO VHF GROUP Inc.,
ZL1IS,
C/- 35 Lancaster Street,
Dinsdale,
Hamilton 3204



**NZART
BRANCH 81**

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DECEMBER 2024 ISSUE

WAIKATO VHF GROUP EXECUTIVE

President	David King	ZL1DGK	07 884 9590
Vice President	Neill Ellis	ZL1TAJ	07 576 1999
Secretary	Vacant		
Treasurer	Ian Brown	ZL1TAT	0274 818 414
Committee	Morris Beale	ZL1ANF	07 884 8416
Committee	David McMillan	ZL1TLQ	027 477 0854
Trading Table	Tom Bevan	ZL1THG	0273 093 449
NL Editor	David King	ZL1DGK	07 884 9590

General Meeting December 2024

A General Meeting of the Waikato VHF Group will be held on

Sunday, 8th December 2024, 1:30pm

at the Silver Fern Farms Event Centre, (aka Te Aroha Events Centre),
44 Stanley Ave, Te Aroha (Ballance Room, our usual venue)

Our guest speaker will be Andy Brill ZL1COP (retired Police Inspector)

who'll explain how the Police communication centres operate including the Telephony, Computer Aided Dispatch, and radio networks, plus how AREC supported Auckland Emergency Management during the Cyclone Gabrielle storm.

The "WaiPlenty" 2m network on 146.950 will be monitored prior to meeting for anyone requiring directions.

Vacancy:

Can you become our Secretary? This executive management role is essential for our Group to fulfil requirements of the Incorporated Societies Act, and involves handling correspondence, maintaining custody of records, preparing meeting agendas plus minute taking at committee and general meetings. You'll need to have been a financial member of NZART and our Group for at least the immediate past twelve months before taking up this role. Can you assist?

We have a new web site!

The Waikato VHF Group Inc. web site has been updated and refreshed with a new look thanks to work done by committee member and our newly appointed webmaster David ZL1TLQ.



Software used on our previous web site had become out-dated and was no longer supported, so our new web site is based on current software (*Bootstrap Studio*) offering features not previously available. See our new look web site at the same address www.zl1is.info

Secretary required

A call at our 22nd September general meeting, and again via the Special Newsletter issued on 6th October didn't attract someone to fill this role. The position of Secretary is fundamental to proper operation of our Group, as it is to any incorporated Society, and sharing duties among membership spreads our workload. Anyone prepared to put their hand up?

This position doesn't have an onerous work load, just a little bit of dedication and organisation. Remember to check with your nominee first, or you're welcome to self-nominate.

PO Box 606 being relinquished

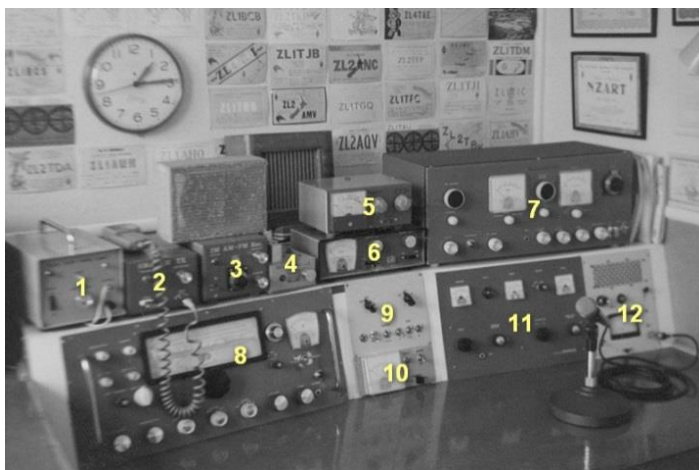
From the end of 2024, we (and Hamilton Amateur Radio Club, NZART Branch 12) will no longer hold PO Box 606 in Hamilton, so don't send mail to us at that address. For any physical mail, please use the address on page 1 of this newsletter for the time being.

Kaimai National System

Work continues on preparing our new repeater equipment for installation at our Kaimai site, with purchase of items to upgrade that installation. A Low Voltage Disconnect (LVD) has been secured to protect '850's battery from excessively deep discharge during an extended mains power failure, plus a commercial data transceiver to facilitate off-site access to our replacement repeater for remotely monitoring performance as revealed at our September 22nd meeting.

