

**The Official Newsletter of the
Auckland VHF Group Inc.
Spectrum**



David Probine's test bed for efficiency on the running board.
The Supercapacitor Bank and electronics above and battery below.

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AV installation at Clubrooms — page 15

Potential Antenna problems + 1970 History — page 16, 17



Auckland VHF Group Inc.

Branch 66 NZART

PO Box 10138, Dominion Rd, Auckland 1446
 Clubrooms: 30 Hazel Ave, Mt Roskill

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Vice President	Not filled			
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	Vaughan Henderson	ZL1VH	021 844 804	zl1vh1@gmail.com
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Klondyke Manager	Vaughan Henderson	ZL1VH	021 844 804	6625@aucklandvhf.org
670 Manager	Vaughan Henderson	ZL1VH	021 844 804	670@aucklandvhf.org
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Account Reviewer	Basil Orr	ZL1TOW	021 867 367	
Webmaster	Terry Corin	ZL1BPA	027 697 4686	webmaster@aucklandvhf.org
Club Web Page:	http://aucklandvhf.org			
ZL1VHD Dstar gateway administrator: Laurie ZL1ICU 634 5130 0274 817463 perma@xtra.co.nz				

Club News and Net:

The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

SPECTRUM is the official journal of the Auckland VHF Group Inc. Opinions expressed are those of the authors and do not necessarily reflect club points of view. The closing date for SPECTRUM articles is by the 1st of each month. Articles to be submitted to the editor Peter ZL1UKG
spectrum@aucklandvhf.org

Auckland VHF Group (Inc) Branch 66

General Meeting Notice

Monday 13th July 2020 7.30pm

At the Hazel Avenue Club Rooms
(Located on the left at the end of Hazel Avenue)

The Evening's Topic:

Achieving Zero Carbon Emissions by 2050

Simon Bridger ZL1THH will talk about the developments required to allow Coal and Oil to stop being burned and CO₂ being sequestered efficiently.

<https://www.forbes.com/sites/rogerpielke/2019/09/30/net-zero-carbon-dioxide-emissions-by-2050-requires-a-new-nuclear-power-plant-every-day/#609a617735f7>

EVERYBODY WELCOME

We look forward to seeing you there

Future Contest Dates for 2020

Microwave Contest 3/4 October 2020
Field Day Contest 5/6 December 2020

73, Greg Storz ZL1GSG Contest Manager

Coming Events:

- 29 August Hamilton ARC Market day at Gordonton Hall, (SH 1B),
Venue opens at 8 am, Selling from 10 am
- September Whangarei ARC Market Day, date TBA
- 07 November Western Suburbs Market Day

Auckland VHF Group Presidents Report July 2020

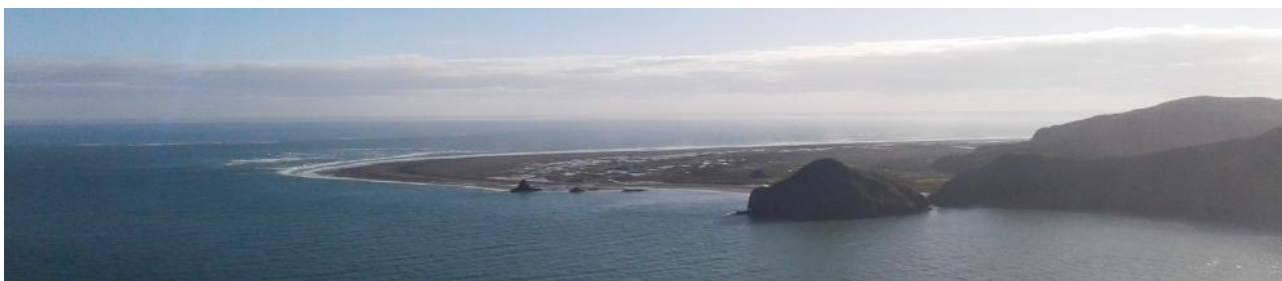
Sending this from the boat, using the cell phone because the damp salt air has demodulated the laptop.

Darryl ZL1TCI came around home a few weeks ago and we revised the Klondyke funding application for the most likely provider which has opened for submissions this week. A couple of others who I applied to have called to say we are not the category they provide funds for.

Brian ZL1UXB and I collected the hydraulic tower crane from Ian Twentymans, where it has been parked for a few decades. We towed it out to the farm at Kumeu, in the dead of night. We were lucky to make it because one wheel worked itself loose and stripped the studs. So now it needs new studs and a new wheel, sandblasting and repainting, seal replacement (we have the seals) and testing. It rises to 70ft, so could be good as a quarter wave mobile whip driving over the Desert Road. Might need trailer wheels if its windy. Ha!



I did my first Coastguard duty since lockdown last Saturday. It was foul weather so I was able to re-acquaint myself with the new incident reporting system which is shared with other emergency services. It is simple and clean to use. Then last Friday I had just rowed ashore when my pager went off. Got a mate to secure the dinghy and trotted out to Ardmore. It was an overnight, overdue on the Manukau, so we went up in the Coastguard Cessna. Checked the harbour first, with ATC holding the big ones when we went through their flight path. I reviewed the ditching procedure as we approached the sewage farm, then went outside the harbour mouth, up and down the coast about twenty miles, and did a sweep out to sea. Found nothing untoward, so we came home.



I took four of Brian ZL1UXB's harmonics for a sail the other day. Wind got up so we put a reef in the main. Easier than changing down the genoa. And we kept the mizzen up, arriving back well after dark. Woke up this morning with the bilge pump whimpering continuously. The water level was well over the switch, but there was very little water coming out and the house battery was down to 10v. Switched over to the start battery and it pumped more enthusiastically but not

properly, and I later found a bit of thread had worked through the gauze filter and strangled the impeller. Another little job for a rainy day, along with leaking decks, a seized gearbox, and the new marine VHF DSC radio glowering at me but neither Rx nor Tx working!

A few weeks ago I ordered a VNA analyser from China. A day later they reported that their courier wouldn't deliver to NZ, and gave me a refund. So I have ordered one from another source.

Matthew King
022 6493310



Minutes of the June General Meeting of the Auckland VHF Group Inc.

Held on Monday 8 June 2020 at the clubrooms, Hazel Avenue

Meeting started at: 07.41pm

Present: 18 members and visitors as per the attendance book.

Apologies: Basil ZL1TOW, Dave ZL1TIA, Brendon ZL1XXX

Minutes of April General Meeting – as published on page 5 of May 2020 Spectrum. These could not be approved as Spectrum magazine with the minutes had not yet been sent to members.

Moved: ZL1TCI Seconded: ZL1TUX Carried

Matters arising: NIL

Minutes of May General Meeting – as published on pages 4 and 5 of June 2020 Spectrum.

Moved: ZL1TCI Seconded: ZL1TUX Carried

Matters arising: NIL

Reports:

President Matthew ZL1YOT updated members on work in hand, Klondyke, Internet at Clubrooms. He advised that the July General Meeting will be a Special General Meeting to:

- a. Approve the Minutes of the 2018 Annual General Meeting
- b. Approve the Accounts and Financial Report for 2019

Correspondence:

Break-In May June 2020. ASB Bank Statement to the Treasurer.

