NZVRS BULLETIN

Vol 44 **2023 Annual**

Arnrite one and two valved radios.

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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NZVRS LIBRARY
The NZVRS librarians are Bruce Churcher, and James Davidson. Requests may be sent to the NZVRS Library, PO Box 13873, Onehunga, AK 1643
or Email: library@nzvrs.pl.net

THE NZVRS BULLETIN is a membership magazine only. Contributions are always very welcome. Any opinions expressed by writers are not necessarily those of the Society. Any feedback, contributions, letters, suggestions etc can be sent to:

THE NZVRS EDITOR
NZVRS Editor, P.O. Box 13873, Onehunga, Auckland 1643 Email: nzvrs@pl.net

ASB Bank account 12 3067 0168223 00

A Calendar of Events is listed on our website at **nzvrs.com/calendar**

AUCKLAND MEETINGS are held on the **third Monday** of each month, at the VHF Clubrooms, 30 Hazel Ave, Mt Roskill / Three Kings from 7.30pm with the exception of the July AGM which is held on a Saturday (8 July 2023).
See the website calendar for details.

TARANAKI AREA MEETINGS are held on the **second Sunday** in even months. Visitors most welcome; contact either Bill Campbell, Phone 06-753 2475 or Graeme Lea, Phone 06-758 5344

WELLINGTON MEETINGS are held typically from 1.30pm the **second Sunday** of every month at the Petone Community House, 6 Britannia Street, Petone. Contact: John Hunter. Phone: (04) 568 4202
Email: huron@xtra.co.nz

CHRISTCHURCH MEETINGS are held on the **first Thursday** of every month except January, 7.30pm at the NZART Branch 05 Clubrooms, 5 Idris Rd, Fendalton. For further details contact John Dodgshun, 12 Natalie Place, Christchurch 8051. Phone: (03) 355 5308
Email: jandjdodgshun@gmail.com

SUBSCRIPTIONS:
The subscription year is a calendar year ie 1 January - 31 Dec. Subscription renewals are sent with the year-end Bulletin. The NZ Rate is $30, with early-bird renewal reductions as applicable. The colour email E-version bulletin is available at the world-wide rate of NZ $25 - where an email is sent with a link to the latest issue. Note these files may be up to 25 Megs to download.

EDITORIAL

This has not been a good period for the editor and this bulletin is seriously late; however, it does have a relatively wide selection of items. On a sadder note, we seem to have lost a significant number of members; current and past, noted below and we include obituaries for some of them.

Many thanks to our contributors to the bulletin, it is always a pleasure to receive material, interesting ideas, snippets or articles and we are fortunate to have a number in this issue. Enjoy!

As always, take care and stay well.

Cheers, David

Noted Passings

Ian Mawston	Auckland
Cliff Dittmer	Waikato
Neville Grubner	Wellington
Ian Johnston	Tokoroa
Brian Palamountain	Nelson
Roger Iversen	Auckland
Ewen Herbert	Auckland
Kelly Waterman	Auckland
Dave McLaren	Dunedin
Peter Lankshear	Invercargill
Barry King	Auckland
Bob Cook	Auckland
Also noted;	
Peter Jensen	Australia
Ron Ramirez	USA

Cover Picture – Arnrite receivers – one and two valve receivers on a simple frame.
See the story on page 47 within.

"Alas! for his lidship, McBolts
The last of a long line of dolts.
His reflex 'I'll grab it!'
Became such a habit
He shook hands with three
thousand volts."

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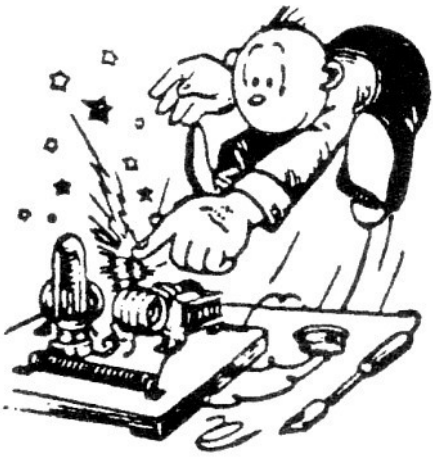


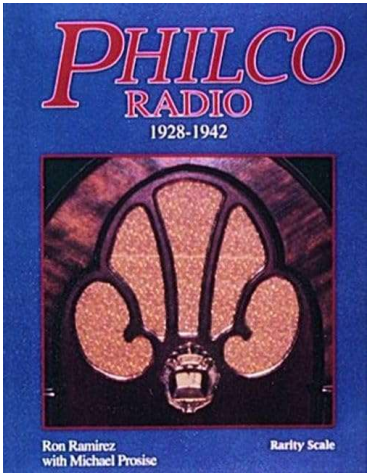
Passings & Obituaries:

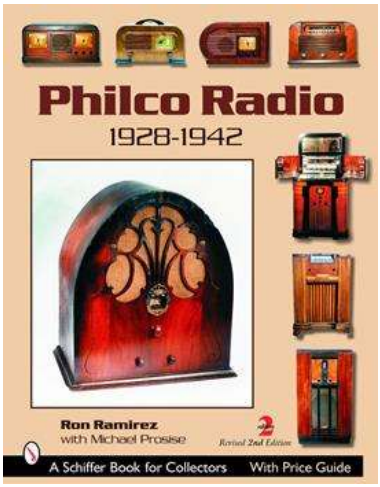
Ron Ramirez - of Philco Phame

Ron passed away on the 23rd of November 2023 - a sad loss to the Vintage Radio community worldwide.

Many may be aware of Ron through his work to preserve and promote the history of the Philco name and products. He wrote the bible when it comes to Philco products - his book on Philco Radios is a must-have for Philco collectors and restorers, and he also started the Philco Phorum, which is an invaluable resource on all matters Philco.

https://www.philcoradio.com/phorum/ and also see https://www.philcoradio.com/





NZVRS President's Report AGM 2023

Welcome to our 2023 Annual General Meeting, held at the Onehunga Community Centre. Thanks to all attending, and regards to all our members who are unable to attend.

This year we have farewelled Albert Kinnell, Ian Mawson, Neville Grubner and Roger Iverson all now deceased. I attended Albert Kinnell's funeral in Orewa and it was a good send off. Neville Grubner's brother Lex has been in contact and intends to have Neville's vintage radios relocated to Auckland for auction at a commercial auction house. Roger Iverson's brother David calls me occasionally, he has to clear stacks of books, non-radio related ones, in order to reach Roger's radio equipment. Phil McGechie's brother Ian is planning to get Phil's radios from storage in Paeroa to the NZVRS to sell.

More recently our NZVRS library was moved from Ralph Kearton's care and storage to a new location, where further sorting can take place. Thanks to Ralph for the storage in the past years and to David Crozier for organizing the new storage place, and thanks to those assisting in the relocation. More of that in the librarian's report.

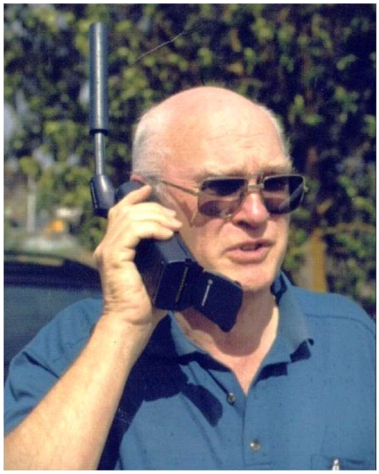
Our new monthly meeting place at Mount Roskill in the Branch 66 VHF clubrooms seems to suit most members.

Thanks to David Crozier for all the "above and beyond the call of duty" tasks he performs, and to all the rest of the committee and helpers.

Looks like we will have an interesting year ahead.

Regards, Ian Sangster

Rodney Donald Champness VK3UG, 4/01/1940 to 20/09/2022 (aged 82)



Rodney was brought up in rural Australia – schooled initially in Lillimur, Kaniva [near the Victoria / New South Wales border about half way along the rail line between Melbourne and Adelaide.] The school was a one classroom, one teacher, with fewer than 15 students affair, so all grades were taught in the same space - perhaps now called “open plan”. Rodney was easily able to absorb higher levels of learning from the activities around him.

After his family moved to near Mundulla, South Australia, his education continued at the Bordertown High School. Meanwhile his interest in wireless was sparked and after a few years of work on the farm and keen radio experimentation, he left for Melbourne when he was accepted into the Marconi School of Wireless at age 18.

After graduation he joined the Postmaster Generals' Department. Part of his training was to work at the ABC Studios as a Control Booth Operator. After marriage, he moved to Sale, Victoria, working at the 3GI transmitter site upgrading it to remote control operation.

In 1966, Rodney volunteered and was selected for the post as the Communications Officer at the Australian Antarctic base on Macquarie Island. *[Located below the Auckland Islands and half way to Antarctica. The Island was used as a half way point to establish the first radio link between Australia and Antarctica during Sir Douglas Mawson’s 1911 expedition. It’s now a world heritage site. Ed.]*

He spent 13 months on the base and now being a ham, used his station with callsign VK0CR for more personal communication back to the Australian mainland for the party.

Upon his return from Macquarie, he was sent to Warragul (Victoria) as a Radio Inspector. He spent time within the Department carrying out Marine Surveys and checking radio and electrical equipment onboard ships and boats of all sizes.

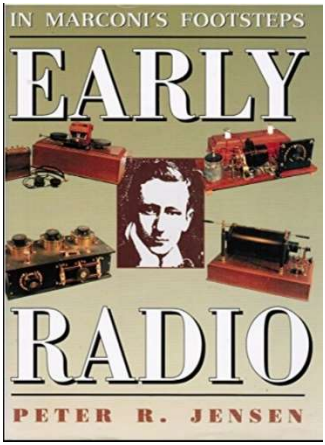
In 1976 he was transferred to Benalla (Vic) as a Radio Inspector. When the office was relocated to Wodonga, Rodney resigned and relocated to Shepparton (Vic) in 1999 to join the technical staff at Radio Australia maintaining the seven 100 kW HF transmitters. He worked there for around seven years and returned to attend the final day in January 2017, when the transmitters were turned off for the final time.

Rodney meanwhile researched the history of Australian Outback Radio. He did numerous trips to the outback and interviewing many people and ultimately producing the 186-page book: **From Flynn to Satellites**. He also wrote a monthly column in Silicon Chip magazine for nearly 20 years. Rodney was also a contributor to many radio-related publications.

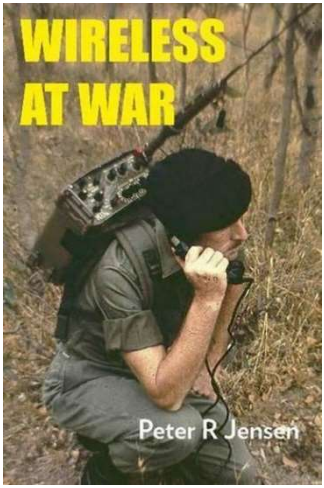
Rodney was a collector of electronics. While this was mostly radio with some TV items, his collection reflected his early years working on pre-1960 radios, amateur transceivers, inland HF radio including early Traeger and Codan equipment. Being an avid reader, he also accumulated many magazines and other publications.

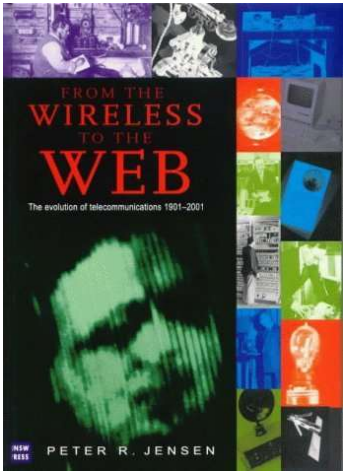
Dr Peter Rolf Jensen 1941 - 16/4/2023 Noted in the HRSA Radio Waves.

Peter was an architect, town planner, longtime radio amateur (VK2AQJ and G4GZT), radio historian, constructor and author. He was an avid researcher of early Marconi wireless (including its role in the Titanic disaster), visiting Caernarvon, Poldhu and other Marconi sites in the northern hemisphere. In Italy, Peter visited Marconi's Villa Grifone in the Bologna area, researching Marconi's life for his book "**Early Radio":** In Marconi's Footsteps, 1894 to 1920 by Peter R. Jensen, Kangaroo Press, 1994. Peter also made working replicas of Marconi's wireless apparatus, which he displayed at the 22 September 2018 centenary of the first Wireless Transmission from Britain to Australia [when Ernest Fisk, in Wahroonga, Sydney, received the Marconi Caernarvon station located in Wales].



Peter's other books include;
Wireless at War Developments in Military and Clandestine Radio, 1895-2012, Author: Peter R. Jensen 2013 Published by Rosenburg. A book presenting a history of wireless technology and the advantages for use in military armed conflicts. It is divided into the following sections: Part 1: 1895-1920 (Wireless Beginnings and a Wilson Transmitter Replica project.
Part 2: 1921-1950 and a Paraset project
Part 3: 1951-1970 and Part 4: 1970-2012



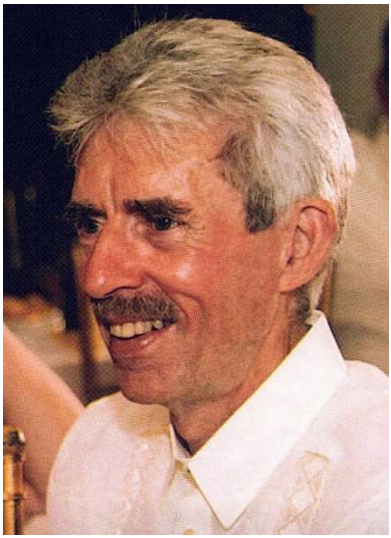


From the wireless to the web : The Evolution of Telecommunications 1901 – 2001
Peter R. Jensen Published: 2000 University of New South Wales

This book was published to mark the centenary of the first trans-Atlantic radio signal, 'From the Wireless to the Web' is a fascinating story of endeavour, from the discovery and development of early radio to the present forms of communication.

These books are still available at on-line bookstores.

Kelly Charles Waterman 4/4/47 ~ 11/3/23



Last year we lost one of the pioneers of audio technology in NZ.
NZVRS member, Kelly Waterman was enjoying one of his few holidays with friends and family in Rotorua when a medical event at the breakfast table terminated his stay.
Kelly was only 76 and still working at his company Axent Audio that he started 47 years ago in 1977, in New Lynn, and was company director to a number of others.
Kelly was one of the founders of Slab (an abbreviation of Sound Laboratory) in 1992 with long-time audiophile Graeme Jones, and Christopher Lock, who came from a marketing background with Phillips Electronics. Christopher became the chief executive for Slab, which was based in New Lynn..
Graeme Jones and Kelly Waterman had been separately involved in searching for the perfect sound system. While Graeme had worked on developments in electrodynamics systems (working on low voltage and conventional amplifiers), Kelly was interested in using electrostatic systems (using high voltage to move a thin diaphragm producing the sounds).
In June 2000, at the Comdex Computer Show in Las Vagas, Kelly and others of Slab introduced their flat speaker systems to some considerable interest.
After the publicity at the Comdex Show there were a number of offers to buy out the technology or the company, but neither option was agreeable by the founders.
Slab had developed relatively flat speakers of a new material able to be shape formed and yet able to reproduce quality sound. Some of this development work came from employing recent students from Graduates In Industry Fellowships, run by Technology New Zealand. Fortunately, they had also invested in a patent lawyer to protect the intellectual property rights of their developments.
Slab International had two divisions - Slab Sound, which developed the flat panel speakers, and Slab DSP, which developed the noise-cancellation devices. The flat panel speakers, which came in a range of shapes and sizes, were primarily destined for the laptop market, with the home audio market second. The noise cancelling devices were designed primarily for the aviation market.
After their development of the flat speakers and then noise cancelling headphones, their patents were challenged by British firm NXT who disputed Slab's patents in Britain and Hong Kong and even sought to block Slab's right to sell its speakers in New Zealand.
(Interestingly perhaps, NXT had come close to buying Slab the previous year but negotiations had broken down.)
Expensive legal battles ensued but fortunately Slab was financially rescued from bankruptcy at the last minute by a $10 million loan injection from AMP Henderson Private Capital and

Caltech Capital Partners. In 2002 Slab DSP announced it had secured a commercial contract with In-Flight Peripherals Limited for the supply of noise cancellation electronic equipment to U.S. aerospace manufacturer Rockwell Collins.
In the later years Kelly focused more on his shop; Axent Audio.