ZL1TAT – a short history

First licensed in 1963, the year “Technician class” licenses were introduced, Ian Brown was active on 2-metres and 70cms from a home station on his parents farm at Hinuera. His radio shack was purpose built (Ian’s 2nd choice of trade while at school was to become a carpenter).



EQUIPMENT IDENTIFICATION: (C 1969)

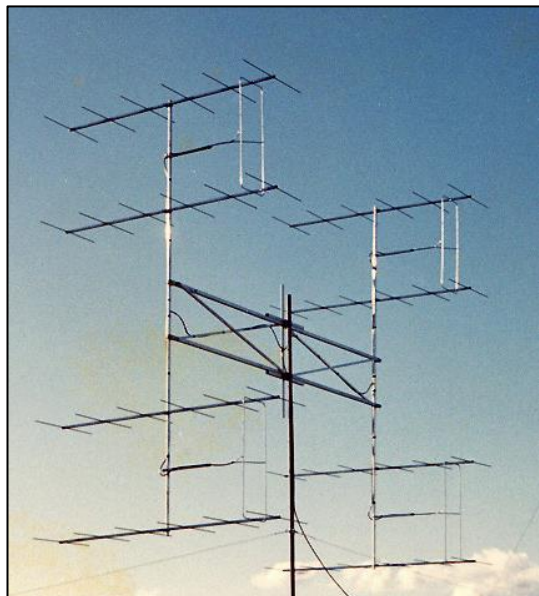
- 1 = 12V/3A Power Supply (powering items 2 & 3)
- 2 = Solid state 2m FM Tx
- 3 = Solid state 2m FM Rx
- 4 = IF Noise Blanker operating at 14~16MHz
- 5 = VSWR Bridge (prototype of item sold by VHF Group)
- 6 = Modulation Monitor (off air monitor)
- 7 = 100W VFO controlled 2m AM/FM Tx
- 8 = All-Band HF Rx
- 9 = Radio Equipment selectors
- 10 = Beam Rotator (for tower mounted antennas)
- 11 = 40W 70cm Tx
- 12 = Intercom & Microphone level monitor

HT power supplies plus a high-level modulator were rack-mounted below the bench (out of sight in this photo). Everything in that station was home-brewed, in fact the only commercially manufactured item owned then was an analogue multi-meter, which Ian still retains.

In those days, most stations used crystal-controlled transmitters so their operating frequency was determined by what crystal they’d obtained, often from “junk sales” (this was before the days of frequency synthesisers). Radio contact was established by calling on your particular frequency, then “tuning the band” for another station’s response. Operators became accustomed to where in the band particular stations would appear. To improve chances of a targeted station hearing him, Ian developed a VFO controlled home-station **2m Tx (7)**, enabling him to pop up on any chosen frequency - which was particularly effective!.

Receiving arrangements generally comprised a 2-metre (or 70cm) converter down-converting the VHF or UHF band to the tuning range of a HF receiver. ZL1TAT's 2m receiving converter employed (½" high Nuvistor™ metal-encased vacuum tubes, first released in 1959; <https://en.wikipedia.org/wiki/Nuvistor>) translating 144~146MHz down to the 14~16MHz **all-band Rx (8)** in the photograph on previous page.

An **IF Noise Blanker (4)** operating between the 2m down-converter (out of sight behind console) and tuneable receiver (8) substantially reduced impulse noise from a 33kV power line 400m ahead while beamed towards Auckland. Remember, AM was the principal mode in those days, that made the difference between not hearing a signal buried in hash, and being able to read it.



52-element 2m skeleton-slot fed Yagi array.

This provided sufficient gain to enable regular simplex contacts over the Bombays into Auckland and beyond, as well as occasionally further afield to Taranaki and the Manawatu. Turning this antenna to face the setting sun raised the 'S'-meter several points (solar noise).

That array was exactly half of which John Morgan ZL1AZR used in his record setting moon-bounce contact with SM7BAE Sweden during March 1969. John and Ian had regular contact over a 125km simplex path.