General Business:

ZL1VH reported that the Club has loaned several items of test equipment and two small dishes to a company producing a TV advert. The loaned equipment would be returned Wednesday 17th and the Club would get a \$500.00 donation.

Trading Table - ZL1VH offered approximately 1000 150k Ohm resistors to the highest bidder but there were no takers. He also had some Siemens high current double diodes but there was no interest.

ZL1VH drew members attention to a newsletter from EURAO (European Radio Amateurs Association) which had an insurance which might be of interest to amateurs taking part in field day, SOTA activities.

The General Meeting closed at 8.07pm and the guest speaker for the evening, David Probine ZL1TND was invited to give his presentation. He spoke on the improvements to electric vehicle efficiency using supercapacitors with Lithium Ion batteries. See Spectrum for July 2020 for more details of David's very interesting talk.

Thanks to Margaret ZL1AYV for putting on the supper.
E & O.E. ZL1VH

David Probine on enhancing the efficiency of electric vehicles

The Supercapacitor characteristics complement Lithium Batteries

Supercapacitors have been around for some time. Practical use started as a replacement for batteries in very low current applications such as backup of dynamic memories in computers in the late 70s. 1-10 F capacities at 3 V working limit could last for days in this application. The very thin insulating layer thickness which leads to the very high storage capacity carries the limitation of very low working voltage.

With the advent of much higher demand applications the capacitor values have increased to 400 – 500 F and current demands have changed the materials that connect to the battery terminals. The very low internal resistance achieved allows for much higher charge and discharge currents. This is where a capacitor complements a battery. A battery has a much higher energy capacity but the chemistry requires the use of higher resistance elements in their construction.

Driving requires accelerating and braking along with cruising. Accelerating has high energy demand and the winning point of electric vehicles is the energy recovery during braking which is used to charge the battery for future accelerating and cruising. Ohm's law rears its head at this point. Internal resistance in batteries wastes energy. Storing braking energy in supercapacitors with lower internal resistance does this more efficiently. The next acceleration gets the energy back from the batteries similarly more efficiently. The designers are now calculating the size of supercapacitors to complement the driving patterns of different types of vehicles. Capacitors have lower energy density than batteries.

It turns out the frequent stop/go patterns like busses and delivery/pickup vehicles come out winners with the gain in efficiency of large capacity but require more physical space and cost. Constant speed cruising does not require much additional capacity.

This background was written by Peter Loveridge from notes taken during David Probine's presentation.

Integrating a Supercapacitor into the Powertrain acts as a buffer to the Battery during high peak current demand which mostly occur during accelerating, Regenerative braking and short periods on steep gradients.

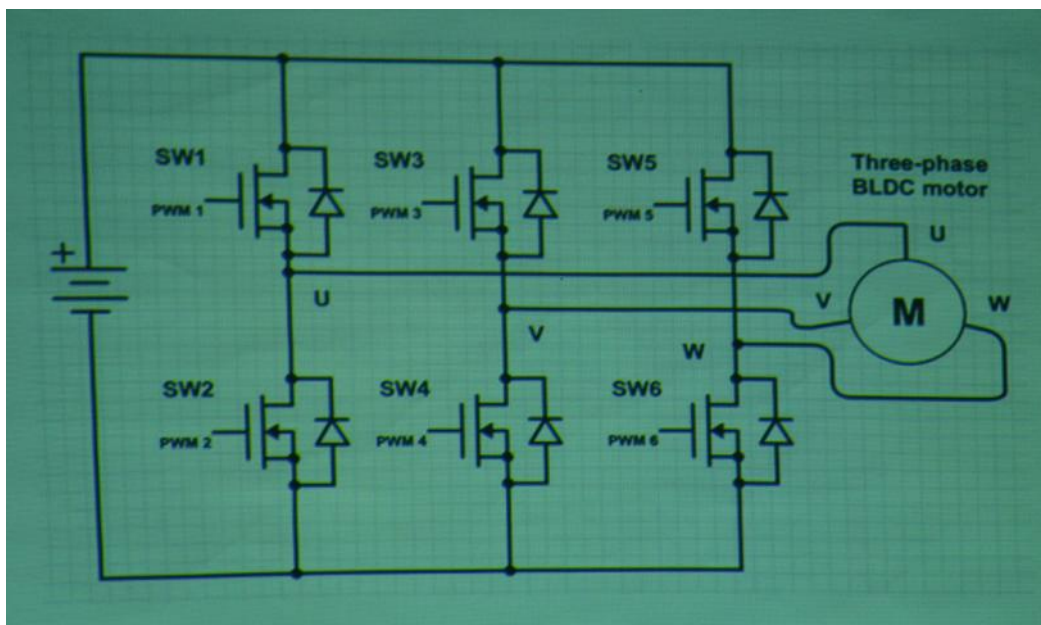
The Supercapacitor only needs to be in the region of 0.25 to 0.5% of the Battery capacity in kW/hours for most Electric Vehicle applications.

There is a projected gain of say 10-20% to the range of an Electric Vehicle when making use of Supercapacitors, compared with the same sized Battery only version. This gain is calculated more for city driving vs open road driving.

Points to take into account when designing a vehicle.

- The following is a list of benefits the Supercapacitor provides;
1. System efficiency improved by a minimum of 10% directly translating to a range.
 2. Possibility of doubling the battery life, mostly from the Supercapacitor capturing most of the Regenerative braking energy instead of feeding into the battery.
 3. Reduced Thermal management of the Battery temperature which translates into a further reduction in total energy consumption.
 4. The Battery can be slightly smaller with the space freed up available for the Supercapacitor bank along with a Capacitor Management System.
 5. A cheaper battery chemistry can be used which translates into a bill of materials saving. The battery is the single most expensive component in the electric vehicle, representing around 60% of the total material cost (this is dropping though).
 6. A much higher level of Regenerative Energy can be recovered from a Motor be it Single or Dual configuration as the Supercapacitor has very high specific power density that is not possible with a battery only system.
 7. Currently Regenerative Braking Energy is limited to around 60 kW and this could be increased up to at least 200 kW's with a Dual Motor set up.
 8. Currently Regenerative Braking is not consistent over the full depth is the battery State Of Charge (SOC). Refer to next slide. The Supercapacitor solves this problem by being at a lower State of Charge due to it providing most of the energy to accelerate the vehicle initially.
 9. The main DC copper conductors that connect the Inverter module to both the Supercapacitor and the battery can be a smaller diameter translating into additional bill of material savings.

An overview of how the control is achieved



Some of those present wanted to follow up some of the references used during the presentation.

