



Hastings Br 13

Club Call

ZL2AS

Napier Br 25

Club Call

ZL2GT

IRLP

Node

6793

147.250

HB DX

Cluster

ZL2AL-1

144.650

Connect

and type

"DXC"

Branch
Nets

9.00 AM

Sunday

Morning

3615 Hz

147.250

MHz

Editor

John Newson

ZL2VAF

The Flea Market



The workers
Congratulations guys
for a job well done

The stuff

Some of the stuff up
for grabs.



<http://groups.yahoo.com/group/zl2as/>



*Join the KIWI DX Group
Talk to ZL2AL for Details*

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Club Call: **ZL2AS**

Club Nights: Fourth Wednesday each month at 7.30 pm Surf Club Rooms, Windsor Park, Hastings

Hastings Branch 13 - President's Report

Hi all.

Our AGM is coming up this month. There will be a few issues to discuss so if you wish to have a say, please turn up. We will be looking for a magazine distributor for Breakout at the AGM.

The christmas dinner is on the 30th of November at the Heretaunga Club Resteraunt. Please contact Bill Lowes if you plan on going (for numbers)

The AREC Training day will be held 24th November at Napier Clubrooms. Please get hold of me if you intend on coming, however gatecrashers will be warmly welcomed. Contact me for a copy of the program.

The VHF UHF field day is on December 1st and 2nd. Please come up on the frequencies below and make contact with us each hour while the contest is running. Try us in QRP if you like. We are looking for as many contacts as possible. They all add up.

We will be operational from Taraponui (where 725 is). The IRLP node will be turned off for the event. The club net may also be on 670 the Sunday morning.

The frequencies we will be active on are as follows

50.110 USB (3el yagi horiz)

52.525 FM (1/4 omni vert)

144.200 USB (7el yagi horiz)

144.500 FM (colinear omni vert)

432.200 USB (13el yagi horiz)

432.500 FM (Colinear omni vert)

1296.200 FM (Dish Horiz)

Please give us a call on each of the above bands if you are able. If you require a rig for a band or 2 let me know and I can loan you an AREC radio / antenna for the weekend.

73, Warren Harris ZL2AJ

NAPIER BRANCH 25

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Committee Meetings: *Third Monday of the month 7pm at Club Rooms*

Club Call: **ZL2GT**

Club Nights: *First Wednesday each month (except January) 7.30pm at the Club Rooms: 123 Latham Street Napier*

Branch 25 Napier News...

The next Napier meeting will be held at the clubrooms at 7.30 pm on Wednesday 5 December. Our last meeting was the AGM and all officers were re-elected except for Graeme ZL2GRM on the committee who had resigned earlier in the year because of work commitments. Graeme was replaced by Michael ZL2FAR. The sub remains at \$25 and subs are now due to Stan ZL2ST at meetings or by direct deposit into our bank account at ANZ Napier 116400 0014548 11. Please indicate on the deposit your callsign or name.

We had two visitors at the meeting: Barrie ZL2BJA of Palmerston North who was involved with the recent NZART Conference and Peter Young VK3MV WIA Councillor. Peter explained that he was in NZ for 6 days only and had a connection with Napier in that his father Les Young was ZL2KK and was living in Napier from January 1932 until he moved to Australia in late 1937. Peter has his logbook showing QSOs from the era and increasing in number as his transmitter power was increased. Les was in Port Moresby during the war, spending three years as control station for all coast watch stations. Peter's grandfather was Napier station master.

Peter stated that there have been 1800 new Foundation licence members in one year in Australia. The youngest being 8 and the oldest 83. There were 23 from late primary school and 212 of the 1800 have upgraded with about 50 dropping out. There are 15,000 hams in Australia and numbers are now back to 1996 levels. The majority of new entrants have been males in the 40-50 year old group but there has been large increases in the number of female hams, some of whom are XYs or others. The foundation licence, which has a power limit of 10 Watts is an operational licence which requires a demonstration of competency and is recognised by the National Training Certificate as a unit.

Peter also talked about D-Star - digital systems and BPL which WIA is having input into the standards for.