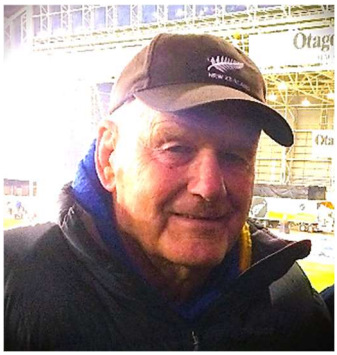
A vintage newspaper shot of Axent Audios' Sound Lounge

A previous customer review of Kelly Waterman and Axent Audio:
"Over the past few months, I've been spending time with Kelly Waterman and the team at Axent Audio. I haven't bought anything yet, but I have been tempted on several occasions by the range of new and classic audio equipment.
That's possibly because these guys have a different approach to selling stuff. Last time I was there, Kelly, with a wry smile, explained about an adoption program they've developed.
Suitable candidates can adopt a pre-loved amplifier, turntable, a pair of speakers or even a classic valve radio, and for a nominal fee the staff will shepherd you through the adoption process.
They'll make sure the various components you adopt are compatible with your current system, and might even consider trading parts of your old equipment as part of the process.
It's a great system, and you don't get pressured into adopting equipment you can't afford or that isn't going to be an improvement on what you already have.
My guess is that this so-called adoption process would, in any other store, be called a sale. But this isn't "any other store".
It started out as a manufacturer of speakers, but as the market changed and cheaper imports became available, the business diversified to offer a broad range of new and second-hand audio equipment, and a repair and a reconditioning service.

Old pots can be freed from crackles, valves and transistors can be replaced and speakers can be reconditioned and even re-magnetized. It's all right out of the old school.
Axent is a leading repairer of speakers. They're sent here from all over the country - even visiting cruise ships have called upon the staff's expertise. And there's a speaker exchange system, so if you have one that's blown, chances are they have a replacement upstairs.
If you're a radio lover, you're in the right place. Some of these guys are members of the Vintage Radio Society and they'll happily assess the restoration potential of your old valve radio. It's funny to think these were the home entertainment system of the 30s, 40s and 50s - a prized possession of equivalent value and status to your big screen television or modern home theatre equipment.
Manuals for many of these old models are stored upstairs along with parts and speakers. It'd be surprising if you didn't know what else Kelly has managed to accumulate up there.
Just as he doesn't seem to have thrown out any potentially usable piece of electronic equipment since Noah tuned in for the long-range weather forecast, Kelly has also hung on to a way of doing business that many today would say would no longer make economic sense.
Some might think he's simply set in his ways, but having spent some time there, I'm realising it's this quiet passion and experience that have ensured the longevity of the company he formed over 30 years ago.
So, if you've often longed for the warm glow of an old valve radio or pined for the authentic qualities of a well-matched set of speakers, it may be time to take a serious look at adopting."

The JBL Paragon Speaker System

David (Dave) Charles Neil McLaren 1936 – 16 September 2023



Dave McLaren was a lifelong fan of all things Dunedin and Otago. [Once, while out for a walk on a West Coast holiday, he said he was walking south as he would then be a little bit closer to home.]

Born in Dunedin in 1936, he grew up in Warrington and travelled daily by bus from there to study at Otago Boys' High School. After graduation he served in the Air Force but was invalided out with a significant back injury - not surprisingly for a man trying to navigate the insides of small planes when he was 2m tall.

He then worked for the Ministry of Works from 1954 to 1958, as a draftsman for projects including the Haast highway and Dunedin's northern motorway. Meanwhile Dave studied by correspondence for an engineering qualification through the Institute of Structural Engineers, UK. He was awarded the Armstrong Medal for highest marks in the entrance exams for New Zealand and the William Premium (Senior) award for best marks in the Commonwealth.

He then joined the firm of Hanlon and Partners and in 1966 became a structural engineer. Dave came a partner in the consultancy in 1971 and stayed with the company until his retirement in 1998. During his time (with now JRG Hanlon) he worked on the design for a wide range of prominent buildings and associated structures in Dunedin including the Octagon Forsyth Barr building, the Unicol Halls of Residence, the rebuilt sanctuary of St Paul's Cathedral and the Dunedin Public Library. Dave also served two years on the Institution of Professional Engineers New Zealand Dunedin Branch committee.

Outside of work, he was a man of varied interests of which his greatest could be considered rugby. He played as a lock for the Zingari Richmond senior team which won the championship in 1959 and 1961, coached by future All Black coach Eric Watson. When he moved to Mosgiel he joined the Taieri club, playing for its seniors and coaching junior teams. Coming back into town he coached at the Pirates Rugby Club, becoming head coach of the senior team before taking up roles on club committees.

He was a committee member for the Otago Rugby Football Union for nine years from 1987, in the amateur days of rugby during a very successful time for Otago rugby. Due to his long-term interest in the history of rugby he became the match day programme writer for many years and he compiled multiple iterations of a publication for the ORFU listing those who had played for the union (Rugby in Blue and Gold) including compiling the first list of female player representatives, a difficult task given the lack of records of the early days.

With an extensive collection of rugby books and programmes he became a national resource for other writers on the history of the game and Otago in particular, culminating in his book A Handbook of Rugby Literature.

Outside of rugby he excelled at archery, being the New Zealand champion in 1966 and Olympic contender. He was a grand master in bridge and represented Otago-Southland in teams at the national Championships. He was a vintage radio collector and restorer with a renowned cathedral radio collection. After his retirement he completed a BA at the University of Otago in film, media studies and Russian history, graduating in 2004.

His final words were "Who do you think will win the rugby tomorrow?"

Abb from supplied copy.

Neville Karl GRUBNER 1956 - 19/1/23

abbreviated from Lex Grubner's Eulogy January 2023

Neville was born to farming parents later in life at Mangatainoka, near Pahiatua, and lived there until his parents retired to a smaller block nearer to Pahiatua. He had a younger brother Lex, by 4 years. His father was an active person and with three friends built a dear stalking hut in the Puekatoi Ranges. As soon as they were able the brothers accompanied their father to the hut and thence started Neville's passion for the outdoors, tramping and staying in huts. Most weekends were spent in the wilds, exploring a patch of bush or along the river somewhere. Deerstalking, river fishing, sea fishing, white baiting, collecting Paua, freshwater and saltwater crayfish - anything to be outdoors.

Neville's father was an immensely practical man and could turn his hand to almost anything. We were allowed, and indeed expected, to be able to fix and make things and there was no shortage of "things" on the farm. If we ran out of 'things' to pull apart, all it needed was a trip to the local rubbish tip to collect up more broken 'things' to take home and either fix or pull apart to find out how they worked. Probably one of the areas our father was less competent was electrical which begs the question why we both took on careers in radio and electronics. We had an Uncle Fred in Masterton who worked in the biomedical instrumentation workshop at the hospital and was also a keen radio enthusiast. He built Neville and myself a 1 transistor AM crystal set with the coil wound on a cardboard toilet roll centre, and parts salvaged out of broken transistor radios. Our father put up a massive copper wire antenna between 2 huge trees, and we were both hooked; fascinated by radio and electronics and decided then that was what we wanted to do for a job.

Neville left Tararua College at the end of the 6th form and started work at the then NZBC in 1974. This was in the days of cadetships when your employer sent you off for tertiary education and qualifications as part of the job. He moved out of home to live in Woodville (after all, no one in their right mind would commute the 15km from Pahiatua) and staff would go up the hill to the transmitting station at Wharite Peak for every shift. I remember going on a site visit to Wharite with him and seeing a colour TV picture for the first time, as the backbone link between the transmitter sites was already in colour in preparation for colour transmission of the 1974 Commonwealth Games in Christchurch.

He applied for a position with Central Microwave Group based out the back of the Avalon TV studios, Lower Hutt still with NZBC although it may have become BCL by this stage. This group from memory looked after the microwave radio links between the transmitter sites as well as the outside broadcast vans.

After a few years at Central Microwave, Neville married and took a position back up at Wharite and the family moved to a lifestyle property on the outskirts of Woodville for a few years.

Their next move was a return to the Wellington region to Titahi Bay where Neville was based at the Titahi Bay site. Looking for a better location they moved to Tawa. With the extensive experience he had built up, he moved into Wellington head office engineering roles, initially in Tory Street and then Willis Street, and eventually to what is now Kordia at Granada North.

Then Neville was diagnosed with Prostate cancer, a disease his father had died of but had never talked about it to us. The recommendation was Brachytherapy and it was positioned as pretty much a one stop fix it forever solution. Whilst initially results were great this was not to last. He moved to Hormone Therapy for a number of years and only to Chemotherapy in the last year. Neville had only just finished this treatment before Christmas 2022 and everyone was positive for the future and most importantly, a return to proper tramping again! Whilst he had reduced his work days per week, he thought 50 years with one employer sounded right. Unfortunately, he just didn't quite get there.

None of us were expecting to be here today and I for one, just cannot get my head around how rapidly things changed and just how aggressive and unforgiving cancer is, having taken both our parents and now Neville.
I have only just touched the surface of his life, and as many of you will know, Neville had many interests including some lifelong passions of hunting and tramping, his work, and restoring vintage radios.
Neville was well known at his work for accurate cost analysis and getting his projects done on-time and within budget.
He was a doer and not just a participator and this is reflected in the fact he has been either instrumental or held leadership roles in the groups he has belonged to and I know his depth of knowledge and experience will be greatly missed by these organisations.

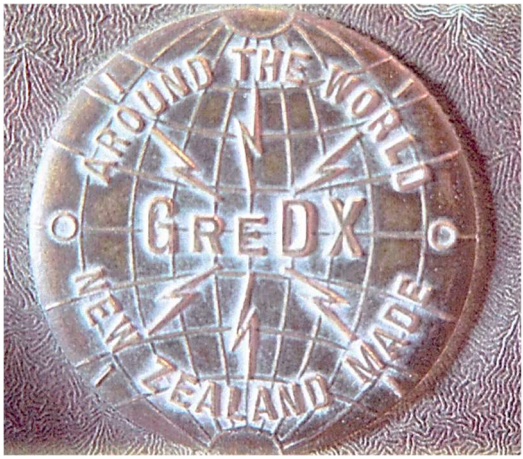
Footnotes:
In 1989 Neville was instrumental and so one of the founders of the Wellington Vintage Radio Group along with Tony Merrals, Mark Burgess and other interested persons. Neville became the chairperson for many years and later had roles such as treasurer and newsletter distribution coordinator. He was a generous contributor of articles to both the Wellington newsletter and wider NZVRS Bulletin. His correspondence with other members and especially our founder John Stokes was copious.

Neville's brother Lex, also with a radio engineering background, made contact with the NZVRS to work out a plan for Neville's lifetime collection of radios and components to pass to fellow enthusiasts and collectors. Sorting through, documenting and photographing the thousands of radios, parts, publications, valves and many other items took some time. His items found new homes through word of mouth, and the remainder were sold either via TradeMe or Cordys Auction House in Auckland. Lex would like to thank members of the NZVRS for their help. In particular Bryan Powell who put in a massive amount of work preparing information for Cordys Auction, and Steve Dunford for transporting the majority of the vintage components to the Auckland NZVRS AGM sale in his own vehicle.

Show Us Your Rare Radio. By Gareth Cawood.

I recently purchased a radio at Cordy's auction of Neville Grubner's items called GREDX.

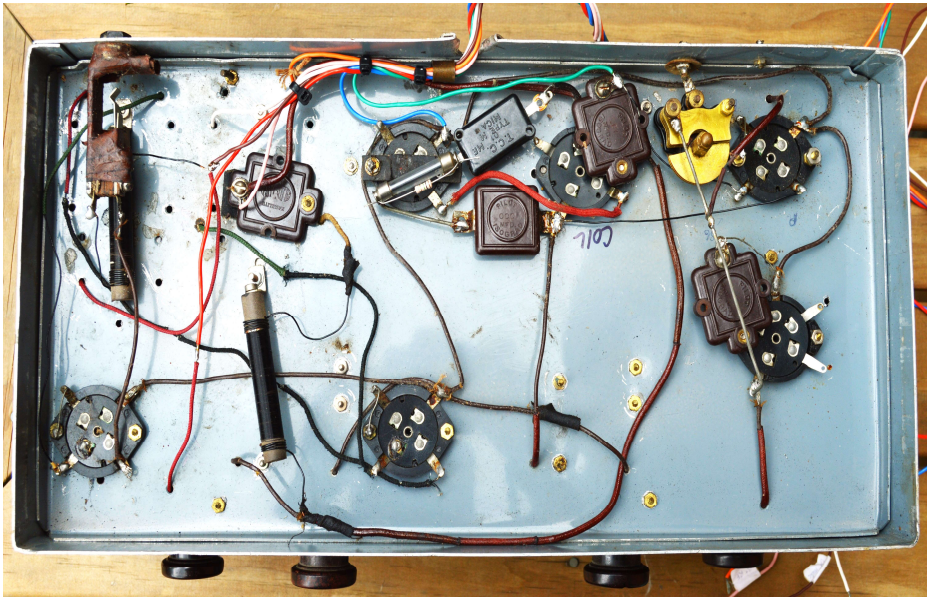
A letter was found inside with a few photos dated 13 March 2006 to Mr N Grubner:-



"Dear Neville, Trust that this note finds you well. I attended the BOP radio group meeting over the weekend of 4-5th March. On the Sunday morning we visited Rod Osborne at Welcome Bay where he had a selection of radios for sale- we arrived 30 minutes late so missed out on the first choice of the day. I have enclosed a few photos of the "GreDX" battery set that we came away with- I am certain that you will find the photos to be very interesting!! I await your comments with some anticipation kind regards Graeme Lea."

I wonder how many of these radios survive out there today, maybe just this one? I looked in Papers Past and only found one advert in the Evening Post dated 11 December 1930 for this radio. The advert reads: 1 only Gredx A.C. All-Wave Receiver - 4v. Screen grid 24 pounds/10. Sold by Bob Horrobin, Flashlight Corner, 2 Courtenay Place, Wellington. Made in Wellington?
The valve lineup is a 32 and 3x 30s. Using components such as Pilot valve sockets, dials, Philips transformers, and Igranic variable Condensers this a very interesting radio indeed.

Here is a picture of underneath the chassis, this radio looks so much like the PILOT Super Wasp radio says Gareth.



A little further digging on the web indicated that there were Horrobin famers near Levin and that Bob (R.W.) Horrobin was educated at the Wellington Technical School. There in December 1919 he won a First Class prize in Bookkeeping for that year.
In May 1924 Bob won first prize in the Methodist Church Bible Class contest of the men's best recitation. In 1927 he began a year long series of elocution lessons over radio – mainly 2YA Wellington. In October 1928 he is secretary of the Methodist / Wesley church and school, advertising Public Concerts in the schoolroom.
His adverts for his radio shop at Flashlight Corner, 2 Courtenay Place, Wellington ran from 1929 to 1932 in the Wellington newspapers.
In the 1930s he was a member of the Pandora Musical and Dramatic Society, a Wellington theatre club.
During the 1940s he gave religious talks in the Methodist Church, Wellington Central, including themes on religious musical items and hymn studies. This followed onto after-church social hours for returning servicemen.
From 1944 he is a committee member of the Wadestown / Northland (Wellington) Progress Association campaigning for better services in the area. In 1945 he is listed as the secretary / treasurer of the group.
After 1945 the on-line trail for Bob seems to cool.

Some 1930 adverts for Bob's services

Beat These Prices!

BLUE SPOT ALL-ELECTRIC LOCAL RECEIVER. With Speaker built in. Outside stations on a good aerial.
£17/10/-.

ZENITH 3-in-One VALVE SET. 100-volt Columbia "B" battery. "A" batteries and coils. Usual price £10.
Our Price £5/17/6.

CRYSTAL SETS. Condenser tuned. Were 27/6.
Our Price 17/-.

ONE-STAGE AMPLIFIERS, complete with Philips valve, 100 volt Columbia "B" battery. "A" batteries.
£3/13/6.

ALL SETS GUARANTEED.

Flashlight Corner,
(R. W. Horrobin)
2 Courtenay Place, Wellington.
Telephone 22—357.

Easiest terms on Gramophones and Radio.

Valves, all makes, Coils and Make-and-Breaks.

Condensers and Pickups, for amplifiers.

Nine Blue Spot Radio Sets ready for homes.

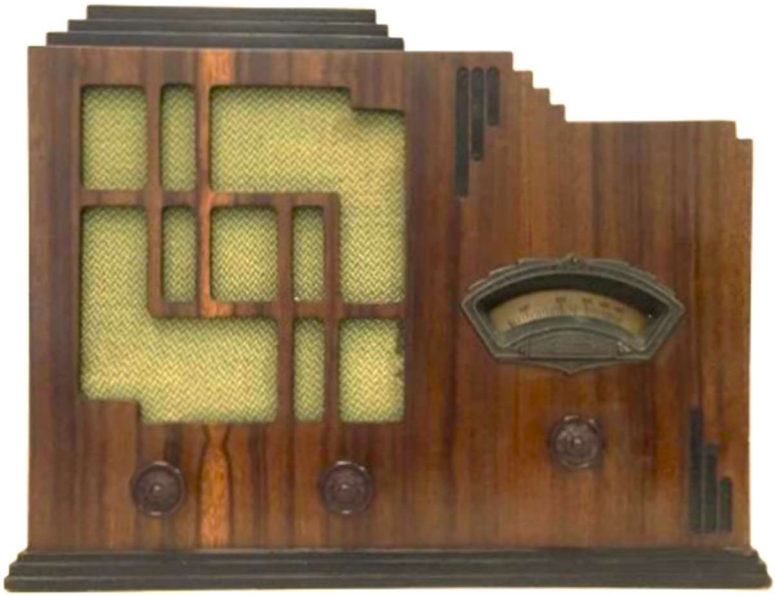
Switches to click life into bulbs, and lighting fixtures to plan beautiful rooms.

