835 The Wireless Set No 22 (Aust) Yellow Band ZAA 4811. 1942 tropicalised Army set. Photos, circuit, description, block diagram. HRSA Radio Waves. July 2004 p23

836 Assembling and Restoring an RCA Radiola 60 - part 2. photos, description, circuit of power supply. HRSA Radio Waves, July 2004 p28

837 The Howard 438 Communications Receiver. Photo, circuit diagram, description. OTB July 2004 p24

838 How a Judge :unlocked" the Superheterodyne Circuit. Use of Kit versions. OTB July 2004.

839 Plastic Radio Cabinet Repairs. Step by Step photo account of a repair process. Antique Radio Classified June 2004 p16

840 The frenophone, Sidney Brown's Clockwork Amplifier. Photos, description. BVWS Bulletin Summer 2004 p4.

841 The worlds most powerful Radio Station. BBC External Service at Ottringham. Photos. description. BVWS Bulletin Summer 2004 p8

842 Restoring the Zenith 6G601. Photos, part schematic, description. BVWS Bulletin Summer 2004 p16

843 A Tale of Two Pyes. The 350C from 1929. Photos, circuit description, refurbishment. BVWS Bulletin Summer 2004 p28

844 The Bridgewater Imperial Beam Station.. Photos, description. BVWS Bulletin Spring 2004 p4

845 The Percy Harris Seven Circuit Crystal Set. Photos. circuits, description, constructional diagrams. BVWS Bulletin Spring 2004 p16

846 The McMichael 808 with "Rotabar Tuning". Photos, description. BVWS Bulletin Spring 2004 p22

847 The Bell Colt - part 1. Methods of removing the knobs without damaging them. Wellington Vintage Newsletter Aug 2004 p3

848 The Sine Wave: Importance in Physics, Maths and Engineering. Wellington Vintage Newsletter July 2004 p4

849 The Philco Corporation - Historical Review 1892 - 1961. Part 2 of this review. CHRS journal Spring/Summer 2004. p14

850 Philco model 16 Radios. Photos, some restoration details. CHRS journal Spring/Summer 2004. p19

851 UV199 production. Modern miniature valves mounted inside glass envelopes made from test tubes to simulate UV199s. CHRS journal Spring/Summer 2004. p34

852 The STC RV9A Communications Receiver. Photos description, block diagram, maintenance details. Radio Bygones Aug/Sept 2004 p16

853 Philco versus Atwater Kent - American technology in the 1930s. Photos, schematics of Philco model 18 and Atwater Kent model 708, technical com[parison. . Radio Bygones Aug/Sept 2004 p19

854 A versatile Power Supply for Battery Radios. Constructional details of unit to give 2V and 4.5V, 9v, SG voltage and 128V DC from 230V mains supply. . Radio Bygones Aug/Sept 2004 p30

855 Restoring a Marconi 262 of 1933. cabinet and chassis restoration, description photos. BVWS Bulletin, Autumn 2004. p9

856 The Ekco models U122 and U159. Photos description, restoration details, service tips. BVWS Bulletin, Autumn 2004. p16

NZVRS BULLETIN

Vol 26 No. 1 **Feb. 2005**

NEW ZEALAND VINTAGE RADIO SOCIETY

NEW ZEALAND VINTAGE RADIO SOCIETY INC.

A non-profit organisation devoted to the preservation of early radio equipment and associated historical information.

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LIBRARIAN, Ernie Hakanson, 17 Williamson Ave, Grey Lynn, Auckland. Ph 09/376 6059. Requests for circuit diagrams, books and magazines (for personal use only) are handled by the Librarian at a small charge. Back numbers of most NZVRS bulletins are also available from the Librarian at $3.00 each for Vols 1 to 10 and $4.00 for issues from Vol 11 onwards. Cheques to be made out to NZVRS.

NZVRS BULLETIN is published quarterly in the months of February, May, August and November. Opinions expressed by writers are not necessarily those of the Society.
Contributions should be sent to the **EDITOR**.
Reg Motion, 2A Hazel Terrace, Tauranga. 07/576 8733, email: regmotion@xtra.co.nz

AUCKLAND MEETINGS will be held at the Horticultural Society Hall, 990 Great North Rd. (opposite Motion's Rd.).
Mon. Feb 21st at 7.30pm. Auction night
Sat. Mar 26th. Annual General Meeting
Mon. April 18th at 7.30pm. Auction night.

BAY OF PLENTY AREA MEETING
The next meeting will be held at Gordon & Donella Bakers place, 101 Hinewa Rd., Tauranga on 12th February. It will be preceded by a giant sale of radios, boatanchors and other items commencing at !!am. Lunch and afternoon tea will be provided there. **All are welcome.**

TARANAKI AREA MEETING
Our meetings are held on the second Sunday of the months of February, April, June, August, October and December. Visitors are most welcome; contact either Bill Campbell, 06/7532475 or Graeme Lea, 06/7585344 for further details.
Note : Due to unforeseen circumstances there will be no Taranaki Radio Weekend this year.

WELLINGTON MEETINGS
are held typically from 1pm on the second Sunday of every month at Tireti Hall, Te Pene Ave, Titahi Bay. For details contact Bob Hatton, 40 Rose St, Wadestown. 04/472 8788.

CHRISTCHURCH MEETINGS.
For details of meetings contact Jim Lovell, 41 Yardley St, Avonhead, Christchurch 8004. Ph 03/342 7760

ITEMS AVAILABLE TO NZ MEMBERS AT DISCOUNT PRICES

Please make out cheques to New Zealand Vintage Radio Society

From NZVRS Secretary, 2 Levy Road, Glen Eden, Auckland.
paul.woodcock@opus.co.nz

10m lengths of 3 core Power Cable
$8 per length plus $4 P&P

Ivory 3 pin Power Plugs
$1 each plus $2 P&P for up to 4 plugs.

Club Badges.
$5 each plus 50c P&P

From NZVRS, P.O. Box 13873, Onehunga, Auckland 1006.
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Residual Current Detectors
$20 + $5 P&P

10uF 450V, Black, Polarised, Axial lead, Electrolytic Capacitors.
$1.00 each plus $2 P&P
Limited to 20 per member (larger quantities can be placed on back-order)

22uF 450V, 85oC rating capacitors
$1.50 each plus P&P
or 12 for $20 - P&P inclusive.

Tight Woven Nylon Dial Cord, 0.7mm diameter - suitable for almost all radios
10 meter lengths at $5 including P&P

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Cochran D	**Australia**
Brooke-Taylor D	**Auckland**
Thiel W	**Auckland**
Fifield M	**Palmerston North**
Crookes P	**Kaikohe**
Sewing A	**Gisborne**

FROM THE EDITOR

It was pleasing to get some comments on the changes to the cover page and contents list.

My apologies to Gerry Billman. In the last issue I attributed authorship of the Golden Knight article to Ian Sangster when it was actually written by Gerry.

Membership fees are due once more and the AGM is nigh. See the enclosed flyer for details.

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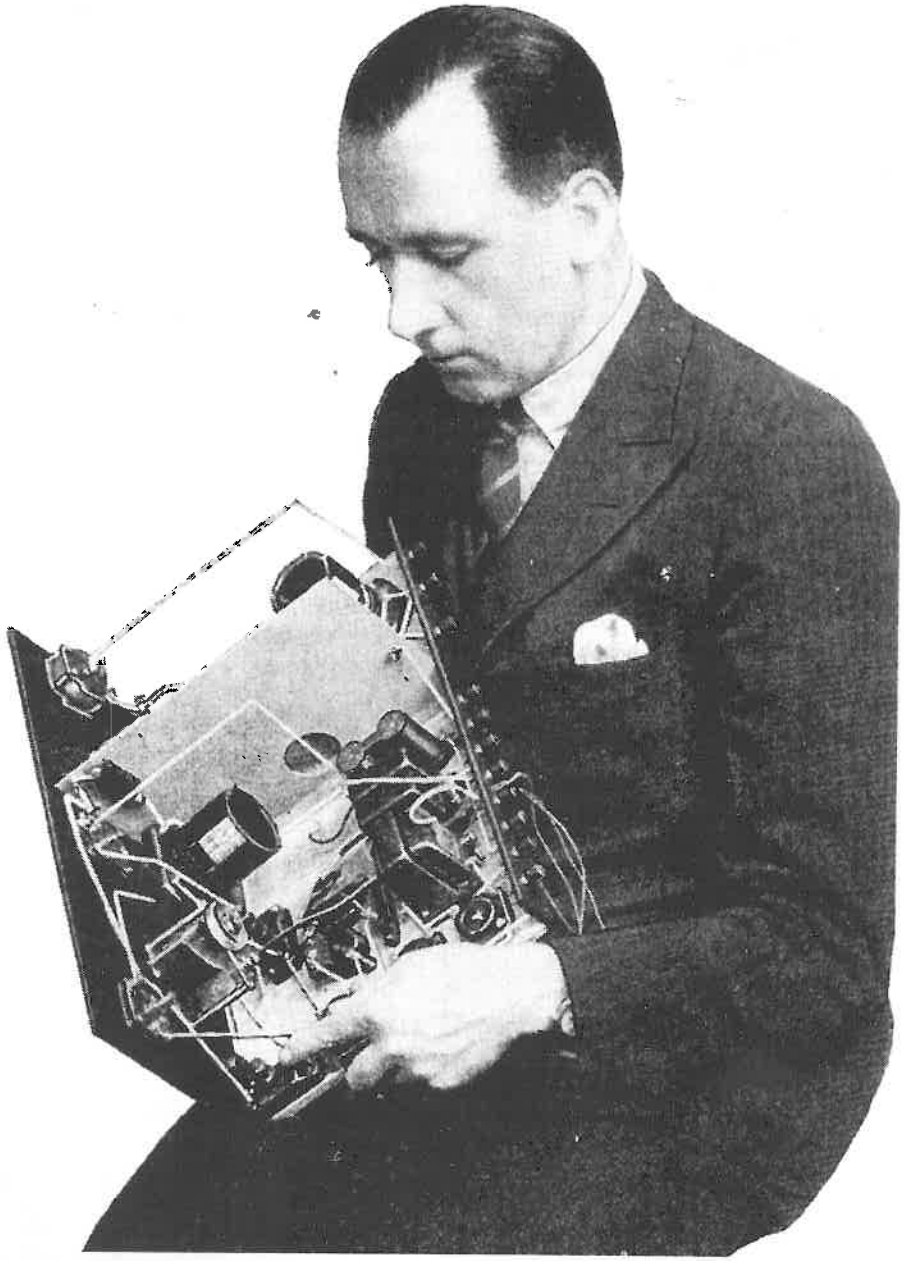


John Scott-Taggart, an early British Wireless Designer, Demonstrating Features of a Home Constructors Design

BELL's "GENERAL" RADIOS

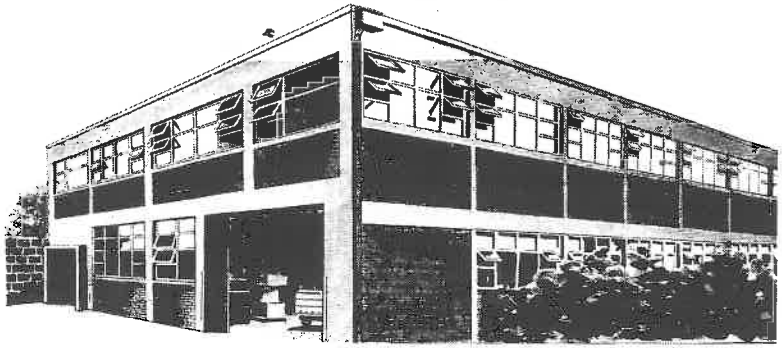
Cliff Maxwell

In our bulletin of May 1998 I gave an account of the pioneering work done by Bell Radio-Television Corp in the early days of TV in New Zealand. With the advent of black and white television Bell Radio had put every effort into the design and manufacture of television receivers to the detriment of radio design and production. This meant that there wasn't a range of radio receivers to complement the TV receiver range. Management decided that the quickest way to fill the gap was to come to an agreement with an overseas manufacturer and produce a range of overseas designed models for the New Zealand market together with some NZ designed sets. In the following sections I cover this development but first it is desirable to bring you up-to-date with a brief account of progress up to 1963 as told in the following extract from a pamphlet put out by Bell at that time.