ZM2M was again active in the CQ Worldwide SSB contest from Taits farm. ZM2M had about 140 more QSOs than last year including runs on 10 metres to the US and Japan. QSO numbers were 2753. Operators were Lee ZL2AL, Peter ZL2LF, Michael ZL2FAR, Stan ZL2ST, John ZL2QM and Mike ZL2CC from Gisborne.

De Stan ZL2ST

A Brief History of the ZC1

A BRIEF HISTORY OF THE NEW ZEALAND ZC1 HF MILITARY RADIO TRANSCEIVER

by Chris Underwood

Requirement.

With the outbreak of War in 1939, authorities in New Zealand gave urgent consideration to the training and arming of the troops that would be sent overseas to help the British war effort.

Equipment of all types was in short supply including field radios. The Ministry of Supply surveyed New Zealand industry to determine what could realistically be manufactured locally under wartime conditions. The Ministry identified under wartime conditions. The Ministry identified a total of six manufacturers of domestic radios, including a smaller number capable of manufacturing a wide range of radio equipment including high power transmitters.



It was decided that New Zealand industries had the capacity to design and/or manufacture a range of special purpose radio equipment including a field radio to be known as the ZC1. There was dissatisfaction with the reliability and range capability of the few existing field radios held by the army. These were generally considered to be barely adequate for training purposes. The new radio had to be much better and suitable for both mobile and field base operation.

A special committee was set up with representatives from the army, industry, Ministry of Supply and the Post Office to oversee the specification, design, procurement of components and the manufacture of the new radio. This committee reported in April 1942 that sufficient materials were now available for the manufacture of 750 sets of the 1000 Mk I sets approved. Considerable difficulty was being experienced in obtaining certain components, especially meters. Difficulty was also being experienced in retaining skilled technical staff. The ongoing delays in commencing manufacture was causing the Draft Board to lose patience and making it become ever more difficult to convince not to draft the radio technicians required for the manufacture and testing of the radios.

Supply problems were only improved in late 1943 after samples of the ZC1 Mk I were tested by the Canadian Signal Engineering Establishment. Such independent testing was a requirement under the provisions of Lend Lease and the Canadians provided copies of their report to the American and English authorities controlling war materials supply. The report compared the ZC1 with a laboratory No. 19 set Canadian and indicated that overall the ZC1 was superior. The Canadian report particularly noted the following in order of importance.

The ZC1 Mk I gave better:

- Range, both transmit and receive under normal and abnormal conditions.
- Decided saving in primary power due to low battery drain.
- Ease of operation in the field by even inexperienced operators, simplicity of dials and operating knobs on front panel.
- Accessibility in as much as servicing and replacement in the field is concerned.
- Capability of being able to trouble shoot speedily and easily due to separate send and receive circuits and increased space for assemblies.
- Flexibility as to type of aerial which may be used with sets.
- Simplicity of netting procedure, and tuning, indicated by a definite dip in plate circuit.
- Compact and light in weight approximately half the weight of the No. 19 and comparatively easy to install in any vehicle.
- Does not require extensive installing kits to set up for operation.

Records indicate after the Canadian report was circulated that the American Pacific forces showed interest in acquiring a large number of ZC1 Mk II's for their own use. Rather than outright purchase completed sets were to be swapped for essential components required for the manufacture of the sets. Although a small number of sets seemed to have been supplied no major orders eventuated.

Initial plans called for up to 30,000 ZC1's to be manufactured but in practice only about half this number was ever built. During early production runs each individual ZC1 took 60 man-hours to construct. Initial production was 20 sets per week, with a production goal of 2,000 sets per month at peak production. It is not clear if this rate was ever achieved. Delivery of the first batch of five hundred ZC1 Mk I's was planned for December 1942.

2. Design.

Design of the ZC1 Mk I. is generally credited to Percy Collier and Bill Fever of Collier and Beale; a Wellington based radio design and manufacturing company. It was to at least some extent designed around components available at the time, largely those used in the manufacture of domestic radios.

3. Specification.

The ZC1 Mk1 is a 2 - 6 MHz, single band. CW, MCW and phone capable radio transceiver suitable for vehicle installation (jeep or radio truck) and/or field base operation. The receiver use's a 6U7G RF stage, 6K8G mixer, 6U7G IF, 6Q7G detector and 1st audio stage, 6U7G output and 6U7G BFO. The transmitter use's a 6U7G master oscillator, 6U7G buffer, 6V6GT PA, 6V6GT modulator and 6U7G modulation amplifier.