Flexing Wire and Elements to renew irons, kettles, radiators and immersion heaters, and all these new.

Bob Horrobin
FLASHLIGHT CORNER,
2 COURTENAY PLACE, WELLINGTON.
Quick Repairs. 'Phone 22-357.

Christchurch Vintage Radio Society Group meeting report – from Cath ZL3CATH

Thursday 2nd March 2023 and approaching 7pm it was still well into the twenties (Celsius) as cars trickled in ready for the Vintage Radio Club's monthly meeting. As usual, like vultures around an animal carcass on the Serengeti, Radio Enthusiasts circled the junk/recycling table, and bits got pecked at, and carried away as coins tinkled into the Brown Money Box.



This evening was also the AGM and when the formal part of the meeting commenced at 7.50pm, formalities took all of 5 minutes. The old committee is now the new committee, Woo-Hoo. Membership dues were set at just $20 for the year. Thanks go to Christchurch Amateur Radio Club Branch 05 for allowing us to use their clubrooms at an affordable rate.

Numerous radios were on the front table. Kelvin Barnsdale had brought in several ex-Army "Manpacks" that he'd talk about later. Sitting pretty next to them was a nice looking Ultimate 5-valve from 1936, a beautiful Courtenay Exponant (picture above) from 1934 (a no-RF stage model).

Also, very much a "project" was a large Lafayete. The latter being offered by Alan, who was having a garage clear-out. He said it was a push-pull model using 6-3-6's. It looked to be pretty much all there, but would need considerable restorative work.

Steve had lugged in, two tote-bags heavily laden with “classic” issues of Practical Wireless magazines from the 1950’s as well as many somewhat newer electronics mags. I salvaged a handful for my archive.

Before the main talk had even started I heard a squeal of glee, coming from the direction of Murray perusing some documentation, as he exclaimed “Wow! A Common Cathode Phase Inverter!” (I still have no idea what he was talking about).

Kelvin gave a PowerPoint presentation, being his final instalment of “Man-pack of the Month”, being radios as used by the allies during WW2 and beyond. Apparently E.K. Cole himself was responsible for the much improved ‘waterproof’ design of 1941’s Commando Manpack designated WS46. It had 3 selectable frequencies using 6 Crystals. However, crystals were in short supply during the War, meaning they were often only issued out on a mission-by-mission basis, being returned afterwards. About 25,000 of this model were built, but the cost was deemed too expensive for a wider roll-out. Using 6 valves and powered by the standard WS18/WS48 battery pack, the range was supposedly 10 miles (16 km).

The Australians weren’t just lazing in the Sun, waiting for a “Roo” to hop by so they could get themselves some of that Prime Australian Steak, (y’know “A Jump Ahead of the Rest”). By 1955 our cousins across the ditch had their mates at AWA knocking out the fully waterproof “A510” manpack. Trials of early models had started in Malaya in 1952, when there was a little bit of a biffo happening in the tropical jungles over there. Crystal controlled TX with 4 channels available and a 500mW output, this radio came with a whole swag-bag of antenna options. At issue was how Ground Wave just did not penetrate the dense vegetation of the jungle environment. A range of options including Whips, with wire for Dipole and End Fed, gave the option of Sky Wave communication.

Army manpacks A510 and WS46

Kelvin went on to make brief mention of the models Larkspur (1950 onwards), Clansmen (1970 onwards) and the Bowman (2000 onward and still in service, using modern Frequency Hopping and Encryption). Some of the earliest Clansman have since been retired and sold off into private ownership. If you can find one at all, expect to pay $600 odd.

There was a call out from the audience, and I'll attribute it to John (whether it was him or not), and I believe this was regarding the Clansman UK/PRC 316 model, which was rated at a supposed 20 watts output. They were it seems "a shit to work on". And "as much use as a cup of cold sick. Bloody terrible!"

The meeting then broke for supper as the Vultures pecked at the piles of Practical Wireless magazines in Steve's tote-bags.

The next Christchurch Vintage Radio meeting was scheduled for Thursday 6 April 2023. Doors open before 7pm. Bring along your projects or completed restorations for viewing on the front table, with Show-and-Tell talks starting around 7.45pm or so. Visitors are welcome and don't believe the rumours that newcomers get stuck with the washing up after supper. That is NOT the case!

Seen on-line:

a) in the Hastings Branch 13 NZART Newsletter.

“A Cat's whisker (centre of picture) crystal set from the early 1930's. The slider taps the coil to tune in the AM radio station. Earth and aerial are connected at each end of the coil and the Hi Z headphones are connected to the front Farnstock terminals.

No batteries required. Courtesy of Brian (of Nelson), it belonged to his Dad.”

b) another TradeMe hopeful;

WW2 Vintage US Military Navy Gear

Closes: Sat 16th Apr, 10:19pm
4 days, 13 hours, 28 minutes

Add to Watchlist

Buy Now
$999.00

Buy Now

Starting price
$999.00

Place bid

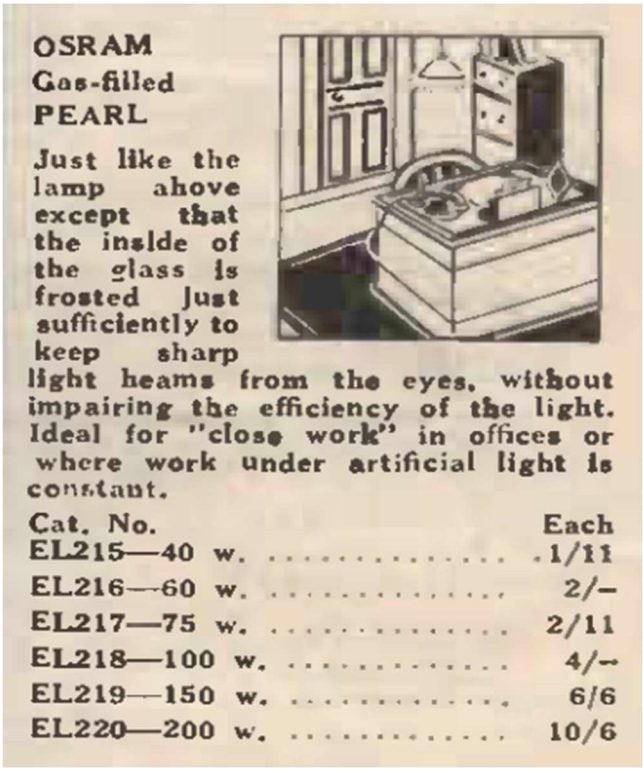
No reserve
No bids

Incandescent Lamps by Graham Baker

They have been about for a while. I read in the latest ElectroLink that the U.S. has removed the incandescent lamp from legal sale as of 1st August. The EU have removed most old forms of lighting from sale, including fluorescent tubes and halogen lamps. That means fewer bulbs being made, lower quality and higher prices. There were almost no incandescent lamps in the light bulb section of my local hardware store when I visited recently.

I was looking at the 1938 Lamphouse Annual and saw the price of standard GLS lamps. There were more expensive ones like the "daylight" with a blue coating and carbon filament lamps.

Using the RBNZ Inflation calculator I find the cost of these lamps in today's money would be as below. This makes LED bulbs look not so expensive!



OSRAM
Gas-filled
PEARL

Just like the lamp above except that the inside of the glass is frosted just sufficiently to keep sharp light beams from the eyes, without impairing the efficiency of the light. Ideal for "close work" in offices or where work under artificial light is constant.

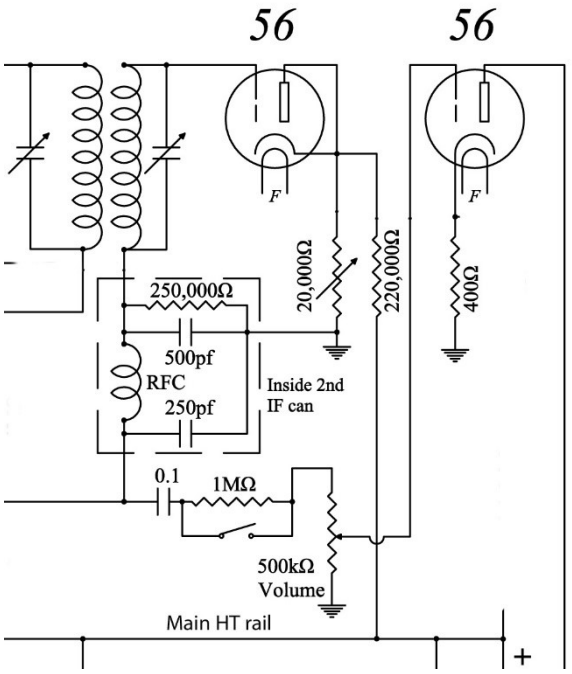
Cat. No.	Each
EL215—40 w.	1/11
EL216—60 w.	2/–
EL217—75 w.	2/11
EL218—100 w.	4/–
EL219—150 w.	6/6
EL220—200 w.	10/6

Inflation adjusted prices today =

Size	40 W	60 W	75 W	100 W	150 W	200 W
Price £/s/d	1/11	2/-	2/11	4/-	6/6	10/6
Today $	$11.97	$12.49	$18.22	$24.99	$40.60	$65.59

Something New? From John Dodgshun

Recently, I was brought an Ultimate 9LD wireless from 1932 to repair.
It is BC only using 2.5V heater valves and the local oscillator is a separate type 56 triode valve – nothing particularly out of the ordinary there. It does however have push-pull 45s in the output so it is quite an upmarket set.
As there was no circuit in the library, I took the circuit down as I worked on it.
The detector was also a type 56 triode with the plate and cathode connected together. The only reason I can come up with for the plate being so connected is to stop it floating, as it plays no part in the circuit. Philco also used this configuration in several of their models but with a type 37 triode which has a 6.3V heater.



It is worth noting that the type 55 (a triode/double diode), which one could reasonably expect to have been used, was introduced in 1931 along with the 57 & 58. Whereas the 56 was introduced in 1932, so Radio Limited must have had good reason to use the 56.
Further drilling down revealed that there was a quite ingenious circuit around the 56 detector. Examination of the circuit shows that the cathode is connected to earth via a 20k pot. It is also connected to the HT rail, approx. 250V, via a 220k resistor. Varying the pot between the extremities results in the cathode voltage ranging from 0V to about 25V which would be sufficient to cut off the tube - assuming an AGC voltage of 25 volts on a strong signal. So, we have a variable sensitivity detector! Ingenious indeed. Definitely something new for me. The control is mounted into the side of the cabinet.
Further examination of the circuit shows the usual type of volume control and a switch, on the front, which shorts out a 1 meg resistor in series with the audio signal, so this wireless has three different volume controls. One has to ask - why?
The 1933 Ultimate 9LAW I restored some time ago also has a 56 detector in the same configuration but with the cathode and plate connected directly to ground – the same as the Philco sets.

John Dodgshun <jandjdodgshun@gmail.com>

Substituting Magic Eyes with Meters from David Geurts

Test equipment can work just as effectively by replacing a degraded Magic Eye with an Analogue Meter. I'm so pleased with this design that I feel it should be shared. The meter responds just as efficiently as a new eye, should you happen to find one, and will never decay.

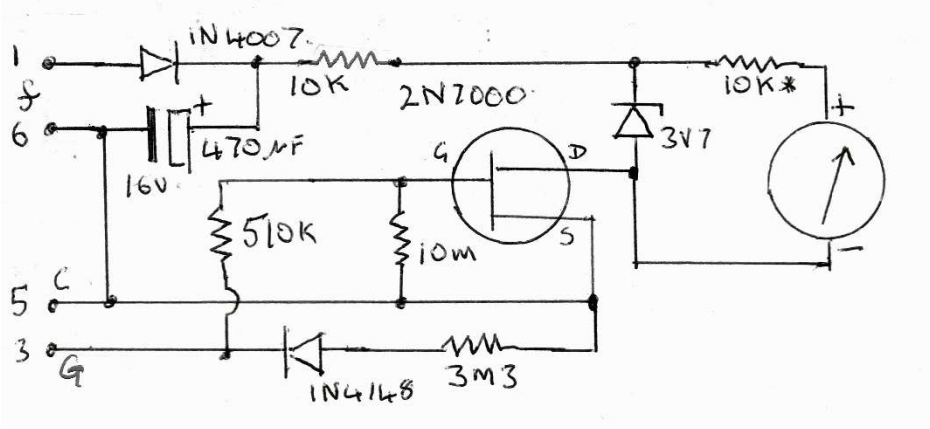
I obtained this Lafayette TE-46 CR Analyzer in a NZVRS auction. It needed cosmetic and electrical attention and was missing the 6E5 eye. However, with such a wide range, especially in the leakage test mode, I couldn't help myself. I had to revive it.

I felt it a sin to do a permanent conversion so decided to make the modification a plug-in module. The new circuitry was made up in an octal plug and inserted into the 6E5 socket. Therefore, the modification can be unplugged and a 6E5 be installed should a good one be found, bringing it back to its original glory.

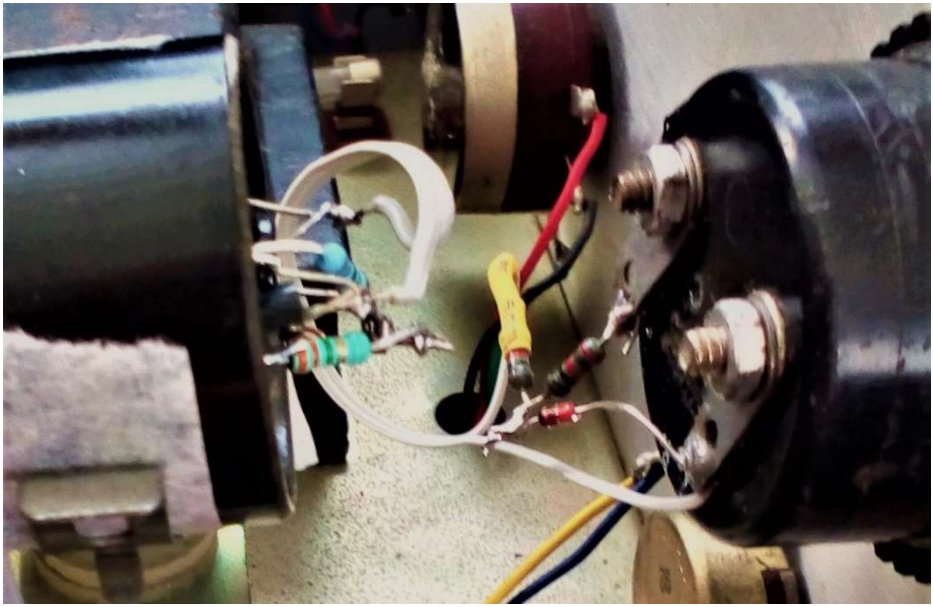
The TE-46 is an AC bridge. The 6E5 eye tube ignores the negative going edge of the AC signal applied to the grid. This circuit does the same by clamping the negative edge through the IN4148 diode and only allowing positive influence on the FET. The FET provides sufficient buffering and drive to the meter.

Normal TE-46 with magic eye at top, and modified with meter beneath.

Meter replacement circuit below.



The circuit power supply is obtained by a 1N4007 rectifying the filament 6.3V in the socket between pins 1 & 6. The 10K resistor marked (*) between the meter and Zener diode may need adjusting depending on the meter used. The Zener simply protects the meter from over-voltage. Nice and simple and it works good! So simply reach for your best KT88, smash it and use the base to house this circuit. Or send me the KT88 and I'll reply with the base from a dud octal tube... Enjoy! *[Warning: I suspect the KT88 "smashing" comment is in jest. Ed]*



Physical layout above – 6E5 valve socket and valve base on left, new panel meter on right.

There have been more web comments on the TE46 tester and magic eye indicator valve life extenders which we will cover here.