> **FIFTEEN** years to grow from a £700. three man enterprise to a £230.000 corporation employing 250 - that is the story of Bell Radio. A large new factory opened this year, and a 1963 profit nine times higher than the 1962 level, are symbols of the remarkable achievement of this remarkable company.
>
> Mr. Al Bell, the founder and present chairman, had hearing aids - not radios - in mind when he and two partners began it all in a back street room in September 1948. Radio manufacturers of the time said that, with a total production of 48,000 sets a year, their market was saturated.
>
> But Mr. Bell saw the real trouble which was not market saturation but prices that were too high in a market with limited purchasing power. His company forgot about hearing aids. It made radios - not in hundreds like other manufacturers but in thousands, and with prices slashed to suit. Its Antone battery portable, first of its kind in New Zealand, took the company straight to the top of the portable field.
>
> Now in larger premises in Queen Street, Bell Radio applied the same principles to first the mantel radio, then the radiogram, then the transistor portable, with similar results. Its Colt mantel radio, produced in runs of 5000 sets - and £5/5/- cheaper than its nearest competitor - went into 160,000 New Zealand homes. Its Truetone radiogram, at the unheard-of price of £69/10/-, was a huge seller for several years. And its Bell transistor portable, first on the market, achieved an equally spectacular result.
>
> Then followed the hard years. With TV a shadowy image on the horizon, radio sales declined. But there was no TV programme, and no sign that one was immediately forthcoming. In 1957 Bell started its own transmissions and, by building public interest in the medium, established a favourable climate for television's official introduction.
>
> A public company since 1957, Bell Radio has forged ahead rapidly since TV caught the public fancy in 1962. After a net loss in 1960. the company made an encouraging profit of £13,833 in 1962 - then a whopping £127,000, tax-paid, in 1963. As well as compensating shareholders for the leaner years, this has allowed

Bell to buy the Dominion Road premises which it formerly rented and to build on an adjoining site the extensive new factory illustrated below.

Now established in the new plant, the company is firmly based for future progress. Its range of TV is wider than, and its sales at least as great as, any of its New Zealand competitors. It has successfully introduced to New Zealand the General range of radios, made under an agreement which the new general manager, Mr. Lou Reindler, negotiated on a visit to Japan in 1961. And, with the whole vast field of electronics so far largely unexplored - let alone exploited there is no visible limit to the company's future progress.



THREE times the size of the former facilities, Bell's new plant at 274 Dominion Road is the most modern in the New Zealand industry. Its production is in one continuous flow, picking up components from the unloading point, carrying them through successive assembly stages, and finally depositing the packed, addressed goods at the outward loading bay - all in one smooth, unrippled stream.

Automatic methods have replaced manual ones wherever possible. Electric hoists carry components from the stores to the production lines. A chain conveyor carries TV and radio chassis between departments. Wiring benches are equipped with rollers to move each chassis from one operator to the next.

Such efficiency does more than eliminate handling, and the waste and risk of damage which handling entails. Coupled with rigorous checking at all stages of manufacture, it ensures that every Bell or General set produced is exactly the same as its neighbours - the same unvarying standard of excellence on which Bell's reputation was first founded.

Bell and General Radio of Japan

As mentioned above approaches were made to General Radio of Japan and in due course an agreement was signed. At this point in time the importation of built up product was prohibited so Bell began the task of organising the manufacture of all components which could be made in NZ.

Piece parts were obtained and items such as coils transformers, power cords, speakers, metal work, plastic and wooden cabinets, trim, knobs, dials scales, to name a few, were made locally. Injection moulding dies were borrowed from General Radio and plastic cabinets were moulded and assembled in house. All the metal work was made by Precision Pressed Products, a subsidiary of Bell Radio.

It was a mammoth operation and required close liaison with a number of outside companies who were making and supplying parts as subcontractors.

As manufacturing started and various models were prepared for release onto the New Zealand market, three representatives from General Radio came to NZ for the official launch. They were Mr. Yau, chairman of General, Mr. Kono, Sales Manager and Mr. Terasaki, Overseas Sales Liaison Manager. They were here when the new products were released onto the market.

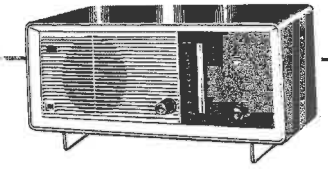
The styling of the radios caught the attention of the public as nothing like them had been seen in New Zealand before. This filled the gap in the company's product range at the time and in addition a number of New Zealand designed "General" radios were added to the range, thus complementing the quantity of models available to the public.

The sales team and advertising people decided on a marketing ploy - each model would be named after a famous general, consequently names of famous generals were given to each model as follow

General Cromwell,	General Wellington,	General Wavell (NZ design)
General Sherman,	General Grant,	General Hamilton (NZ design)
General La Fayette,	General Kitchener,	General Pershing (NZ design)
General Marlborough,	General Gordon, ,	General Lee (NZ design)

General Clive.

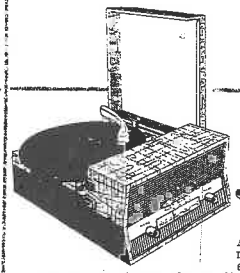
Some of these models are illustrated below and on the front cover page.



GENERAL "KITCHENER"

Ideal for your bedroom or kitchen is this attractive 5-valve radio with the pulling power of a full "six-valver". With its variety of pleasant fashion colours the set will blend perfectly with the interior decor of your home. Earphone socket and fully-variable tone control. Available in Flame, Aqua, Squadron Blue or Cloud Grey, trimmed in white.

£16/16/-



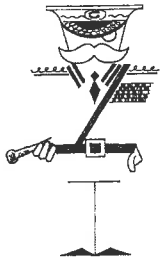
GENERAL "PERSHING"

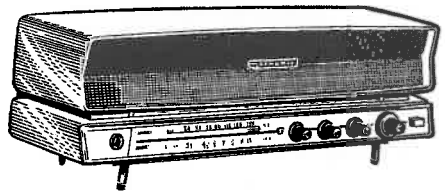
At last, a 4-speed transistor radiogram which works on either battery or mains power! Seven transistors plus 2 diodes for powerful performance; 8in × 8in speaker for faithful tone reproduction; push-button on-off, radio and 'gram controls for easy operation. Beautifully finished, too . .

£33/17/6

There's new room-flattering elegance in

GENERAL Hi-Fashion Radios

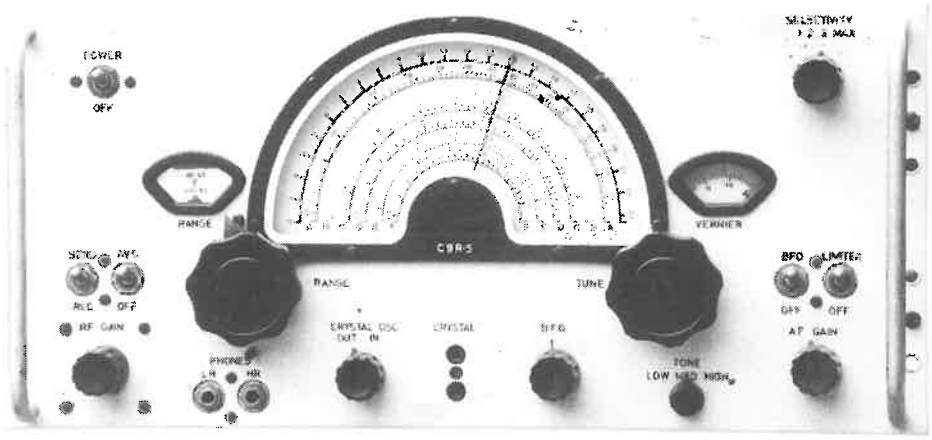




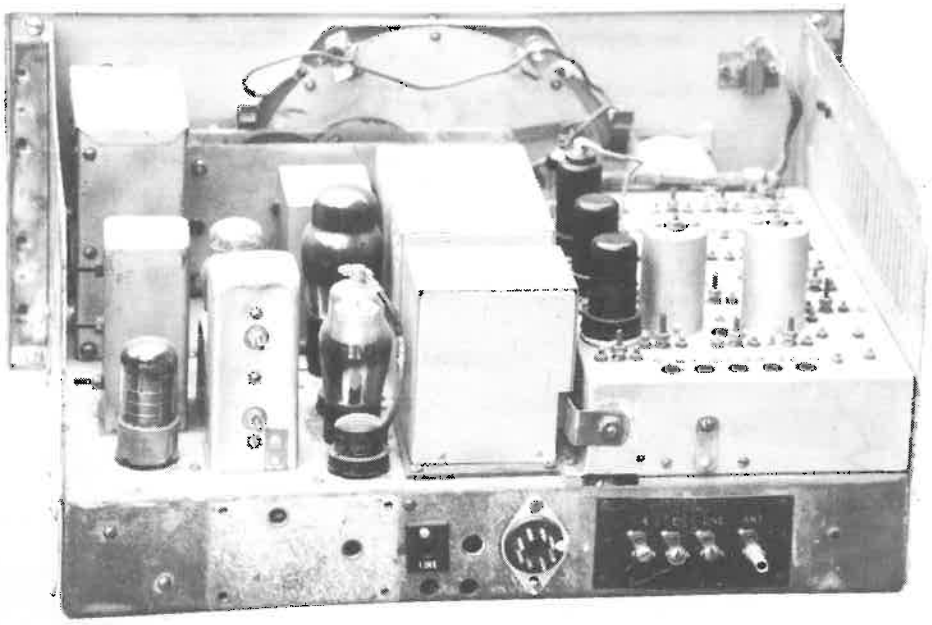
GENERAL "CROMWELL"

£39/19/6

As contemporary as Brubeck! And just as smooth to listen to. Powerful **push-pull output stage** and 8-valve performance combine with **twin elliptical speakers** to give hi-fi reception on broadcast **and shortwave** bands. With variable tone control, magic eye tuning and 'gram connection In gleaming Ivory . . .



