

Mt. Climie 860 UHF Repeater: History

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In 1982 a group from Upper Hutt Branch 63 NZART members decided to build and install a UHF repeater at Mt. Climie. *(This was for the very same reason the 23CM 1292 MHz repeater was installed on 29th December 2010)*

The Wellington VHF group was operating Channel "Q" (438.500 MHz) from Mt Victoria for many years. Mt. Belmont was being developed for the 147.100 MHz, 439.000 MHz National System and the ATV repeater.

Mt. Victoria "Q" (now 439.500 MHz) had limited coverage out of central Wellington and the Lower Hutt Valley. This was the case until recently with the 23CM 1271.2 MHz (120) repeater also sited at Mt. Victoria.

UHF and SHF at Climie gave us DX coverage on these bands.

New Japanese radio equipment were becoming available on the 70CM band, with the hobby growth causing many a pile up on 860. Everyone wanted to try out UHF mobile.

The branch approved the installation to go ahead and work proceeded to setup an antenna on site. A PYE U450L valve repeater with solid state receiver was donated. A duplexer was donated by Ray ZL2ACW. Antennas were built and LDF 4-50 coax donated.

Antenna installation started with the use of a Kango drill courtesy of Gavin ZL2ACT.



Day 1: Ground is broken on Site: Saturday 8 May 1983. Paul ZL2UCT (ZL2BPS) prepares the ground for the 20 foot antenna pole. John ZL2TWS is a starter with the Kango drill in hand. To John's right is Paul ZL2UGR wondering if this is possible. Michael ZL2TDT (ZL2BPL) and Richard ZL2UGC watch on!



“Yes it is true, John ZL2TWS doesn’t only do the technical bits!” Two feet down and two feet to go?

Paul ZL2UGR sets the pace digging the ditch for the 1 inch diameter LDF-450 foam heliax coax cable. In the centre Richard ZL2UGC prepares the ground next to the repeater hut. Michael ZL2TDT is worried about dirty hands.



Upon completion of the four foot deep hole, Richard ZL2UGC holds the bottom section of the mast while Michael ZL2TDT pours the concrete.

Four hours later the bottom section of the mast is in place and coax laid thanks to , from the left to right. Paul ZL2UGR, Richard ZL2UGC, John ZL2TWS, Michael ZL2TDT (ZL2BPL), Paul ZL2UCJ (ZL2BPS) and Ray ZL2ACW taking the photo”



Day 2: Small Detour Required: Saturday 15 May 1983. Half hour delay near the end of the road at Mt. Climie. John ZL2TWS squeezes “Larry” the Landrover past the small obstruction.



Michael ZL2TDT (ZL2BPL) and Richard ZL2UGC prepare the dipole stack, for John ZL2TWS and Paul ZL2UGR who will bolt the two flanges together.



Paul ZL2UGR and John ZL2TWS bolt the two flanges together leaving a free standing antenna system. ZL2TDT (ZL2BPL) and ZL2UGC give some support.

John ZL2TWS compares signals between a reference dipole and the completed dipole stack. The stack has a gain of 6dB (less losses of course)



The completed installation. Power was measured at dipoles as 15 watts feeder loss 0.54db. First contacts Jeff ZL2CW and Gretta ZL2AGS. Then John ZL2TRV (ZL4RF) spoke to Ralph ZL1TBG in Walkworth north of Auckland. The machine worked well.

Reports show 10db over 730 signals.



The crew at day's end, all looking very pleased with themselves from left to right: John ZL2TWS, Richard ZL2UGC, Michael ZL2TDT and Paul ZL2UGR.

A fine group of young men!

You have to love the hair styles from those days, pity some have lost most of it. Paul still has a that growth on his face although the grey has come through now!

Picture of the first 860 U450L repeater.

Power into the coax was 17 watts. SWR 1.1:1.

Top of rack is the valve transmitter.

Below is the power amplifier and air blower next to (blue/grey) six cavity duplexer.

At the bottom of the rack is the receiver unit.

Remote controller is behind the transmitter.