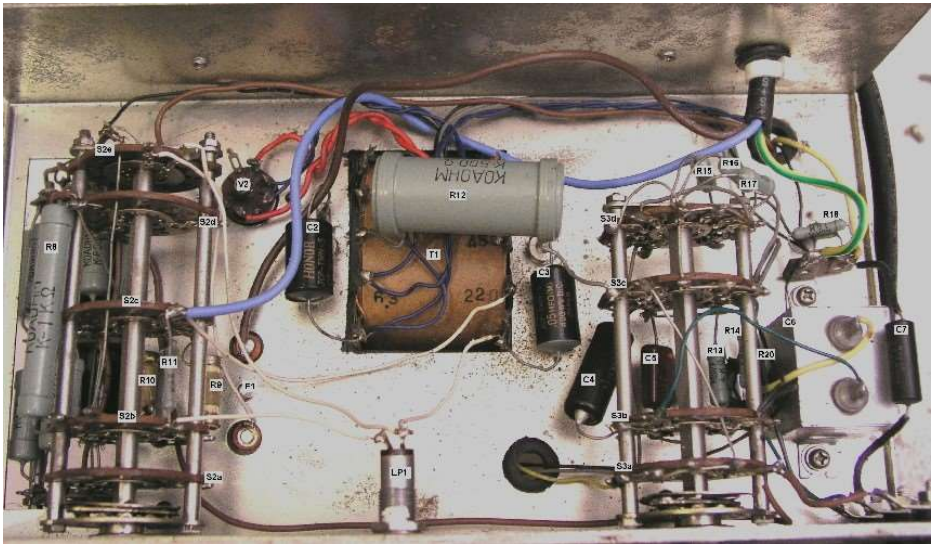
The TE46 CR Tester.

This is a combined Capacitance, Resistance and Ratio Bridge with Leakage tester with a magic eye balance indicator.

A feature of the Bridge (circuit lefthand side) is that instead of a linear scale it has a full-range of impedance ratios on a non-linear and wide-ranging scale. This allows for fewer ranges, so that it is quicker but less accurate to use. It can also measure the turns-ratio of a transformer and also measures the ratio of two unknown impedances. Note that the **power factor** control is only active on the top two capacitance ranges and that on the other ranges leaky capacitors will not produce a visible balance. The balance point is very sharp.

The leakage (righthand side of the circuit) section has a wide-ranging switched voltage selector offering 3 to 600Volts and a separate meter to measure leakage at 10mA and 1mA.

This function can also be used for reforming electrolytic capacitors, and the tuning indicator (magic eye) has its HT switched off in this mode to reduce target wear.
The “INS RES” test performs an insulation or leakage test at 600V.

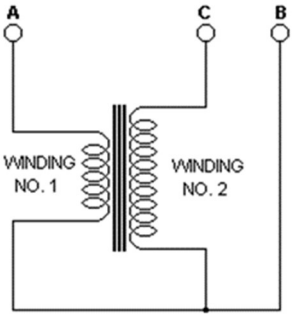


NOTE: The 50Hz bridge voltage is quite high at a nominal 55V but measured at 59V rms or 83V peak. It can deliver about 120mA.

Measuring turns and impedance ratios

Do not attempt to measure the turns or impedance ratios of low inductance or high frequency coils (RF, IF transformers, etc.) otherwise severe damage may be done to the instrument. It is designed to measure turns and impedance ratios of the likes of power transformers at 50Hz.

Proceed is as follows:



1. Set the RANGE/FUNCTION switch to the first N.Z RATIO position, marked LO.
2. Connect the test transformer to the binding posts, as shown, note that:
   a) Winding #2 is connected in series with winding #1.
   b) Binding post B is the common point between the two windings.
   c) Proper readings cannot be obtained unless winding #1 has more turns than winding #2 (or at least an equal number). Connect step-up and step-down transformers in such a way as to comply with this requirement.
3. Rotate the dial across its range. If an on-scale balance indication is not obtained, shift the RANGE/FUNCTION switch to N.Z RATIO-HI and rotate the dial again. If a balance indication is still not obtained, reverse the lead connections of winding #1, and begin from N.Z RATIO-LO as before.

Notes on reforming electrolytic capacitors

Lafayette suggests applying the rated voltage for five minutes plus one minute for each month the capacitor has been in storage. *[Fine if you know it! 50 years = 60 mins. Sounds a bit low for me. I would tend to go for at least a couple of days if not much longer. Ed]* The chart below summarizes the maximum Power Factors of some typical electrolytic capacitors (when new). Capacitors with ratings greater than 150V should usually be considered defective if their Power Factors exceeds twice the indicated values. Low voltage portions of multiple-section capacitors may have Power Factors as much as 50% greater than the indicated value.

WVDC	475	450	400	350	300	250	150	50	25	15	12	6
Power Factor %	15	15	15	15	15	18	20	25	30	50	55	60

Maximum permissible leakage for capacitors is given by:

Leakage (μA) = K x C x V / 10

Where C is in μF and the K value depends on capacitor type: 1.5 for dry, 3.0 for non-polarised, 3.5 for wet.

Issues! GMB's restored and modified version

The problem with the original design is that the meter is vulnerable to damage in the event of an accidental overload. When I obtained my tester, the meter was burned out. Because the shunts were made for the specific meter movement, they must all be replaced to renew the meter.

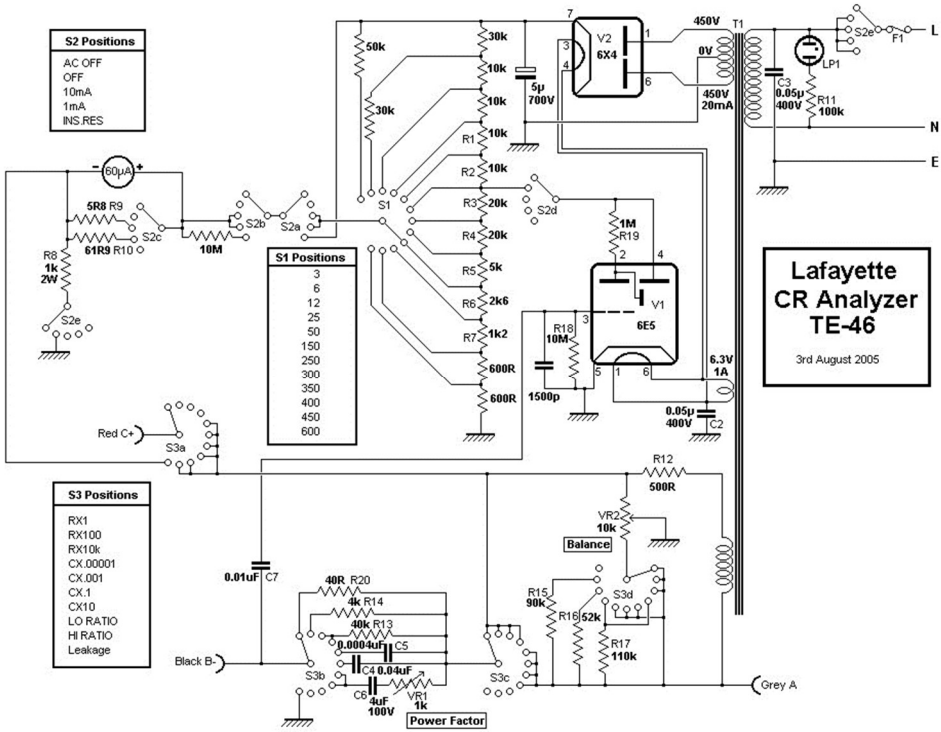
I decided to drop the insulation test (it can effectively be done anyway by turning up the voltage to maximum) and have three ranges of leakage test so that small leakage currents could be observed. I also added protection diodes to the meter which slightly affects the linearity at full scale but saves the meter from damage in any overload situation.

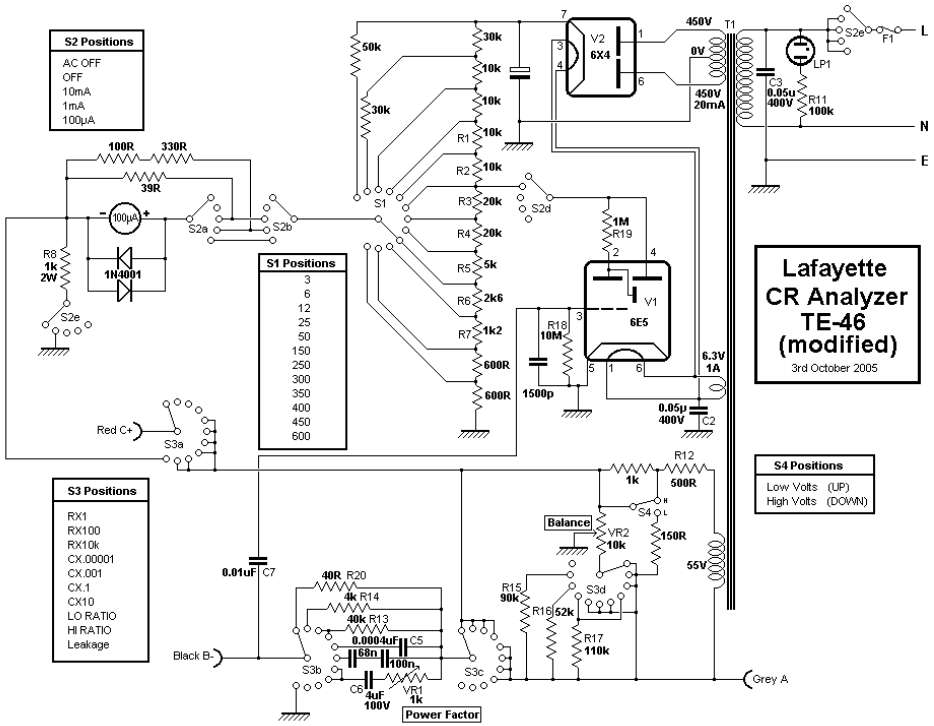
I also found that it was necessary to replace some capacitors in my tester.
The smaller bridge reference capacitors must have absolutely no leakage at all or the bridge will not balance, I had to replace the 40nF with a combination of capacitors to make up that value. Also, the tuning indicator coupling capacitor (C7) must be perfect too, otherwise the balances take a long time to settle and randomly drift when switching ranges.

The final change I made was to deal with the bridge energisation which is rather heavy duty and so not suitable for all components. S4 was added to divide the energising voltage by 10 - this makes the balance point somewhat less sharp but on the other hand makes it easier to see which way to go when the balance is not yet set correctly.

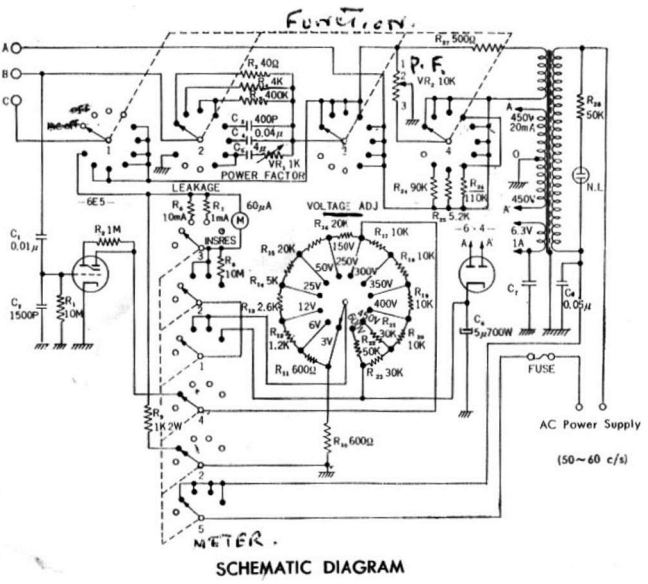
Original and altered circuits follow:

Original Circuit





The Kyoritsu K129 is a similar circuit;



Rust Removal by Electrolysis from John Dodgshun

The reason for the experiment:

This 1929 Crosley Showbox was in a dire state when I received it. As the photo shows, it is severely rusted. This photo was taken after I had cleaned out the mouse nest inside. The question of how to proceed was answered by a good friend who had spent many hours restoring old and rusted machinery – Electrolytic Rust Removal. After some discussion with him and a talk to Mr Google, the job was all go. This process will also assist with paint removal from iron objects.

I made an initial attempt on a small piece, using an ice cream container. This worked well but the logistics of holding the rebar anodes in place, and the small size, led me to designing and building a larger bath with two different options for holding the anodes. This has proved to be very successful on several jobs since.

The Chemistry:

- Atoms are partially made up of electrically charged particles - electrons with a negative charge and protons with a positive charge.
- It's these electric charges that cause atoms to want to "stick together" in certain combinations. In this case, Oxygen and the Iron in the steel stick together to form rust.
- Electrolysis allows us to break them apart again.
- Atoms can lose or gain electrons.
- Oxidation is a chemical reaction when something gives up electrons.
- Reduction is when something accepts electrons.
- Both Reduction & Oxidation MUST happen together.
- If we put oxygen together with iron metal, the iron is oxidized (gives electrons to the oxygen) and the oxygen is reduced (accepts the electrons lost from iron).
- The result is one form of rust, ferric oxide, (Fe_2O_3). This is the more common variety that we all recognise.

Apparatus:

- A plastic container large enough to hold the item being treated.
- A variable power supply capable of 24 volts & 5 to 10 amperes.
- Some lengths of 10mm reinforcing steel, rebar, for the anode(s). Use several anodes to create as large an anode surface area as possible, distributing them around the perimeter of the container, as this increases the current flow and evens out the current to the entire object being cleaned.

WARNING: **DO NOT use stainless steel** for the anodes, as it contains Chromium. The Chromium salts, which are produced during the electrolysis process, are **highly toxic** to all living creatures!

Method:

- In the plastic container put in enough water to completely cover the item being cleaned.
- Add 1 tablespoon full of Washing Soda, Sodium Carbonate Na_2CO_3 (also known as Soda Ash) per 2 litres of water and mix thoroughly. (Dissolve the soda in hot water first.) The washing soda increases the conductivity of the water.
- Place the lengths of rebar (Anodes) around the outside edge of the container, making sure that they don't contact the object being cleaned, and connect them together **above** the water level, to the positive of the power supply. (If the connections are below the water level, the copper gets oxidised and deposited onto the cathode. – electroplating!)
- Connect the item (Cathode) to the negative of the supply.
- Raise the current to around 5 amperes.

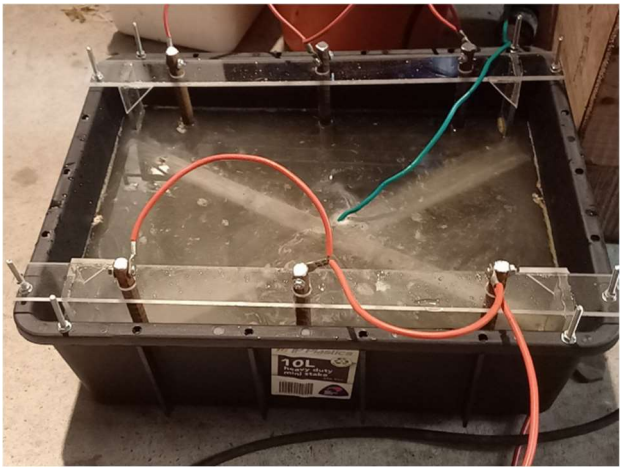
While the current is flowing, there will be considerable bubbling at both the anodes and the cathode. These bubbles are the result of electrolysis of the water. The gas produced at the anode is Oxygen and that produced at the cathode, the item being cleaned, is Hydrogen which is **highly explosive**. So set up the apparatus in a well-ventilated area.

Depending on how badly rusted the item is, the process can take several hours. Leave it bubbling away overnight if need be. After time, the anodes will get covered with "gunk" which will cause the current to drop off. Switch off and clean them with a wire brush under running water, then restart the process. It is also a good idea to wire-brush the item being cleaned as this helps the electrolysis process too.
The water solution will get hot and diminish over time necessitating topping-up. It gets a very rusty appearance but it is non-toxic.
During electrolysis, the rusted item turns from orange to black. In most cases, the rust next to the iron is reduced to iron metal. This reduced iron will form a somewhat porous layer of new iron on the metal object being cleaned.
When you are happy with the result, clean the now rust-free item with the wire brush, then wet & dry paper while wet, then thoroughly dry and coat it immediately with a metal sealer as it is highly susceptible to rusting again very quickly.

Typically, the black stuff that can be rubbed off the object after electrolysis, is a mixture of iron metal and magnetite, Fe_3O_4, another oxide of iron. Magnetite is an intermediate product in the reduction of rust to iron metal and is the active material in magnetic recording tapes.

This process is simple, straight forward and best of all totally environmentally safe. The gunk and solution can be washed down the drain - even on septic tanks.