The Canadian Marconi CSR-5 Receiver



Rear view of the chassis of the CSR-5. Note heavy shielding of the tuning capacitor and coil box (right hand side)

Note. John supplied me with a copy of the circuit schematic, voltages and other details but unfortunately it is too large to be reproduced legibly on an A5 page. I can supply a copy on request. Ed.

From my collection. The Canadian Marconi CSR-5, type 110-930.

John R L Walker ZL3IB

The Marconi CSR-5 is a WW2 vintage, high-grade communications receiver and was designed for use under arduous conditions such as high humidity and vibration. It covered the ranges 79 - 518 kHz and 1.5 - 30 MHz in six bands displayed on a multi-colour, semi-circular dial which gave rise to its nickname "The Rainbow Set". It was widely used in NZ by the former P&T Dept and at the Makara receiving station. In this environment it was useful because it offered crystal control of any spot receive frequency.

An important feature for military use was the exceptionally low level of radiation from its antenna since it was known that during WW2 the German V -boats used to attempt to locate convoys by monitoring the radiation from the ship's receivers.

The set is constructed on a heavy gauge steel chassis and weighs 68 Ib without a power supply.

The receiver circuit
The RF section of the.CSR-5 is built on a separate sub-chassis and uses two 6SK7 RF amplifiers followed by a 6K8 mixer with a separate 9002 (or 6C4) miniature triode as local oscillator. The triode section of the 6K8 is used as the crystal-controlled local oscillator when this mode is selected. A pan adapter output is also available from the mixer valve.

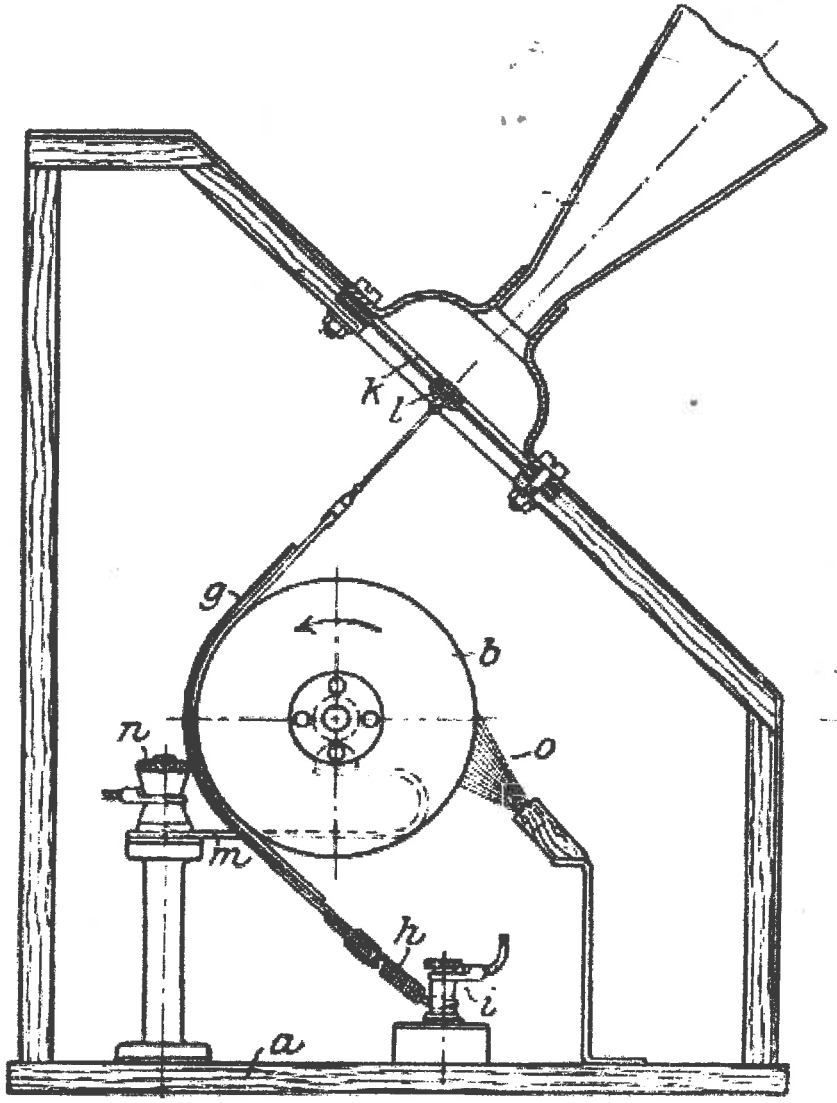
Signals from the mixer are fed to two stages of IF amplification at 575 kHz and a switched crystal filter in the first IF transformer provides four degrees of selectivity. From there signals are fed to a diode detector followed by an AF amplifier stage using a 6B8 double-diode pentode; the second of the 6B8's diodes is used as the AVC rectifier and noise limiter. The power amplifier is a 6F6 giving four watts of audio.

The 8FO is another 6SK7 and this circuit is also carefully filtered and shielded to eliminate any risk of external radiation.

Power supplies
The CSR-5 requires 12V at 2.3A for the valve heaters and 250V at 120mA for the HT since it does not have an integral power supply. Two power supplies are available; the VP3 for 12V DC and 115 - 230V AC input, or the WE-I I for AC mains only use.

Comments.
My receiver was in rather poor condition when I acquired it. The front panel had large areas of paint missing so restoration of anything like the correct control labels was very difficult. Similarly there were several patches of rust on the chassis so I cleaned it up and repainted it with aluminium paint The 9002 local oscillator valve was missing but my RCA data book suggested that the more common 6C4 triode was a close substitute. When I eventually I got the set going I found that the performance above 15 MHz was very erratic due to failure of the local oscillator circuit to perform reliably at the higher frequencies; in my experience an all too common problem with vintage, wide-range, communication receivers.

Dimensions The set weighs 681bs and measures 20.25" wide, 10.5" high, 13.5"deep.



JOHNSEN-RAHBEK LOUDSPEAKER.
a=base. b=rotating cylinder. g= friction band. h=springs
i= terminal for polarising voltage. k= mica diaphragm. l= link.
m= rubbing electrical contact for polarising voltage
n= terminal for m. o= cleaning brush.

THE JOHNSEN-RAHBEK LOUDSPEAKER.

Dick Stevenson

During the latter half of the 19th century, telegraph wires crisscrossed most of the continents, as the convenience of this electrical means of communication became increasingly popular. But the long distances naturally caused the signals to weaken and ways were soon sought to amplify them. Thermionic valves were not yet available so numerous mechanical methods were tried. For telegraphy, simple relays could boost long-distance strength, but as telephones became more available and popular, amplification was a problem. One obvious way was to connect an earphone to a microphone and by increasing the current through the latter a larger signal was obtained. In practice, the carbon granules in the microphone soon got very hot or just formed a non-responsive lump and two such devices in series was the maximum that was feasible.

Careful design and cooling fins could increase the number of stages to three, but frequency response was poor and quite inadequate for telephony. The search for a workable telephone "repeater" for long distances stimulated the development of a number of thermionic devices and the De Forest audion was found to be the answer.

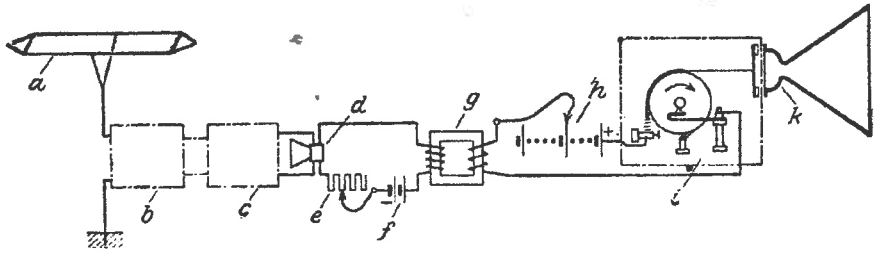
Yet the audion could handle little power and as the 20th century advanced, people got tired of the earphones so the first loudspeakers appeared with a robust earphone connected to a large magnifying horn. Frequency response was still poor, and the possibilities of public address were beginning to be realised, so remarkably, mechanical systems were revisited, as power valves and dynamic speakers had yet to appear.

One such, the Frenophone, (made by S.G. Brown in Britain), is described in the magazine of the British Vintage Wireless Society (Vol. 29 No.2, 2004) and uses an earphone to vary the friction of a cork disc on a rotating glass plate. A magnifying effect allows the cork disc to operate a diaphragm and horn. It apparently worked quite adequately but the fact that the clockwork that turned the plate had to be wound up every 30 minutes and that the glass had to be "doped" with a shellac solution or with turpentine told against it and it was not marketed for general use.

Various other mechanical principles were tried and one, using the "Johnsen-Rahbak" (J-R) effect was marketed by the Ruth Co. of Berlin. This effect, discovered by two Danish engineers, found that if a metal plate was close to a substance that was a poor conductor of electricity, then a high potential between them caused an attractive force. A loud-speaker utilising this effect contained a rotating cylinder of agate (a form of silica) or of lithographic stone (a very fine-grained limestone). The rotation was by an electric motor and pressing against the cylinder was a band of composite construction. The inner layer was a length of film and glued to the outside was a thin lamina of metal. The film was connected to a mica diaphragm at the base of a horn, while the metal lamina was connected by springs to an electric terminal.

A contact rubbing against the bronze axle of the rotating cylinder was connected to another terminal and a polarising potential of 220 volts was applied between the two. A minute current, perhaps only a millionth of an amp., flowed across the cylinder, which as it rotated, exerted a steady frictional pull on the mica diaphragm. By means of a transformer, the audio output of several valves modulated the polarising voltage and by means of the J-R effect the composite band was subjected to a variable force. This in turn changed the pressure on the cylinder and hence the frictional pull. Evidently there was a magnifying effect and a louder sound, of apparently good fidelity, issued from the horn.

A brush (not connected electrically) swept dust off the cylinder in order to keep its frictional properties constant. Good electrical insulation was needed between the motor and the cylinder and between the terminals and the baseboard. This apparatus seemed quite successful, provided that wandering fingers were firmly excluded from the 220 volts!