[Skeleton Ultra Capacitors | Fully Charged](#) [The Origin and Vision of Linear Labs](#)

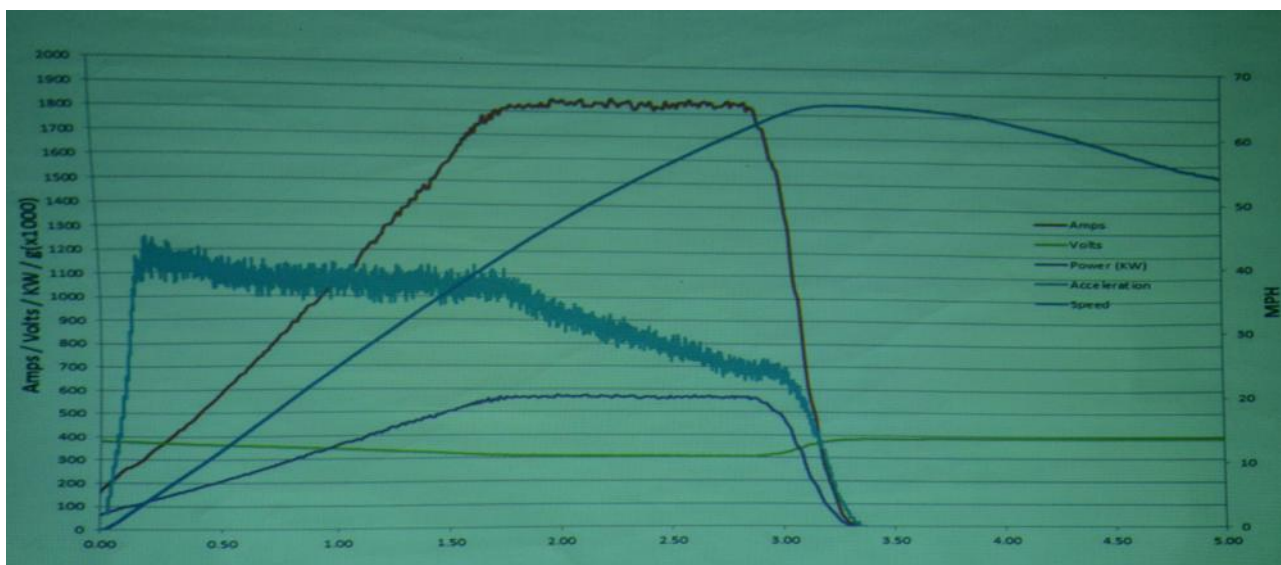
[Linear Labs Technology](#) [Tesla: The Optimization Machine \(why Tesla will win\)](#)

[How much energy can regen get back in your Tesla](#)

Battery capacity is increasing at approx 7% per annum. For Lithium chemistries the series resistance increases at low temperature and doesn't drop much at increased temperature. Acceleration requires the battery to be heated to lower the series resistance. A resistance of 50 mΩ in a battery can result in an energy loss of 10% of energy during acceleration and recharging during deceleration (recharging). A supercapacitor has a resistance of 3 mΩ. Here is the efficiency gain.

For cars there are typically 96 strings of Supercapacitors in series to provide the required storage capacity. One million cycles of charge/discharge may reduce the capacity of the initial capacity of 20%.

Green = Battery volts Black = Amps Light blue = Acceleration Dark blue = Power Blue = Speed



Notice of Special General Meeting

Notice is hereby given that at it's August meeting to be held on Monday 10 August, there will be a Special General Meeting for the purpose of approving the Minutes of the November 2018 Annual General Meeting and the minutes of the November 2018 General Meeting. In addition, the Special General Meeting will consider for approval the Auckland VHF Group's 2019 Annual Accounts as published on pages 6 to 10 of May 2020 Spectrum.

Note of explanation: At the 2019 Annual General Meeting, the 2018 AGM Minutes were not approved. Subsequently, with corrections made, the 2018 AGM Minutes have been edited to produce two separate documents, the November 2018 Annual General Meeting Minutes and the November 2018 General Meeting minutes. These are published in this issue of Spectrum.

Vaughan Henderson ZL1VH
Secretary

Auckland VHF Group Inc Minutes of the General Meeting 12 November 2018 held at the Clubrooms 30 Hazel Avenue Mt. Roskill.

Attendance: as per the attendance book, including
ZL1MYL, ZL1UXB, ZL1UMK, ZL1AOX, ZL1UKG, ZL1PFB, ZL1DRB, ZL1VH, ZL1TCI, ZL1XXX, ZL1TAY, ZL1AYV,
ZL1TIA, ZL1TDG, ZL1GYM, ZL1ICU, ZL1GSG, ZL1YOT, ZL1TUX, ZL1TOW

Apologies: ZL2AJ, ZL1TOF

Meeting Started at 7.30pm.

President Laurie ZL1ICU introduced Julie Fairey - Deputy Chair Puketapapa Board Member to the meeting. Julie gave those present at the meeting an up date on the board's position regarding the upgrade to Faulkner Park including Tennis Courts and Auckland VHF Group Club Car Park. The proposed car park has no money allocated. It has been shuffled to next year's works program - the price might double by then. The proposal provided for 10 car parks, which is less than the two rows we presently have. Neighbours using the road for parking in the evenings limit our access. We would lose access for loading/unloading goods vehicles to the door and lose the proposed ramp for access for disabilities. Julie offered to check this. Suggestion made that a Gobi mat block with a proper gravel base instead of tarmac could be a cheaper option for the car park and between the trees on the street.

The tennis courts proposed update is going ahead and includes a pathway from the Foch Avenue car park around past the VHF Clubrooms to our car park and Hazel Avenue.

Macrocarpa fence line and the bamboo need trimming. This will require a Council arborist with an operational / safety plan for the Clubrooms and vehicles.

Every three years, the planning board revisit proposals - in the 3rd year now. The carpark work may get moved up the list in the New Year. The Reserve development plan is open 17 February -17 March 2019 for consultation and suggestions. A possibility are water fountains and toilets for the Reserve.

At the end of Julie's talk Laurie thanked her & presented her with a bouquet of flowers. Julie then left the meeting. She has been invited back in 2019 when she will have more information for the Group.

The General Meeting paused at this time to allow the AGM to commence and at the conclusion of the 2018 AGM, the General Meeting resumed:

General Business:

President Laurie ZL1ICU made a presentation to Margaret ZL1AYV, outgoing Secretary and thanked her for her service to the club.

Vaughan ZL1VH advised that Life member Colin McKenzie - ex ZL1ARC/ZL1ACM - died at 2.00pm today.

Klondyke Project: Laurie ZL1ICU reported that we are looking at starting in stages - footings then metal-work. The Group can't afford to do it all at once. Farnsworth is going ahead before the meeting approval to start it.

Resource consent is not required for the first stages - footings and replacing corroded tower steel, but will be required for the second part – water blasting and sand blasting to clean the tower surfaces prior to re-painting. A Licence to occupy required for possibly two towers instead of one.

PF Olsen, the forestry management company advise that the present NZ owners are now thinking of selling the whole forest. One company is interested in buying. Suggest to current owners our interest in a parcel of land where the Tower is. The two owners have been spoken with but they are not easy to contact. With Klondyke the Group don't want to commit to someone else who couldn't care less there at the moment. Could the Tower be pulled down and erected again elsewhere? Can't do it today - Write-off could be in the region of \$20,000. It was suggested that the Group go ahead and do the work on it with the money that we have and can afford. ZL1VH agreed that the Group proceed with the maintenance on the corroded section and replacement fittings.

