

The Official Newsletter of the
**PAPAKURA RADIO
CLUB INC.**



February 2022



2022 - As Good as You choose to make it



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This Month's Meetings:

Due to the uncertainty of the Omicron Outbreak in New Zealand, including Auckland, there will be no face to face meetings during February or March.

Meetings for February.

Wed 2 February – No Formal Meeting in February – A Virtual General Meeting will be arranged

Wed 9 February – No Formal Meeting in February

Wed 16 February – Committee Meeting – This will be a teams meeting.

Wed 23 February – No Formal Meeting in February

CLUB ACTIVITY:

There are no face to face meetings at the clubrooms in February, Projects are on hold due to the uncertainty caused by the omicron outbreak.

UPCOMING PROJECTS:

JOCK WHITE FIELD DAY

Jock White Field Day will be held over the weekend of 26th & 27th of February. If we are to run it this year, we will require additional Hams to help David ZL1DK, as most our regular team will be unavailable. If you can help, you may wish to contact David for details. zl1dk@nzart.org.nz

UPCOMING ACTIVITIES:

WED 2 FEBRUARY – VIRTUAL GENERAL MEETING

WED 9 FEBRUARY – NO FORMAL MEETING

WED 16 FEBRUARY – COMMITTEE MEETING - VIRTUAL

WED 23 FEBRUARY – NO FORMAL MEETING

AS THESE ARE SUBJECT TO CHANGE - PLEASE LISTEN FOR UPDATES ON THE SUNDAY MORNING CLUB NETS. (SEE BACK PAGE FOR FREQUENCIES AND TIMES)

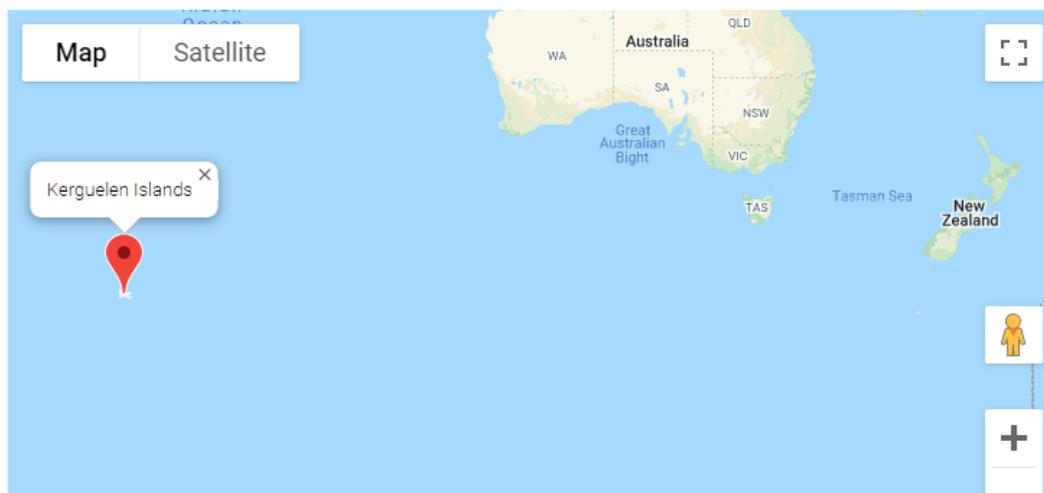


DX Calendar February 2022

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
P40AA								8Q7AH						VP2MSS				KP3RE									
PJ2/PF5X			TU5PCT								OX7AM OX7AKT						PJ7AA										
PJ7/VA3QSL					J88PI																						
PZ5KV								D44DX D4CW																			
D44AO												HR9/AD8J															
Z220 Z21A												FS/VA3QSL															
VP2MDX												8Q7WM 8Q7WX															
V4/KG9N												3B8GY															
R11ANC												6W7/F6HMJ															
JI3DST/5 JS6RRR/5												6W7/ON4AVT															
FT4XW																											
P4/K3DMG																											
KC4USV																											
HR5/F2JD																											

FEATURED EXPEDITION:

- Arthur, FT4XW will be active from Kerguelen Islands, IOTA AF - 048, until December 2022
- He will operate on HF Bands using Xiegu G90 and DX Commander SOTA/POTA vertical antenna.
- FT4XW Kerguelen Islands. Sunrise 12-29-2021 at 23:15 GMT sunset at 15:33 GMT QSL via FT4XW direct.
- Address for direct QSL:
- Arthur Perrin, Base de Port-aux-Français, District de Kerguelen Terres Australes et Antarctiques Françaises, 97408, France.



Click on the link (CTRL + Click for some PDF readers) in the PDF versions for information on the Expeditions



Or check them out at DX News.com

CONTESTS FEBRUARY 2022

Start - Finish				Bands	Contest Name	Mode	Exchange	Sponsor's Website
Date-Time	Date-Time	Date-Time	Date-Time					
2	1700	2	2000	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	ft8activity.eu/index.php/en
2	2000	2	2100	3.5	UKEICC 80-Meter Contest	Ph	6-char grid square	ukeicc.com/80m-rules.php
3	0000	4	0300	7	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or power	qrpcontest.com/pigwalk40
3	1800	3	2200	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrrlcontest.no
3	2000	3	2200	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
5	0000	6	2359	1.8-UHF	Vermont QSO Party 10-10 International Winter	CW Ph Dig	RS(T), VT county or SPC	www.ranv.org/vtqso.html
5	0001	6	2359	28	Contest, SSB	Ph	Name, mbr or "0," SPC	www.ten-ten.org
5	0600	5	1800	1.8-28	EurAsia HF Championship	CW Ph	RS(T), 6-char grid square	www.eurasia-contest.com
5	1200	6	2359	3.5-28	Mexico RTTY International Contest	Dig	RST, XE state or serial	www.rtty.fmre.mx
5	1400	5	2359	1.8-28	Minnesota QSO Party	CW Ph Dig	Name, MN county or SPC	www.w0aa.org/mnqp-rules
5	1400	5	2359	1.8-28	FYBO Winter QRP Sprint	CW Ph Dig	RS(T), SPC, name, power, temperature	arizonascqrprions.apps-1and1.com
5	1600	5	1800	3.5-28	FISTS Saturday Sprint	CW	RST, SPC, name, mbr or "0"	fistsna.org/operating.html#sprints
5	1600	5	1900	3.5	AGCW Straight Key Party	CW	RST, serial, class, name, age	alt.agcw.de/index.php/en
5	1600	6	2359	1.8-28	British Columbia QSO Party	CW Ph	RS(T), BC district or SPC	orcadxc.org/bcqp_rules.html
5	1800	6	1800	1.8-28	European Union DX Contest	CW Ph	RS(T), EU region or ITU zone	eudxcc.altervista.org/eu-dx-contest
5	2300	6	0300	3.5-14	North American Sprint, CW	CW	Other's call, your call, serial, name, SPC	ncjweb.com
6	1400	9	0800	1.8-144	Classic Exchange, CW	CW	Name, RST, SPC, rig information	www.classicexchange.org
7	1630	7	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
8	0200	8	0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
9	0130	9	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
9	1700	9	2000	432	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	ft8activity.eu/index.php/en
12	0000	13	2359	3.5-28	CQ WW RTTY WPX Contest	Dig	RST, serial	cqwxrtty.com/rules.htm
12	1100	12	1300	7, 14	Asia-Pacific Spring Sprint, CW	CW	RST, serial	jsfc.org/apsprint/aprule.txt
12	1200	13	1200	1.8-28	Dutch PACC Contest	CW Ph	RS(T), PA province or serial	pacc.veron.nl
12	1200	13	2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
12	1200	13	2359	1.8	KCJ Topband Contest	CW	RST, JA prefecture or CQ zone number	www.kcj-cw.com
12	1400	14	0200	All	YLRL YL-OM Contest	CW Ph Dig	Serial, RS(T), SPC	ylrl.org/wp/yl-om-contest
12	1500	13	1500	1.8-28	OMISS QSO Party	Ph	RS, SPC, mbr (if any)	omiss.net/Facelif/qsoparty.php
12	1900	12	2300	1.8	RSGB 1.8 MHz Contest	CW	RST, serial, UK district code (if UK)	www.rsgbcc.org/hf
12	2300	13	2300	1.8-14	AWA Amplitude Modulation QSO Party	Ph	Name, SPC	antiquewireless.org
13	1300	13	1700	3.5, 7	Balkan HF Contest	CW Ph	RS(T), serial	arabih.ba
14	0000	14	2359	1.8-7	PODXS 070 Club Valentine Sprint	Dig	Name, OM or YL, SPC	www.podxs070.com
14	0100	14	0259	3.5-14	CQC Winter QSO Party	CW	RST, SPC	www.coloradoqrplclub.org
14	0100	14	0300	1.8-28	4 States QRP Group Second Sunday	CW Ph	RS(T), SPC, mbr or power	www.4sqrp.com
14	1630	14	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
16	1900	16	2030	3.5	AGCW Semi-Automatic Key Evening RSGB 80-Meter Club	CW	RST, serial, year first used a bug	alt.agcw.de/index.php/en
16	2000	16	2130	3.5	Championship, Data	Dig	RST, serial	www.rsgbcc.org/hf
19	0000	20	2359	1.8-28	ARRL International DX Contest, CW	CW	RST, state or province; DX: power	www.arrl.org/arrl-dx
19	1200	20	1159	1.8-28	Russian PSK WW Contest	Dig	RST, oblast or serial	rdclub.ru/russian-ww-psk-contest
19	1900	19	2059	1.8-28	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	sites.google.com/site/feldhellclub
20	2100	20	2300	3.5-28	FISTS Sunday Sprint	CW	RST, SPC, name, mbr or "0"	fistsna.org/operating.html#sprints
20	2300	21	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	qrpcontest.com/pigrun
21	1630	21	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
23	0000	23	0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
23	2000	23	2100	3.5	UKEICC 80-Meter Contest RSGB 80-Meter Club	CW	6-char grid square	www.ukeicc.com/80m-rules.php
24	2000	24	2130	3.5	Championship, CW	CW	RST, serial	www.rsgbcc.org/hf
25	2200	27	2200	1.8	CQ 160-Meter Contest, SSB	Ph	RS, SP or CQ zone	cq160.com/rules.htm
26	0600	27	1800	3.5-28	REF Contest, SSB	Ph	RS, French department or serial	concours.r-e-f.org/reglements
26	1200	27	1200	3.5-28	FTn DX Contest	Dig	4-char grid square	europeanft8club.wordpress.com
26	1300	27	1300	3.5-28	UBA DX Contest, CW	CW	RST, serial, ON province (if ON)	www.uba.be/en
26	1500	27	0159	1.8-50	South Carolina QSO Party	CW Ph Dig	RS(T), SC county or SPC	scqso.com
26	1800	27	0559	3.5-28	North American QSO Party, RTTY	Dig	Name, SPC+DC	www.ncjweb.com
26	1800	27	0559	3.5-28	NA Collegiate Championship, RTTY	Dig	Name, SPC+DC	www.w9smc.com/nacc
27	1400	27	1700	3.5-28	High Speed Club CW Contest	CW	RST, mbr or "NM"	www.highspeedclub.org
27	1500	28	0100	3.5-144	North Carolina QSO Party	CW Ph Dig	NC county or "SPC"	ncqsoparty.org/rules
28	1630	28	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
28	2000	28	2130	3.5-14	RSGB FT4 Contest	Dig	4-char grid square	www.rsgbcc.org/hf