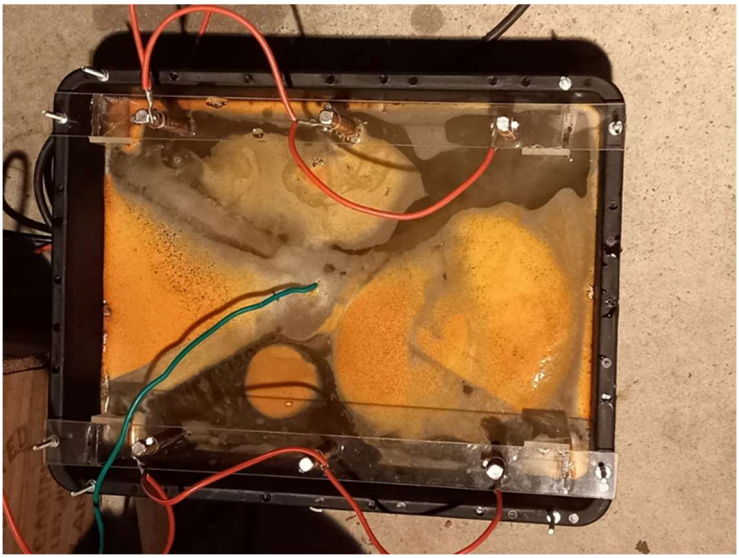
First attempt (below):



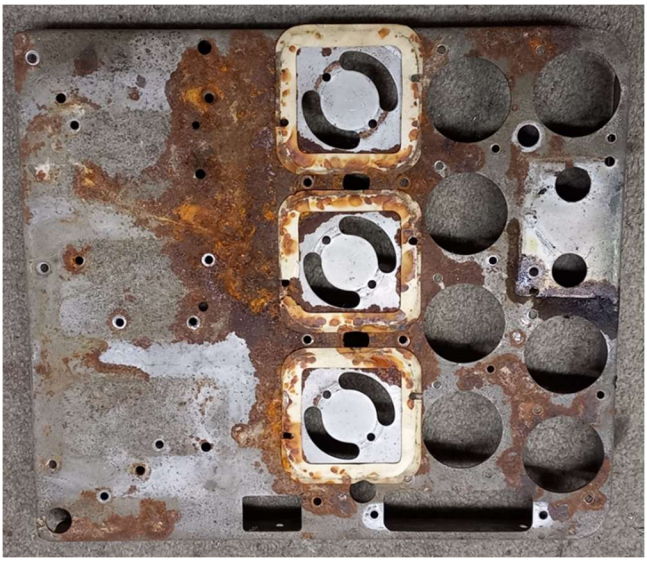
Right: The final apparatus: - ready to go.

Not show are two shorter anode holders, which each hold two anodes and mount across the ends of the container.

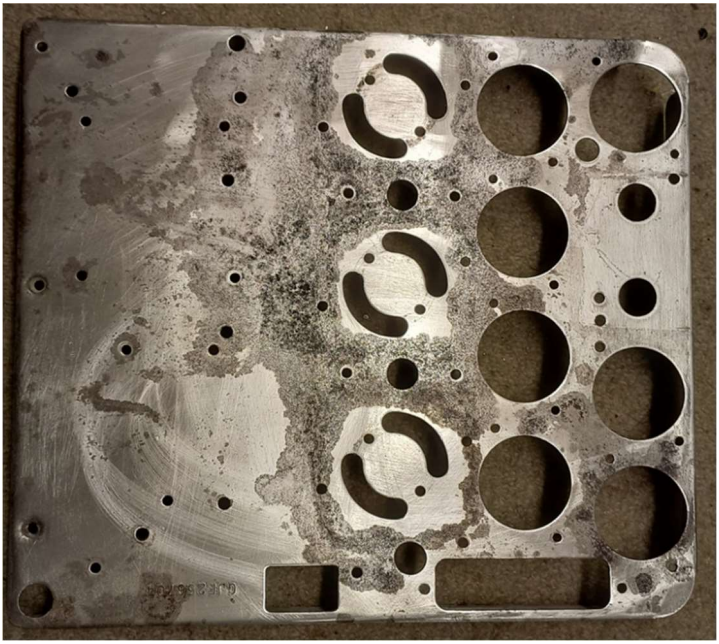
In action:



The next item:



Finished:



The restored power supply chassis: (I'm still working on the main chassis.)

Making a Plastic Dial Scale by Graham Baker

Many years ago, I purchased a Courtenay 5M from another NZVRS member who had a sale to make room for more sets. I finally located the intermittent 100 pF silver mica capacitor and at the same time, I decided to tidy up the dial scale. After 50 years the plastic had lost its plasticiser and become brittle, cracked, warped and broken. I added clear packing tape to the back and ironed it with a warm smoothing iron to flatten it. Originally the dial scale was attached to the cabinet with contact cement, it had now given up. I fixed it into the cabinet with drawing pins. This is similar to how screws and rectangular washers hold the glass in the later model 5B.

Back in the late 1940's cellulose acetate replaced nitrocellulose (celluloid). The old dial scale was probably cellulose acetate, but could have been PVC. It is very difficult to identify plastics. At that time the same plastic was used in many receivers for dial scales, windows and knob protectors. Unlike glass, plastic discolours and degrades with age as we now know. RCNZ changed back to glass dial scales on their later models.

Now I have a bit more time I decided to have a go at making a replacement dial scale. This dial scale is screen printed on the inside surface (second surface graphics) with the pointer behind. This particular dial scale is printed with 4 colours; red for the "Courtenay" logo; yellow for the frequencies, frequency marks and station call-signs; gold for the side decorations; and a brown background with a window for the pointer. The brown was printed first with apertures for the other colours and yellow was printed last.

Others have made artwork for laser printing dial scales; this is the path I took. The original dial scale had lost a few bits. I found a picture of a complete one, but it was also cracked, low resolution, about 85 dots per inch (dpi), and badly illuminated. I made use of that and what remains of the old one to make a new one. I began with a 2D drawing to get the outlines for all the features to the correct place and size. I did not have a suitable font for the frequencies, so, I drew them using the picture as a reference for shape. I use an AutoCad like program LibreCAD. When I had done all I could I exported the drawing as a pdf. The artwork up to this stage was all vector graphics, just lines from point to point, curves are made with many short segments.

I imported the pdf into my photo editor, GIMP. The photo editor converts the lines to pixels or dots. I chose 600 dpi the same as the laser printer I was going to use. I used the photo editor to colour the various parts and to bring in the logo I photographed from the later model 5B. The station call-signs posed a problem as the font I chose had a serif on the number "1" and I needed a line like the original. I found a different font had an upper-case letter "I" that looked like the number I wanted. Export was a pdf ready for printing.

Cut out the window with a sharp knife using a straight edge and cutting board. The paper leaves a white edge in the window. Carefully black out the white edge from the back with a felt pen. I made a simple mask to add behind so the red and gold are not back lit. This is glued with PVA or glue stick to the back of the dial scale. Laminate and cut out then fit into the cabinet with drawing pins as before. Alignment is difficult, a bit of electrical tape may help with temporary support.

The laminated paper is polyethylene terephthalate (PET, commonly used in water and soft drink bottles) on the outside and ethylene-vinyl acetate (EVA) next to the paper. These plastics are durable, but will eventually degrade, faster if exposed to UV light. I put the old one in an envelope and left it under the chassis.

I have put the artwork as a pdf on the NZVRS web site along with all the others.

Before and after pix

The First STELLA Radios By Steve Dunford

Back in 1989, the late Arthur Williams wrote an article (Vol 10, #3) about a radio he had found with a spectacular dial — the 1934 Stella 6A. The same photo Arthur used in that article also features in More Golden Age of Radio, suggesting there might have only been the one set known about at the time and until fairly recently, it was the only one I had seen.

The elegant and colourful 1934 Stella dial.

Then, the remarkable discovery and acquisition of a mostly disassembled model 6A with a badly faded dial (as so many early blue Stella dials are now), changed that. It turns out that a workmate had owned one for many years and I had been so close to one for so long!
Not too long after, I discovered a hitherto unknown 5-valve version buried in dirt and other radios, in the back of an old chicken shed, where it had been stored, apparently since the 1970s. So, I went from thinking I would never see an actual example to having two of them — the 5-valve with a legible dial, likely due to its long-term covered storage.

I recently got the 5A working, something that required replacement of all the capacitors, including a 0.1 which had been replaced in the past with a 0.25, no doubt by a serviceman who didn't have a 0.1 to hand, so they thoughtfully wrote 0.1 on the body of the replacement! And most of the resistors were out of tolerance — some well over double their original value.

But the most interesting find was in the valve lineup, which was (as found): 6A7(?!), 58, 2B7, 2A5, 80. Someone had fitted a 6.3V 6A7 where a 2.5V 2A7 should have been — so even if all the capacitors and resistors hadn't been so far gone, there is little chance it would have worked. Finally, during alignment, I discovered that the I.F. which should be 175kc/s, was closer to 160 — although all four adjustments seemed closely aligned to each other.

I had originally planned to leave this one original, but seeing how much it had already been gotten at, I decided to proceed with the repair. It now plays well, albeit with a little station drift over time, which I will look into when I have a moment.

So, now having two examples of these first-ever Stella's to examine, and while happily listening to the 5A, I thought it was high time, some 35 years later, that Arthur's original article received an update, and a shout-out for being the reason I was even looking for one in the first place. So, here we go:

1933 saw William Marks move his fledgeling Wellington-based manufacturing concern, Radio Corporation (N.Z.) Ltd, from a small shop in Cornhill St into their new Courtenay Place factory. He also travelled overseas on a buying and recruiting trip to ensure this new space was equipped with suitable new plant and machinery, and staffed by the best men he could find.

By 1934, his reach had grown considerably; Courtenay radios were now available nationwide, no longer limited to the greater Wellington region through their master agents the Stewart Timber, Glass & Hardware company. Sadly, the once-mighty Stewart's was gone — another victim of the great depression — but it would be their buildings that Marks would occupy, ensuring the continuation of the Courtenay brand as seamlessly as possible.

The threat, however, of losing his brand's momentum after several years of hard work building it up, drove home to Marks the need to spread production over more than one name. Pacific was the first, created as part of the move into the new premises. They would also begin producing sets for other companies — CQ for Hope Gibbons, Radioplayer for Philips, and

Author's Stella 5A on left Stella 6A on right.

Troubadour for Turnbull & Jones among the more notable. Another relationship would be formed with the respected nationwide engineering firm of Cory-Wright & Salmon (who still exist today, as the electrical wholesaler, Corys Electrical) and with their first radios being produced for the 1934 winter sales season. [Radios would typically sell best in the winter months, as it was common before such distractions as television, the Internet and Wordle, to undertake outdoor pursuits, enjoying the longer twilight evenings in summer.]

Cory-Wright & Salmon would call their radios 'Stella' (Latin for 'Star'). The chassis for these first models would be standard 1934 types from Radio Corp; the 105 and 106, 5 and 6-valve broadcast band receivers respectively, and admirable performers in their own right. Stella variants would be called the 5A and 6A. There were possibly other chassis used as well, although these sets rarely surface today and the author has only seen these two. But while the chassis was standard, the dial was anything but.

All other radios from Radio Corp at this time used their standard arc dial, with a USA-made Crowe Manufacturing escutcheon and mechanism (or possibly De Jur?), and a custom celluloid dial scale. But this wasn't going to be suitable for the new brand, and they put considerable effort into designing something eye-catching and unique.

Cory-Wright & Salmon would even attempt to patent their design, although the patent application was later abandoned — perhaps because, by the time the patent application was processed, the world of radio dials had moved on to the universally popular aero-dial design. It is unfortunate because the design certainly had merit.

The idea was simple. Make the viewport bigger, and put station names on the dial alongside the frequency scale — and, in keeping with the 'Stella' name, indicate the position of each station with a star. This was a more user-friendly approach, and no doubt it made tuning your favourite programs easier. A large blue dial certainly looked better, and it really must have stood out in a world of predominantly pale-yellow arc dials. And to have all those stations, some quite exotic, clearly marked by stars and names would have been quite the draw card.

These days, finding a blue dial you can actually read is even more difficult than finding an example of these first sets. The blue dye (used on their following aero-dials as well) fades badly. The dial (pictured at the start of this item) in the 5A set the author recently acquired, seems to have survived simply because it had been stored in a dark corner of a barn since the 1970s.

The Stella dial is something quite unique, and it was revolutionary in its time. Today they are a striking reminder that in the 'Golden Age', before radios became a simple, cheap, appliance — innovation was so incredibly important. These first Stella sets are something to be treasured, and are well worth a place in any collection.

The author's Stella 5A under chassis before repairs

Stella 5A and 6A chassis labels above.

Author's Stella 5A, on the bench after successful rejuvenation … singing the Golden Oldies for the first time in 40 years.

A Radiogram Restored – by David Geurts

E: emasav777@gmail.com

Strolling into the clubrooms for another interesting auction night, I saw through my peripheral vision a floor stand radiogram. As far as I was concerned that's as far as I wanted to view it - no further than only within my peripheral vision.

Well, we probably all experience many times in our lives when, as the saying goes, our eyes are opened to consider something which we would normally reject. And that happened when Bruce Churcher (our librarian) presented an informative talk on the technology that was incorporated in that dusty old radiogram at the back of the room.

After a 10-minute informative explanation of the output transformer-less, 10 Watt, tube amplifier technology developed by Phillips, I felt the urge to find a way to explain to my wife that we're going to adopt a radiogram. So being the only hand to go up in the auction, later I found myself loading it into the van. Well, I'm pleased to inform that it's now on display in the house and I have since managed to be allowed to move back in from the dog-box.

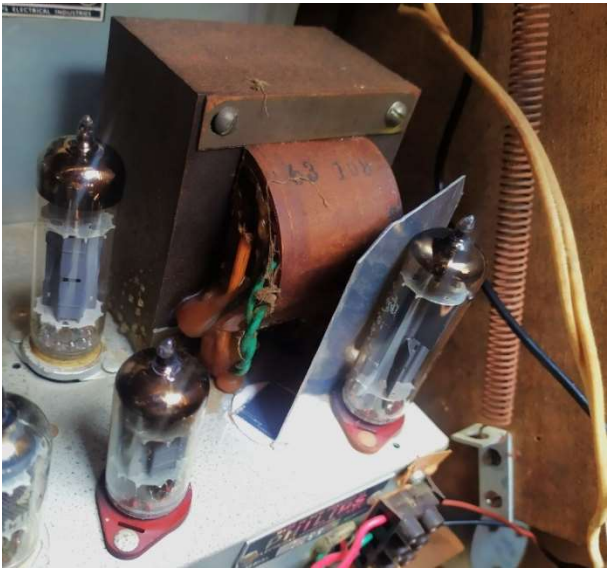
Much work was needed to restore it, including a complete strip down and water blast of the cabinet that had been sitting in someone's garage for many years. Complete re-cap and a few resistors were required. All tubes were good except the eye of which Bruce kindly gave me a new one to replace it.

Amazing what a sand down and re-varnish has done to this beautiful wood veneer cabinet. I decided to keep the non-original turntable that was previously installed, but it needed a lot of work including new pickup, mechanics and a complete re-paint. I restored this turntable only because the cabinet cutout had been modified to match it and would probably not allow the original turntable to fit again - if I could find one!

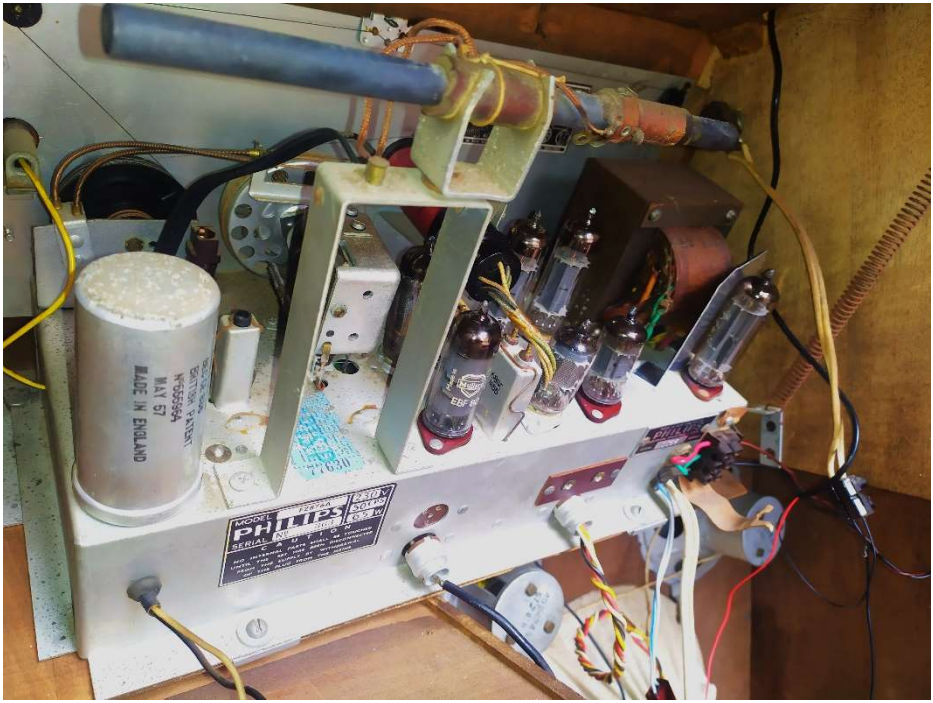
I made one modification to the chassis. Noting significant amounts of wax extracting from the power transformer but only from one side, led me to conclude that it was not due to overload heat. The heat from the rectifier tube close to it was causing the wax extraction. Heat travels upward and, given the angle of the chassis placed in the radiogram, into the transformer. A simple aluminium shield solved this problem.