Basil ZL1TOW suggested buying the site - sub-divide - make sure the Group has \$100,000. A section for a house in the area is \$700,000.

Basil ZL1TOW suggested approaching Charitable Trusts - ask for half the money \$40,000, now need help for the painting and the Group put up \$20,000 ourselves to get the other \$20,000 to assist. A further suggestion was to register for GST - refund applied for could be worth \$15,000. It is important to register for GST before being invoiced - check the IRD website GST funding strategy in two weeks by phone.

Escalation of costs and antennas. Present prices- footings \$3,745 and metal pieces \$11,730 + GST. ZL1VH said it is prudent to do this then complete the painting of the 2m arrays.

Motion: "That the Auckland VHF Group Inc. proceed with the footing foundations and replacement of the corroded galvanised steel as covered by the recently approved funding."

Moved: Basil ZL1TOW Seconded: Dave ZL1TIA Carried.

ZL1ICU advised that Farnsworth had a lead time due work being done for Transpower. Before Christmas they would need to get metal cut, drilled from plans, hot dipped galvanised. Formally give go ahead. No payment requested for the work done.

Basil ZL1TOW moved a vote of thanks to Laurie ZL1ICU for the work done for this Tower.

ZL1XXX - Painting sub-committee meeting. Monday 2 weeks ZL1XXX, ZL1TCI, ZL1TDG.

Annual Invoice for Repeaters due 30 November 2018. \$800.00 Vaughan ZL1VH will pay it by the due date so the licences will rollover. Repayment would be appreciated.

Kaipara 147.325 MHz Repeater. ZL1TAY queried the continuous noise on this repeater. ZL1ICU advised that it is the 2m repeater from Musick Point converted to a D Star repeater and can still be used for normal FM voice communications.

General Meetings – Concern expressed that too much time was being spent at general meetings on club business.

Motion: "The Committee administer the Club with a brief report into Spectrum."

Moved: Basil ZL1TOW Seconded: Peter ZL1UKG Carried.

Their being no further business, the meeting closed 10.12pm

Auckland VHF Group Inc Minutes of the Annual General Meeting 12 November 2018

Attendance: as per the attendance book, including
ZL1MYL, ZL1UXB, ZL1UMK, ZL1AOX, ZL1UKG, ZL1PFB, ZL1DRB, ZL1VH, ZL1TCI, ZL1XXX, ZL1TAY, ZL1AYV,
ZL1TIA, ZL1TDG, ZL1GYM, ZL1ICU, ZL1GSG, ZL1YOT, ZL1TUX, ZL1TOW

Apologies: ZL2AJ, ZL1TOF

The meeting commenced at 7.44pm.

AGM Minutes 2017:

That the minutes printed in Spectrum be taken as read.

Moved: George ZL1TUX, Seconded: Ian ZL1AOX Carried.

Matters Arising: - None.

President's Report:

Laurie ZL1ICU read his president's Report.

Moved: Laurie ZL1ICU, Seconded: Dave ZL1TIA Carried.

Vice-President's Report:

As there was no Vice President for the year there was no Vice President's Report.

Secretary's Report:

No Secretary's Report Presented.

Financial Report:

George ZL1 TUX presented his Treasurer's report - the accounts not finished for the AGM but will be going to the reviewer by the end of November 2018. It needs one month's preparation when working fulltime. Commented that some groups allow 3 months, similar to NZART. Maybe shift the date into December or for the February Meeting. 40-50 members this year, 4 Life, 2 Honorary, 3 Families, 3 Associates. 20 subs paid so far. (2 months leeway for sub renewal).

Assets:

Find their whereabouts including licences, leases, agreements.

Nihotupu - now Auckland Council was Old Waitemata Council with the key held with the Police.

Klondyke - grants/activities/volunteers needed as the Group will need around \$100,000 for maintenance.

Repeater tower+ GST - in 2 stages to be done. Power is a separate issue - coming out of the lease. \$2,000 maintenance/power/per customer.

Trading Table:

Sales are up. Components need replacing at a reasonable price as postage is often more expensive than the item.

Subscriptions:

An increase yes but prefer to keep same set fees now.

For next year 2019-2020 - let the committee re-assess midyear (3 years ago \$30 - \$45 increase).

10% increase CPI is sensible to review. This is a recommendation from the Committee to the AGM.

Motion: "Increase the subscriptions to \$45-50 for ordinary members and that other subscriptions be increased by 10% for 2019-2020".

Moved: Basil ZL1TOW Seconded: Marlene ZL1MYL Carried by acclamation

George ZL1TUX moved his report be accepted.

Moved: George ZL1TUX Seconded: Vaughan ZL1VH Carried

The Annual General Meeting was paused at 7.43pm to allow Julie Fairey, Deputy Chair of the Puketapapa Local Board to be heard.

The Annual General Meeting resumed following the report from Julie Fairey. See minutes of the November 12 General Meeting for details.

Spectrum Editor's Report

Peter spoke to the meeting about content for articles, General and Committee Meetings to keep the Club informed.

Moved: Dave ZL1TIA Seconded: Darryl ZL1TCI Carried

AREC Report:

Laurie ZL1ICU presented his report. Not as much activity this year. Because of Health & Safety regulations,

professionals are being used in place of AREC volunteers. However at the Pink Star Walk this year some professionals almost caused an incident at a road crossing. Other events we attend, Scram Cycle Race, St Patrick's Parade, Farmers Santa Parade, Neighbour's Day, Heritage walks. Attended meetings with Community Constable with relation to Community Support Groups & Community Response Groups. As our members are also members of other clubs & AREC Sections we use these people to support our activities that we have arranged. If more manpower is needed.

Moved: Laurie ZL1ICU Seconded: Dave ZL1TIA Carried

Repeater Report:

6625 Not really any complaints except for location of user's stations

670 Ok - not deaf- only the user location problem again. Vaughan ZL1VH said there is no sensitivity issue.

690 Deaf - access is a problem. The pole since the fire has been lowered from 70 to 30 feet to the ground. Amateur accessibility is harder as there is more hills etc between them. Dennis ZL1UET has been unable to gain physical access to it either.

850 The equipment not available at the moment. Equipment needs to be seen to measure dimensions to enable proposed installation at Auckland hospital Site. (Licence being arranged. Payment has been made to NZART for relicensing 850 repeater on new site. Payment made by L & M Matthews).

Trading Table Report:

Check bulk stock and what is available. Restock.

Thanks to Hamilton, Western Suburbs and Group sales \$1000. Not too bad considering the lack of internet sales. Thanks to Vaughan ZL1VH for his assistance with the Western Suburbs sales.