All dates and Times are in UTC and are not adjusted for local time

Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

Listings in blue indicate contests sponsored by ARRL or NCJ. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at www.contestcalendar.com

Check for updates and a downloadable PDF version online at www.arrl.org/contests.

ALAN MAURICE WOOLLER ZL1AUW SK by *Vaughan ZL1VH Branch 29 Newsletter*

Alan was born on March 4th 1941 in Mt. Albert, Auckland. In his early years, the family moved around a bit, from Mt. Albert to Milford, finally settling in Castor Bay. He attended Northcote College and did well academically, becoming Dux in his final year. In his 3rd Form he discovered electricity - taught the basics in laboratory classes. Alan recalls the equipment was solidly made, lots of dove-tailed wood and large brass terminals.

From Northcote College he went to Auckland University's Ardmore Engineering School, graduating in 1963 with a B.E. (Electrical). Sometime at Ardmore, he learned about amateur radio. On leaving the university, he found employment, and also time for hobby interests. He studied for the Technical Amateur Radio Licence Examination, which he passed with no problem. However, to use Morse Code took a lot more study. Not until September 1963 did he manage to pass the exam for Morse Code. The following months were devoted to his new interest. He designed and built a transmitter and receiver, went on the air and was able to contact radio amateurs in Australia! Along the way he discovered that Morse code telegraphy was not as technically simple as the textbooks made out. He put amateur radio aside for a time.

In September 1964 he started work for Allied Industries. The company made domestic radios and prepared to make television sets. Another Allied Industries product line was transformers for the Waikato Electric Fence Controller, and assembly was done by another company in Hamilton. Heading a small design team, Alan solved various design problems, culminating in a successful product.

Alan was involved in much of the design work for radio and television, taking overseas designs and modifying them to suit New Zealand's broadcasting standards.

With Fisher and Paykel taking over 100% ownership of Allied Industries and easing of import restrictions making local manufacture less attractive, the radio and television business became Fisher & Paykel Electronics Division. In Alan's final years at F&P Electronics, he specialised in spare parts. Rapid changes in microelectronic technology made it difficult to fulfill F&P's commitment to deliver spare parts for 10 years at least. Alan sourced microprocessors and memory chips. He was known as the 'Retro King', but it didn't look glamorous or profitable to the management. In 1998 they made him redundant.

Alan returned to amateur radio in about 1975 but found everything had changed – the technology had moved on, Morse Code had given way to SSB voice communications. He decided not to make an SSB radio and bought a Japanese one. His Morse had become rusty, and he was no longer comfortable using it.

He re-joined the North Shore Radio Club, was elected to the committee, and became also the leader of the Club's AREC Section. In 1989 he was elected Club Secretary, a position he held for the next 31 years, until serious health problems forced him to resign in May 2020.

In 1977, with a little help from a bank, he bought a house in Glenfield where he resided until his death.

With the North Shore Radio Club for decades, he could always be counted on to assist at working bees and other club activities. For many years the amateur radio clubs in the greater Auckland area ran an indoor bowls competition, and Alan was a great supporter.

He was elected Chairman of the Club for two years from 2000 to 2002, and he was happy to resume the Secretary's role when his term as Chairman finished.

He was an outstanding Secretary. Meeting Minutes were always produced promptly, and any task he was given got completed quickly. He assisted the Club's Newsletter Editor as a proof-reader for 20 years, picking up 99% of layout, spelling and punctuation errors.

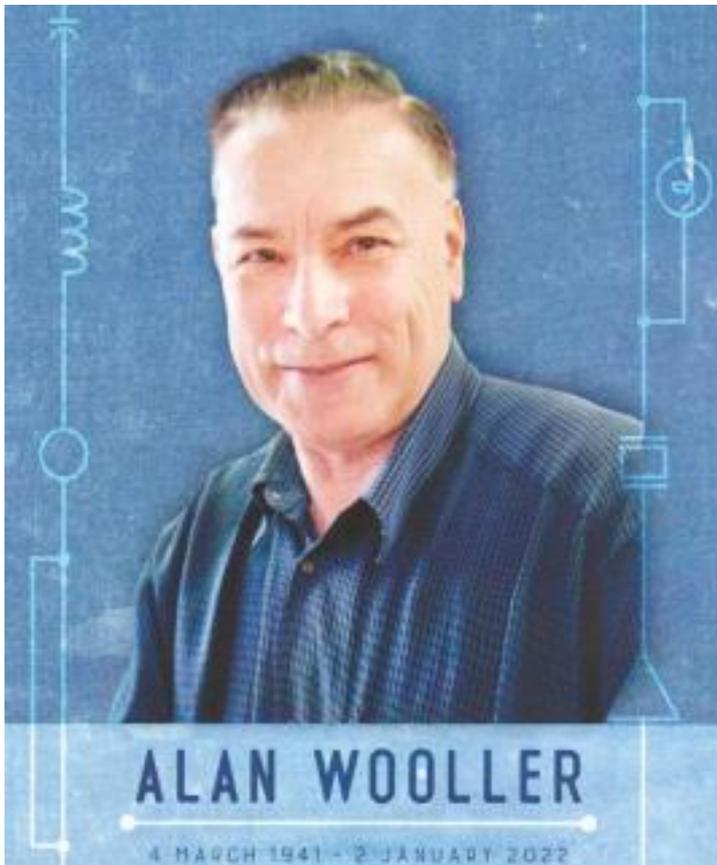
Alan continued a long involvement with the Club's AREC Group, and at the clubrooms every Wednesday morning he helped with the weekly Civil Defence Communications Network checks.