RADIO RECEPTION USING A JOHNSEN-RAHBEK LOUDSPEAKER

a = aerial b = tuner and detector c = amplifier d =microphone
e = volume control f = microphone battery g = transformer
h = modulation connection to polarizing battery
i = loudspeaker apparatus k = loudspeaker horn

Device "d" in the above diagram was probably a carbon button microphone directly or acoustically coupled to an earphone within "d". Ed.

Interestingly, this J.-R. effect is used today in "electrostatic chucks" which either hold a piece of semiconductor during processing or by means of a ceramic containing alumina, grip a metal component.

References:

"Tratado de Radiotelefonica" by E. Nesper (1925).

"Harmsworth's Wireless Encyclopedia" (1924)

Positive and Negative

Bay Of Plenty Group End Of Year Meeting

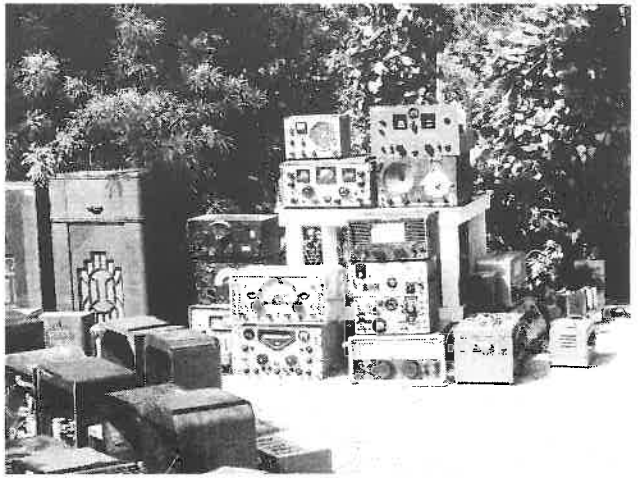
Gordon Baker

The B.O.P. end of year get together was held in Tauranga on the 27th of November 2004. The major draw card was the large sale of Vintage Radio goodies at the home of Gordon and Donella Baker. There was a good turnout for the 11am start with a large crowd of members from as far away as Wellington. There were a great deal of bargains to be had with prices starting at as low as $5.00, the Boat Anchor type of radio being a most popular seller. Most cars went away with no space to spare. Perhaps at the next sale vans or trailers may be in use.

Many thanks to Donella for the most enjoyable lunch with the blueberry muffins being in great demand, I understand the first lot of muffins failed to rise due to a lack of baking soda Apparently even professional cooks make omissions .

The turnout of members patiently waiting for the sale to start.

There were a wide range of ages and many of the members came from a considerable distance.



Some of the goodies on sale.

No wonder some of the vehicles went away with a distinctly low slung look.

The purchasers with a heads down attitude.

"Man there are a lot of radios. Where do we start?"

The last purchaser left about 3 pm.

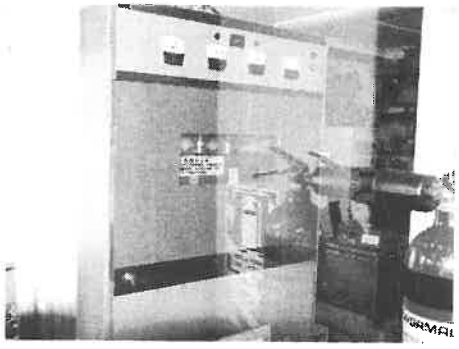
The next venue after the sale was at Reg and Rose Motion's where there was also a few goodies for sale. This was followed by a look at Reg's excellent instrument collection and afternoon tea.

For those who remained to attend the next days venues, a dinner was enjoyed during the evening at the China Town restaurant in the new Fraser Cove shopping complex. The meal was a buffet style with a huge range of seafood, Chinese and European foods.

Sunday entertainment included a visit to 1XT Village Radio at the Old Historic Village. Here members saw a vintage AM radio station in action. Mainly valve powered, 1XT still puts 78 rpm records live to air. Oh that smell of hot wax and the sight of glowing valves.

For those remaining the day concluded with a look at Rods superb vintage radio collection as well as a lovely morning tea. Many thanks again Rod and Sue.

Volunteer, Milne Collis driving the 1950s style panel at 1XT.



The 1962 vintage Toshiba 1 KW AM transmitter is ex 2YG Gisborne and has had nearly 100,000 hours of service. It uses type 4/400 valves in the modulator and final amplifier.

This article appreared originally in the Eddystone "Lighthouse" magazine for December 2004 and is republished with the permission of the Author and the Editor.

BILL'S 870

A cautionary tale by Peter Lankshear

Regular Lighthouse readers will know the writer's positive views on modifications to Eddystone receivers. There is generally little justification for them, and ideally any changes found should be reversed. One that does come to mind as being valid is the rewiring of the 640 B.F.O. tuning capacitor to minimise R.F. pickup, but such cases are not common. However, breaking my own rule, I have a modified 870 that I do not intend to return to original, even if I could find the parts.

Fellow NZVRS member Bill is a living legend in the New Zealand vintage radio scene. Recently, assisted by the local radio fraternity, he celebrated his 90th birthday in fine style, but it could well have been his 70th given his alertness and fitness. Bill's special ability is transformer winding, a skill that most radio enthusiasts seem to regard as a black art. He is probably eligible for a place in the Guiness Book of Records for as a young radio service technician he first wound transformers more than 70 years ago! And he is still at it. Only a few weeks ago he meticulously rewound a Stewart Warner interstage transformer for me and his workmanship is as good as ever.

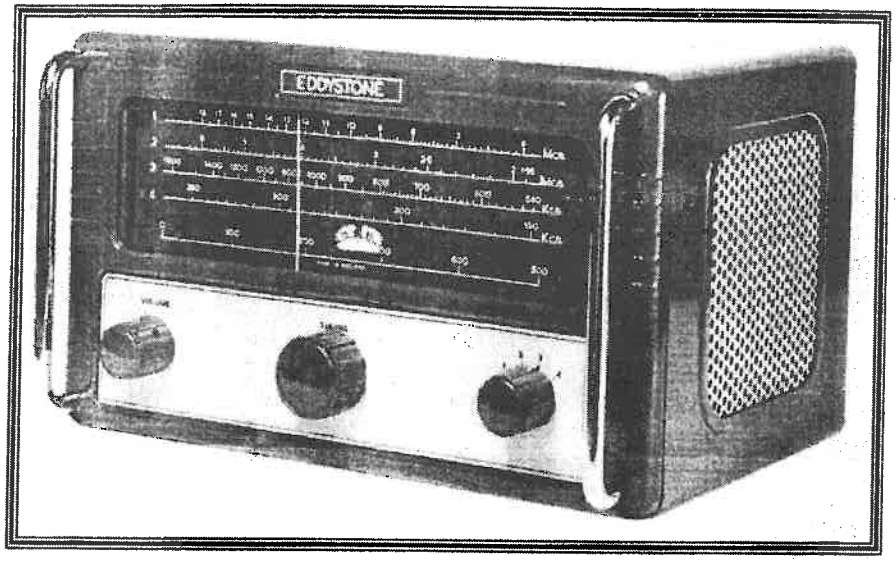
Now anyone who lives long enough and is sufficiently motivated could make some sort of effort at winding but Bill is a professional to his fingertips. His workmanship is superb so that often the finished product is superior to the original. If Bill rewinds a transformer it stays rewound – I've never heard of a subsequent failure. He can handle complex jobs too, and a straightforward project like an Eddystone power transformer is bread and butter to him. He enjoys a challenge and a few years ago I arranged for him to rewind a Radford 100 watt wide range output transformer. These transformers are very complex with, from memory, fourteen separate windings interconnected in an intricate pattern. Radford transformers were of the highest quality, and Bill's rewind is practically indistinguishable from the original – it just looks a bit newer.

About 20 years ago, Bill's daughter wished to join in the fashion of the time of having an arched top radio in her lounge and Bill did not have a suitable model. During a visit, he suggested that I might be tempted to provide one in exchange for an Eddystone 870B. Bill's workmanship with receivers is first class, as would be expected of a professional with his long experience, and I knew that I would not be disappointed with the 870's condition. It did not take long for a deal to be made, with Bill taking a small RCA R28 in exchange.

The Eddystone was in excellent condition, but Bill explained that he had made what he considered to be an essential modification. As EUGers will know, to enable the 870 to operate from a wide range of power sources, including shipboard mains, it is power transformerless or in the language of broadcast receivers, it is an AC/DC set. New

Zealand has practically no need for this class of radio and the few "el cheapo" domestic versions were known in the trade as "hot boxes", very apt in two ways. First, because the operating voltage was around 110 and the excess 100 or so volts were dissipated in resistors as heat, and the other reason is that the internals are necessarily directly connected to the mains. As Graeme points out in LH 87, operating at 110 volts, these receivers are very cool running, and, Bill did the obvious. He made a transformer and threw away the dropping resistors. Faced with this situation, I would have settled for an external 110 volt transformer, but Bill went further. Because AC/DC sets are uncommon here, the high voltage filament valves are not readily available, and he went all the way by fitting the equivalent standard 6.3 volt valves and an internal power supply. And while he was about it, he designed the power transformer to supply 220 volts high tension so as to derive the maximum performance from the new valves. The transformer is relatively small and fits nicely in the available chassis space, looking like it was meant to be there.

Bill however had overlooked the possibility of the increased H.T. exceeding the ratings of the converter and I.F valves' screen grids. The addition, by me, of a screen dropping resistor soon corrected this.



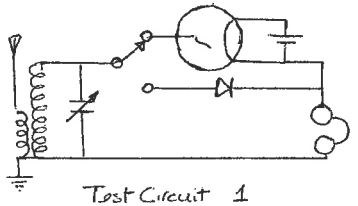
To anyone other than an Eddystone specialist, the chassis looks completely original and I have a unique 870 that runs cool on 230 volts, has readily available valves and due to the extra H.T. possibly has a performance edge over its brothers. This is a rare case where a modification has made an Eddystone receiver more suited to the service to which it has been put (a bedside radio), and as the job has been well done I have left well alone. Although the 870 is now very useable, as a collectable receiver, it has been devalued.

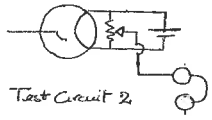
A Myth Exploded.

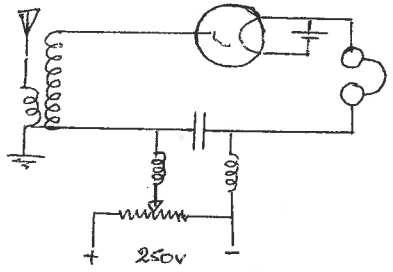
George Newlands

Nine people out of ten will tell you that eels are attracted to a light at night. The tenth, having tried it, will tell you that they are not. I know this because I am one of those tenths. Myths of this kind abound and so it is with the idea that a two-filament incandescent light bulb with one filament blown can be used as a thermionic diode. People will tell you, often with earnest conviction, that something happens or will work but if you challenge them or question an outcome you can get the "Aw, I've heard it works" or "Well, it would wouldn't it?" sort of reply. And so the myths perpetuate. Bulls are supposed to be enraged by anything coloured red too but I've never found that to be the case either. Aren't they supposed to be colour blind, or is that another myth?