When fed from Ian's 100W (DC input Tx), that antenna produced sufficient field strength at a nearby ham's QTH 2.7km away to lift his field strength meter off the stop. Consequently, he knew when ZL1TAT was on the air without even switching his gear on!

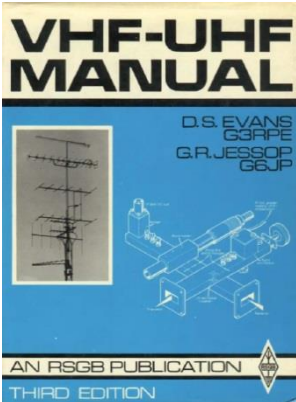
A founding member of the Waikato VHF Group, Ian has held various positions since, and in 1977 was nominated as their second Life Member. For fund-raising from the late 1960s through to mid 1970s, several projects were run under Ian's guidance, including FM Receiving adaptors, and a VSWR Bridge of which 25 were sold. Hamilton Branch 12 also ran a Transistor Tester project organized by Ian, of which some of those units are still around. Our VHF Group commissioned its first 2-metre repeater in 1971, which was developed by Ian from the ground up, a 100% solid-state design during a time most commercial repeaters still employed relay switching. The Waikato VHF Group later offered that repeater as a kitset, with sales to groups in both New Zealand and Australia. During 1972, a 2-metre beacon was built and installed to monitor propagation of horizontally polarised signals over longer radio paths (see https://www.zl1is.info/docs/kmi_1stbeacon_article.pdf).

Ian was also active operating (simplex) mobile, sporting a 2-metre band 'halo' antenna on his Morris Minor. That installation consisted of a home-brew transmitter plus 2m converter in the car boot feeding the car's AM broadcast receiver. Occasionally, that horizontally polarised halo antenna (a half-wave dipole bent into a loop) occasionally prompted a question from non-hams "do you play basketball?" It performed well, bringing success in several mobile rallies. Ian recalls one rally at Matamata where a Tauranga radio station reporter accompanied him and his log keeper to record what it all was about for a Sunday afternoon programme.



Ian participated in VHF Field Days with members of Matamata Branch 44 operating from the Kaimai Range, and the Waikato VHF Group Branch 81 operating from Mt Ranginui.

During the late 1960s, Ian also taught radio classes to Amateur Operator's Certificate level, bringing a number of new hams into our life-long hobby.



Awarded 'best technical article' for his March 1968 Break-In article published with hand-drawn circuit diagram; "A Two-Metre Transceiver" of Ian's own design and construction. Since then, he's written several other Break-In articles, plus regularly contributed to the Auckland VHF Group's "Spectrum" newsletter throughout the 1970s. As a result of those articles, George Jessop G6JP approached Ian to include his 2m transmitter design (across four PCBs and offered as a kit by the Waikato VHF Group) in the 3rd edition of RSGB's VHF / UHF Handbook (pages 1.105 to 1.107).

From the 1970s through to the 1980s, Ian was involved with establishing numerous amateur repeaters across the Waikato (initially "Channel B" which relocated to Mt Te Aroha in 1973, later becoming '695); Coromandel, and Bay of Plenty where the Waikato VHF Group's second 2m repeater (Channel C) was installed on Putauaki / Mt Edgecumbe later becoming Edgecumbe '700. Tairua '6975 commenced as the Waikato VHF Group's 2m coverage of Coromandel's east coast during 1983. He constructed the Waikato VHF Group's first unattended station, our beacon ZL1VHW on the western side of the Kaimai Range, as documented in https://www.zl1is.info/docs/kmi_1stbeacon_article.pdf and pages 5~9 of the history presentation at https://www.zl1is.info/docs/WVHFG_1st_50_years.pdf

Ian convened the 1973 VHF Convention held in Hamilton, attended by 102 VHF enthusiasts, (those were the days!). Coverage of that event published in the *Waikato Times* on 20th April 1973 included the photo right (some of us had more hair then). Kicking off that weekend was a Friday visit to our recently installed "Channel B" repeater on Mt Te Aroha, a must see for convention attendees.



