

## History of Naval Wireless Communications III

### Post World War II Cruisers and frigates Pre-COMIST

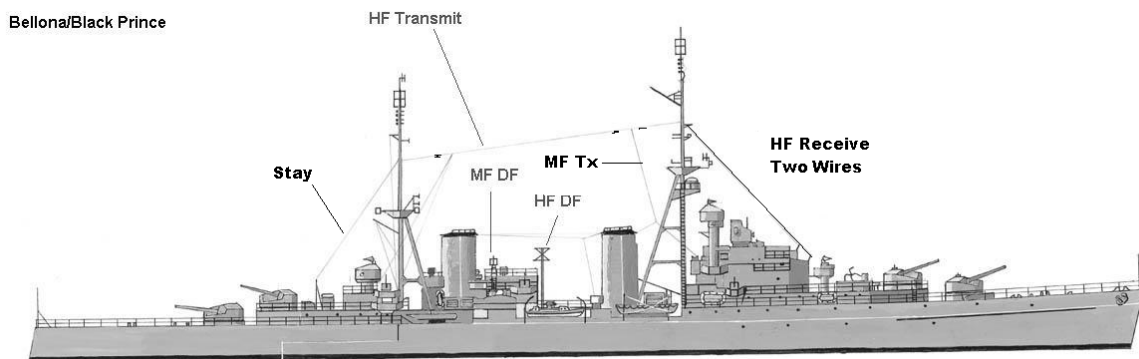
New Zealand entered the Post WWII years with a Fleet of six frigates and two cruisers, plus various other vessels.

**Dido Class Cruisers (Type II)** – HMNZ Ships Bellona (NZ service 1946 -1956) and Black Prince (NZ service 1946 -1961)

**Dido Class Cruiser (Type II Modified)** – HMNZS Royalist (NZ service 1956 – 1967)

The Type I Dido class cruisers differed by the following characteristics:

1. Originally fitted with five 5.25in turrets – three in the front (A, B and Q) and two at the rear (X and Y). Q turret was later deemed to add to the topweight and was taken off.
2. Raked funnels.



The wire above the MF and HF DF aerials slung between the funnels is the MF Receive. Main Roof consisted of 6 wires.

**Communications fit for all three cruisers (updated fit for Royalist detailed further on):**

Electronic Warfare Office – 02 Deck Port Side, immediately aft of the Ops Room

HF DF – FH4 1 – 24 Mhz using Aerial S25B

HF Receive – 1 x B28 40 kHz – 30 Mhz (Royalist 1 x B40 650 kHz – 30 Mhz)

SHF DF – UA3 2.5 – 11.5 Ghz – 3 bands covered by 3 aerials AYC, AYD and AYE

Ultra High Frequency Office – 02 Deck Port Side, immediately aft of the EWO

UHF Transmit – 6 x 691 (Fitted after 1953): 277 – 283 Mhz 10 Preset channels with Normal Frequency Plan and 9 preset with Alternative Frequency Plan. AM/FM/MCW 10 watts.

Associated Receiver – 6 x CUH – as for 691.

Aerials – AJD

Bridge Wireless Office – 01 Deck Starboard Side (40/60 Bofor sited outside)

MF/HF Transmit/Receive – 1 each Type 618L/H/CAS (Fitted after 1953)

618L 330 – 550 kHz CW/MCW 15 watts

618H 1.5 – 16 Mhz CW/MCW/AM 40 watts

CAS Receiver – 59 – 555kHz, 1.47 - 30 Mhz

HF Receive – 2 x B28 (Royalist 4 x B40)

LF/MF Receive - 1 x B29 15 – 550 kHz (Royalist 1 x B41 700kHz – 14.7Mhz)

MF DF – FM12 (Receiver FMB) 42 – 1060 kHz using Aerial S19.

MF/HF Receive – 2 x AR88 535kHz – 32 MHz ( Bellona and Black Prince only)

VHF – 1 x 86M 100 – 156 MHz 80 watts

2 x TBS8 60 – 80MHz 50 watts

Typewriters on Bellona and Black Prince were Remington Raid 17s. Royalist had the Imperial 66s.



BWO – HMNZS Bellona 1949. In front of the operators from L – R: B29, B28, 2 x AR88s, B28. Against the after bulkhead there is a TBS8.

Lower Receiving Room – 2 Deck Port Side Aft of Mainmast, approximately in line with After Gun Director.