Alan was a life member of the Club, and in 2012 he was recognised nationally with the presentation of a Jumbo Godfrey Award for services to amateur radio.

In October 2020 the North Shore Radio Club made a special presentation to Alan, recognising his many years of outstanding service to the club.

Alan's other hobbies were photography and music – he was a member of several choral groups.

Alan passed away peacefully on January 2nd 2022. He is survived by two sisters and three brothers. The North Shore Radio Club will miss Alan's reliable and steady contribution to its activities.



GRAHAM ZL1GMB MEMORIES OF ALAN ZL1AUW

Before I got my callsign I was CD Message Trainer at 400 East Coast Road, as a member of the Julian ZL1ABX Group. Alan was the experienced operator who we joined for the Exercises. His encouragement, support, and mentoring proved to be invaluable for my future involvement in Branch 29.

After obtaining my callsign in 2008, I became involved in the club's AREC activities. As a New Ham with my newfound role of AREC Team Leader, Alan's mentoring helped me avoid many of the mistakes a new leader can make. There was my Mentor Alan, providing me with solid advice to assist me with the running of the Club.

After my promotion to Vice Chairman, and to Chairman, Alan was by my side as Secretary. His contribution to Branch 29 was recognised in 2020, when he was presented with a Certificate of Appreciation. It has been my privilege to know him, to learn from him, and to pass onto our next generation the attention to detail that has always been the focus of Alan's example.

I will miss you Alan, as will all those who have known you, but I will not forget what you have taught me. Good bye my fellow Ham Alan ZL1AUW (SK) . 73

PS: I just told Henry ZL1AAN that there will be available to members a collection of Wireless World magazines from Alan. We will tell you when we have them.



Alan at Branch 29 club meeting, July 6th 2020

FIXING A COMPLEX MODERN TRANSCEIVER MY SAGA, COMPLETE WITH PICTURES.

Several years ago, I got interested in Automatic Link Establishment (ALE) for AREC type communications. Initially I tried the amateur solution using a standard transceiver and a computer to generate the signals and change channels.

The process was moderately tedious as there were lots of wires and fiddling with programs, setting up and the like. I then figured out that Codan and others were making gear that had the ALE function built-in. As I'd just sold my shares in a business that I'd set up years before I thought why not spend the money and buy a decent ALE radio – of course not having any idea how much one would cost.

Long story short I got a great deal for an older but still currently sold model of Codan backpack radio with built-in ALE, and other commercial like functions but also fitted with the amateur option. In the end it wasn't much more than the cost of a top of the mid-range amateur rig.

I figured it was a bargain and to top it off the dealer in Australia who helped me find the radio also threw in the programming software and the Technical Service Manual. I don't think he really wanted to see me coming back for support, especially as he wasn't making any money from the deal! Well not entirely as I ended up buying a few other accessory bits from him.



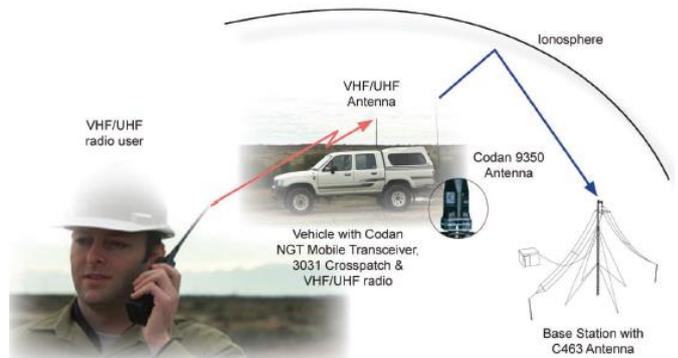
Things went well for several years and I have been operating my radio in the AREC ALE network, until I tried to get it to work with a Codan Crosspatch so we could use it with LandSAR. I had a problem!



The problem!

The Codan 3031 Crosspatch is a standard accessory that can be fitted to all the modern Codan HF radios. It allows remote communications and control of the HF set using a VHF or UHF link.

Whilst I could configure the Crosspatch and got the receive side working, I couldn't get the 2110 to transmit when a VHF signal was received.



The crosspatch is connected to the large 19-way MilSpec connector on the lower left of the panel. Pin G is the hardwired PTT and is seen as an open collector with a 3.3V pullup voltage. Pin H is Ground. To activate the PTT function all you have to do is short G to H when the radio is on a channel and it should transmit.



The mechanism is that the Pin G sits at 3.3 Volt and an IC circuit is monitoring that voltage. When pin G is shorted to ground (Pin H) the voltage drops and the IC tells the rest of the system to transmit. The reason why this works is that the 3.3V is fed through a 10k Ohm resistor which limits the current once G is shorted. The lack of current prevents the voltage from recovering so until the short is removed the IC only sees close to zero Volts so keeps the radio in transmit.

Testing & Fixing

The first test I did was to check the 3031 X-Patch. By this time, I had another more modern Codan Envoy transceiver with the correct plug for the 3031 so I plugged it in and all functions worked OK!

The problem was not with the 3031 so one down, how many more tests to go?

Next step was to check the shorting of Pin G to H whilst monitoring the voltage. Sure enough, the voltage dropped to close to zero but the radio still wouldn't transmit.

By this stage I was thinking it can't be the radio itself maybe it's something in the software. After all this radio has multiple built-in computers and other IC so who knows how the programming works. Also, it had previously been equipped with a couple of options that were no longer used. Could that be the problem? Fun fact, the Codan 2110 is a battery powered backpack MilSpec radio and only draws a tad less than 300mA on receive, despite all those computers! Over 50hr on a fresh charge.

Anyway, I reluctantly asked the Codan dealer if he had any ideas. Not really as it was years since he had serviced a backpack and his test radio was in pieces so he couldn't even do some comparison tests. Also, as he was quite busy with his own life, I needed to plug on using my own ideas.

The next step was to take the radio apart and trace the circuits. The 2110 itself is still currently produced. It is a solid, dependable piece of kit and is very rugged and waterproof. I was therefore quite reluctant to take to it with some tools but in the end simply had to get stuck in.



I dismantled the radio and tested from G on the 19-way connector back through the BAT54 protection diode to the first **via** and found I was easily able to pull down the 3V line by simply shorting between the terminals G-H as I already knew.

A 'via' is the plated hole that passes through from one side of a printed circuit board to the other. They can be a real pain as sometimes the connection fails and the track effectively goes open circuit.

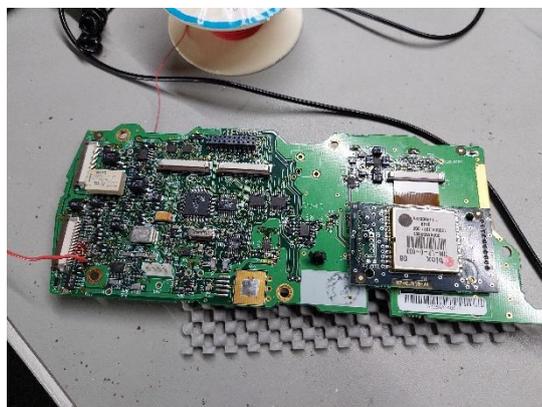
My testing was taking place on the rear of the front panel to the right of the picture. Note I had earthed the chassis to my static mat and was using a wrist band (between the radio and battery) to ensure I didn't do any damage to the componentry.

The power supply was a bit jerry rigged using the battery balanced on a roll of tape but did what it had to do. I also had a 25W dummy load connected to the BNC antenna terminal.

I then tried to trace out the circuit connecting the 19-way connector to the UART IC6 (the IC detecting the 3.3V pullup voltage). I had noticed that the line jumped from one side of the board to the other multiple times. There was no continuity between the origin of the trace at the BAT54 protection diode and Pin 33 on IC6. That led me to think at least one of the vias were open circuited.