Well, she's up and running and sounding great, true to the nature of this Hi-Z technology. It's really cool showing the auto load stacking turntable in motion to the children and their friends who think they were the first to discovered vinyl records.

I appreciated the help from Bruce with parts including the original Phillips emblem. Bruce did his apprenticeship with Phillips and has a wealth of knowledge. I'm hoping he is going to share with us all the technology behind the amplifier stage of this Phillips Hi-Z Festival Hall MKI radiogram.



Aluminium heat shield to protect the power transformer on right.



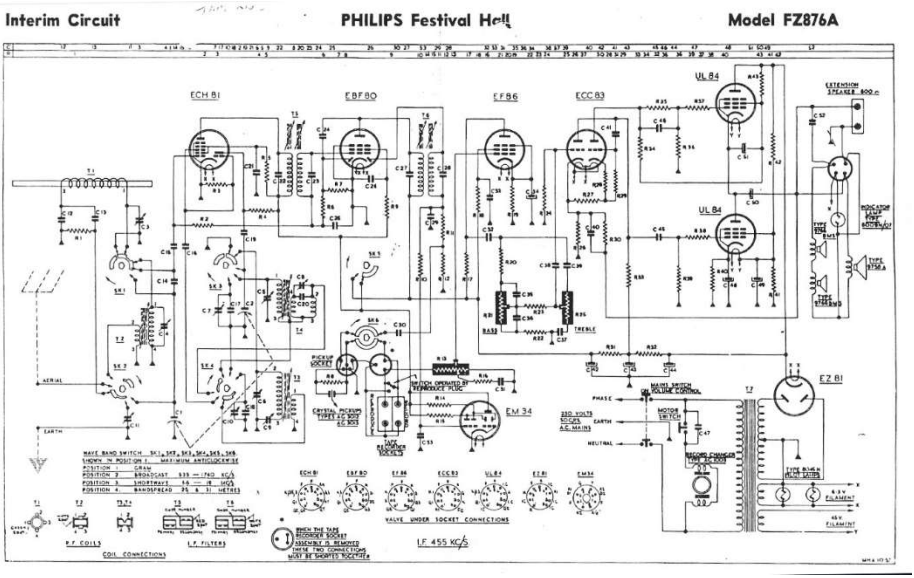
Overall chassis

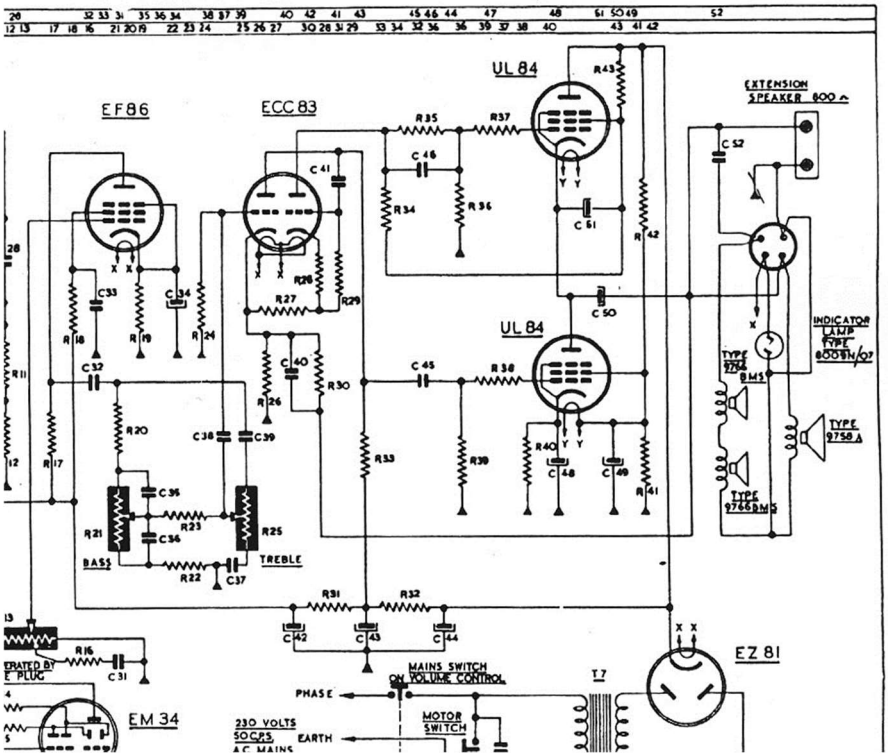
Front view

Closed cabinet

Philips Festival Hall mk V above

Festival Hall mk1 type cabinet below





Relevant audio section

Philips Hi-Z in New Zealand from Bruce Churcher

In 1952, a paper titled "A Single-ended Push Pull Amplifier" was published in the Proceedings of the IRE by Peterson and Sinclair featuring transformer-less coupling to the speaker. While technical discussion and some designs followed in various publications, only some boutique Hi-Fi makers (notably Futterman) produced commercial amplifiers using this system. Split rail power supplies and multiple output valves made these amplifiers complex and costly.

Philips produced a simple amplifier by designing speakers with high impedance voice coils of 400 and 800 ohms. These speakers could be driven by two standard valves to deliver 4 – 6 Watts of audio into the speaker with an HT of 300 volts.

Since the valves are in series across the supply, the cathode of the upper valve requires a high heater to cathode voltage rating, hence some unusual output pairings (eg UL41 and EL84) appeared in some Dutch table radios of 1954 – 55.

In 1957 Philips released a high-quality radiogram with the model name Carnegie Hall featuring Hi-Z and Bi-ampli features. Hi-Z referred to the use of 800 ohm speakers; a 10 inch for bass and an 8 inch twin-cone for mid and treble ranges. Each speaker was driven by a separate amplifier (hence "Bi-ampli") preceded by a simple RC/CR filter network designed for a 400 Hz crossover. The bass speaker, with a 30Hz resonance, used the lower cabinet as an infinite baffle enclosure and was lined with Pinex softboard for damping. The amplifier output stages used 2 x PL81 valves in series (but the anode impedances are in parallel). Only the lower valve is driven, the upper valve obtaining drive and bias from its own cathode resistor.

*Note; the PL81 was designed as a horizontal deflection amplifier for small screen TVs where the top-cap is the anode and able to carry a high voltage of up to 7kV peak! – **BEWARE**!*

The absence of an output transformer coupled with separate audio channels with their own speakers, all contributed to a high-quality audio output with low distortion and very little intermodulation.

Having proven designs using this technique, Philips in 1956 released a valve with ideal characteristics for SEPP (Single Ended Push Pull) design – the EL86, and its series heater versions the PL84 and UL84.

EL86 = 6.3v @ 0.76A(4.8W),
EL84 = 6.3 @ 0.76A (4.8W),
PL84 = 15v @ 0.3A (4.5W),
UL84 = 45v @ 0.1A (4.5W),
PL81 = 21.5 @ 0.3A (6.45W) filaments

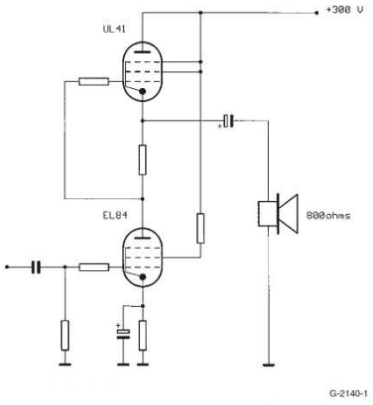
The EL86 was designed for higher anode current at a lower HT than the EL84, and a higher heater-cathode rating of 200 volts. The EL86 valve became widely used in a range of Hi-Z audio equipment.

With the arrival of stereo, a market opened for second channel amplifiers with satellite (ie remote) speakers. Some existing Philips single-channel grams were fitted with an extra

internal power amplifier to drive an external speaker for stereo. New models of single-chassis stereograms followed.

A further development was push-pull driving of the 2 x EL86 output stage with a double triode (ECC83). This and a combination of negative and positive feedback could give 10 Watts of output power with 0.3% distortion.

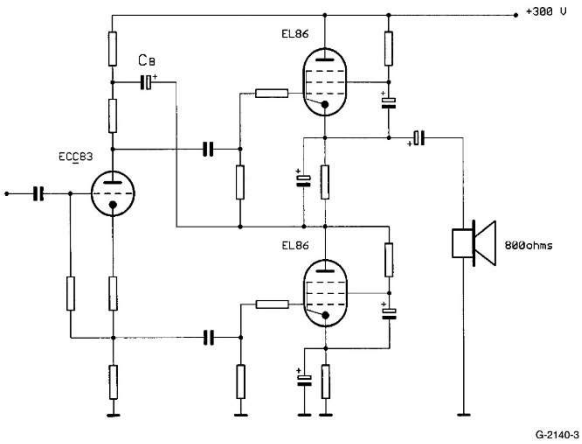
A version of this design (with less power) was incorporated in a number of Philips radiograms both mono and stereo. They are readily identified by the circular magic eye (EM34) in the centre of the dial. Model numbers include F8Z88A Festival Hall mk IV, F8Z96A Westminster Hall, F9Z06A Festival Hall mk V, FZ876A Festival Hall using UL84 output valves, and the FZ886A Festival Hall mk II



Philips also made Hi-Z versions of Hilversum table radios B5Z17A Conbrio and B4Z69A.

Also, three of the Philips TV series S5, S8 and F2 used Hi-Z audio output.

Note: that a low impedance speaker may be utilized in a Hi-Z amplifier by matching with a 100volt line speaker transformer. Since the transformer carries no DC, Philips recommended an auto-transformer, offering high efficiency and low stray inductance with minimal effect on the quality of reproduction.



References: -

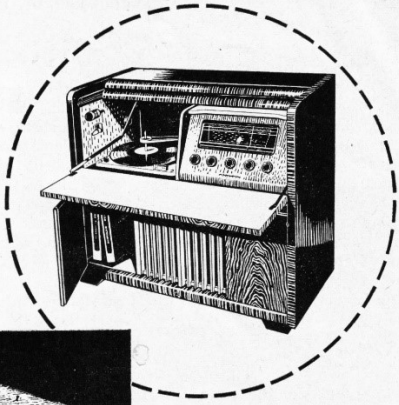
- The Valve Museum, r-type.org
- “Hi Fi Amplifier Circuits” by E. Rodenhuis, Second Edition, 1965
- “An Outstanding Philips Radio-Gramophone” Radio and Electrical Review, October 1956
- “High Quality 2 x 10W Stereo Amplifier using single ended push-pull output” Miniwatt Digest, September 1963.

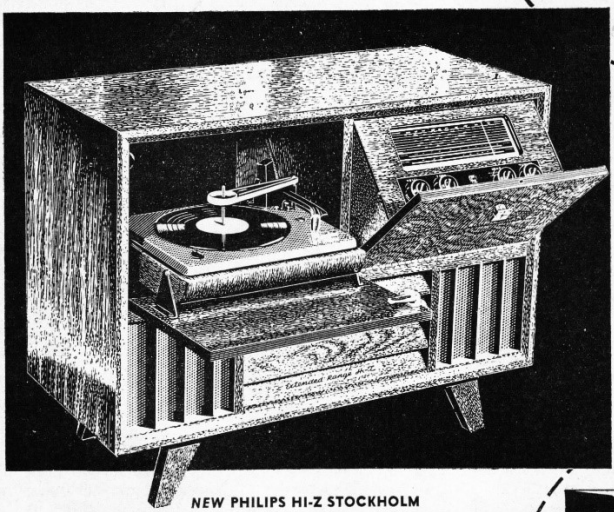
All courtesy of the NZVRS Library.

THE GREATEST DEVELOPMENT SINCE HI-FI

PHILIPS HI-Z

TRANSFORMERLESS REPRODUCTION





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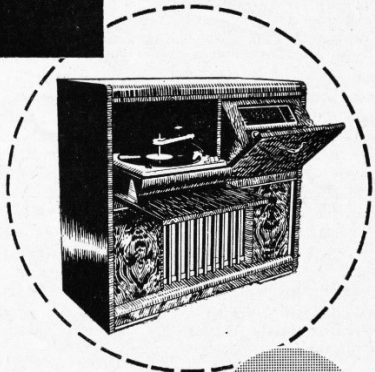

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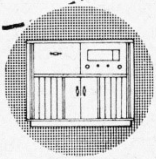


PHILIPS HI-Z
CARNEGIE HALL

The luxury class HI-Z Extended Range Bi-Ampli Radiogram.

Retail price **215 gns.** or with Tape Recorder **264 gns.**

“Radio Reveries” by Bill Collerton 1994

A story of “Arnrite”. (Found in some JWS papers)

Leslie Alan Chasten was born in Christchurch and commenced his early working life there. Later he became a small operator on Wellington's postwar radio manufacturing scene. He was a genuinely liked man with a cheerful outgoing personality who retained a boyish enthusiasm for making things mechanical and electrical. This started at a young age with the making of crystal sets and batteries. In a serious moment Les confided to the writer that he had an indifferent start to life with a series of early childhood illnesses which prompted the family doctor to advise the doting parents that their son's life expectancy would be a brief one and unlikely to exceed his teenage years. Rebelling at what he perceived as family mollycoddling and a fawning attitude by the old doctor, Les decided if life was to be short at least it would be a merry one. Hard work and hard play would go hand in hand. He carried this philosophy through his span exceeding more than three score years and ten. This obviously showing the Doctor's dire prognosis to be quite wrong.

After leaving College he worked for a Christchurch company making torch cells and a range of other dry batteries. Later this company was bought out by National Carbon Ltd. He was then transferred to their Vivian Street, Wellington factory employed as a Maintenance Engineer. The factory produced a wide range of Eveready batteries to a largely unsatisfied market and virtually enjoyed a near monopoly in this field.

About 1946 Les Chasten left National Carbon to set up a Radio parts and Service shop around the corner in Cambridge Terrace. This business traded under the name of Radio and Electrical Exchange. The business soon flourished and was swamped with radios and electrical appliances needing repairs (thus proving that despite their extensive radio advertising, Columbus by no means dominated the servicing field).

To cope with this influx of work, Les Chaston employed Les Townsend a long-term employee of Philips Industries to take charge of the service side.

Time was now available to turn attention to a kit set portable radio using the miniature valves which need 50 mA at 1.5 V to heat their filaments, well within the capacity of ordinary torch batteries. This allowed the portable radio to gain in both compactness and economy at a time of increasing affluence to become an affordable purchase for many more people. The kit set radios sold very well indeed but Les Chaston was surprised by the insistent demand for a fully built up version and determined to meet the request with an enhanced commercial model.

Enter now Arnold & Wright Limited, Radio and Electrical Wholesalers who had been supplying "WEARITE" I.F. transformers and "POLAR" tuning condensers. A deal was struck for them to distribute the new radios under their ARNRITE trade name with 4-valve and 5-valve models to be produced. A design committee of four determined the final design and consisted of Les Chaston, Les Townsend, Harry Gestro (a clever mechanical engineer who had a small business in Courtenay-Place) and "Gordon" a printer who designed the gold embossed calibrations on the front panel of the cabinet.

A Mr Thorns who operated a plastics business almost opposite, near Kent Terrace was contacted to supply the PERSPEX cabinets in white and various pastel shades. In order to deal with the extra workload Les Townsend persuaded Robert Blatchford, a former senior colleague of his at Philips, to join the team as Serviceman and final tester.

The writer, who had received like many others, invaluable technical training in the RNZAF, followed by radio factory experience at Philips and then some time at Radio Corporation factory and service departments, also joined the staff. I was quickly followed by a young Doug King ex McDonalds "Modern" radio factory where Wynne Billing designer/technician had been his guide and mentor. Doug had a natural flair for receiver design and construction. Reg Green, son and heir of a Taranaki family, was the last to arrive for a position. A well-educated man with a good knowledge of mathematics and radio theory, he was also ex RNZAF (RADAR) and Radio Corporation Limited. The group therefore were a fine blend of youth and maturity with good technical backgrounds and ample enthusiasm to make a formidable team.

In 1948, radio production got off to a fine start in the small factory at the rear of the retail shop and the radios sold like 'hot cakes". To keep up with demand, an evening shift was necessary. Among the evening workers was "Gordon" the printer who was "moonlighting" with the worthy objective of saving for a house.