HF Receive – 8 x B28/AR88 (Royalist 8 x B40)

LF/MF Receive – 3 x B29/AR88 (Royalist 3 x B41)

Upper Transmitting Room – 01 Deck Aft of Mainmast (UTR took up width of 02 Deck)

MF/HF Transmitter – 1 x 605: 200 – 500 kHz, 1.5 – 24 Mhz CW/MCW/AM 400 – 650 watts.

HF Transmitter – 1 x 603: 1.5 – 24 Mhz CW/MCW/AM 400 – 650 watts.

Lower Transmitting Room – 3 Deck Port Side Aft of Mainmast, approximately in line with X Turret.

HF Transmitter – 3 x 601: 1.5 – 24 Mhz CW/MCW/AM 50 watts.

MF/HF Transmitter – 1 x 602E: 1.5 – 24 Mhz CW/MCW/AM/ICW 50 watts. The Suffix E denotes that it has its own emergency power unit which is fed from Battery Outfit BBY.

### **Communications fit for HMNZS Royalist in the 1960's:**

#### EWO:

FH4 removed

2 x B40,

1 x B41,

1 each QR/QS (VHF/UHF Receivers),

1 x UA3,

1 x Recorder REH3.

#### UHF Office:

4 x 691/CUH

3 x 692/CUJ 225 – 399.9 Mhz 1750 channels, AM Voice, 10 watts.

1 x 693/CUJ 225 – 399.9 Mhz 1750 channels, AM Voice, 100 watts.

The AJE aerials replaced the AJDs using a Common Aerial Working system, Outfit EAW, through resonators. 8 x AJEs fitted on the Foremast and Mainmast Yardarms.

#### BWO:

1 x 618L/H/CAS

2 x B40C

2 x B40D (for RATT1 reception)

1 x B41

2 x CW operating positions each with an Imperial 66 typewriter and AP Morse Key

1 x RATT2 two/tone converter AN/SGC-1A

1 x RATT1 comparator/converters (2) - URA-8B with 2 x CV89A

3 x Type 12 Creed teleprinters with reperforators – two for transmission/reception and one for taping up. There was also a spare underneath the RATT bay – you had to crouch and extend arms out in order to pick it up. Definitely hernia material.

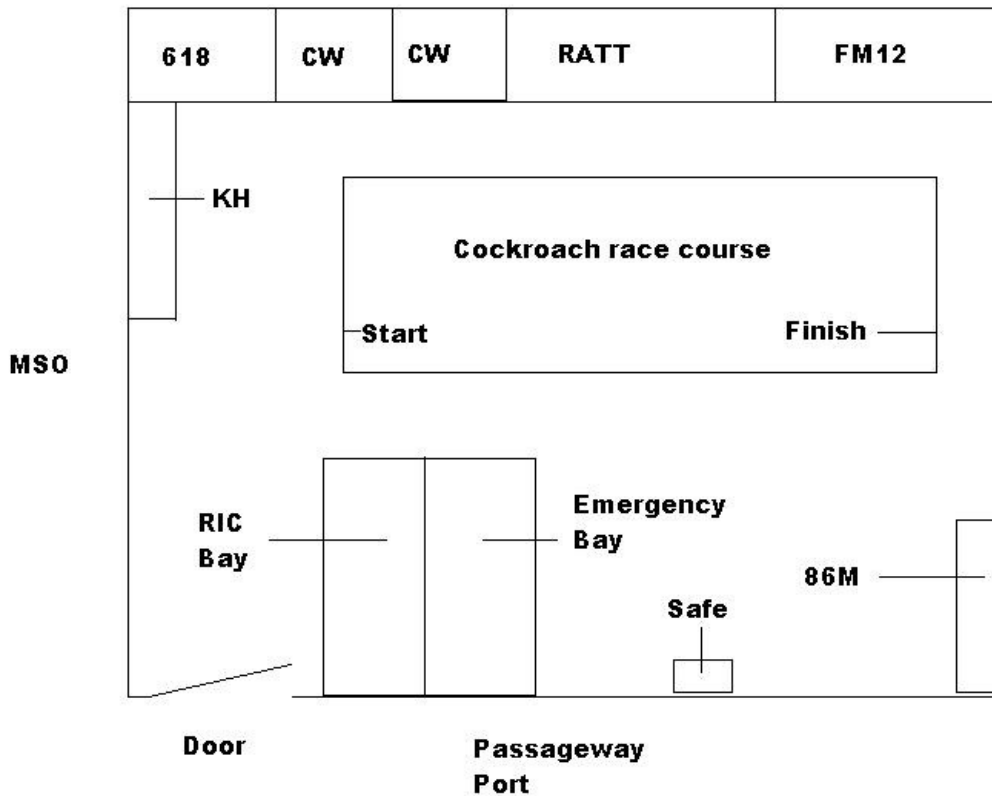
1 x 6S6 Autohead

1 x FM12 – the DF loops were sited forward of the Upper Bridge

1 x 86M

Communication Control Exchange KHA – Remote control of transmitters and receivers from different operating positions.