My next step was then to completely disconnect the front panel and remove the board. I then used some twisted strands of connector wire and progressively soldered all the vias as I traced out the line. They progressively showed continuity back to the protection diode so all was going well.

Unfortunately, the last via was under IC6 so I couldn't guarantee a good connection (only a one-sided soldering attempt was possible). As a result, I think it was this last via that was the worst one and was open circuit as I never did achieve a continuous circuit to pin 33. That left me in a bit of a bind.



When I had first dismantled and attempted to check the circuits with power on, I had noticed the voltage at the BAT54 diode was around 3V yet the voltage at IC6 pin 33 was higher at 3.3V or so. Not knowing how the UART was configured I thought that maybe there was an additional pull-up internally. Needless to say, this slight difference in Voltage was a key sign I didn't pay enough attention to.



Anyway, to solve the lack of continuity I soldered a bypass from pin 33 to the closest accessible via that I had soldered (next to C18). I now had continuity from the diode to pin 33.

On rechecking the voltages things didn't seem right as the voltage at the diode had now gone up. I then tried to trigger the PTT but it wouldn't pull down, despite having done so previously! I was a bit one-eyed at this stage and was still thinking an internal pullup of Pin33 was taking place.

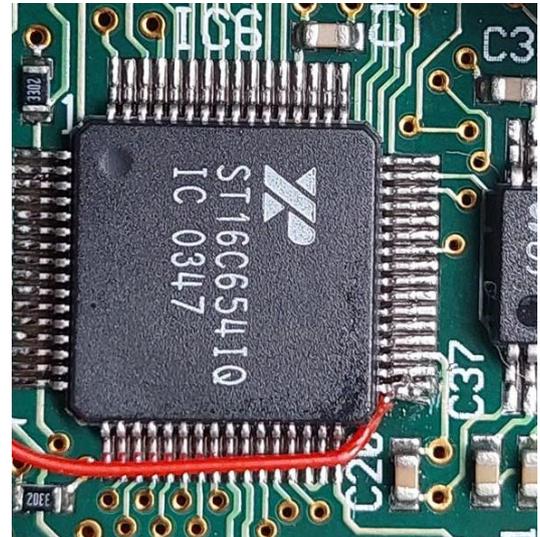
I then did a more detailed review of the board schematics in the Technical Service manual and noticed a 3.3V track adjacent to pin 33. On closer inspection using my magnifiers I noticed what looked like a trace from pin 33 to the 3.3V track. Can you see the issue next to the number 3 in C37?

It then dawned on me that I had actually had two faults. The open-circuited track and a solder bridge that was going to hold pin 33 high no matter what.

Once the solder bridge was removed the PTT function worked as expected when I short-circuited G to H and pulled pin 33 low.

Of course, my initial assumption was that Codan could do no wrong in the mechanical and construction area.

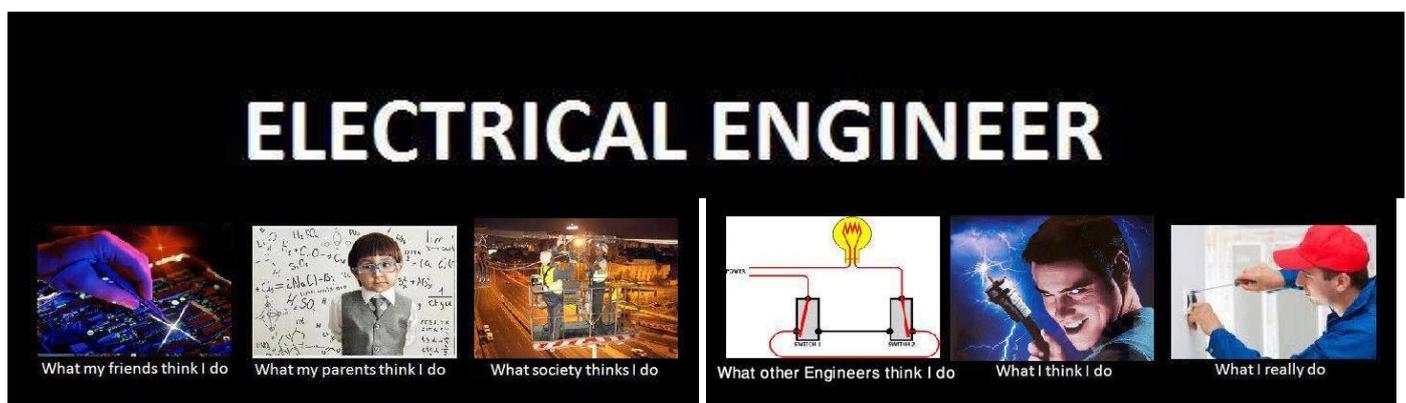
Obviously, I was mistaken as I think the solder bridge was there from new and the via failed either because it was not well plated through, or it was only just barely connected but failed much like a fuse when subjected to some influence like a slight over-current and/or gave up due to corrosion.



Needless to say, I am now quite happy with dismantling this quite complex radio and fixing things, but I think I need a stronger set of magnifiers or a USB camera setup.

As you can see from the photos the problem is pretty obvious when photographed through the high magnification macro camera of my new phone. Pity I didn't take the picture earlier and pore over it before embarking on my extended wild goose chase thinking I only had a single problem with lack of track continuity.