Many years ago, and my advancing years dictate that quite a few things are now many years ago, I conducted a series of experiments to determine whether or not a two-filament light bulb could be used as a detector diode and became firmly convinced that it could not. This was initially brought about by conversations with people who averred that such a device would work, based on the theoretical principle, but on being questioned further on the matter admitted that they had never actually tried it. I resolved to determine the viability of it all for myself.


Test Circuit 1


Test Circuit 2



Test Circuit 3

My initial experiments used a standard gas-filled automotive tail light bulb in which the 20w section had blown, leaving the 5w section intact. The test circuit was as for a standard simple crystal set with the bulb filament lit by a battery and the open end of the blown filament as the 'diode' anode. The coil and capacitor were standard broadcast band components. Results were as expected with the crystal diode but the light bulb produced absolutely nothing.

Undeterred, I decided that bias was what the bulb was needing and set up test circuit 2 only to note no improvement whatsoever. Still with bias on my mind I set out on a kill or cure venture. I'd show this thing. If bias was what was needed bias was what it was going to get. I had in mind that if I could force the bulb to conduct, and then hold it at the point where it was just starting to, I should have myself a detector. Test circuit 3 was set up.

Picture if you will the following. I'm seated at my bench with headphones clamped to my ears, mouth slightly open, listening hard, tensed for that burst of broadcast programme which would

signal success, while slowly advancing the voltage rheostat. What happened next was probably predictable but in this case was quite unexpected. At some voltage, I'm not sure what, the gas in the bulb ionised. From being the highest resistance point in the circuit the bulb very suddenly became the lowest and the power supply capacity discharged through the headphones. The bulb flickered a sort of yellowish brown and there was such a crack in the headphones that I thought I had put my eyes out of their sockets. I swept the headphones onto the bench and leaned back in the chair, hands over ringing ears, wondering if this was all really worth it. (One has to wonder how much of an RF. pulse the tuned circuit would have put to the aerial. This is basic Spark Wireless technology and it may have been considerable.)

What brought all this back to mind was a letter in Bulletin Vol.25 No.4. In the intervening years I have obtained more and better test gear and repeated my original experiments although I must say that I took precautions against damaging my hearing. I was careful not to take the bias voltage above 50. The results obtained were exactly the same. Nothing!

Some serious experimentation with a gas filled bulb produced a quite unexpected result. I used a new one, debased and with the filaments separated, the 5w filament as the cathode and the 20w filament as the 'anode', this choice being made because the lower powered one would have less heating effect on the other. With 50v applied to the anode a space current of 40 uA was observed but with the polarity reversed, anode negative, the space current was 60 uA. I thought I must have had something wrong but a re-check showed that the bulb will conduct in both directions. This can only be some characteristic of the gas and it is small wonder that it won't work as a diode. Setting the bulb up on a valve base and testing it as a diode on an AVO Mk IV valve tester showed no rectifying action.

My extensive junk collection yielded a quantity of small S.B.C. lamps made by British Siemens and labelled "vacuum". They are rated at 14V 7W and are all the more unusual for having two separate filaments, connected in series inside the base but outside the bulb. (One can but wonder at this construction. Perhaps the company had an oversupply of 7V filament assemblies.) What purpose they were to serve is not known but they have the broad arrow symbol stencilled on the base so they must have been part of some Government contract. Here was a bulb eminently suitable to become an experimental vacuum diode. I carefully debased one, separated the filaments and checked it in my test circuits.

Tests using a random length aerial produced nothing at all but I found that by forcing some number of volts of signal into the set-up from a power signal generator a modulation tone could be heard in the headphones at very low level. Biasing the diode made no noticeable difference. As a final check, and for my own interest, I tested the vacuum bulb as a diode in the AVO valve tester. Some rectifying action is indicated but it barely lifts the meter needle.

So there it is. A gas filled bulb is quite useless but there is, as one would expect, some rectifying action in a vacuum one but it is certainly not applicable to R.F. detection. The sensitvity is just far too low. Whether this is due to some characteristics of the metals in the bulb or simply the fact that there is only a minuscule anode area available is not determinable. I'm sure the business doesn't work but I'm now intrigued enough to keep an open mind. If anyone else has had success with the system, or has experimental results different from mine, let's hear from you.

Inflation and Obfuscation

(or sets with valves that don't do anything useful)

Peter Lankshear.

Integrated circuits have made a semiconductor count for a piece of equipment meaningless, but in the valve era of electronics, to the purchaser, a significant part of a specification was the number of valves used. This figure could provide a guide as to the complexity of equipment, and especially with receivers, some idea of the performance. A three valve plus rectifier receiver was likely to be fairly basic, whereas a radio with a dozen valves would have as much sensitivity as could be used, as well as a large audio section. (It was the practice in some countries including New Zealand, to use the valve count as a basis for royalty or tax charges, and this encouraged British manufacturers to use higher performance valves than their U.S. counterparts, making it possible to eliminate an audio stage.)

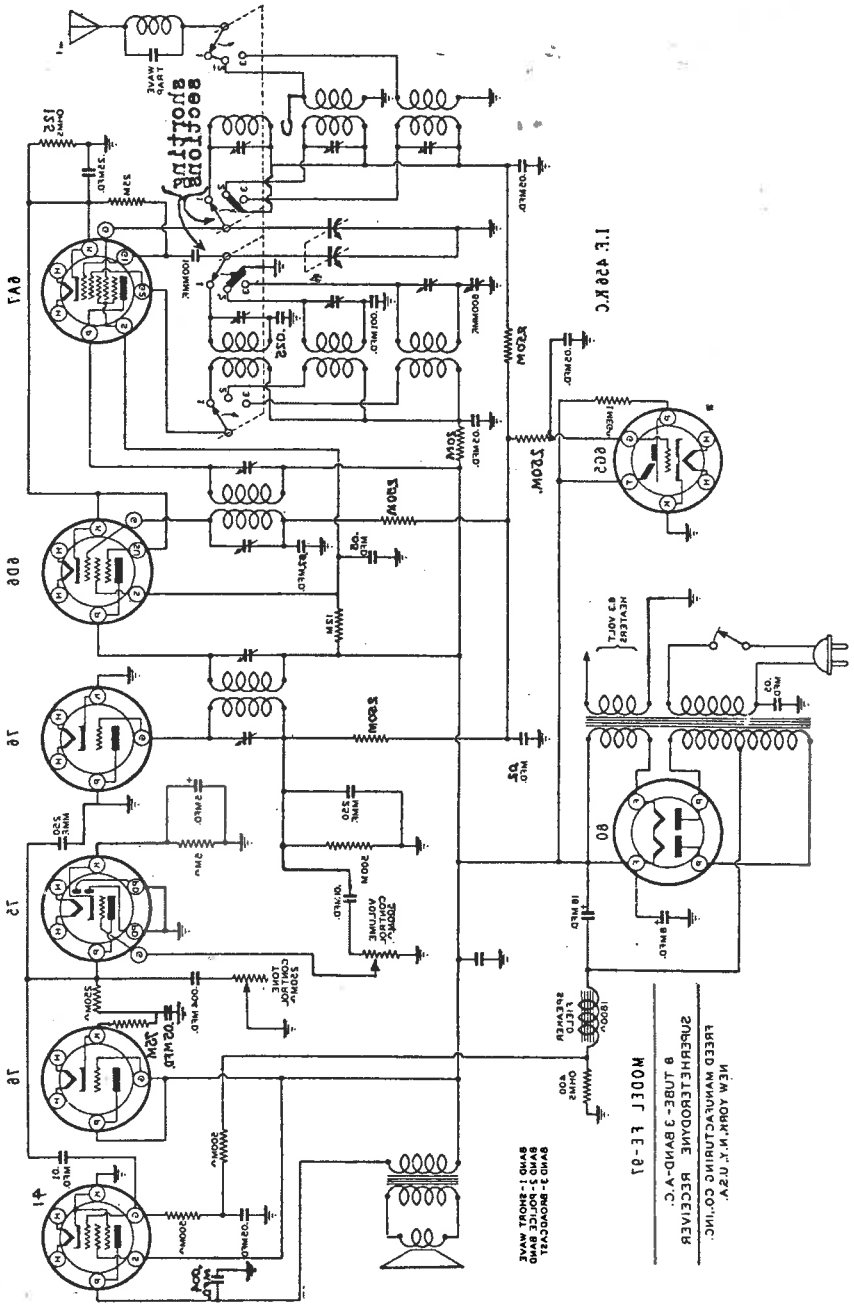
In the early days, when valves were very expensive, reflexing was common, with varying degrees of success. In later years AWA in Australia used reflexing by combining the functions of the IF, detector and first audio stages in one diode-pentode valve which actually performed three functions. As well as the royalty saving, this gave one of these receivers an advantage when its performance was compared with a conventional set using a similar number of valves.

On the other hand, "more is better" seems to have been the philosophy with many sales pitches, and in the case of standard superhets this might have been the case. If the difference between five and six valves was the addition of an R.F. stage, the sensitivity of a receiver, could be considerably improved, although in urban locations this extra performance was usually not necessary. Most New Zealand manufacturers were up front on this and larger sets usually had an R.F. stage, but although generally included in the valve count, magic eye tuning indicators did not contribute to performance.

Inflated Valve Counts

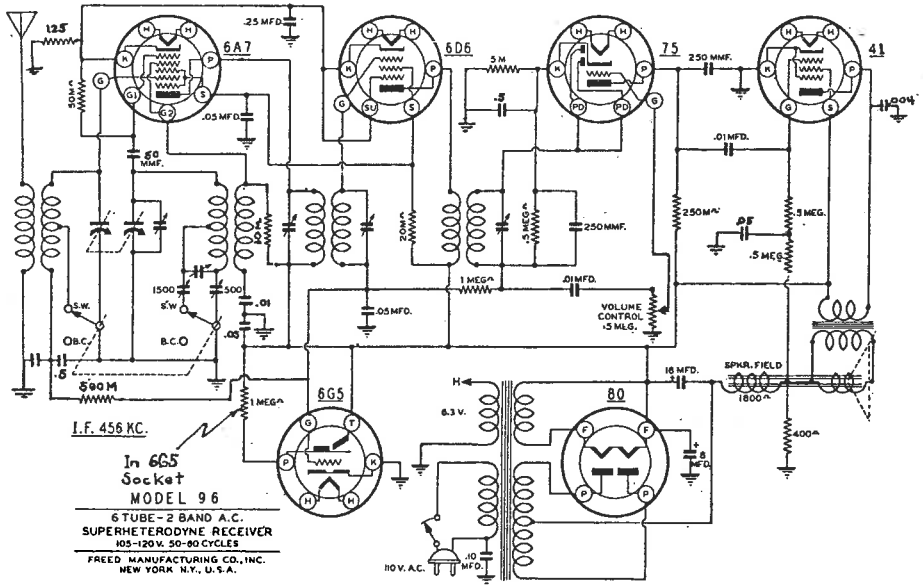
In America, where valves were much cheaper than in Europe, and competition demanded hard selling, some manufacturers were not above massaging the valve count by including redundant valves that provided no extra performance. Midwest was notorious for producing quite enormous receivers of 20 valves or more. Such features as 4 output valves, multiple rectifiers and elaborate automatic frequency control circuits were some of the tricks used to inflate the count and even some valves that had little purpose were fitted. I was recently reminded of this latter practice when I was browsing through Rider's Manual 9 where a circuit different from the usual run-of-the-mill caught my eye. It was for a model FE 97 by the Freed Television and Radio Company, which had its origins in Freed Eisemann, a major manufacturer before the 1929 stock market crash.