**Starboard**



The Main Signal Office was a small office for signal distribution and transmission preparation sited immediately forward of the BWO. Messages were passed through a small wooden hatch. This hatch was to the left of the CCX. The on watch signalman used an Imperial 66 typewriter and signals were duplicated on an Ormig machine.

UTR:

1 x 605 and 1 x 603

LRR:

8 x B40, 3 x B41, CCX – KHA

Crypto Office (CYO):

This office came off the LRR and had 2 x KL7 coding machines (ADONIS)

Secret CYO:

Accessed from the CYO and had 1 x KL7

LTR:

3 x 601 and 1 x 602E. 5ABA oscillators were used with the Type 601 for Frequency Shift Telegraphy (FST).

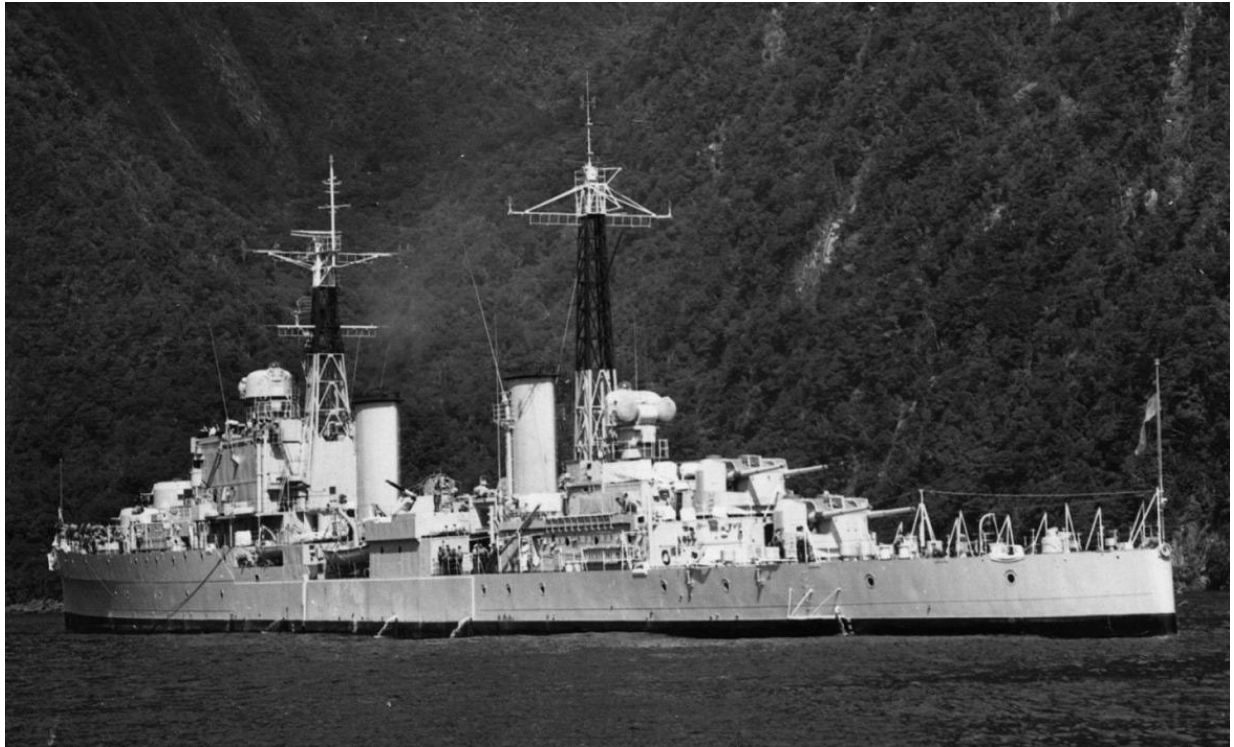
### Aerials:

Main Roof – four horizontal wires slung between the masts – receive only – 2 for common aerial working EAW, third for the MF DF Sense (vertical section only) and the fourth one was for the SRE.

Transmitting whips – 2 x AWFs either side of the Flag Deck and 1 x AWH on the Starboard side for the 618 in the BWO.