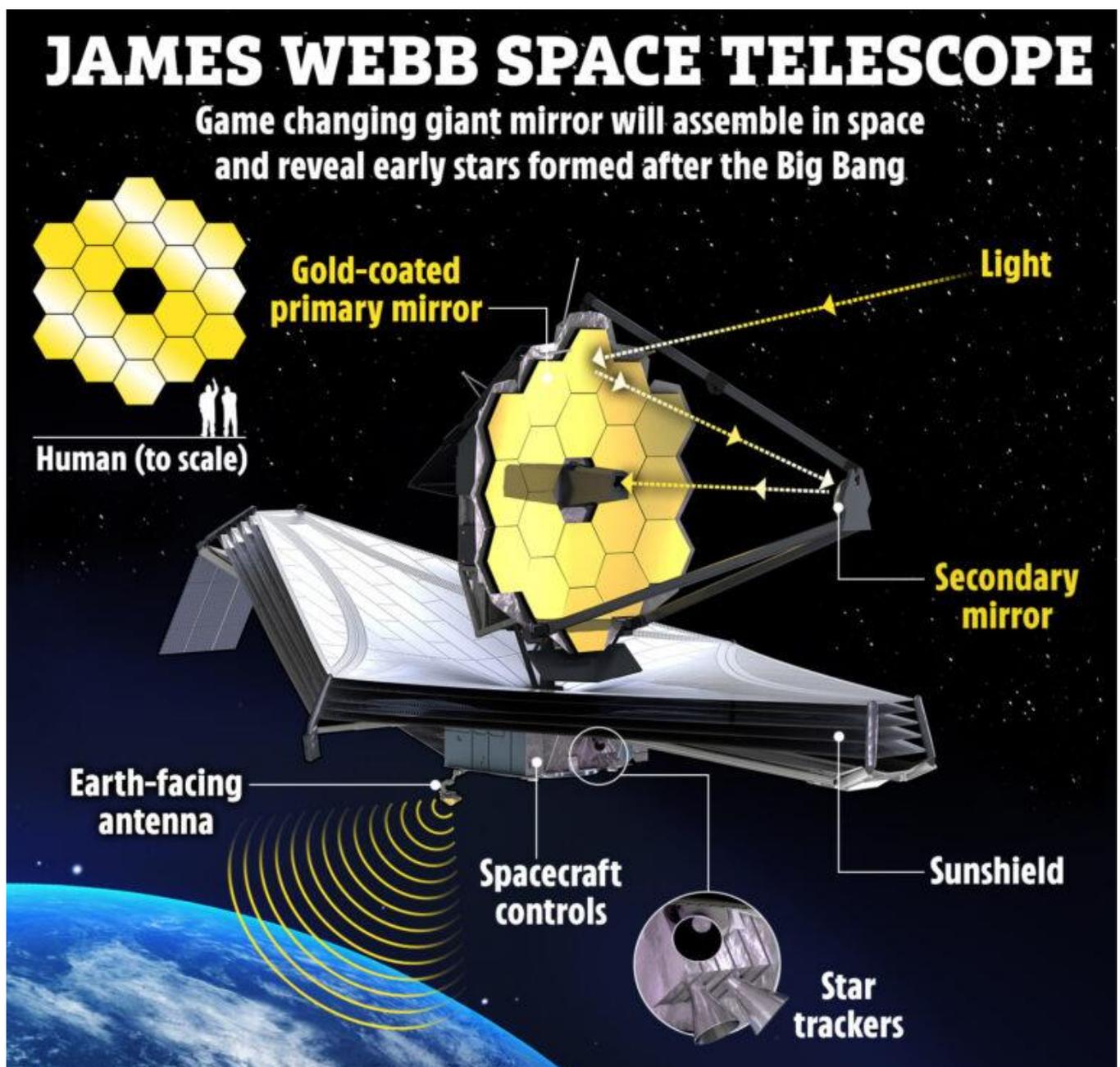
Dave ZL1MR – 2021-11-05



THE 10 BILLION DOLLAR CHRISTMAS PRESENT

What a couple of months it has for space nerds, Dart is on its way to meet an asteroid, The Parker Solar Probe has touched the sun's corona, and now, after years of delays and problems, the James Webb Telescope is in place at a location called L2, where, all going well, the telescope will give us views further into deep space, and back in time than any other telescope has ever given. For many of the world's astronomers, this Christmas present shows that some people get all the best toys for Christmas.

The Launch of the cooperative venture of 14 countries, with three main players assembling the telescope for launch, at a cost in excess of 10,000,000,000 US Dollars was delayed many times, but just before 1:30am on Boxing Day (NZ Time) the James Webb Space Telescope was launched on an ESA Ariane 5 rocket, from French Guian. With the payload, now deployed, the delicate dance of unfurling the various parts of the space telescope over the 29 days of travel from earth to the L2, where the gravity of the earth sun, and planets is equally balanced, then had to be managed before it will be able to give astronomers the unequalled views of deep space that they have waited so long for.



With the solar panels, and antenna array deployed, the most complex, and technically challenging part took place during the trip from earth to its stable position at the L2 Lagrange point. In order to prevent the sun's heat and light from impacting on the performance of the wide spectral camera systems, the Nasa Team had to unfurl the 7 layers of solar shielding, using 107 moving parts to release and position the shields to reduce both the glare and the heat from the sun, before the final deployment of the primary mirror.

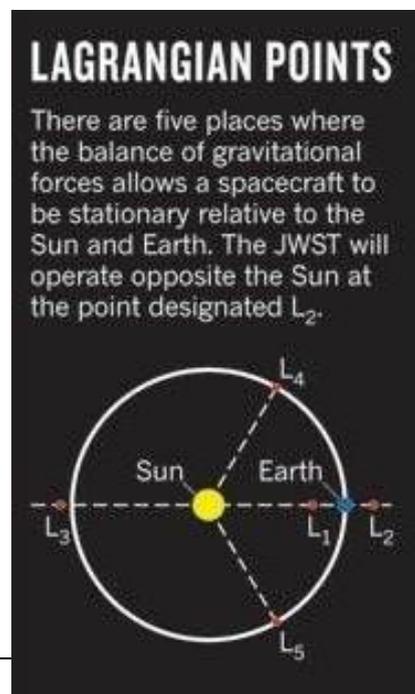
It is this level of complexity that makes James Webb so unique, and so technically awesome. In order to view the young stars that are thought to have formed about 100 million years after the big bang, the telescope needs a huge mirror, and an imaging system that looks at not only the visible light but also the light we cannot normally see. James Webb will use wide spectrum imaging, allowing spectroscopy of the light from these distant events, and will be able to look past the dust clouds that have limited how far previous options, such as the venerable Hubble telescope could see.

In order to be able to focus these mirrored arrays onto the primary mirror, each hexagonal mirror, can be individually moved by 6 Actuators, this is duplicated for each of the 18 hexagons that make up the main mirror. Speaking about the fine engineering involved in the construction of Webb's mirrors, Lee Feinberg, who is the Webb Optical Telescope Element Manager at NASA Goddard, once said that *"Aligning the primary mirror segments as though they are a single large mirror means each mirror is aligned to 1/10,000th the thickness of a human hair. What's even more amazing is that the engineers and scientists working on the Webb telescope had to invent how to do this."*

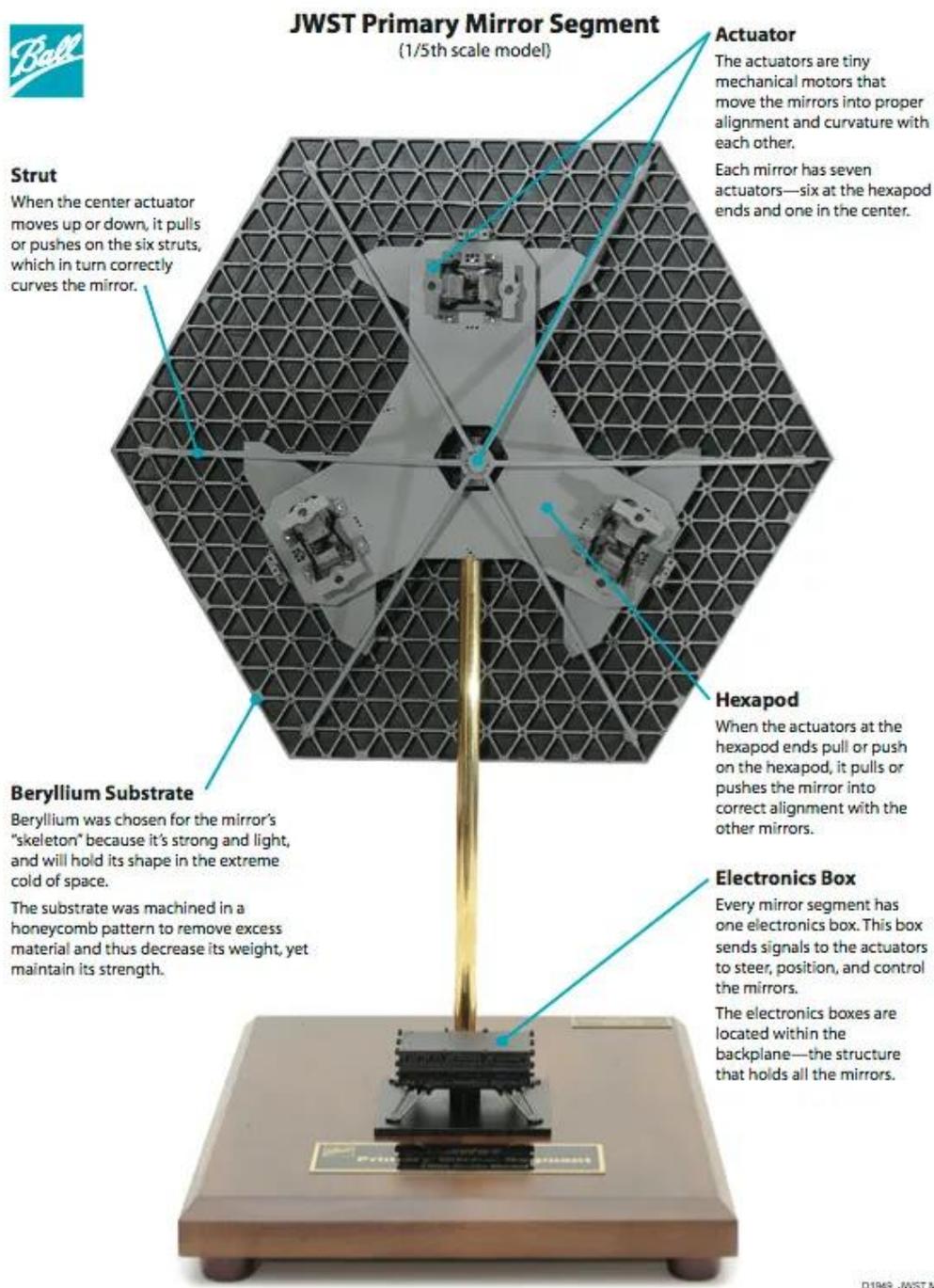
Many factors needed to be considered while fabricating the mirror. For example, the mirror had to be lightweight yet extremely sturdy enough to withstand the launch exertion and other physical pressures. So, to realize these properties in Webb's mirrors, the best metals had to be chosen. Beryllium (Be) is a light metal that is very strong for its weight. It is a good conductor of electricity and heat and is not magnetic. Moreover, it is extremely good at holding its shape across a range of temperatures. All of this made Beryllium a desirable choice for manufacturing Webb's primary mirror.