After the Waikato VHF Group decided to vacate Mt Te Aroha and establish a four-repeater network to replace and enhance overall coverage, that became another of Ian's projects, undertaking design of our "WaiPlenty" network prior to bringing all repeater and associated linking equipment together and arranging each installation as funds permitted. Te Uku '5675 was commissioned in April 2010, Te Weraiti '695 in May 2011, Maungakawa in November 2012, and Waihi North in November 2014.

Away from amateur radio (and work), Ian and wife Cathy have travelled extensively throughout Australia during twenty trips "over the pond" spread across thirty-three years. Both hold Australian qualifications in 4WD driving, with their outback camping travels venturing into the remotest corners of the Australian continent, including areas revealing some of the most ancient landforms on this planet, while also traversing five deserts with other 4WD enthusiasts. Their travels have also taken them to Alaska, the Canadian Rockies, and the Hawaii Volcanos National Park on the big Island of Hawaii visiting one of our planet's most active volcanoes; Kīlauea. During the 1980s, Ian was closely involved in establishing the Lahar Warning System on Mt Ruapehu (at that time, a world first).

During twenty-four years prior to "retirement" in 2019, Ian served on council/committee of two national organisations while working throughout New Zealand as a radio network consultant. His role as joint trustee for thirteen VHF Group transmitting stations hardly looks like retirement through!

Waikato VHF Group SUBSCRIPTIONS

Subscriptions fall due on 1 January each year for the ensuing twelve months. Our subs for 2025 will be:

Member or Associate Member - **\$35.00**

Family or Club Member - **\$40.00**

Family membership means two or more members residing permanently at the same physical address, please give all names and callsigns.

Student member - **\$20.00**

RENEW YOUR EXISTING MEMBERSHIP:-

If you're renewing membership, your subscription can be made by payment to the Waikato VHF Group, Westpac account, No. 03 1555 0091289-00 via internet banking. When paying by this method, please include your name and callsign details where appropriate so our treasurer can identify who the payment came from.

CHANGE OF DETAILS:-

Any change in membership details can be notified by:

1. handing a completed https://www.zl1is.info/docs/MEMBERSHIP_FORM-A5_V25-1.pdf to our Treasurer at a general meeting, or
2. scanning the completed form and emailing it to; branch.81@nzart.org.nz or
3. placing details in an email to our email address in 2 above.

If you've already paid for 2025, you will have been emailed a receipt by our treasurer.

Money saving tip; please confirm or inquire to avoid paying a second time.

How do you tie that knot?

Ever wondered how to tie a particular knot, or what a particular knot is called? From Boating Knots, Fishing Knots and Climbing Knots to tying a neck tie, or even Surgical Knots, this web site has animations showing how to tie each. It also includes rope information and downloadable Apps for various platforms. Have a look at <https://www.animatedknots.com/>

2m transceiver for sale

Our Group's Kenwood TK-705D remains available for sale. This radio is programmed with sixteen local channels, plus additional programming notes will be provided to the successful purchaser. Make an offer to secure this radio.

Kaimai National System Repeater & Beacon

Dennis ZL1UET has accepted the position of second trustee for our Kaimai '485 National System repeater (1st = Neill ZL1TAJ) and 2400.260MHz 12cm beacon (1st = Tom ZL1THG). Thank you Dennis, who visited the site with Ian ZL1TAT in May 2024 to install our temporary NS repeater.

The APRS repeater at our Kaimai (Takaurunga) site is owned and licenced to Warren ZL2AJ.

Minutes of our previous General Meeting

As suggested at our 2024 AGM, minutes from our last general meeting held at Te Aroha follow. Approval of these minutes will be voted on at our forthcoming meeting, so please read them beforehand so we don't have to read them out at that meeting. Should you spot anything requiring correction, please raise that at the meeting so we can fix it.





**WAIKATO VHF GROUP Inc.
NZART Branch 81**

Minutes of General Meeting

Held at the Te Aroha Events Centre, 44 Stanley Ave., Te Aroha,
on Sunday, 22nd September 2024 at 1.30pm.