Moved: George ZL1TUX Seconded: Darryl ZL1TCI Carried

Election of Officers:

President

Nominee: ZL1YOT Moved By: ZL1TCI Seconded By: ZL1VH

Vice President:

Nominee: Moved By: Seconded:

No nominations, Committee to determine

Secretary:

Nominee: ZL1XXX Moved By: ZL1VH Seconded By: ZL1TIA Carried by acclamation

Treasurer:

Nominee: ZL1TUX Moved By: ZL1VH Seconded By: ZL1TOW Carried by acclamation

Honorary Reviewer:

Nominee: ZL1TOW Moved By: ZL1MYL Seconded by ZL1TCI

Committee:

Nominee:

ZL2AJ Moved by ZL1ICU Seconded by ZL1MYL (ZL2AJ Warren Harris)

ZL1TIA Moved by ZL1VH Seconded by ZL1TCI

ZL1TCI Moved by ZL1XXX Seconded by ZL1VH

Head Repeater Trustee:

Nominee: ZL2AJ Moved by ZL1ICU, Seconded by ZL1VH

AREC Section Leader:

Nominee: ZL1ICU Moved by ZL1TIA, Seconded by ZL1AOX

ZL1BQ Callsign Trustee

Nominee ZL1YOT Moved by ZL1VH Seconded by ZL1TIA

Spectrum Editor

Nominee ZL1UKG Moved by ZL1XXX Seconded by ZL1TCI

Klondyke Tower Trustee

Nominee ZL1VH Moved by ZL1AVY Seconded by ZL1TCI

850 Manager

Nominee ZL1ICU Moved by Seconded by

At the conclusion of the elections, Laurie ZL1ICU vacated the chair and congratulated Matthew ZL1YOT on becoming the President.

There being no further business, this concluded the 2018 Annual General Meeting of the Auckland VHF Group.

Auckland VHF Group, Treasurer's Report 2018-2019

I have been doing the accounts for the last couple of years, but the present End of Year (End of September) to AGM (November Meeting) is not a realistic timeframe to prepare accounts, and get them reviewed. The 2017-2018 accounts were reviewed, and presented to the Club at the May 2019 Meeting, and reported in the May Spectrum, these have been uploaded to the Incorporated Societies site.

The 2018-2019 actual accounts are still in the process of being prepared to be reviewed.

I am hoping to get the accounts to the Honorary Reviewer, in November, possibly for the December Meeting, but I have limited amount of time to complete the update in time. As advised in last year's report, to complete and have the accounts reviewed within a month as I am working full time and workload is extremely busy.

Club membership is up on last year from 50 to 51 at the end of the year. This includes 3 life members, 2 Honorary Life Members, 3 family members, and 3 associate members. There are some new members who have joined the club in the last month, and these members have been granted 2018-2019 membership.

The Trading Table income for 2018-2019 looks to be about the same as 2017-2018, but it may be harder to get updated stock in the future at reasonable prices.

Club Assets. The Auckland VHF Group had many assets around the place, and a record of these have not been kept up to date, any assets that belong to the club would be greatly appreciated if they are returned, so inventory can be made. This includes all facilities the group encounters, Beacon and Repeater sites, equipment in them, belonging to the group, belonging to third parties, leases and agreements with third parties. These are needed so we can look at the future and make sure the sites the club has are adequately covered.

Information on these sites are required, Nihotupu Beacon Hut, Brynderwyn's and agreement between the VHF Group and Whangarei, Klondyke, Ruatowhena, and other places, like people's homes etc.

Klondyke Repeater and system. This is going to affect the group and its finance to cover this and other club debts that may come up. The club has put aside \$40,000 for repairs to the aerial tower, but this is only a proportion of the work required. Donations so far have been around \$6,000 from users and members. There will also be additional work in replacing the cable tray and mountings that will need to be paid for. The club would like to hear from anyone who can help and assist the club with obtaining grants and other activities. The club needs to get the lease of the land updated, and this could also include back dated rental, resource consent for the work. Any quote mentioned are only for the tower, but the aerials need to come down and repaired and rust removed from them, galvanized and re-installed.

For some of the repeater sites we do have some income from third parties, but we need to look at the agreements closely, when they come up for renewal. Power must be an addition to usage as that is taking a high percentage of the fee received, and maintenance of the tower is not covered.

I wish to thank Laurie ZL1ICU and Marlene ZL1MYL for their continued donation towards the costs of the internet connection installed at Klondyke and operation / use and costs associated with the D/Star repeater also located at Klondyke.

I am expecting considerable costs to be incurred in the future including legal fees at Klondyke, and the possibility of high annual rents. We need to keep our reserves intact because there is also the possibility of either having to pay back-rents covering a number of years and other expenses. At present there may be a major cost for a License to occupy the Klondyke Site but will keep members informed when more information is available.

Brynderwyn lost the services of the Auckland Region Helicopter Trust which covers some of the ongoing power usage in return for housing their repeater. We may need to find alternative funding to cover the power usage if this site is to continue to operate. Power at present to operate this site is approximately \$85.00 per month.

The Auckland VHF Group pays license fees for each Repeater, Beacon and link frequencies. Donations are being received for sponsorship of licenses which is assisting to pay the fees. A list of sponsors is published in Spectrum. These fees are likely to increase as a result of RSM's review of the radio spectrum fees framework. Present fees are around \$800.00 per year. We thank those clubs and individuals who have been able to assist with donations towards running costs and license costs over the past year. Without this financial support, the club would not be able to continue those services.

The Club has added the new web site this year, which is still being worked on. The cost of the site is not covered by the increase in this year's increase in subs.

I would expect that the Clubs Subs be kept at the same level as this year provided that membership remains the similar to last year, and Klondyke donations and grants can be obtained. Setting of the subscription at the AGM is the correct place to do it, but to be fair, to all members, the subscriptions we be held at the present value, until the end of the financial year, which is just under ten months away. 2020- 2021 sub's year.

Finally, I would like to thank Basil Orr for his work acting as honorary reviewer for the accounts.

George Raffles, ZL1TUX
Treasurer Auckland VHF Group Inc 11th November 2019

Auckland VHF Group take their meetings online

The Auckland VHF group are offering members, prospects and friends of the club the ability to attend club meetings via Microsoft Teams.

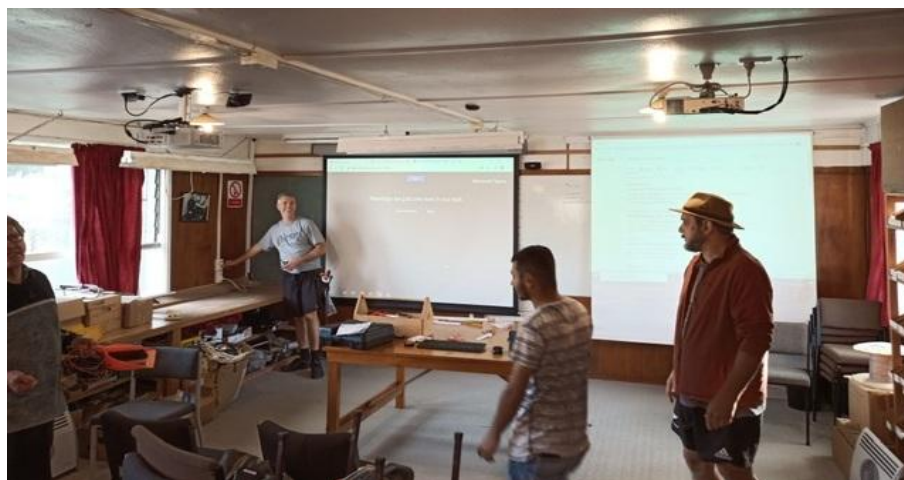
A working bee was held in June to install an internet connection and Microsoft teams equipment so that members, prospective members, friends & presenters can attend remotely ie from home. A huge thank you to Darryl, Simon, John Henry and Nikul from Automation Associates for your help in the weekend, with the new AV system wired, installed & tested and it is looking awesome!