To construct the mirror, a finely powdered class of Beryllium, O-30, was used. The mirror segments were first brought to life at beryllium mines in Utah and were later moved across the USA for processing and polishing. In total, the primary mirror is composed of 18 hexagonal-shaped mirror segments, with each one of them being 1.32 meters in diameter and weighing approximately 20 kilograms. In addition to this, the convex secondary mirror is about 0.74 meters in diameter.

Each of the telescope's mirrors has been carefully covered in an extremely uniform and microscopically thin layer of gold. The gold coating optimizes the segments specifically for reflecting infrared light, which is the primary wavelength in which the James Webb Space Telescope will decode the cosmos. But as every object emits small amounts of infra-red light, the imaging surfaces, must be kept very cool, otherwise the low levels of light, would be lost in the infra-red glow of the spacecraft's own glow, and of course also light from our own sun. So, to get rid of this interference, Webb's mirror will be kept at around -220 degrees C (-364 degrees F), and to achieve this temperature, the James Webb Space Telescope is going to have a five-layer sun shield that is the size of a tennis court and will reduce the heat from the Sun by more than a million times. It is the delicate unfurling of these shields (carefully wrapped up for launch) that have occupied the thoughts of the team prepping the James Webb Telescope as it journeys a million miles to the L2 LeGrange location.



Why L2? as the image to the right shows, the L2 point not only has the right gravity forces, but also the benefit of the earth as an additional shade sail on the sun side of the spacecraft.



In addition to all the mirrors, the James Webb team, will also be using gravitational lensing (the effect by which a star (or Black Hole) bends light and creates extra magnification, to extend the range every last inch they can get, and then analyse the received light. The instruments will be using both infra-red (as light travels in an expanding universe, it shifts towards red, longer distance, is very red shifted to infra-red) and spectral analysis. By measuring the spectrum (albeit shifted) of the light, we should get some idea of what the stars are made of, and in what quantities of each substance.

But the real test of all of this engineering will occur when the telescope is finally fully operational, the month long focussing of the mirrors has been performed, and the systems cooled to operational temperatures. and pointed at it's first target. And that target is... Top Secret. Very Top Secret. When the first images

come in, then and only then will we know what the target was. The one thing we do know is that it won't be something hot or bright, But it will be spectacular, and I for one, will be watching with interest to see what all of this amazing engineering can deliver. I am sure it will be worth the wait.

A SPECIAL PRESIDENTS COMMENT

After a long, and difficult committee meeting It falls upon me to advise you that the committee has decided that the following rules will apply for Papakura Radio Club meetings. Note that these are tied to the NZ government Covid Protection Framework (Traffic Light) Levels, and as such may yet be subject to change.

Please also note these do not apply to the building, or to groups who hire the facilities. As the committee was clearly divided, the decision will be ratified by the next full committee meeting, which will be held virtually to allow the full committee to discuss the matter following the feedback we are currently collecting from all financial members of the club.

At Red on the Covid Protection Framework:

Vaccine Passes are required, and every pass is to be scanned at all PARC events.

At Orange on the Covid Protection Framework:

Vaccine Passes are not required, instead a limit of 50 persons will apply for any PARC event.

All other Government requirements are to be followed irrespective of the vaccine pass requirement. These include a minimum separation of 1 metre, and the use of Face Masks (unless you have an exemption). Since record keeping is already mandatory, the QR code is displayed at the entrance for you to scan if you are using the application, and details are included for those using other recording methods.

For additional safety, it is recommended that the air conditioning be left off, and the windows and doors opened to allow maximum airflow instead. No other details are to be recorded in the attendance register, than those already maintained, in accordance with the privacy act requirements.

While current Government guidelines do not require the use of vaccine passes, the omicron variant poses special risks, and requires special measures. We could have met with up to 25 people without the vaccine pass, but if we went over this number, then we would have been forced to turn some people away. The use of the pass removes the risk of having to turn people away.

I understand that this topic is very controversial. There are some who will prefer, for health reasons to simply not attend any face to face meetings, and some who will not be willing, or feel comfortable, to show a vaccine pass for a club meeting. To this end, the club will be making an investment in technology to allow for interactive remote viewing of club meetings. This will allow members to attend, and exercise their voting rights at meetings, without the need to assign a proxy. On the other side, there are some who will attend irrespective of the vaccine pass, or may only be willing to attend if a vaccine pass is required. Hopefully the current situation, and the investment to allow them to join virtually, will provide them some comfort.

The use of vaccine passes, especially in light of the omicron variant, is not a silver bullet. The governments increased focus on the use of high quality masks, and additional restrictions being imposed, come as situations that relied solely on the vaccine pass, have become spreader events, and it is a reminder that the only way forward is caution and following the basic guideline, Like hand washing & physical distancing at all times, and for every person.

This decision has not been made lightly, and in light of the rapidly changing situation, ~~may again change~~ *has already changed, with February and March meetings cancelled*, but no matter what, the most important issues here must be respect & empathy. We are all afraid. Some of us are afraid of a virus and the effect it will have on our body. Others are afraid of losses of freedoms, privacy and maybe even are afraid of the effect of the vaccines on their health, others have a religious view that is incompatible with the current restrictions. Each view is equally valid, and I for one treasure the diverse views that enrich our club, but we as a committee are required, as officers of an incorporated society, to act, not in our own interests, but rather in the interests of the constitution that we as a radio club hold in common, and to this end, we need to find creative ways to deliver on these objectives in a way that encourages and supports the great hobby of amateur radio.

It now falls to every committee member, and I hope also every club member, to find creative ways to move forward, and to bring as many as possible along with us on this journey. This task will now fall on the committee to move with urgency to make sure that no one is forgotten or left behind, and the technology to keep us connected is facilitated quickly.

All financial members should have received an email from me, asking 5 short questions.

They relate to the Vaccine pass use at Red and Orange only (Green dose not rely on differences when using vaccine passes, so they will not be used at green) and ask if you would be more likely to, or less likely to attend if passes are used at different settings. The final question is whether you could join a virtual meeting (probably Microsoft teams, as this is what NZART and AREC already use)

Sadly many members have not yet responded, and this may mean, that you did not receive the email (they may be in your junk folder) or did not think it mattered. May I please encourage you to send me your views. I will collect these and forward an anonymised summary of the responses to the committee to consider as we work our way through this journey.

If you did not receive the questions it may be because your membership is not current, or we had an incorrect address on our email list.

Please contact me with either your answers to the above questions, or to request a copy of the email. If you wish to renew your membership, the bank details are on the back page, as is the treasurer's contact details.

Hopefully we can soon move on from this distracting topic so that we can again get back to promoting and encouraging the use of the amateur radio bands as a club. This is after all the purpose of the Papakura Amateur Radio Club.

Gavin Denby
ZLINUX
President

IS HF REACHING END OF LIFE?



US Coastguard announces: High Frequency Voice Distress Watchkeeping will cease at most locations on 7 February 2022

The U.S. Coast Guard will cease monitoring all High Frequency (HF) shortwave voice distress frequencies within the contiguous United States and Hawaii on 7 February 2022 at 0000 UTC. HF voice distress watchkeeping will continue unaffected in Alaska and Guam. HF watchkeeping on HF distress and safety digital selective calling (DSC) frequencies will continue at all locations. The U.S. Coast Guard Communications Command (COMMCOM), which operates HF radio stations, has seen the steady decline of voice distress calls over the last two decades, and except for Alaska has not received a voice distress call within its area of responsibility in the last seven years.

On December 31st 2019, the Coast Guard Communications Detachment Kodiak received the F/V Scandies Rose distress call on 4125 kHz. For reasons such as this, the Coast Guard will continue existing HF voice distress watchkeeping in Alaska on three frequencies: 4125 kHz, 6215 kHz and 8291 kHz. Distress watchkeeping from Guam, currently on 6215 kHz from 0900-2100 UTC, and 12,290 from 2100-0900 UTC, will also continue.