The 5-Valve model was the most popular seller but the 4-valve version was a good performer. Outside the factory premises in Cambridge Terrace, which was noted for its high level of electrical interference from overhead tram wires and nearby industry, it was possible to receive 3YA Christchurch at a reasonable level in daylight. This compared favourably with Doug King's Emerson 558 portable which was used as some sort of a standard, but of course more accurate measurements were made on the lab equipment.

Radio and Electronics March 1949

However, back to the 5-valve model; we were amused to hear through the "grapevine" that Al Webb of Webb's Radio, Auckland was being taken to task by some of his local dealers who claimed that his ARIEL portable radios were running a poor second to the new ARNRITE in the performance stakes. Stung by such criticism Mr Webb surreptitiously purchased an Arnrite from Arnold and Wrights Auckland branch for comparison tests. He was mortified to confirm that indeed his radio was an inferior performer and was greatly perplexed at this state of affairs. Here was a rival receiver using the same valve line-up, the same voltage supplies, virtually the same circuit and of similar physical size and was markedly superior. What was the "secret"? In fact it was no "secret" at all and summed up in three words "tuned circuit efficiency".

Due to inadequate quality control by the makers of WEARITE I.F. transformers there were considerable discrepancies in their specification. It was one of the writer's tasks to check all I.F.'s on a Q meter. Those with the highest gain being used for the first I.F. stage in the receiver and those below par rejected if not good enough for the second stage. As Inductance Specialists Limited had declined to make a special R.F. coil for us it was necessary to remove some turns from the primary of one of their standard stock coils. Again, all were checked on the Q meter. Finally, the loop aerials were very carefully designed and wound on Paxalin material. They were then given the hot wax bath treatment in a special low loss wax obtained from National Carbon Limited. All this attention to detail resulted in a better product. As an experiment, a few 5-valve models were fitted with the high gain I F. transformers in both stages and the loop aerials were wound on Perspex formers. These performed so well that in our Wellington location it was possible to receive IYA Auckland in daylight. However, these receivers were not

identified in any special way and were sold off with the general run of production radios. Some fortunate purchasers must have been most impressed.
Also most impressed was a young man who must have been the original Backpacker who entered the shop with a normal 5-valve version to have batteries fitted and to especially thank us as makers for such a reliable radio with a fine performance. He explained that he had taken the ARNRITE radio around many parts of the world on his travels. Its receiving capabilities caused some astonishment in the U.K., but of course it didn't have much competition from the local products which were just fair performers and only suitable for their own domestic market. The few English brands such as Ever Ready (note spelling), Vidor and Mullard which trickled into New Zealand were very mediocre with low sensitivity. The traveller went on to say that he achieved the near impossible by being allowed to tour parts of the Soviet Union, and how the radio had amazed the locals with its reception in that vast country. This unexpected source of praise was greatly appreciated.

Meanwhile production continued at a steady pace and to divert attention from matters entirely radio whilst working, other topics came up for consideration including motoring. In those days new cars were very scarce and so too were good used ones.
Reg Green was into the ownership of his second used Riley. Merely for the sake of being provocative Doug King and I told Reg that his impaired judgement in buying the first one might be excused, but to go on and replace it with a second one was bordering on a serious aberration. We went on to say that “surely he knew that American cars were far superior in technology and reliability and how much better it would be for him to own a sensational new Studebaker "Champion" or for something a little more conservative seeing he came from Taranaki a new Plymouth would be the answer."
Reg accepted this banter with good natured tolerance. One day he arrived back at the factory late in the afternoon and confessed to having a motoring mishap with his precious Riley. Setting off for the Railway Station with a small carton of portable radios to dispatch and travelling down Lambton Quay the car was bumping and jolting over Wellington's notorious rutted tram tracks before it came to a dramatic stop when the battery which was located in an "out of sight out of mind” place under the back seat collapsed through the wooden floor onto the road in a spectacular shower of sparks.
Hoots of derision and laughter greeted this admission and gave the gratuitous advice to “sell it and buy a Buick". Naturally this advice was ignored. Really our feigned anti English car bias was on very shaky grounds as Doug King owned a new Hillman Minx and the writer a Vauxhall 12, both British cars.
Les Chaston and Arnold & Wright Limited had done very well out of their joint venture with the radios and as production eventually tapered off, Len Arnold and Les Chaston mutually agreed to replace them with a medium size AC-BATTERY model to be known as ARNRITE “JUNIOR” for the 1949 model year. It was also agreed that Les Chaston form a company which was registered as LA Chaston Limited. Staff members were offered minority shareholding which we took up and we had a celebratory drink to toast a new era and looked forward with confidence to a bright future.

Les Townsend was given virtually a free hand to design and develop the new radio while Les Chaston decided to enjoy some of the fruits of his labour and switched on to “PLAY” mode. He converted almost one entire floor of his large Newtown house to an entertainment area. Fitted out with a bar, jukebox, pool table, card tables and library of American magazines and all the appointments considered necessary for a gentleman's leisure. There he entertained Embassy members of a large friendly nation and leading personalities from the radio industry. Among his guests were Ralph Slade of Philips, George Wooller of Akrad, Ted Palmer of Inductance Specialists, Ray Wright of Arnold & Wright, George Tustin and Guy Thornton of Martin Burns Limited, and many others including the trio of ex Airforce radio/radar boffins Doug Foster, Stan Shea and Ian Rowe.

In the early post war years these three worked in Ballingers Building, Victoria Street, occupying some of the same floor used by T. Meganns radio business. There they made transmitters and other radio equipment. Later they separated. Doug Foster going to Mercer Street as founding editor of NZ Radio-Electronics magazine. Stan Shea went to Tory Street and manufactured transformers and later radio telephones. Ian Rowe operated from his home workshop in the Brooklyn suburb, making Williamson and other special transformers as well doing general rewinds

However back to the party scene where Stan Shea had a penchant for quoting Shakespeare which was a little outside Les Chaston's range of interests but he agreed that the Bard’s words fitted neatly when applied to crystal set radios when he wrote:

“This shall prove a brave kingdom for me
When I shall have my music for free”
The Tempest Act 3, SC2.

On the formation of the Company, Reg Green was promoted to the position of retail shop manager. He was a little unfortunate in having a speech stammer which worsened when he became excited. One day the inevitable happened when a customer with a similar impediment entered the shop to be served by Reg. While we genuinely had sympathy with people’s problems, what followed seemed like pure farce and we simply gave way to the occasion. It was like two Arkwright’s of the "Open All Hours" TV series in full flight, each battling to outdo the other in this remarkable verbal jousting, so we turned on the intercom to the shop to best hear this unusual contest. The effect was hilarious and we were doubled up with laughter listening to it all. Reg was the winner and sold to the enquirer the most expensive Philishave in the shop. In spite of his speech problem, he was a very helpful and effective Manager.

He was certainly capable of giving considerable help to and converse in French with Andre a worker in the French legation whose knowledge of English was virtually nil and who had just taken up the hobby of building kit set radios. Andre returned many times for advice and to buy component parts. I must comment that the French kits were the first I had seen from that country and were of a very high standard, while the parts lay-out and wiring drawings were the best I have ever seen.

Adjacent to our shop, one H. Wood printer had set up a printing business. One of his first orders was for the certificates and stationery for our newly formed company. He was given permission to use our shop telephone pending the installation of one in his own

premises. (Remember the "good old days" when it took up to 12 months to get a business phone connected?). Known to all and sundry as “Woodsey” he was a dapper little man with an impish sense of humour. He was also a jazz fan and had a fine collection of jazz records. In those days it was necessary for radio manufacturers to attach patent license transfers to each receiver, the fee for these going to Australian Radio Technical Service and Patents Limited. The transfer decals showed the abbreviated name form ARTS & P. One morning "Woodsey" called to use the phone in a small office located in the showroom. There he spotted on the desk a large commercial cheque book with a cheque made out to ARTS & P and awaiting the signature of the company secretary. Unable to resist temptation he decided to show a sample of a printer’s skills by adding- the letter “F” in front of those already on the cheque. Ken, the dour Scottish secretary was not amused by such vulgarity and even more sinful in his eyes was the waste of a cheque form. The culprit was sternly upbraided for his indiscretion.

These light hearted episodes show that all our lives are full of nuts and bolts that look trivial and commonplace but are matters of humour and/or high drama to us living through them. In the meantime, work was proceeding slowly on the design of the new receiver. The concept of the original ARNRITE was simple and very effective. With the development of the replacement model the designer veered off in another direction with a “custom built” attitude. Also, his long spell with Philips seemed to influence him to use some of their less endearing design practices. The end result was a product mechanically complicated and costly with a formidable list of custom-made including the following;
Power Transformer, AC input plug and socket, Wire wound resistors, Control Knobs, Rosette Plastic-Headed Screws, Metal Rectifiers, Coils, Cabinet Back Fasteners, and Metal Shaft Couplers
Perhaps most remarkable of all was having National Carbon Limited make a special 9-volt "A" battery known as a C16 (retail 10/6). Fortunately, other manufacturers later used this battery type for various purposes to ensure a continuity of supply for the replacement market.
Drama was about to unfold due to the long gestation period and instead of new receivers appearing a decidedly unwelcome form of receiver appeared - being appointed by the bank, who became alarmed at the cashflow going mainly in one direction - out.
During the development time the only income was derived from retailing, servicing and the making of some one-off specials such as a DC. operated guitar amplifier for shipboard use. The shock appointment of a receiver soon had the Managing Director devoting his full time to the important task of running a business. Alarmed at these happenings and dismayed at the technical design of the new radio (done in great secrecy), we younger staff decided unofficially to do something about it. While impressed with the performance and style of the model which looked particularly smart in a maroon-coloured cabinet; we agreed that it was too mechanically complicated for ease of production and servicing. Therefore, we prevailed upon Doug King to come up with another version, This he did in a miraculously short time working from his home workshop in the evenings. Despite its great simplification there was no impairment to the radio’s fine performance and "off the shelf” parts were used widely. At last production

of the original design was under way as many of the component parts had been bought in for that purpose. Slowly building up the output reduced the business pressures for a while then a progress blow was struck when for various reasons Arnold & Wright Limited cancelled their order for further supplies of radios.

Shown Doug King's new chassis design, a worried Les Chaston eagerly seized the opportunity to relieve the pain and to put it into production immediately. At that stage the company designer resigned and left to set up a small radio service business in Upper Cuba Street, Wellington. His place was taken by Maurice Maloney ex HMV (NZ) Limited radio design laboratory. As senior technical-man he suggested minor amendments to the new chassis and it went into production to be sold under the NEECO nameplate. Next the two jointly designed a simple 5-valve AC mantel radio which was installed in an inverted U-shaped plastic cabinet. It was reliable and a good performer and also sold under the NEECO label. Probably a couple of hundred were made but have never seen one since.

Despite the burning of much midnight oil and the best efforts of all concerned the company was wound up. All manufacturing stopped. So, another Kiwi dream faded away. In hindsight it is clear to see that a lack of effective liaison between the company accountant, the Company Secretary, the Managing Director and the designer, plus a one model policy caused the business to fail. Reg Green who had come into a family inheritance purchased the retail business from the receiver. Les Chaston left to pursue other interests. Maurice Moloney joined the radio section of Civil Aviation and Robert Blatchford took on part-time work pending his retirement. That left Doug King and I, who, undaunted by the set-back decided in partnership to take on the big exciting world of radio on our own terms.

This leads to T.V. Radio Company Limited and CAPEHARTE radios of which more later. *[but yet to be found. Ed]*

The above item “popped up” while looking for some background material on Arnrite sets for an enquirer.

The following pictures were provided.

On right the front panel is very similar (if not identical) to the cover picture which is the editor’s 2 valved version.

Above – two views of the 1 valved version layout. The rear view shows the aerial and earth connections, and the battery still intact. A single DL33 valve is still installed.

Below – special battery for the set that lives in a bracket under the plywood wiring board, that also acts as a stable base for the set, even though there is only a front panel.

By chance the editor picked up the two valved Arnrite at a recent NZVRS auction and it is shown on the cover and in the following picture. This version came with a 1T5 installed but no audio amplifier valve. The 1.5 volt bias D cell battery holder is common on both sets as are most of the components, although of course the layout is different.

Editor's Two Valved layout with missing output tube.

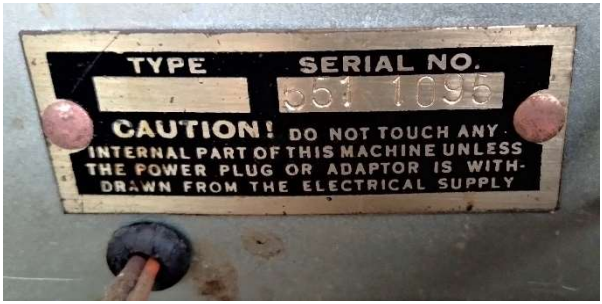
"Arnrite" front of set label enlargement

A 1955 Radiojoy Radiogram Cabinet Restoration

by Craig Mountjoy

Earlier this year, I was very kindly donated a ‘Radiojoy’ radiogram that had been in storage for a few years after being damaged by a toddler. (See ‘before photo’). The child had kicked the speaker cloth and ruined both the cloth and the speaker cone. Sun had also deteriorated the finish of the cabinet, especially on the front panels. The top and end panels were also dull and had a few scratches, but were in surprisingly good condition for a 67-year-old radio!

The radio’s manufacture date is determined, from the serial number (551 1095), to be January 1955, which is possibly the last year in which F.W. Mountjoy and Sons Ltd of Royal Oak, Onehunga, Auckland produced radios.



The 6 valve radio chassis appears to be complete and in reasonable condition, but is yet to be tested and brought into working order. I have cleaned the visible components, removing the usual build-up of dust, surface corrosion and spider droppings. The paint on the steel panel behind the etched slide-rule dial glass was flaking off, so I cleaned it up and resprayed it in a matching paint (Titanium). I pulled the dial glass off and cleaned it with a cotton bud and a little isopropyl alcohol, being extremely careful as both isopropyl alcohol and soapy water dissolve the painted station names. The plastic knobs came clean by scrubbing with a toothbrush wet with a weak Handy Andy in water solution. I have not yet tackled the BSR Monarch changer record player on which all the rubber components have perished.

As the cabinet was in relatively good condition, I wanted to achieve a decent level of cabinet restoration without stripping it all back to the wood. Ideally, I believe, an old cabinet should not look new after restoration, just in really good condition for its age. One would expect a few indications of its long history of service in a home. It's not always possible to retain much or any of the original finish, it often being too far gone to be practicable to achieve a sympathetic restoration, but where it is possible, it's my preference.

I do not profess to have any kind of expertise in cabinet restoration. In fact, I'm a rank amateur, having only done about 9 cabinets to date. There will be many members, I'm sure,

who have far greater experience and get better results, but I haven't seen any articles on how they do it. To generate more discussion on the techniques in use, I thought I'd share my experimentation to give others some ideas and encouragement to try, and to encourage more members to share their experience in the techniques of cabinet restoration.

I started with the least deteriorated areas, the sides and top. I mixed one part each of Methylated Spirits (Meths), Linseed oil (boiled), and turpentine. I store this mix in a glass jar with an airtight lid and give it a good shake before using. Applying with a 0000 steel wool pad (available from Bunnings), I rubbed the surfaces in a small circular motion to remove the build-up of dirt and wax and to cut back the surface. This, after repeated applications, brings back the colour to Shellac finishes. I went over the surface at least 4 times, on the last three rubbing with the grain. When it got sticky, I just diluted the mixture with more turps and linseed oil. It is the meths that dissolves the shellac and contributes most to sticking. Once cleaned and the colour restored, you can refinish with Shellac. But in this case, there was no need. I applied four coats of Briwax clear wax (from Bunnings), polishing off with a clean mutton cloth after each application, being careful not to rub so hard as to generate heat which would melt the wax.

The Shellac finish on all the front panels was very crazed and too far gone for the same restoration technique. I had to remove much of the most severely damaged finish, but did not want to remove the stain on the wood so that it may not match with the top and sides. I cleaned off these panels using 000 steel wool soaked with meths. This required several hours of circular rubbing, keeping the pad of steel wool damp with fresh meths and changing it regularly as the gunge built up in it. In some areas, especially the parts under the dial face and around the radio knobs and on some of the doors, I had to cut right back to the wood surface. Some stain colour was removed in the process. So, I had to resort after-all to mixing stains to get the right colour to touch up these areas, quickly wiping off the excess from areas where stain was not required. This was the most stressful bit! I was worried about some darker areas – thinking I had over-done these, but reference to a before photo showed these same areas were darker anyway. Whew! The black-painted trim areas, I sanded to remove all flaking paint and applied black blackboard paint. Two coats were necessary. I learned from Gerry Billman how blackboard paint, with its very mat finish and then with Shellac applied over it looks more "old and original" than a modern black paint.