The power supply use's a non-synchronous vibrator with two 6X5GT rectifiers in conjunction with a tapped transformer permitting switchable HT voltages to provide two different RF power outputs. Its power requirements are 12 volts at 4 to 6 amps depending on mode of operation.

In transmit mode a maximum of 2.75 watts RF output is achievable in standard configuration. Using the supplied 34 foot rod field base antenna and associated counterpoise earth, the transmission range is typically between 25 to 34 miles over rolling country. Use of more efficient aerials and sky-wave working permit much greater distances to be worked. The top sections of this antenna were suitable for mobile use over shorter ranges.

At least three versions of the Mk I are known.

- The first version, produced in small numbers, was fitted with an aerial current meter. IF transformers with fixed cores and variable capacitors were used.
- The second version, also produced in small numbers, used the same IF transformers but had a plate with a watch holder fitted in place of the aerial current meter.
- The third and most numerous version used different IF transformers with fixed capacitance and variable cores. The watch holder is fitted directly to the front panel without the need for a plate.

Note: Serial numbers of sets are deliberately not in sequence to disguise build numbers hence providing little clue as to date of manufacture or actual numbers built.

4. Companion RF Amplifier ZA1 Mk I & II.

ZC1 had a matching RF power amplifier, model ZA1, for long range coverage.

This unit used a similar, but much smaller, case to the ZC1. Two parallel 807's operating in class AB1 were used as an RF linear amplifier producing 50 watts of RF. A later version, the ZA1 MkII, differed in that the parallel 807's were operated in class C and were modulated by a second pair of 807's fed from a 6V6 phase inverter and a 6U7 microphone preamplifier.

Neither mark of the ZA1 was produced in quantity. Official records indicate that it is likely only twelve production ZA1 Mk II's were ever made being ordered, and delivered, during mid 1943.

5. Manufacture.

All ZC1 Mk I units are believed to have been manufactured by Collier and Beale although some sub-components may have been manufactured by other companies. Key components such as meters, valves and the main tuning capacitors were all of Australian, American or English manufacture. Shortage of these components was to plague production until the later part of the war when American "Lend Lease" components became available. Official NZ war records show considerable frustration with shipping problems with large quantities of urgently needed, and already paid for, components being held up for many months on the wharves in the USA while officials argued over their shipping priority. In all, approximately 1,200 ZC1 Mk I sets were made.

However even before manufacture of the Mk I was commenced, design and production of the Mk II was already being planned.

6. ZC1 Mk II.

The Mk II was a development of the Mk I and its design is generally attributed to J Orbell of Radio Ltd.

The significant differences between the two are as follows.

- The Mk II is dual band having an LF band of 2 - 4 MHz and an HF band of 4 - 8 MHz.
- A synchronous vibrator was used dispensing with the need for the two 6X5 rectifiers.
- The switchable HT voltage feature was dispensed with.

Generally the ZC1 Mk II completed its service life without further change. A small number were however manufactured with "flying rubber leads" for use with the combined microphone headset as used by the No. 19 and No. 62 sets.

Official records show that the Mk II was originally planned to have a UHF transceiver included in the design in a similar fashion to the No. 19 set. This idea was not followed up, although prototype UHF modules for this project were designed and constructed as a joint effort between Collier and Beale and the NZ Post Office Radio Section.

Radio Ltd largely undertook production of the ZC1 Mk II with a significant number also being manufactured by Radio Corporation, sub-assemblies being provided by up to five other manufacturers.

7. War Service.

The first issue of the ZC1 Mk I was in the Pacific at Guadalcanal and it saw active service for the first time when NZ troops landed at Vella Lavella at 8am on the 18th of September 1943. Official records indicate that it performed well in the dense and wet jungle out performing many other types in use at the time. The Mk I also saw service on Stirling Island where once again good results were achieved. The NZ 3rd Division 2nd NZEF records show that they used the ZC1 in conjunction with the American 48 set with good results. However given the relatively small overlap of the frequency ranges of the two sets, the choice of working frequencies must have been limited.