The published circuit of the FE97 circuit is shown overleaf. Drawing the valve cathodes at the top was a fairly common practice during the late 1930's. Another convention of the period was to use M rather than k to denote 1000 in resistor values. What caught my attention was the unusual draughting of the audio stages and further study showed that although described as an eight valve receiver it was basically a simple 5 valve plus magic eye set! Here was a classic case of an inflated valve count, with one unnecessary detector valve plus an ingenious but hardly honest use of another valve. The confusing layout of the circuit was I suspect, deliberate, as a conventional drawing would have been a bit too revealing.

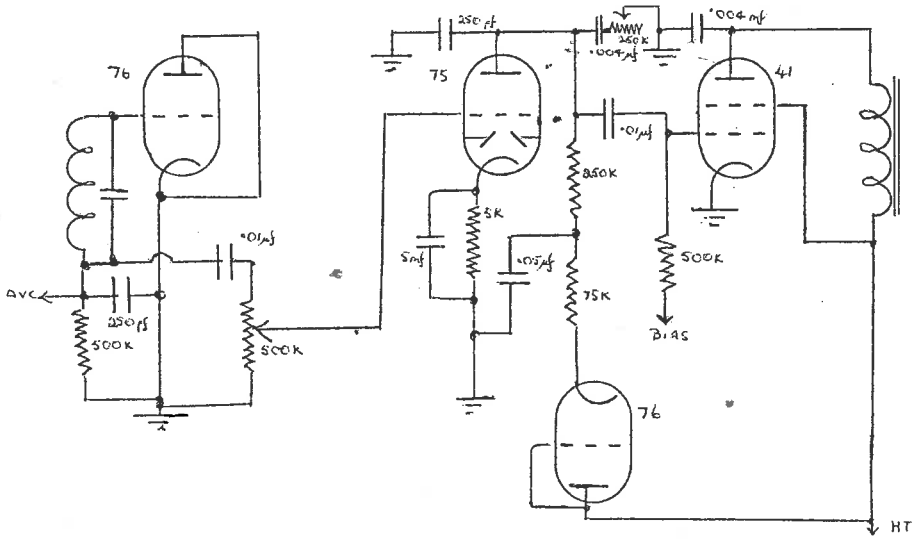


Looking at the circuit we see that the 76 triode following the 6D6 IF stage has been used as a diode with the grid connected as the anode and the regular anode earthed. The following valve is a type 75, a high mu triode audio amplifier with a pair of unused diodes which could have been used for their intended purpose as the detector. As a diode, the 76 would have no advantages over the diodes in the 75. Instead, we have a fairly common ploy to use one extra valve, and in fairness to Freed, a sizeable number of manufacturers used similar configurations. I cannot off-hand recall a receiver made outside of the U.S. employing this subterfuge.

However, the Freed FE97 receiver went further. The 75 functions as an audio amplifier only, but the function of the next valve, another 76 is, to say the least, unusual, as it is connected as a diode in series with the H.T. supply to the anode of the 75 and serves no useful function. This was a crafty way of including a redundant valve because, although it contributed nothing to the receiver's operation, pulling it out would stop the receiver working.



For comparison, on the same page in Rider is a circuit of a Freed model FE 96 (above). This set is very similar to many dozens of 5 valve plus magic eye receivers of the mid to late 1930s. A little study shows that this circuit has all the essentials and was quite possibly the 'parent' of the FE97. The receiving performances of the two receivers would have been identical. One can only conclude that the FE 97's two extra valves were a rather ingenious if not dishonest way of increasing the apparent status of the receiver at minimal cost to the manufacturer.



The above conventional drawing of the detector and audio section of the FE97 makes the redundancy of the two type 76 valves very apparent. The 75 valve has a pair of unused diodes whose function is taken over by the diode connected 76 detector. Not immediately apparent, the 76 preceding the output stage is a diode in series with the H.T. supply to the first audio valve and as such serves only to inflate the valve count.

In contrast with the AWA reflexed receivers, where one diode-pentode performed three functions, the FE 97 used three valves to do the job of one diode-triode!

Obituary

The V.R.S. has lost a veteran member in the passing of Patrick Luke Robb. Pat joined the V.R.S. in 1982.

Synonymous with Patterson radios for which he had a deep passion, he was renowned for his generous spirit and helpful demeanor. A small man, a quiet man, but a man with definite opinions and a deep faith.

The family wish it to be known that the Patterson collection will be kept as a whole, so we have not seen the last of his passion.

On behalf of the V.R.S. we would like to send our condolences to the Robb family. He will be missed.

Rest in Peace.

THE ADVENTURES OF A TRAVELLING RADIOMAN.- part 3

As a Post Office radio technician, Bill Heinz was stationed for 12 years in Christchurch. Among his duties was the very considerable radio maintenance and fault clearance work in Westland. Post Office radio installations in the 1950's spanned the West Coast from Karamea in the far north to Haast in the south. Included in the work were coastal radio, shipboard installations, aeradio and radar installations. A typical Westland routine visit would take about three weeks and involve a complete traverse of the Coast finishing up at Haast.

Haast, a very large Ministry of Works camp had been in existence since the 1920's. Its purpose was to construct the road through to Otago and also to Paringa, the road ending of North Westland. Bill regarded Haast as the last outpost of the British Empire. It could only be serviced by sea and air. Road access to Otago and subseqently to Paringa was not completed until the early and mid 1960's.

Bill continues with his adventures.

A Flying trip to Haast

The twin engined biplane, the 'De Haviland Rapide' otherwise known as the 'Dominie' would take off from Hokitika shortly after the arrival of the railcar from Christchurch. It was a very informal embarkation and off we would go. My first trip in it was my first time in the air so you can imagine my elation. The plane headed south following the coastline flying at an altitude that enabled a detailed study of the terrain and also of the Southern Alps. However this was never ever a routine type of flight unless the plane was fully loaded, and never ever if only locals were on board. I think that I may have been classed as a local for my presence never seemed to affect the pilot's intentions. I formed the impression that he had flown fighter planes during the war and wanted to re-live some of his past. We dive-bombed the odd farm yard while he delivered the newspapers, would circle anything of interest, buzz a nearby fishing trawler or anyone fishing in a dinghy on Okariti lagoon.

My best trip from Haast, was when, being the sole passenger, I asked the pilot if he would fly inland between the foothills and the Alps. He said that the conditions were not suitable and headed out to sea instead. I would sit immediatly behind the pilot watch him fly and study not only his control panel but also his aviation map. This was real flying to me. Suddenly he put his plane into a power dive, he was buzzing a large fishing trawler, the altimeter was spinning like a top, in we went for the low level torpedo type run, the top-trees of the ship went flashing by the wing tips while the crew greeted us with waving arms. Pulling back on the stick up we went on full power, the twin engines roaring, up and up on a straight path until he suddenly levelled off. My brains hit the top of my skull and it was only my seat belt that held me, I had to grit my teeth and hang on to the arm rests under the powerful negative G force. What a thrill. Inland we headed to look for a bulldozer that was carving its own track from Paringa to Haast. (It took three months to get there, winching itself up and down the steep bluffs). Up the valleys and gorges we flew, the wings flying past the tree tops, up and almost gliding silently over the saddles, down the next valley. This was flying!

Bill moved to the North Island in 1960 and subsequently to Dunedin in 1963. At Dunedin he found that he had inherited Haast again as the road to Wanaka had been completed and Haast was transferred to Dunedin to look after. In the following extract from his memoirs he recounts the story of the opening of the road between Haast and Paringa.

THE BIG OPENING

November 1965 was the great day for Haast and the beginning of its evolution from a Ministry of Works camp. The road north was finally completed at Knights Point and the official opening was to be an historic climax to the work. A work that commenced well before the war began in 1939. The opening ceremony was to be held at the Point with a finale at Haast.

The Post Office undertook to provide a teleprinter press service to Wellington for both events. A team comprising a radio technician, a telegraph technician, and a teleprinter operator from Christchurch had set up a radio transmitting station at Knights Point in a motor van to serve the ceremony there. They had a caravan for accommodation. I was at Haast making an RCA high frequency radiotelephone transmitter ready to receive the teleprinter connection when that team came down after the opening.

I had arrived one day before in case I had trouble with the equipment and could stay only one night at the small guest house that had recently been established there as all accommodation on the night of the opening was fully booked. I had taken a camp stretcher, bedding, cooking utensils, food and a primus stove so that I could camp in the radio room at the Post Office overnight before my return to Dunedin.

I completed the technical work, checked the circuit out with Makara Radio and had cabling arranged for quick connection to the mobile teleprinter van when it parked outside. Idle time was spent helping to stamp the many bags of first-day mail that littered the Postal Section, even a Police Constable volunteered for this work.

The coast road at Knights Point was duly opened and hundreds of cars poured into Haast, the first over the new road. With them came our mobile team in their van. The temporary telegraph service to Makara Radio was a success from both stations. When the last press reporter had finished for the day I closed down the station and we retired for the refreshments and our own celebrations.

The Ministry of Works had erected a huge refreshments bar out on a grassy flat. It consisted of many poles and beams covered by tarpaulins. It could cater for hundreds, and it did and it was full. The weather was fine for the opening ceremony but now it rained, real West Coast stuff, it came down in bucketfuls, steady and reliable. The once tightly stretched tarpaulins sagged to head height with the weight of collected water and had to be pushed up regularly to empty them. Under-foot became messy and outside where one had to obey the call of nature, which was often in this situation, became a quagmire. People slid over in the mud but returned quite nonchalantly to the bar for more. The atmosphere of the moment, how often does one experience this kind of thing? No one complained, the bulk of the people were from the lower West Coast and what was a bit of rain or for that matter, mud.