Present: - (13 members + 2 visitors) David ZL1DGK (President), Ian ZL1TAT (Treasurer), Neill ZL1TAJ (VP), Ian ZL1AOX & Margaret XYL), Morris ZL1ANF, Joline ZL1UJB, Maxine ZL1FW, Russell ZL1RWR, Digby ZL2TUZ, Wally ZL1WE, Roy ZL1BPB, David ZL1TLQ, Chris ZL1CJH, John ZL1PO.

Apologies:- Tom ZL1THG, Kevin ZL1KRH, Rodney ZL1TFX, Dennis ZL1UET
(ZL1DGK /ZL1PO) – accepted

Silent Key:- Gavin Petrie ZL1GWP (member 1984 to 2024, Secretary 1986 to 2024).
A one minute silence was observed in remembrance of Gavin.

Minutes:- Minutes of our 30th June general meeting (last general meeting we appear to hold records for) as circulated with our 8th September notice of this meeting.

Adopted on motion of ZL1DGK, seconded ZL1TAT – carried.

Matters Arising:- Nil

Correspondence:-

Inwards

- Auckland VHF Group 'Spectrum' newsletters for July, August, September 2024,
- NZART Infoline Nos 490, 491 and 492,
- Genesis Energy invoices for Kaimai electricity June thru September 2024,
- Westpac Bank seeking further info to support our Term Deposit application, plus their 17 September issue of a certificate for our \$8,000 Term Deposit,
- NZART acknowledging passing of ZL1GWP, and our request for changes to Branch 81 listing (presently awaiting NZART web master action),
- NetSpeed Ltd offering internet access for monitoring our Kaimai National System repeater.

Outwards

- Westpac Bank responding to their request for additional information re T/D, also followed up on 16 September seeking advice how application is progressing,
- to all current members advising Gavin ZL1GWP's passing on 22 August,
- to NZART HQ advising passing of ZL1GWP, and requesting changes to Branch 81 listing on their web site,
- September 2024 newsletter emailed to current members on 8th September,
- Inquiry to NetSpeed Ltd re data access for remote monitoring our Kaimai National System repeater.

That the inward be received and outward approved on motion of ZL1TAJ,
seconded ZL1TAT, – carried.

Finances:

- Our treasurer reported our table at Branch 12's market day netted \$230.00, after an 80/20% went to Gavin's wife for his items sold there.
Thanks to Tom ZL1THG for manning our table.
- Our new 12-month Term Deposit of \$8000.00 (applied for on 17th July) with Westpac Bank, finally commenced on 17 September 2024.

- Our bank balance stood at \$9,275.44 (following T/D withdrawal, and awaiting two payments totalling \$680.00).

Accepted on motion of ZL1TAT, seconded ZL1AOX, – carried.

Elections:

To replace the positions occupied by Gavin ZL1GWP (SK)

Secretary: no nomination was offered,

Web Master: no nomination was offered,

KMI NS '485 Co-Trustee: no nomination was offered.

It was suggested from the floor that a follow-up call for nominations be made. This will be done through the issue of a Special Newsletter in a few weeks.

General Business:

- **Kaimai National System upgrade:** ZL1TAT reported that data access to our Kaimai National System repeater for remote monitoring and configuration can be provided by NetSpeed Ltd's 1GB "Cover Plan" for \$12.50/month. This can be used in conjunction with a Teltonica TRB142 serial data transceiver which interfaces directly with our Spectra MX800 repeater. Its intended the cost of this be funded by interest earned from our T/D.
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- **Buzz on '695's tail** was fixed last Monday 16th when our replacement mains monitoring plug-pack was installed by the Te Weraiti site contractor, replacing our failed original.
-
- **NZART Conference 2025** – should/can Branch 81 participate in organising. Calls were made for a representative on the Conference 2025 organising Committee, however nobody stepped forward.
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- A **Special Newsletter** will follow in a few weeks again calling for a volunteer, plus nominations for a replacement Secretary and Kaimai co-trustee. [ZL1TLQ has since offered to build a replacement and administer our new web site]

Guest Speaker:

- Neill ZL1TAJ spoke of his USA trips which included dramatic video footage of storm chasing activities over the years, plus visiting Dayton Hamvention and the Johnson Space Centre.

The **meeting closed** at 1430 hrs followed by afternoon tea thanks to David ZL1TLQ.

Approved Chairman Date/...../.....