This was the only recorded active service seen by the ZC1, the Mk II version was issued too late to see active service in WW2. The ZC1 Mk II did see service with the NZ occupation force (J Force) in Japan after WW2.

8. Civilian use.

In late 1944 a large consignment of ZC1 Mk II's was sent to Egypt but arrived too late to be issued. A number of these sets appear to have been issued to post war Greek, Turkish and Egyptian armed forces with the remainder being sent to the UK where many were eventually disposed of as war surplus. In New Zealand the ZC1 Mk II continued in service with the Territorial Reserve forces until the mid 1960's.

They were also issued to many Government Agencies and Departments including the Ministry of Transport, Civil Defence and the NZ Post Office. The Amateur Radio Emergency Corps (AREC) also received a significant number of sets and many were also disposed of as Army surplus. During the 1950's and 60's many NZ Amateur radio operators "cut their Teeth" using ZC1's on 80 Metres. Their owners extensively modified many of these ZC1's and numerous articles appeared in Break In during this period on improvements that could be made.

Collier and Beale produced a modification kit for the Mk II to make the set more suitable for small ships maritime use and large numbers of ZC1's were used in this service. The LF receiver section was changed to the AM broadcast band and the HF TX and RX sections to the marine band.

Common modifications included xtal control for fixed channel use, used by the MOT for car to car communication for their traffic control cars, the Post Office for point to point services and various organisations and individuals for Maritime use. Changes to improve RF power out and modulation depth were also common.

OPAPA SPEC's

The Opapa mast measurements are as follows -

Height = 91.5m (300 foot)

Section = Triangular

Side width = 2.4m (8 foot)

Leg steel = 150 x 150 x 12mm Angle (6" x 6" x 1/2")

Diagonal Brace Steel = 50 x 50 x 6mm Angle (2" x 2" x 1/4")

Horizontal Brace Steel = 50 x 50 x 6mm Angle (2" x 2" x 1/4")

This is a standard Johns & Waygood AM mast design. These masts were supplied in 3 heights - 300 foot (91.5m), 400 foot (122m) and 500 foot (152.5m). Opapa has two 300 foot masts spaced 198m apart on a true bearing of 132 degrees. The 300, 400 and 500 foot versions of this mast are used on many Radio New Zealand sites around New Zealand - the 400 and 500 foot masts being the most common.

Motions that are to be put before the Branch 13 AGM

Motion 1 - That hard copy of Breakout be halted, and those wishing to obtain a hardcopy contact a friend willing to print, or contact the distributor to print for a cost per issue.

Motion 2 - That we create a membership drive (similar to NZART). We (someone) contacts all hams in the area, possibly offer them a discounted sub, and advises of the benefits of joining etc. A flyer to be produced.

Possibly a motion to adjust subs after inspection of the financial report.

The Last Bit

Well, finally a mag out on time. I would like to thank all the contributions to this months mag – I was a bit light last month and it obviously showed. I also was under a lot of pressure with another of my hobbies taking a lot of my spare time – hopefully that will ease off a bit now until the same time next year although my “hobby” calendar is pretty full for the first couple of months already and including the Kaweka Challenge.

The Conference Committee meeting was called off this month due to the unavailability of members. However a decision has been made regarding the venue – we will use the HB Racing site as long as they do not have a conflicting meeting (they won't know until 12 months out from the event). We have the Opera House as a stand by. Staff at HB Racing seem to think we should be ok as there is not normally a race meeting held in Hastings at that time of year.

NOTICES

AREC Training Day 24th of November by Daniel Ayers at Napier Clubrooms. Let Warren ZL2AJ know if you wish to attend

AGM & HOMEBREW AWARD (Br 13) 28 Nov.

Christmas Dinner Friday 30th. November. Heretaunga Club. \$20
Contact Bill Lowes 8775078 or Email bill.lowes@clear.net.nz

VHF UHF Field Day is on the 1st and 2nd of December 2007

Jock White Field Day 23rd & 24th February 2008

NZART "Wine Country Conference"
Hawkes Bay Labour Weekend 2009

Please feel free to sent notices to john.newson@xtra.co.nz

Buy – Sell - Etc

FOR BORROWING

I have for borrowing, courtesy of Peter Le Quesne ZL4TCC, a DVD on WW2 Secret Radio, phone David ZL2DW 8760518 .