It was different when news came through that the new road, opened that morning ,was closed in the afternoon. A land slip had come down at Knights Point and could not be immediately cleared. Consternation, where would these hundreds, may be even in excess of a thousand stay, there was no more accommodation available. I talked to people who had come only from Paringa and the glaciers area. They were returning via Otago that night they said. I thought of all those many hundreds of miles and the Otira Gorge just to return the 'as the crow flies' a distance of about fifty miles up the coastline

The mobile team from Christchurch was also trapped, as were the two postal workers from

Hokitika. I was OK - I was self-catering. Some bedding was rustled up, the radio/telegraph team had the foresight to use their sleeping bags to protect equipment in the van so they were OK. I don't know where the extra food came from to feed this multitude but it was no miraculous expansion of what I had. I had this unexpected company for the night in the accommodation that I had booked, the radio room. We had a meeting to determine who the snorers were and cast them from the radio room to the postal section for the night.

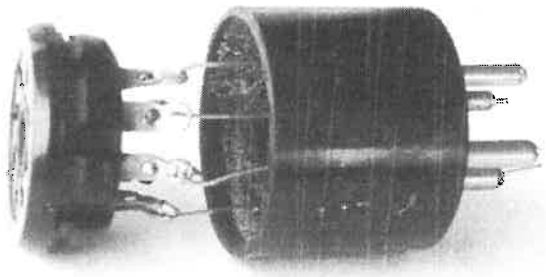
Next morning it was still raining but the road was duly cleared and an exodus north began. By the time I departed, about midday, Haast had returned to its normal self and I seemed to have the pass through to Otago all to myself.

MAKING VALVE BASE ADAPTORS

Murray Stevenson

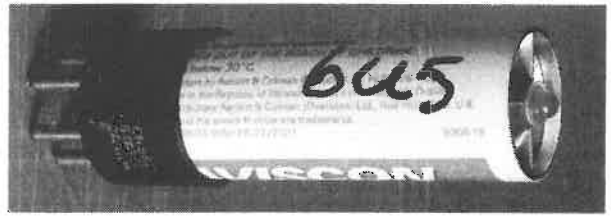
Shortage of a particular valve often makes it necessary to use an electrically similar valve which has a different base. While the valve socket concerned can usually be changed this is often a long and difficult operation which can be obviated by using an adaptor.

Such an adaptor can also be made for testing a valve in a tester which does not contain a suitable socket or as a converter for speaker plugs.

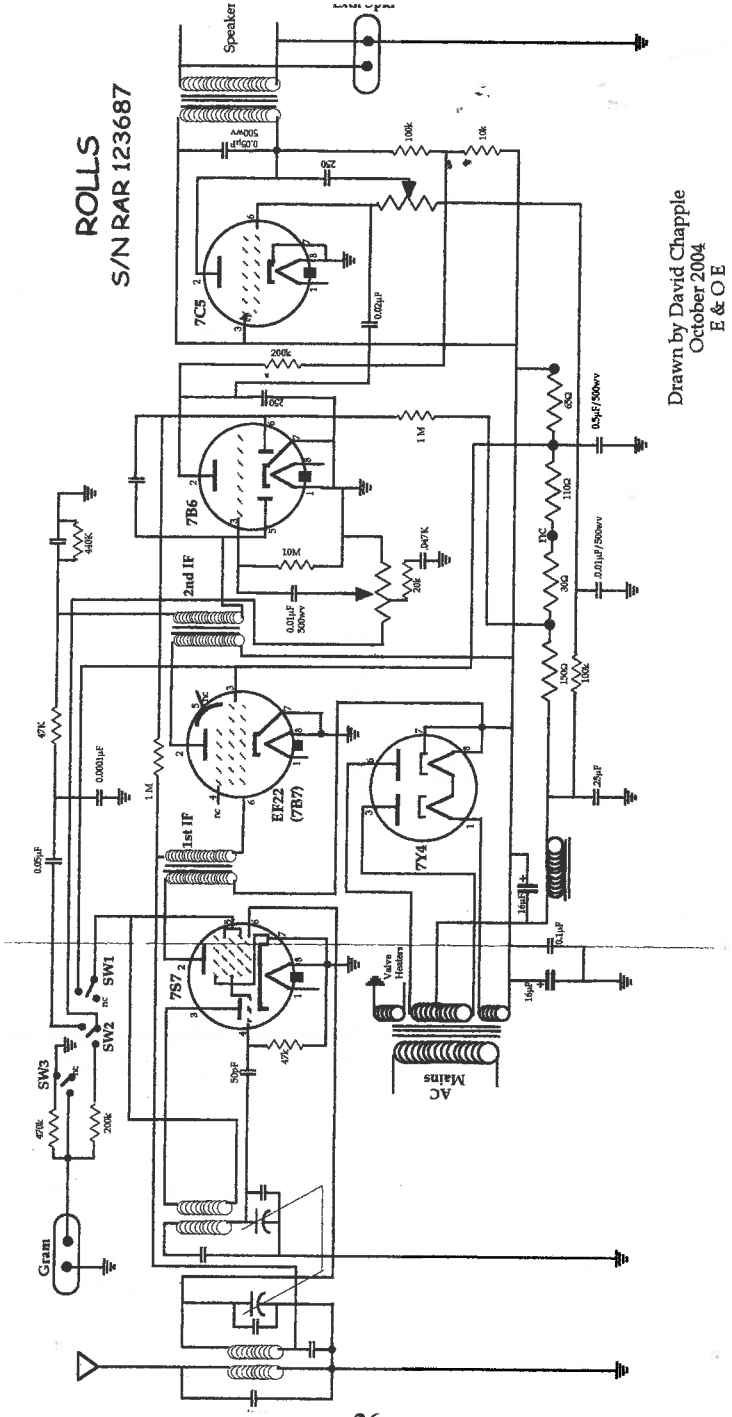


Adaptors can be constructed using valve bases removed from failed valves, especially those having the base cemented to a glass envelope. The diagram illustrates the method. 30 amp fuse wire or similar tinned copper wire can be used for the interconnections. Once these are pulled tight and soldered to the base pins Araldite or similar adhesive will fix the socket to the base and make a rigid assembly if required.

SOLID STATE MAGIC EYES



In August 2001 George Newlands described a method of constructing a solid state magic eye. The mechanical construction (pictured at right) uses a six pin base from a worn out eye and a tubular plastic container that once held indigestion tablets. The electrical components are mounted on a small piece of Veroboard held in the valve base by the four lead wires with the LED mounted so as to protrude through a hole in the bottom of the plastic container after it is fitted into the valve base, thus making a neat unit which plugs directly in place of the original valve. This mechanical construction could also be adapted for Cliff Wright's multi-LED magic eye replacement described in August 2004.



The Musings of a New Boy on the Block

David Chapple, Christchurch. canda@netaccess.co.nz.

I'm a newcomer to the NZVRS having only recently discovered, quite by accident, that such an organisation actually existed. I am renewing my interest in radio which began fifty years ago when I first built a Hikers One set. Since that time my career has occupied my time to the extent that forays back into the world of radio were sporadic and fairly short-lived. In that time the valves have been left far behind giving way firstly to transistors and then to integrated circuits and PCBs. Now I'm retired I have returned to my interest and begun restoring old valve radios. I got much satisfaction from my first effort, restoring a 1938 Columbus Model 38. Somewhere along the line it had been butchered but with the aid of the circuit diagram from our librarian, Ernie Hakanson, the set has been returned to its former glory.

My second restoration is a Rolls RAR. On this occasion I was unable to locate a circuit diagram so I set to and with the aid of my computer drew the components and came up with one. It probably falls short in some respects because I fancy I have broken with established drafting protocols. Certainly my windings are unique! But if anyone else is restoring this model Rolls I reckoned it would save a lot of trouble and frustration if I shared my effort (*opposite page. Ed*).

Both these restorations required extensive under-chassis work. In fact with the Columbus every component was removed and the radio rebuilt. Although I kept detailed drawings of everything as I worked I found my digital camera a most helpful instrument. I took shots of every detail so that the reconstruction was as near to the original as it could possibly be.

There are very likely others like me out there who lack the depth of experience, expertise and understanding of those whose lifelong careers have been in the radio industry or those who held amateur radio operators licences during the vacuum tube days. I heartily agree with Hugh Hanna of Christchurch who, in the May 2004 edition of the Bulletin, points out that as the old hands disappear, experience and expertise goes with them. Members who have this knowledge and expertise have an important responsibility to ensure that it is kept alive and passed on to new members. The Bulletin goes some way towards achieving this but there is nothing like rubbing shoulders with the old hands, picking their brains and asking what must seem to them, dumb questions. After all, a society is an *association of persons.*

As a beginner in radio restoration I had so many questions I needed to find answers to, such as: How can I find out valve pin connections? Where do you get grill cloth from? Where can I get replacement valves from? What about 1 Watt resistors or high voltage electrolytic reservoir and smoothing capacitors? Can you still get electrolytic can capacitors? If not what's a good substitute? How does the A VC circuit work? Is it still possible to obtain shielded cable and sockets for grid caps? Are electromagnetic loud speakers still available? Where would I find a valve tester to tell me if a valve is OK? There's an intermittent fault that goes pop-pop-pop-pop. What's causing that? Where do I begin? And so it goes!

I suspect that there are many members out there who, like me, only have a limited knowledge of valve technology and radio theory and who are eager to learn more. Who are the experts out there? Are they willing to share their expertise? How best can this sharing take place? In addition to the Bulletin it occurs to me that email might be a great way to start if only we knew the addresses of those willing to act as mentors. Another thought, could NZVRS host a bulletin board where members seek answers to their questions? While I'm very happy to share what little I know, there are others out there whose knowledge is vast by comparison.

LETTERS TO THE EDITOR

Bulletin Cover Page

Re comments sought about the Bulletin front cover (title) page.

My first observation was "what country"? And a rather bland look. I realise that the Editor has the 'right' to make changes to contents etc.

There has been several versions over the years, some rather eye catching ones like Vol.9 No. 2. and my little addition to the scenery Vol.14 No.3 plus the expensive colour one, Vol.11 No.1. The story goes... 'nothing like a change'

Please at least have the words 'New Zealand' or maybe something like my letterhead with Vol. No. and date added.

Now a bit of sad news Patrick Luke Robb a member of the NZVRS since March 1982. passed away after a short illness on January 4th.2005. He was a rather quiet person and had a particular interest in Patterson Radios. He had the early model a *PR* 10 and the later *PR* 15, found at an Auckland Regional Authority refuse tip, for which I supplied a set of knobs. Several NZVRS members attended his funeral service.