2 x AWFs either side of the After Funnel.

2 x AWHs just aft of the STAAG mountings, Port and Starboard sides.



### Power Supply and Distribution:

The cruisers employed the Ring System – two main generators were fitted to ensure that failure of any part of the supply should not cause a failure of the whole system of any important equipment and were normally run in parallel. In the BWO, there was a power supply switch marked Normal and Alternate. The Alternate supply was taken from the opposite side of the ring main and the two sets of supply cables were run by widely separated routes to the changeover switch mentioned above. Another switch in the BWO was marked Mains and Emergency. When switched to Emergency, this took power from the 2.5kVa diesel generator and fed the 618, emergency bay and lights in the BWO. The diesel generator was on 01 Deck before you went into the Flat to go to the BWO.

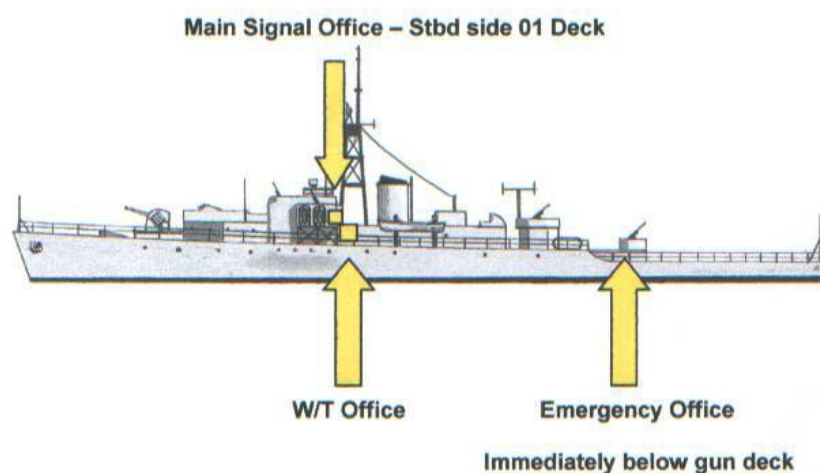
## Radar:

Type 275 x 2 gunnery radar – TS Fwd and Aft  
Type 262 x 2 Port and Starboard STAAG mountings – gunnery radar  
Type 293 early warning radar – foremast  
Type 277Q early warning and height finding radar – foremast  
Type 974 navigation radar – foremast  
Type 960 long range early warning radar – mainmast  
IFF Mk10 – mainmast

**Loch Class Frigates:** HMNZ Ships Hawea, Kaniere, Pukaki, Rotoiti, Taupo and Tutira. Entered NZ service between September 1948 and June 1949. Service ended: Hawea 1957, Kaniera 1960, Pukaki 1965, Rotoiti 1965, Taupo 1953 and Tutira 1951.

All six frigates served during the Korean War but it was Pukaki and Rotoiti that served NZ the longest as NZ couldn't maintain enough personnel to keep all six going.

## **Loch Class**



Original fit –

W/T Office -

2 x B28s, 1 x B29, 1 x B40, 1 x FM12, 1 x FH4, 1 x 89M, 1 x 86M, 1 x TBS8.

Taupo reported as having the 60EQR and the B19 TRF receiver – both in the W/T Office on her first commission to the Mediterranean in 1950.



Looking forrard

Emergency Room –  
1 x 60EQR 100kHz – 17 MHz 25 watts

HF Aerials –

6 wire main roof for transmit. The MF/HF receiving wires were part of the main roof, separated by insulators from the transmitting section and hung vertically from the Foremast yardarms. Four for reception, with one for SRE and another for MF DF Sense.

Later fit –

B28/29s replaced by B40/41. 618 replaced 60EQR - 1 in W/T office and 1 down aft. 603 replaced the 89M as the main HF transmitter. 692/CUJ and 691/CUH replaced the TBS8. KL-7, and the normal associated RATT equipment as for Royalist, plus the CCX KH exchange.

Aerials –

6 wire Main Roof replaced by AWG whip for the 603 and 2 x AWA whips for reception.

2 x AWH whips for 618s. AJEs for the 691/CUHs.

During Operation Deepfreeze, the USN loaned a Collins KWM2a 100Watt SSB set.

Power and distribution - There were two switchboards - one forward and one aft, to which the generators supplied power and from which a tree system of distribution was employed.

Radar:

Type 293 early warning radar - foremast

Type 277Q early warning radar - mainmast (fitted to **Pukaki** and **Rotoiti** - the others

may have had 277P)  
Type 974 navigation radar - foremast