The Coast Guard recommends ships operating outside Very High Frequency (VHF) range from shore be equipped with a low-cost Global Maritime Distress and Safety System Iridium LT-3100S terminal or Inmarsat-C terminal, or an HF single sideband radio equipped with DSC. All three systems are recognized internationally for providing immediate and reliable two-way distress communications. Rescue 21 VHF distress watchkeeping on channel 16 and DSC is not affected by this announcement



Will HF radios soon be found in the Bargain Bin?

Either Way – More room for us

TECH TIPS:

A SIMPLE POLARITY CHECKER.

I was recently forwarded a simple Anderson connector polarity checker in which a bicolour led was used to show if the polarity was forward or reversed.

Materials

560 Ω , 1/4 W resistor (values between 470 Ω and 1 k Ω are acceptable)

Bi-color LED (red/green color. e.g. Jameco Part #334182)

While Jaycar will no doubt carry an equivalent LED, I did not have any of these in my shack, nor did I see how Anderson connectors would be easy to reverse. So the project failed to raise my interest.

But I do have some pillar and post like the one on the right as well as some connectors that are easy to reverse, and a collection of single colour leds (bags full in fact) and it occurred to me that rather than just 1 led to show me that power is on, I could have a green led to this purpose, and a red LED wired in reverse as a warning of reverse polarity.

This may be of interest to others, so I have re-printed it, but if you cannot find a single bi-colour Led, then maybe two LEDs back to back may also work.

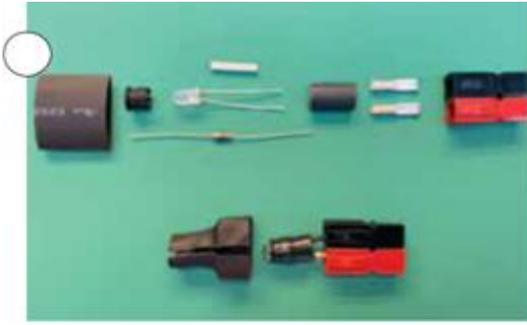


Step 1



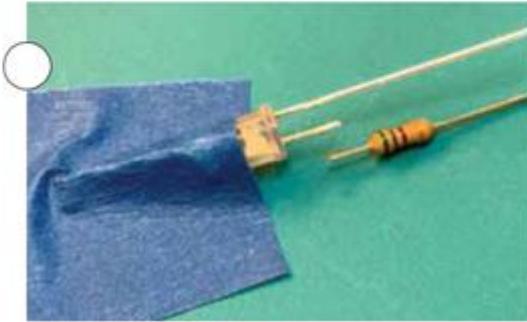
We first must determine which LED lead lights with a positive voltage applied to it. Temporarily connect the resistor to either lead by simply twisting them together, using the alligator clip at one end of a test lead, or by tack soldering them together. It doesn't matter which lead you use, because in a series circuit, the same current will flow through each element. Apply 12-13.8 V dc from a battery or power supply, with positive on one LED lead and negative on the open lead of the resistor, and note which colour illuminates (see left). This will determine which of the two Powerpole shells you'll insert that lead into. We want the lead that illuminates the green

colour to be inserted in the red shell (red denotes the positive connection, and black the negative connection).



Step 2

Bring together the parts and materials for assembling the tester, as shown in the top half of 2. You'll be using a piece of 3/32" shrink tubing over the LED lead opposite the resistor to prevent a short circuit between the two leads. You can see the completed tester at the bottom of the photo, with the large shrink tubing cut away for clarity.



Step 3

Snip one LED and resistor lead and solder them together near the body of the LED. Test the LED action by applying 12 V dc to the two leads, noting the colour, then reverse the voltage polarity to confirm that the other colour illuminates. Slip a piece of 3/32" shrink tubing over the other lead and heat with a lighter or heat gun to set in place.

Step 4

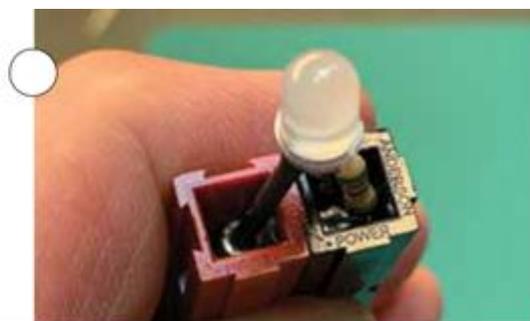
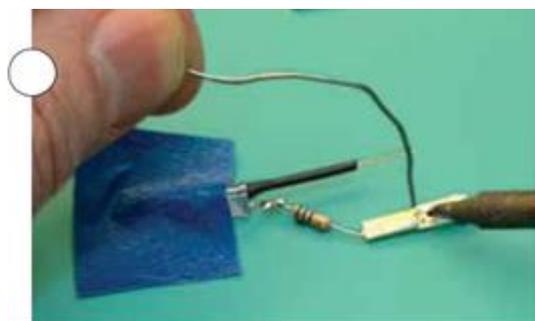
Double check to make sure you remember which LED lead is the positive lead (that lights the green colour), as that lead will be inserted into the red Powerpole shell.



Step 5

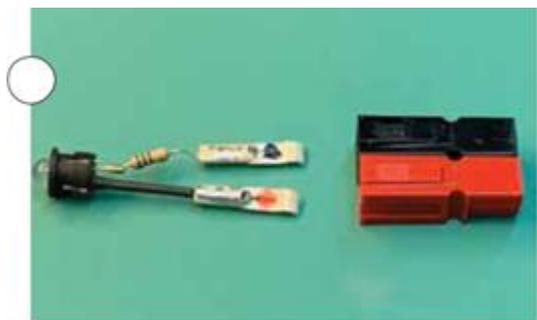
Attach the two contacts (see 6) to the leads of the LED. If you don't have a Powerpole crimp tool for this job, you can simply solder the leads into the two connector contacts. Whichever method you use, be sure the front lips of the contacts are oriented correctly to mate inside the shells.

Step 6



Line up the connector contacts behind the Powerpole shells, making sure you have the positive (green) lead aligned with the red shell (see 9). I like to mark the connector contacts with red and black marker, so there's no question of which connector goes into which shell. Insert both connector contacts into the shells simultaneously, then push each contact down into the shell until it clicks into place properly. Sometimes it's difficult to get this alignment correct, and it may take several tries before the contact snaps into place.

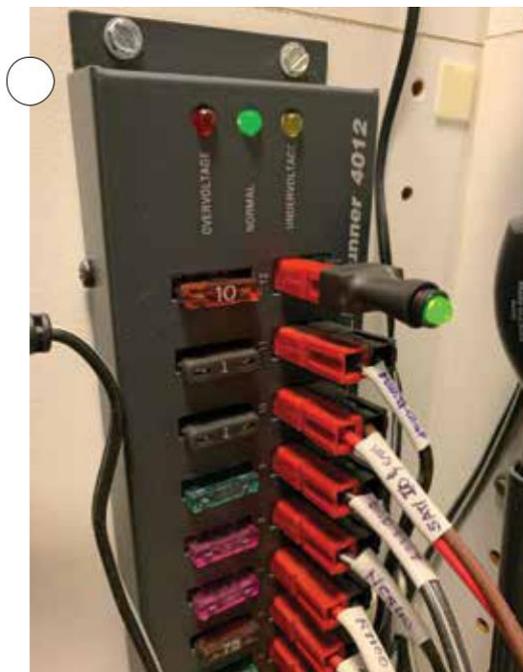
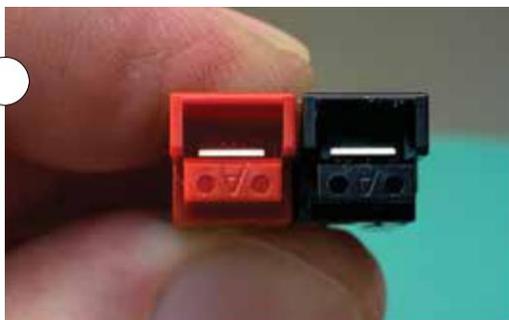
Step 7



Slip the 1/4" heat-shrink tubing over the LED panel holder (the plastic “collar” that may be around the LED) and over the two LED leads protruding from the front of the Powerpole shell; heat to set in place. If your LED doesn't have a panel holder, you can use a small piece of shrink tubing that fits over the front of the LED and leaves the component tip exposed.