Club meetings are the second Monday of every month – click this link to join in <https://tinyurl.com/y9p4nxpa> all welcome!

Thanks again to everyone who lent hand at the working bee – much appreciated!

Kind regards,
Brendon Reid Automation Associates Ltd

We had a successful trial of the gear to take our club meetings online with Microsoft teams at Tuesday night's committee meeting – see photos attached. I will be installing the system tomorrow at the club-rooms at 10am, let me know if you can lend a hand – it would be very much appreciated.



The latest Local Government Attack on Amateur Aerials

One of the most threatening submissions that NZART has had to make against a Council Plan Review was in Auckland. In their Unitary Plan, it appeared to the Steering Committee which managed the NZART submission that the Planners and Urban Designers were clearly setting out to preserve "Pristine Urban Streetscapes" which were not polluted by unsightly structures in residential backyards. It took nearly 3 years, using the resources of a legal firm "Ellis Gould", to win a case for "permitted" Amateur Radio Configurations. It appears to me that faced with a strong argument for ARC, and a very forceful Council argument against any ARCs., the Auckland Commissioners adopted a compromise and just uplifted the Capital City rules and copied them word-for-word into the Auckland Plan. We didn't get what we asked for, but it has proved to be a reasonably satisfactory result.

A similar situation is happening again right now in Whangarei. Despite our very strong argument (which in the past has won some good provisions in just about every other district), the Whangarei commissioners seem to have sided with the Planners and Urban Designers. My interpretation of the Proposed Whangarei Plan is that effectively it says that in most cases no aerial may be higher than the roof. That includes TV aerials. (NZART's Legal Representatives have been asked to check that this assumption is correct). If so, then once again, we Amateurs will have to fork out several thousand dollars to a) appeal the decision in the Environment Court, and b) hire Ellis Gould Solicitors to give us legal representation in the Court.

Winning would "permit" certain negotiated configurations to be erected as of right at residential premises. Losing would not affect amateurs who already have aerials and structures in the Whangarei area, so long as they stay at the same address. But it would affect any new amateurs moving into the district, or any existing amateur who want to move house or to extend their aerials. The only way this latter group could put up new aerials would be to apply for a Resource Consent, at a lodgement fee of \$2000, plus additional "Hearings Fees" and witness fees, at the end of which the answer is just as likely as not to be "NO".

NZART is therefore working with solicitors Ellice Gould in the preparation of an appeal against Whangarei Council's Decision. While this might seem expensive up front, it will be the most beneficial solution to ALL amateurs in the long run. We basically need to establish a "Fighting Fund" like we did with the Auckland Unitary Plan?

On the NZART Official Broadcast on 28 June, NZART President has formally appealed for donations, and requests that local amateurs and/or clubs who can do so should contact Debby ZL2DL for bank account details for making deposits.

Reprinted from the Hibiscus Coast Radio Society Newsletter, July 2020
Written by Douglas Birt ZL1BFS

50 Years Ago in Spectrum – June 1970

June 1970 Spectrum contained 24 pages plus the front, inside front and back cover.

Guest speaker at the July meeting was announced as Malcolm ZL1TDW from Te Awamutu and his topic – Slow Scan Television. On July 15th the Auckland University Radio Club was to have a meeting to which members of the Auckland VHF Group were invited. Guest speaker at the university was to be a Mr G.E. Bold and his subject “Satellite Propagation and VHF Propagation”. It was noted that Mr Bold was from the Radio Research Centre.

From The President’s Chair – Morris Lister ZL1TAQ (now SK) put the case for VHF. “Many technician class amateurs do not bother to build gear and become operational on VHF. The reason: Well apparently, they have been advised not to, but to concentrate on obtaining their Morse certificate, so becoming a general class licence holder. This is an honorable enough goal, but where is the hurry? Or is VHF operation degrading?” Morris goes on to suggest that amateurs who get their general class licence and go on to enjoy the HF DX bands will have no incentive to come back to VHF later. He suggests that VHF can provide immense satisfaction to those who work it. That the thrill of a new VHF contact over a 300 mile distance is equivalent to that of contacting a rare corner of the earth to a VHF’er. He concluded by saying that VHF has many special features which the average amateur is somewhat slow to recognize and make use of. Maybe if it were compulsory for all new amateurs to spend a year on VHF before being able to operate on other bands.....

New Secretary John ZL1TIQ was welcomed and thanked for taking on this very responsible task.

A treasure hunt was held at the Papatoetoe Hotel Carpark on 28 June with three transmitters to find. Each transmitter had a clue and then all three clues were found, would give the clues on where to search for the prize. Participants were encouraged to bring gumboots in addition to a receiver on 144 MHz and some DF gear.

VHF All Bands Contest Results with ZL1TAT coming first overall with 370 points on 144 MHz and 92 on 432 MHz. The 432 and Higher Contest saw ZL1MQ the winner with 100 points. Elsewhere in the issue a note that Cliff ZL1MQ after 34 years of operation had recorded 36,000 contacts!

Reports from Taranaki (Stratford) by Alistair ZL2BAL who noted that wind and snow on the Stratford plateau damaged their antenna during the last contest. He was also planning a motoring holiday and would have 120W on 2m FM plus 150W on 80m while mobile. Bernie ZL4IS reported on activity in Dunedin and noted that the Southland transceiver design was proving very popular leading to greatly increased activity on 2m.

Technical content was not lacking either with page 9 featuring a proposal for a band plan for the 144 to 148 MHz 2m band. This as the result of a meeting between the Waikato and Auckland VHF Group committees earlier in the month. Further on in the issue, Ian Brown ZL1TAT presented the basic plan for a 146 MHz FM translator, promoting the advantages of a translator v. a repeater. Page 18 has a circuit for an audio muting system and on page 19, Graham ZL1AHQ presented the results of some tests and modifications to a 3N140/3N141 dual gate FET 2m converter which significantly improved its strong signal handling ability. Page 21 and Ian ZL1TAT presented an FM IF amplifier and discriminator based around the Fairchild uA719 integrated circuit.

This one-page summary really does not do justice to the content with many smaller articles and activity reports. Finally of note – Dave Dingley ZL1TIA was a committee member!