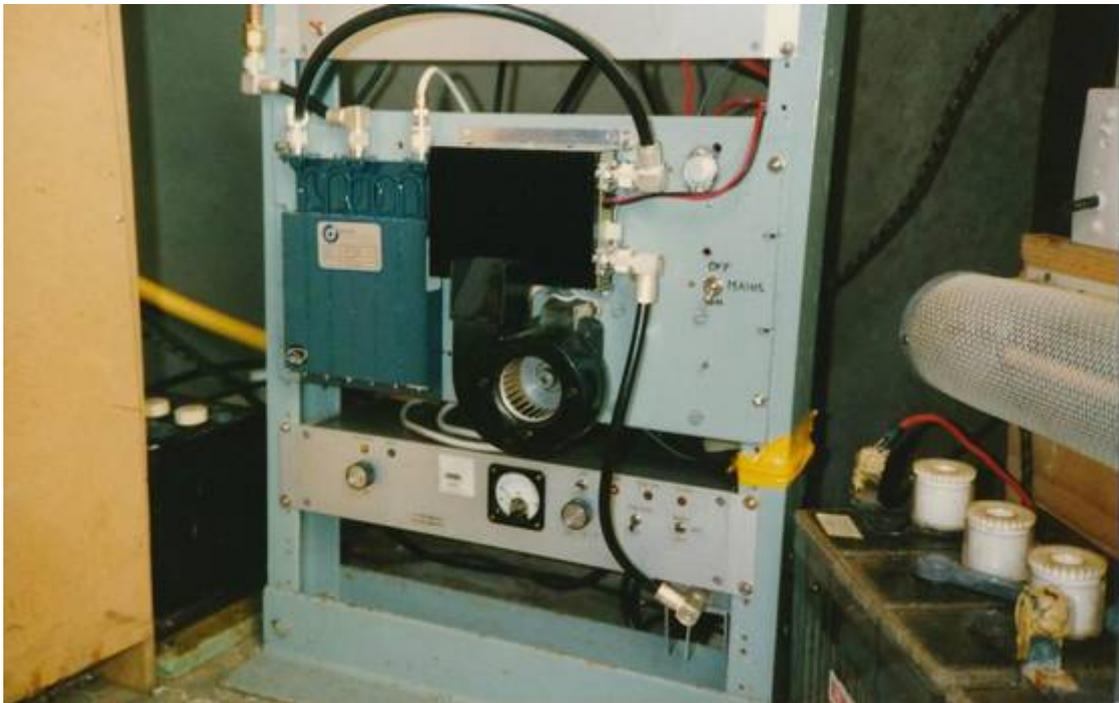


In late 1983:

Jamie ZL2NN was donated a Tait T196 mobile rig for the solid state switch over after the U450L was installed.

I built 860 solid state and interfaced the DTMF controller, pre-driver MRF660 amplifier to the Tono MRF646 power amplifier. Records show that the change over occurred in March 1984.

Paul ZL2UGR made the DTMF remote controller from scratch. (No kits in those days) TTL logic and a classic in itself. (*A work of art actually*)



You can see that the Pye U450L unit was replaced, DC power supply and PA duplexer retained and the controller now fitted at the top of the rack.

Battery on the left is for 730 and on the right for 860.

That original solid state 860 is now the Lower Hutt 8425 repeater so if you want a classic contact try that one!

Regarding the Deltec we learnt that not more than 6 watts could reliably pass through it. It failed due to moisture and arcing over. Deltec wouldn't believe it and continued to market these as 25 watt duplexers. The problem of doing testing on network analyzers only without real repeaters connected and weak signals being monitored.

8425 using the same duplexer and running 6 watts has never missed a beat in the 11 years it has been at Branch 18. The duplexer is the one seen in the photo above but after the ZL2TWS rebuild.

I understand that the antenna pole broke off at the flange and destroyed the antenna in 1990 during a bad winter storm.

New antennas were built by club members and unfortunately also failed.

In total three sets of four dipole stacks were used over the twenty eight year history.

One set of dipoles only had usable coverage in the Upper Hutt area for many years until the southern site (or now Main Hut) was established on 9600bps. The four dipole stack built by club members worked until recently where they were replaced with the SkyMast SM-4 dipoles.

I dropped out of Branch 63 after 1989 when I was made redundant from my job. I was full time contracting and working from home. Oscar 40 was active and all my construction time was channelled into building satellite tracking systems and building 1.2 and 2.4GHz equipment. I was also very involved with the Branch 18 at the time. The 700, 8425 repeaters and 2402.275 MHz beacon projects kept me occupied most of the time on behalf of Branch 18.

In 2003 I become involved again when 860 was returned to FM voice and I built the 10m and 6m beacons along with carrying out antenna repairs to 730. Subsequently the 10m beacon has been replaced by the 3cm 10275 MHz beacon. (2014) The 6m beacon has been replaced by the 53.950 MHz FM repeater. (2013)

My passion for a UHF repeater at Mt. Climie continued with a digital change over occurred on 21th June 2011.

A milestone in the life of the twenty eight year old 860 repeater.

See documents on www.zl2vh.org/d-star/ for details about the DV 860 repeater and its installation.

860 at the time of writing (June 2011).



Old dipole stack at southern site (2003) New SkyMast SM-4 at southern site (2013)