Bryan Marsh, Life Member

Bryn's letterhead includes the NZVRS badge (shown above). Ed

Radio and Ladies

As supplier of the photograph on the front of the NZVRS Bulletin Vol 25/4, I am able to add some further information. It is from the book "Tratado de Radiotelefonia" by E Nesper, and delving further into the Spanish, I find it is a "Radiola" set with a frame aerial and four valves and was made by the Societe Francaise Radio-Electrique of Paris. The spherical valves probably date it in the early 1920s.

I am afraid that I cannot add more about the young ladies who are presumably French or Spanish and no doubt dressed in the latest fashions!

Dick Stevenson, Auckland

Military Radio Numbering

The ZC1 and ZC8 do not represent the 1st and 8th radios for the New Zealand Army. The numbers indicate the function of the radio as defined by the British numbering system originally formulated in 1929 then revised in the late 1930s and revised again during WW2.

This is for all Army wireless sets and is abbreviated to WS No. followed by a number.

New Zealand, Canada and Australia followed this system and added a suffix to denote country of manufacture (Cand.) or (Aust.) however New Zealand used ZC instead of WS.

The system is organised by function:
No.1 Short Range Brigade/Artillery/GP
No.2 Short Range Division/GP
No.3 Medium Range Corps Mobile Set
No.5 Long Range Transportable GHQ/Base Set.
No.6 and No.7 Special Types
No 8 Infantry Battalion manpack set.
No.9 Armoured Fighting Vehicle set.
As new and better sets were introduced, the last digit remained the same but was

preceded by another number. For example the original AFV set was WS No.9 but subsequent versions were 19,29,39 and 49.

The ZC1 would fit into the category of WS No.1, WS No.11, WS No.11(Aust), WS No.11(Cand) and WS No.21.
The ZC8 would fit in the category of WS No.8, WS No.18, WS No.28, WS No.38, WS No.48, WS No.58(Cand), WS No.68, WS No.78, WS No.88, WS No.108(Aust), WS No.208(Aust).

There is some overlap in the WS No.1 and WS No.2 so there may have been a ZC2 but the example in the photo looks strange with that telephone dial, which may be unoriginal.
Ref. Wireless for the Warriors by Louis Meulstree

Ray Robinson VK2ILV

WWII SW sets

A friend of mine is completing a book about his time at SEAC Radio in WWII and he's come up with an interesting query about WWII Shortwave radios built in NZ and used by British and Commonwealth troops in Asia from 1945 onwards. Could you pass this query on to anyone who may know the answer, or possibly include the query in your next magazine?

Eric writes: One of the chapters in my book is on radio receivers. As you may know, there was a serious shortage of suitable sets for the troops and this is well covered in the Public Record (UK) files. One of the problems was that quite a few simple receivers in those days had no shortwave band, so whilst they could receive the majority of AFRS stations, Radio SEAC (South East Asia Command) was impossible.

Some sets were obtained from the USA, others from UK production, but UK facilities were busy making the latest radar sets and other electronic gear, so there was a question of priorities. The sets were mainly described without a makers name and often no reference number, so it has been almost impossible to identify particular sets. They often simply had 'mains' or 'battery' as the description.

However, I have to admit I was a little surprised to find that some sets came from NZ. A monthly summary for March 1945 reports that 900 sets had come from the USA and 1500 from NZ (no other details).
The report in September 1945 said that out of a total of 9046 from all sources, 3444 sets were from NZ and described as Type B No.1.

I'd be glad to know anything at all about these sets.' If anyone has any info, they can contact me here at info@radioheritage.net (or PO Box 14339, Wellington), and I'll gladly pass on the info or contact details to Eric in the UK.

David Ricquish

David is a member of the RDX League which is an NZVRS member. Ed.

The Australasian Plug

Following on from Murray Stevenson's excellent articles on the Australasian three-pin plug and socket, I notice that mainland China is in the process of adopting the same plug. No doubt the advantage of an earthed supply (They use 220 volts and 50Hz) has been realised and this is part of their commitment to entry into the World Trade Organisation.

There are slight differences however, as the Chinese plug has pins 1mm longer. Although the Australasian plug is also used in New Guinea, the Cook Islands, Kiribati, Vanuatu, Tonga and Western Samoa, it is not often realised that the same type of plug, with two angled pins, is used in Argentine and Uruguay. The pins are again 1mm longer but the wiring of the socket has the live and neutral contacts reversed. So in an overseas appliance where only the live wire is switched, a dangerous condition can occur.

Dick Stevenson, Auckland

MARKETPLACE

Advertisements for the next issue must reach the editor by the 16th April 2005. Ads must be either hand printed, typed on a separate page or emailed. No verbal or phone ads. Remember to include your name, address and phone number. There is no charge for ads but the NZVRS is not responsible for transactions between members. Address ads to Reg Motion, 2A Hazel Terrace, Tauranga, New Zealand or email regmotion@xtra.co.nz

AVAILABLE

I will be staging a second garage sale of about 100 vintage radios (mostly1930s models) including tombstones, consoles and chests on February 12th commencing at 11am sharp. Along with about 100 radios will be some test equipment and boat anchors plus spare bits and pieces including capacitors, resistors speakers, transformers, spare chassis, etc. Like my first garage sale there will be something for everyone including a few surprises. Don't miss it. Gordon Baker 101 Hinewa Rd, Otumoetai, Tauranga 3001, Ph 07/5767889, email bakerz@paradise.net.nz

Plain unprinted valve cartons, small and GT, $10 per 100, medium $12 per 100, large $18 per 100; all plus postage. Any amount supplied. Please contact Paul Burt, 44 Hastings St West, Christchurch 8002.
Ph. 03/9607158 or fax 03/9814016 (note new numbers).

Two Klipsich corner speakers of 1930s vintage. These efficient speakers were required to give a good output from the low wattage valve amplifiers of the time. They reproduce down to at least 20Hz. $350 (will need trailer). John Pettit, 22W Aratonga Ave, Greenlane, Auckland. Ph 09/5242115.

Following transformers, 230/75V aside, 40mm core, 3-4A, new: 230/0-10-20V, 0-10-20V, 1.2A (XF25) new: Multiple 230 mains in/12V/0/12V out, 1A, new: 230/10-0-10, 10-0-10V out ~300mA: $100 the lot.
Also Variable input 230/after rectifiers can deliver DC 20V, 135V, 12V, 20V: David Reid D1353/2, 230V/27V AC aside. $50 the lot.
Bill Lambie, 73 Poole St, Motueka, Ph 03/5284189, email dinewil@xtra.co.nz

"Official Radio Service Manual 1936" hardbound and in good condition. $100. Brian Craig, Ph 07/8809770

WANTED

Photos or pictures of control knobs for a Beale 53 - 1882 console receiver also yellow colour speaker cloth (the original was a gold colour with a musical motif in the pattern). Ted Southon, 574 Radium St., Broken Hill, NSW, PC 2880, Australia.
Ph. 061/880874574

Chassis, any condition, for a 1931 Atwater Kent model 84 Golden Voice, also a chassis (any condition) for a 1930s Zaney Gill Music Box. I have two very good cabinets for these radios but they were less their matching chassis when purchased. Albert Smith, 5 Lulworth Lane, Westmoreland, Christchurch 8002. Ph 03/3398488 email alberte@c3.net.nz

Circuit diagram for a Columbus 26 P mantle radio. Stephen Tilley, RMB 8193 Hunts Rd, Willowgrove, Victoria, Australia 3825. Ph 56352431. email sgt3825@yahoo.com.au

Weston model 770 tube checker handbook to borrow for hand copy. Peter Byam, RD.2 Waverley 5182. Ph 06/3465321

Speaker (chassis mounted), dial and knob for a 5M4 Clipper. Leo Robertson, 12 Essex St, Stratford, Taranaki. Ph 06/7656834.

Dummy antenna/ termination pad type TP.1B for Advance type E2 signal generator. Murray Stevenson 2/133 Parrs Cross Rd, Waitakere 1008. Ph 09/8133565.

Circuit and service information on National-Panasonic RF-5000 receiver (an early 10 band transistor set). Please contact John Walker, 19 Athol Tce, Christchurch 8004. Ph 03/3489084, Fax 03/3489480.
email staf169@ext.Canterbury.ac.nz

6336A tubes/valves. The special coolers would also be appreciated. Jack Whittaker.
email jack_whittaker@hotmail.com

Information on H.C.Urlwin Ltd as regards to "Titegrip" plugs and sockets etc. Perhaps someone worked there or knew someone who did. Information is wanted on the first catalogue, price lists, when did Urlwins start and finish moulding Sturdee products and any other relevant information as well please. Radio Ltd circa 1948/50 used a one piece top entry open terminal type with a circled "c" on top. If anyone can help with information, expenses will be met. Murray Stevenson, 133/2 Parrs Cross Rd, Glen Eden,Waitakare 1008. Ph 09/8133565.

Valves for battery set restoration, RCA 01A's or Philips A609's. For Zenith shutter dial restoration; complete dial mechanism, dished dial glass and set of knobs. Crosley chassis to fit Crosley cabinet I have - space available (in inches) 14.5" wide 9" deep.
John Pettit, 22W Aratonga Ave, Greenlane, Auckland. Ph 09/5242115.

Circuit diagram and/or manual for Sphere model 1 signal generator. Circuits of Exelrad kits - these usually use Columbus/Courtenay coils and power transformers; some circuits are identical to Radio Corp circuits but some have potential dividers across negative speaker field to bias output valve. Some kit numbers are 5B2, 5D3, 5D2, 6D, 6A, 5B3; also Ensign kits, i.e. Empire 5. Any other information would be appreciated. Murray Stevenson, 2/133 Parrs Cross Rd, Waitakere 1008, Ph 09/8133565.

Circuit diagram for Luxor CDR, 5 valve dual wave 1938 vibrator radio. Circuit for Mallory vibrator unit6V 5pin type 45c (see MGA page 133 where the radio is shown as CDU 1938. John Marris, 19 Kingsley Plc, Richmond, Nelson 7002. Ph 03/5448272,
email jovimarris@xtra.co.nz

FROM THE LIBRARY

The following are title and key points from articles published in other vintage radio magazines received by the NZVRS Library. Photocopies of these articles are available to members at $1 each from our Librarian, Ernie Hakanson, 17 Williamson Ave, Grey Lynn, Auckland. Ph 09-3766059

820 The "Jewel in the Crown" Eddystone 830 Receiver. Photos, description, block diagram. Radio Bygones June/July 2004, p16

821 The Heathkit IG-72 Audio Signal Generator. Photos, description, specification. Radio Bygones June/July 2004, p28

822 The American Museum of Radio in Bellingham WA. Established 1989 and carries some top exhibits of early radio. Photos of exhibits. Canadian Vintage Radios May/June 2004

823 The AWA Radiophone of 1924. Photos, description. HRSA Radio Waves, July 2004 p4

824 Rockbank, Fiskville and the beam wireless - part 2. photos, description, details of Franklin antenna. HRSA Radio Waves, July 2004 p8