**Amateur Radio Emergency Communication.
Volunteers in radio communications.
Using our resources to help the community.**

INFORMATION

The Auckland VHF Group has an AREC Group that works closely with Auckland Council Emergency Management. They provide advice, resources and manpower to assist in times of need.

The AREC section is headed by Group Leader David Dingley ZL1TIA.

From time to time the VHF Group has training sessions and exercises. Members also assist with sports events, parades and other community activities. For further information about AREC please see the NZART web site: <http://www.nzart.org.nz/arec/>

JOIN BRANCH 66 AREC

All members of the Auckland VHF Group are encouraged to join the AREC section. Your contribution, large or small is appreciated by all involved. For further information about joining Branch 66 AREC contact the Group Leader:

David Dingley ZL1TIA

828 9394 mardayak@gmail.com

AREC News:



AUCKLAND VHF GROUP (INC)

SUPPORT THE EFFORTS OF THE VHF GROUP THROUGH YOUR
SUBSCRIPTION

SUBSCRIPTIONS FOR 2020

THE SUBS GO TOWARDS;

- Maintenance and on-going improvements to beacons, repeaters and linking systems for the national system, including the Klondyke repeater site.
- Providing on-time and free access to spectrum magazine as soon as it is available.
- Providing facilities for good speakers and lecturers at our general meetings.
- Discounted access to our trading table goodies.
- Access to test equipment and technical help when needed.

FULL MEMBERSHIP **\$50.00**

ASSOCIATE MEMBERSHIP **\$44.00**

FAMILY MEMBERSHIP ADDITIONAL **\$10:00**

SEE ATTACHED MEMBERSHIP RENEWAL FORM (next page)

**REMEMBER TO KEEP US INFORMED OF YOUR EMAIL
ADDRESS!**

OTHERWISE WE CANNOT SEND YOU SPECTRUM!



Thought for the month:

When I find it, I don't need it. When I need it, I can't find it.

NAME	Mr/Mrs/Miss/Ms	Christian or given	Surname
Address			
		Phone: (home)	
		Phone: (work)	
		Phone (Cell)	
		Email	
Occupation:		Callsign	
NZART Member		Branch assigned	
AREC Member		Branch assigned	
Category			To pay
Membership	Full	\$50:00	\$
New/Renewal/ Change	Associate	\$44:00	\$
Receipt #	Family Add	\$10:00	\$
Donations	Auckland/Klondyke		\$
	Brynderwyn		\$
	Data/D-Star		\$
	IRLP		\$
	Other		
	Beacon / Repeater / Links / Licence donations		\$
		Total	\$
Payment			
Circle one -->	Cash	Cheque	Internet deposit
Invoice/Statement re- quired	Please Advise Treasurer		
Internet	<p>To account ASB 12-3011-0830580-00. Account name is: Auckland VHF Group Inc. Include your Name/Callsign and Sub or RepeatDon etc in particulars field, for us to track. To sponsor a specific repeater, nominate the repeater and a backup repeater for the donation, in case the initial choice has been taken. The sponsorship is a minimum of \$50.00 which covers the licence for a year. Note: Please return the Form to the email or postal address given below to allow us to update our records. (Please Note the Account Number and email may have changed from last year) Email to: treasurer@aucklandvhfgroup.org.nz</p>		
Post	The Treasurer, Auckland VHF Group Inc., PO Box 10138, Dominion Road, Auckland 1446.		
In Person	Bring this form and payment to the next club meeting, 2 nd Monday of the month or to the Committee meeting last Monday of the month.		

The Auckland VHF Group Inc Branch 66 NZART
gratefully acknowledges the sponsorship of Branch 66 Beacons, Repeaters and Fixed Links license fees and the Group's repeater operations by the following radio amateurs and NZART Branches for 2020

Repeater frequency and name	Repeater location	Sponsorship advised for 2019	Amount paid
53.725 Repeater	Klondyke Road	Gwynne Rowe	\$50
144.253 Beacon	Nihotupu	Not operating	
145.625 Data Rptr	Klondyke Road	Not operating	
145.650 Dstar repeater	Klondyke Road	Laurie/Marlene Mathews	\$50
146.625 Repeater	Klondyke Road		
146.700 Repeater	Ruaotuhenua	Dennis Thorton	\$50
146.900 Repeater	Mt Puketutu Radio	David Wilkins	\$50
432.253 Beacon	Nihotupu	Stability testing	
438.175 Dstar repeater	Klondyke Road	Laurie/Marlene Mathews	\$50
438.500 Repeater	North Head	Not operating	
439.850 Link Tx to Kaimai	Klondyke Road	Franklin Radio Club	\$50
439.875 Ak Nat Sys Rptr	Klondyke Road	Franklin Radio Club	\$50
439.900 Link Tx to Egmont	Klondyke Road	Franklin Radio Club	\$50
439.950 Link Tx to Brynderwyn	Klondyke Road	Franklin Radio Club	\$50
1291.9 Repeater	217 Glenfield Rd	Soren Low	\$50
		Total Sponsorship	\$500
NZART Inc: Branch/Personal donations			
Papakura Radio Club		\$500	
	Donations	\$1000	
Current as at 25/02/2020			

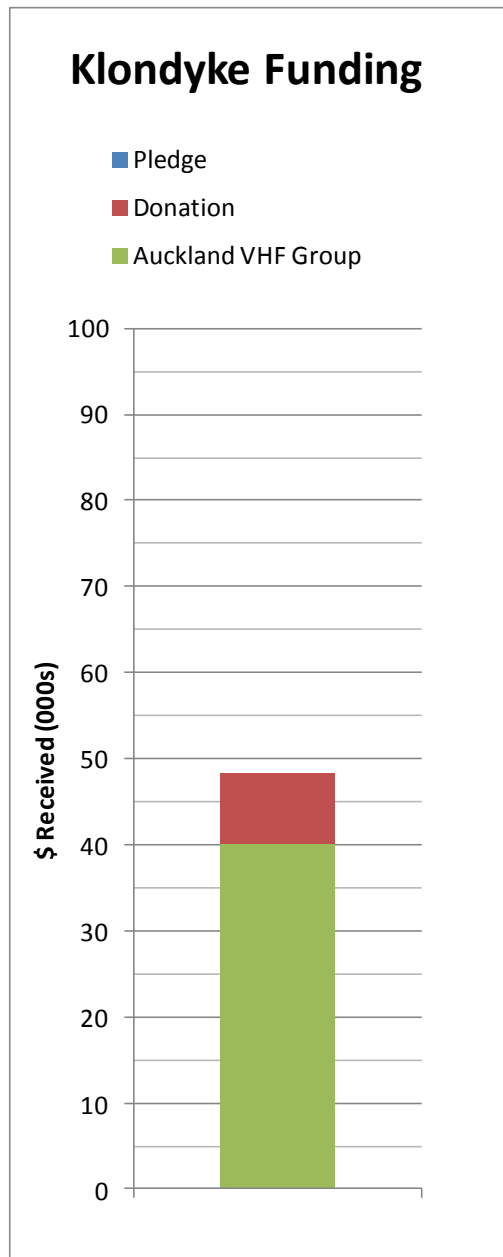
The Auckland VHF Group, Branch 66, would like to thank all those who came forward to sponsor the licence fee for our Beacons, Repeaters or Fixed Links for the year 2020 or donate towards the Group's repeater Operations.