Step 8

Slip the 5/8" heat-shrink tubing over the tester body and set in place with heat. Make a final test to make sure you got the connector orientation correct. If you made a mistake, it is possible to extract and reverse the pins with effort. The image on the right shows the tester in action, confirming a 12 V dc Powerpole distribution panels is wired correctly.



While I can't see that Anderson connectors will require the tester, I can think of many situations where a quick indicator of polarity can be very helpful for AREC or field applications, and shows the versatility of the LED when used with a suitable resistor.

TOWER FOR SALE

TOWER FOR SALE & REMOVAL

Murdock ZL1TEY has his tilt-over tower for sale complete with rotator and antenna. Best offer after negotiation gets to take it away. Tower is located in East Papakura. He is currently looking for the drawings originally used when the tower was first constructed.

Base of the tower is 115mm OD HD galvanised pipe with a pivot point on top approximately 3m above ground level. This is set into a concrete block base. An iron sand filled counterweight is available to assist with tower lowering (piece of pipe with handles next to tower).

The main tilting pole is an approximately 5 or 6m length of 115mm OD pipe with a welded pivot. A slightly smaller piece of pipe is inserted and is cross bolted with 6 sets of 12mm stainless steel bolts. The overall height of the tower is therefore 6+3=9m plus rotator extension pole = ~11-12m.

The KR400 rotator is then mounted on this smaller pole with a further section of pipe supporting the three element HF Yagi. A VHF antenna is then mounted at the very top.

If interested contact Murdock McDonald 09 298 4802 or for higher quality photos email or txt ZL1MR.



Please note this will be the last advertisement, so if you have a price in mind, make an offer, or you will miss out, Offers for Individuals, or clubs are welcome.

Radio Electronics Group Inc

NZART Branch - 89

Annual Equipment Sale

At Glenview Club Inc.

211 Peacocks Road Glenview
Note new road layout.
Hamilton

Saturday 21st May 2022

Vendors: 8-30am

Doors open 10am

Prebooked Tables \$20
On the Day \$25

Public \$2 Lucky Ticket Entry

Refreshments – Door prizes

Plenty of parking, Easy access, Motor Home Parking

For Vendor Registration Form, Contact Vern ZL1TKG ZL1REGSALE@gmail.com

Mast Step Block

Free to good club, or members. One tonne concrete block mast step, or counter weight or guy anchor.

I had a 11m HF aerial pole on it. Stable in all weather. Unistrut dynabolted to 4 sides, to enable fitting of chainplates or similar. Might be useful for tower or pole maintenance as well.

Easy to move on concrete with a pallet jack or forklift, on grass with a tractor or hiab. Otherwise very difficult with log rollers, or a pair of through pipes and 4 high lift jacks.

Location Kingsseat,

Contact David z11dw - 021 721 015



SOME NETS – FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

Day	Time (Local)	Freq (MHz)	Group	
Sunday	08:00	3.750	Southern Net	
	09:00	3.700	Bch 10. Franklin.	
	09:15	3.755	Bch 65. Papakura.	
	16:00	7.125	SPAM Net (AM Mode)	
	19:00	146.625	YL Net	
	20:00	3.710	Bch 42. Titahi Bay	
	21:30	3.595	Duran WIA Net.	
Monday	19:30	3.757	Bch 12. Hamilton	
	20.00	3.540	CW Practice Net	
	<i>updated</i>	20:00	3.605	Br 80. Hibiscus Coast
	<i>updated</i>	20:00	Nat System	W.A.R.O
		20:30	3.870	O.T.C (Old Timers Club)
Tuesday	09:00	7.096	Ex Post Office Techs	
	21:00	1.850	160m Net _ Ron ZL4JMF	
	19:30	3.690	QRP ZL2BH	
	20:00	3.581	CW improvers Net	
Wednesday	20:00	3.660	Geek Net	
	20:00	3.645	Bch 02. Auckland	
	20:00	3.745	Bch 84. Bay of Islands	
	20:30	146.525	W.R.S.C	
Thursday	09:00	7.096	Ex Post Office Techs	
	19:30	3.690	QRP ZL2BH	
	20:00	3.540	CW Practice Net	
	20:00	3.615	Bch 89. REG Net	
	20:30	3.696	ZL10A	
	20:30	3.666	LF Net ZL2CA	
	20:00	3.690	ZL QRP SSB Net	
Friday	20:00	3.850	SPAM (AM Mode)	
	20:30	3.650	W.S.R.C.	
	20:30	3.560	Digital Modes Net	
Saturday	10:30	28.530	10-10 Down Under	
	19:30	3.650	Christian Fellowship	
	20:00	3.760	???	
	20:30	3.600	Ch 62. Reefton/Buller	
Daily or Other	07:30	3.696	ZL20A	
	08:30	3.730	ZL3RP	
	15:00	14.300	Pacific Seafarers	
	17:30	3.760	Home Brew	
	05:00 Zulu	14.183	ANZA DX Net	
	18:00	7.115	VK7OB	
	19:30	3.720	ZL1MO	
	18:30	3.766	ZL3LE	
	08:30/20:00	3.730	ZL3RP	
	20:30	3.725	ZL2HN / ZL4RF	
	21:00	3.677	Counties Net ZL2MA	
21.00	3.535	New Zealand Net (CW)		

This is designed to be a living list, Please update whenever you are able:

Also: Calling Frequencies:	Daily	Sunset-Sunrise	3580 USB	NZ FSQCall
Courtesy of Murray ZL1BPU	Daily	Sunrise-Sunset	7105 USB	NZ FSQCall
	Daily	24/7	7104 USB	International FSQCall

I'm told the last of these sees some amazing DX, especially around sunset.

Papakura Radio Club Inc.
Branch 65 NZART Club Directory 2017
 Wellington Park, 1 Great South Road.
 PO BOX 72-397 Papakura 2244
 PHONE 09 296 5244
Westpac 03-0399-0019896-00
Club website: <http://www.qsl.net/zl1vk>
Club email: zl1vk.club@gmail.com

Elected Officers

President	ZL1NUX	Gavin Denby	021 459 192
Vice President	ZL1BNQ	Richard Gamble	021 729 270
Secretary	ZL1AOX	Ian Ashley	021 198 1810
Treasurer	ZL1MR	David Wilkins	021 185 7903
Committee	ZL1RJS	Rob Stokes	021 307 005
	ZL1IRC	Ian Clifford	021 082 48400
	ZL1ASN	Rolly Adams	021 042 7760
	ZL1RAH	Rodger Hanson	027 568 7659
	ZL1RIC	Ricky Hodge	027 533 8155
AREC Section Leader	ZL1BNQ	Richard Gamble	021 729 270
CD Liaison	ZL1AOX	Ian Ashley	021 198 1810
Newsletter Editor	ZL1NUX	Gavin Denby	021 459 192
Hall Custodian	ZL1AOX	Ian Ashley	021 198 1810
Newsletter.	Contact:	zl1nux@outlook.com	

Our newsletter is published monthly and normally distributed just before the club meeting. Please forward articles etc to the editor Wednesday 1 week before the general meeting. Please notify any change of address. Including E-Mail Address to the secretary.

Meetings

General Meetings are held at the Clubrooms on the 1st Wednesday of each month, starting at 7.30 pm. Look at your calendar and mark these nights. The speaker follows the General Meeting.

Project Evenings are on the 4th Wednesday of each month.

Committee Meetings are held on the 3rd Wednesday of each month at 7.30 pm unless advised.

Activity Nights are held on the 2nd Wednesday starting at 7.30 pm.

AREC Meetings are on the 5th Wednesday night, also starting at 7.30 pm

AGM: Held in November

Subscription: Full membership and newsletter \$25.00
 Family Membership and newsletter \$40.00

Bank Account number: 03-0399-0019896-00

Working Bees As required.

Branch 65 21 Award: For contacts with ZL1VK (5 Points) and 8 Papakura Radio Club Members (2 Points each) after January 2011. Total 21 Points. Cost \$5-00. Certified list and \$5-00 to Secretary, Papakura Radio Club. Address above.

ZL1VK Club Nets

146.900 MHz Sunday at 8.30 am. Controller ZL1NUX, Gavin Denby. If the repeater is not available, listen 146.475MHz simplex.

3.755 MHz Sunday at 9.15 am. Controller ZL1BNQ Richard Gamble. (Linked to 146.675 & 438.775)