Target 100,000

Name	Donation	Pledge
Donations 2018-2019	6550.00	
Charles Graves	15.00	
Ian Ashley ZL1AOX	500.00	
Keith Dix ZL1BQE	50.00	
Margaret Dingley ZL1AYV	100.00	
David Dingley ZL1TIA	100.00	
Jenny Dingley ZL1TDB	100.00	
Russell King ZL1WITT	20.00	
Basil Orr	500.00	
Raffle — Meter	399.00	

Tower	63,245.00	Other	27,268.25
GST	9,486.75		
Total	72,731.75	Total	27,268.25

Auckland VHF Group 40,000.00 40.00



Total	8274.00	-
Percent	8.274	0.00

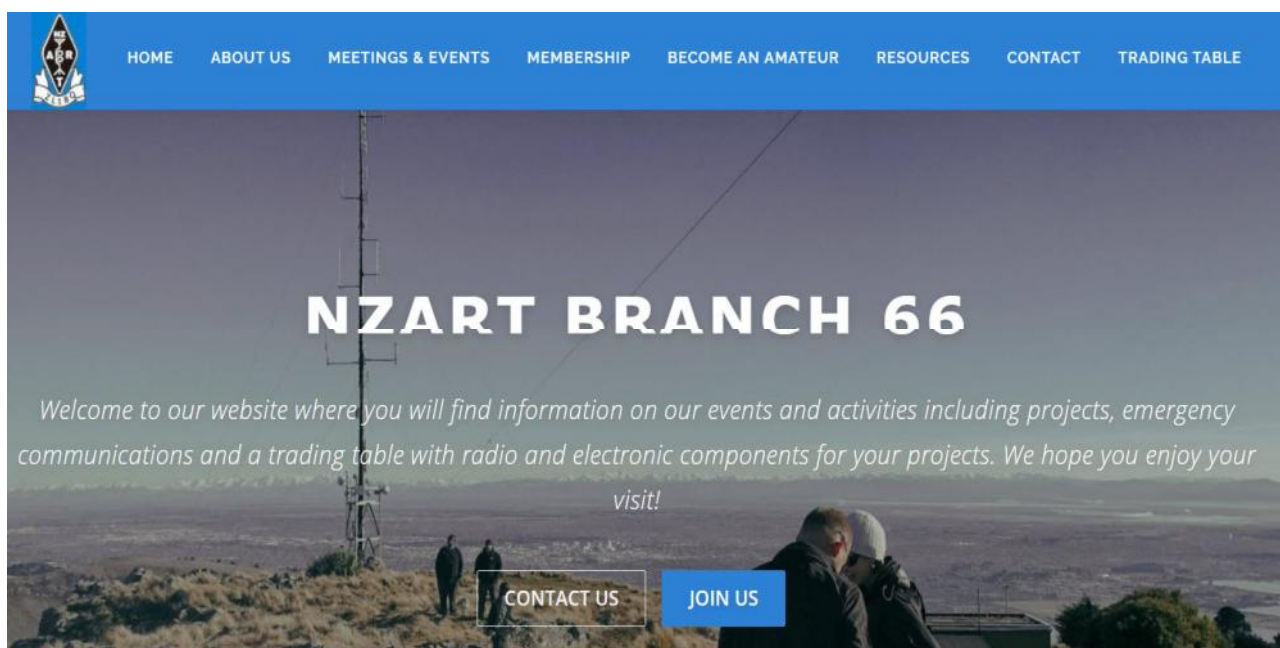
TRADING TABLE

Currently our Trading Table is only open on meeting nights but wait, there's more!

Trading Table is now on line. Navigate your way to our new look web site at <https://aucklandvhf.org/> and click on TRADING TABLE (the most right hand tab).

Wait a few seconds and the on-line version of the Trading Table will pop up. From here you can browse the various sections, dig deeper to look at what's available and even place your order online.

If you prefer to just look at the Trading Table List, just hover your mouse pointer over the TRADING TABLE and a pull down list will appear. From this you can access the full trading Table list and download it in .PDF form.



Recent Additions to our Trading Table Stock

Electrolytic Capacitors SMD	(Packed in bags of 10 for 50c):	
10uF 16V electrolytic	47uF 16V electrolytic	100uF 16V electrolytic
Resistors:		
50 Ohm 0.4W +/-1% tolerance.		10 for 50c
0.25 Ohm 5W wire wound		
0.27 Ohm 3W Wire wound vertical pcb mount		
Siemens Gas Surge Voltage Protection Tubes:		
SVP Tube type B13-A230. 230V D.C. minimum strike voltage.		\$1.00 for 10
2-electrode type with wire leads, pre-bent for 10mm hole spacing.		
ETAL P1200 600:600 Ohm line matching transformer		\$3.00 each
Quartz Crystal: 6.000 MHz HC49SMD package marked CQ6.0000		\$1.00 each
BNC plugs 50 ohm R/Angle for RG58 coax (solder/clamp type)		\$2.50 each
Relays:		
12V coil, DPDT 1A non-latching (EB2-12NU) SMD package		\$2.00 each
12V coil, DPDT 1A 2-coil latching (EB2-12TNU) SMD package		\$2.00 each
LED Holder panel mount 5mm Kingbright nylon in bags of 50		\$3.00 per bag
Lacing Twine black plastic, in 10m rolls.		\$1.00 each
Ceramic feed-thru insulators, 500V rating, solder in.		50c bag of 10
Semiconductors:		
RURP30120	1200V 30A ultrafast switching diode	\$1.00 each
1SS55	Silicon switching diode. 70V 100mA DO-35	10/\$1.00
2N5777	NPN Light detector, Photo-darlington 45V TO-92	\$0.50 each
2N6027	Programmable Unijunction Transistor 40V 300mW	\$0.10 each
2N6122	NPN TO220 60V 4A 40W GP amplifier	\$0.50 each
2N6292	NPN TO220 70V 40W GP amplifier	\$0.50 each
2N6609	PNP TO3 140V 16A 150W audio/driver	\$1.00 each
BUK457-500B	Power MOSFET 500V 9A 150W TO-220	\$2.00 each
SGP15N60	NPN IGBT 15A 600V fast switch TO-220	\$1.00 each
SGP20N60	NPN IGBT 20A 600V fast switch TO-220	\$1.00 each
UDN2965W-2	Dual high power stepper motor driver. 20 to 50V out at 4A SIP package.	\$1.00 each
LM3909N	LED driver/flasher. 8-pin plastic DIL package.	\$0.50 each
LM3911N	Temperature Controller IC. 8-pin plastic DIL package.	\$1.00 each
LM3914N	LED Bar-graph driver. 18-pin DIP plastic package.	\$5.00 each
PIC16C54B	8-Bit CMOS Microcontroller. 18 pin SOIC SMD package	\$2.00 each
	Limited quantity	