Once all was thoroughly dry, I applied two coats of Shellac using a very soft round brush, about 30mm across, to all the front panels and the black trim. (Shellac is available from Bunnings in both ready to use and in flake form, which must be cut with Meths). Shellac must be applied along the grain. You cannot go back over it, so each stroke must be full length of the piece. If you don't get it right at first, you need to wait until it is dry (30 minutes, or more if the temperature is cool) and apply another full coat. There are many videos on U-Tube that show the application of Shellac. I watched a few, but there is nothing like practice to get the technique right. I applied a second coat, as the original finish had quite a high gloss level. The more coats of Shellac, the greater the depth of gloss that can be achieved. However, it's unlikely the original finish would have had more than two sprayed coats. After each coat, I gave the Shellac surface a very light wipe-over with 0000 steel wool to remove

high points, followed by a wipe with a lint-free cloth, lightly damped with turpentine to remove dust. I achieved the high gloss appearance by four hand applications of Briwax.

I had some suitable speaker cloth. The original had been glued onto the panel around the edges of the panel and then fitted into the cabinet and screwed in place. To fit the replacement cloth, which was thicker, I had first to plane the edges of the speaker panel a little, then wrap the cloth around the panel, keeping the weave straight, and staple it into place on the back of the panel, using stainless steel staples. It's good to have a second pair of hands for this operation. My first attempt is not perfectly straight, but it's near-enough.

I had a similar speaker to replace the damaged one. It is a 12" Rola, although from 1947 manufacture, not 1953 as the original. I'm hoping it will be OK.

So, there you have it. Happy to receive any comments or helpful hints. And would be very happy if others with more experience would share their knowledge and experience with cabinet restoration, especially on repair or replacement of damaged veneer, what glue works best for this, and so on.

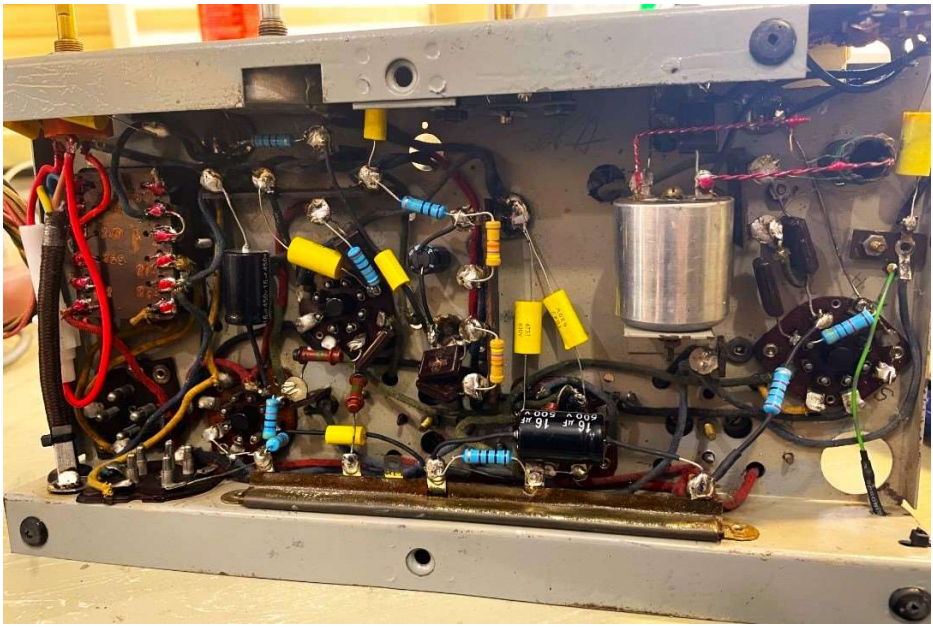
Ultimate EB Junior (1940) – a restoration by Toni Szentpeteri

Earlier this year there was a request for knobs for the Radio Limited Ultimate EB Junior from Toni across the ditch.

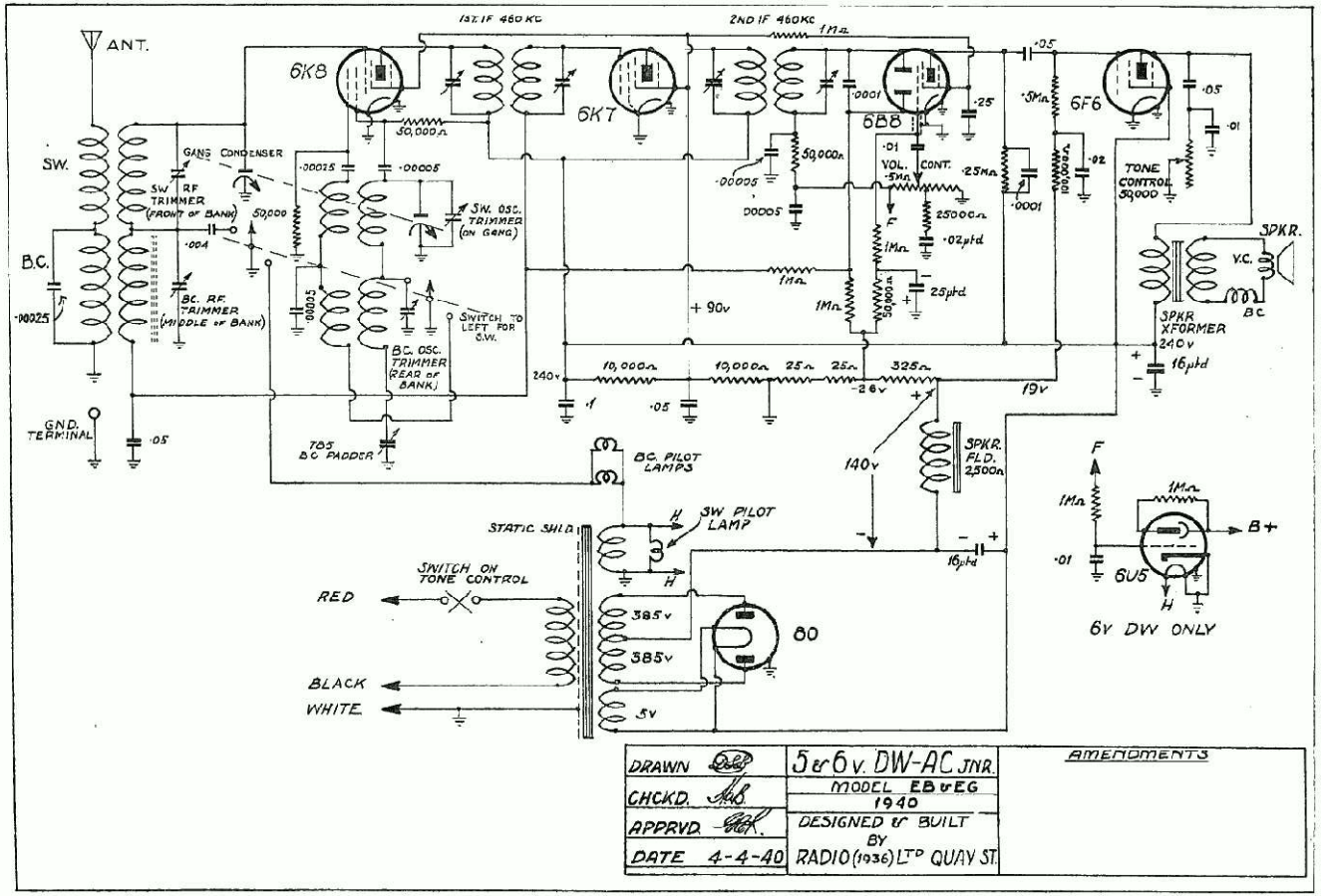
Kindly, our member MM had some in stock and a transaction, after some setbacks, was concluded. Toni promised to send some pictures of his work and here they are:

Before restoration:

Under chassis before (above) and after (below)



With the wooden knobs kindly sourced by NZVRS


1st I.F. 460 KC
2ND I.F. 460KC
ANT.
6K8
6K7
6B8
6F6
SW.
B.C.
GANG CONDENSER
SW. RF TRIMMER (FRONT OF BANK)
B.C. RF TRIMMER (MIDDLE OF BANK)
SW. OSC. TRIMMER (ON GANG)
B.C. OSC. TRIMMER (REAR OF BANK)
SWITCH TO LEFT FOR S.W.
GND. TERMINAL
705 B.C. PADDER
B.C. PILOT LAMPS
S.W. PILOT LAMP
STATIC SHLD.
SWITCH ON TONE CONTROL
RED
BLACK
WHITE
VOL. CONT.
TONE CONTROL
+ 90v
240v
19v
140v
-26v
SPKR.
V.C.
SPKR XFORMER
SPKR. FLD. 2,500Ω
6U5
B+
F
6V DW ONLY
80
385v
385v
5v
DRAWN
CHCKD.
APPRVD.
DATE 4-4-40
5 & 6 v. DW-AC JNR.
MODEL EB & EG
1940
DESIGNED & BUILT BY
RADIO (1936) LTD QUAY ST.
AMENDMENTS

2ZE Eketahuna - A Popular Radio Station says Peter Best

(Peter produced “Eketahuna, stories from small town NZ” here is an extract)

As broadcast radio stations began in the mid-1920s, offering programmes of musical entertainment, it began to be fashionable to own a wireless. To spend the evening twiddling the knobs, listening to gramophone records crackling over the airwaves, became a common pastime. Moreover, there were those with a curious mind and technical bent becoming obsessed with the new-fangled invention of radio. Jack Allen of Eketahuna, known as ‘Ponky', was one of those.

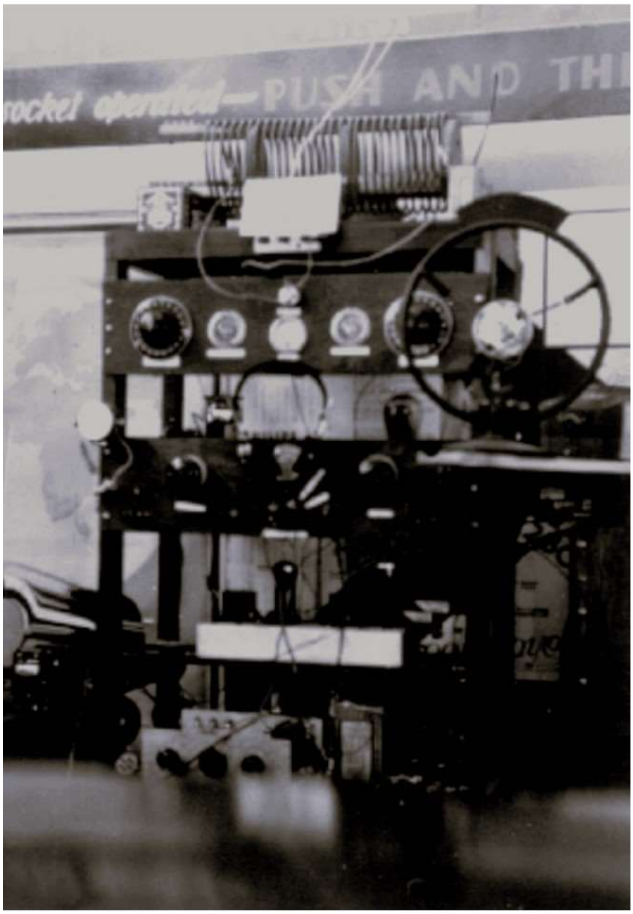
The son of Mr G.T. Allen, owner and editor of the Eketahuna Express newspaper, ‘Ponky' Allen was so keen on radio that in 1929 he obtained a licence and set up a 'B' class radio station in Eketahuna. It was assigned the call 2ZE and first operated from the Express offices in Main Street. It caused some excitement in the district and for a time put Eketahuna 'on the map.' To have `2ZE Eketahuna' listed in the newspapers alongside `1YA Auckland' or ‘2YA Wellington’ raised a few eyebrows across the nation, even in those early days.

The radio station 2ZE can be said to have got started on Tuesday 23 July 1929 when the *Eketahuna Express* announced the arrival; "by recent American and British mails of long-awaited parts to complete the 15-watt transmitter." It also stated that the station would "broadcast on frequency of 1210 kilocycles or 248 metres — below 3YA Christchurch on the dials."

The next day the Express carried a report headed, "2ZE On the Air, Successful Test Late Last Night, Station Now Working On Reduced Power". In the report it mentioned that "At about 9.30 last night the final nut was screwed up on the transmitter." and "A gramophone record was modulated into it with remarkable clarity, but without extraordinary volume." After

several records had been played ‘Ponky’ was heard announcing, "Hullo, hullo, 2ZE calling." The *Express* described it as "a new voice being added to New Zealand's ether." According to Noel Dick, a long-time resident of Eketahuna and radio enthusiast, it was a nasal voice; Ponky apparently had a twang quite unsuited to radio broadcasting

However, he did have a lot of assistants — one of these was a friend Jack Berney at Ihuraua, who was also interested in the new marvel of wireless. He was a great help with listening tests on the new transmitter. He would phone in and advise on the quality of the reception, as would many others. Hearers were in fact invited to phone in or write to the station to report reception. A neatly printed card was sent out to all those who responded, thanking them for their co-operation. Messages were received from far and wide as the station was picked up, with varying degrees of reception, in Wanganui, Hunterville, Masterton, Pahiatua, Hawera and even Dunedin. A Mr Chas. Cummings from Hawera wrote, "I am pleased to say that I got you at loud speaker strength R10 and except that there was bad fading now and again reception was excellent ... May I congratulate you on your transmission." And a Mr E. Jenkins from Dunedin, who boasted a 60-foot aerial at a height of 35 feet and a counterpoise earthing system comprising an old car radiator and 12 pipes buried in the ground, reckoned that the reception and volume were "equal to that of any 'outside' B class station and better than most". He gave a rundown of the programme he had heard to prove his point. Another who enjoyed listening was Margaret Cooper of Alfredton Road; but she had to go next door to the home of Mr and Mrs James Jones, as her family did not have a radio at that time.



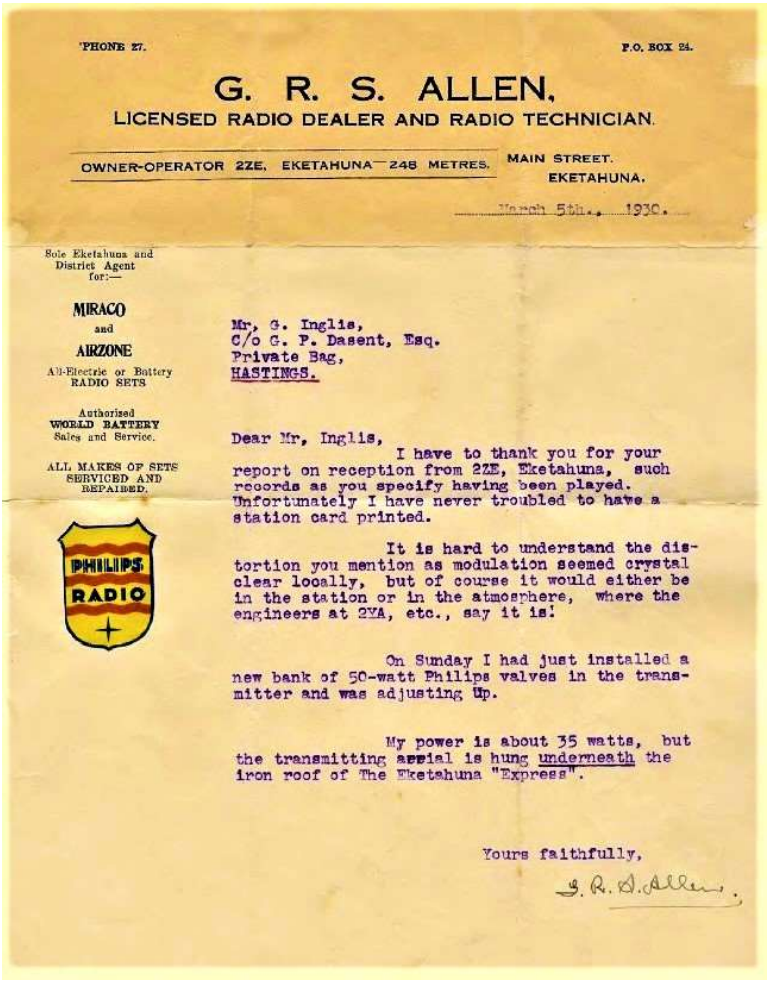
However, the invention of radio was at first treated with caution. It did, after all have a huge impact on family and social life. The following comment in an editorial in the *Eketahuna Express* on Wednesday 14 August 1929, could well be an expression of fatherly apprehension regarding a talented son. "We have profound reason to be grateful for the quality and management of our radio service. But it remains true that with every one of these inventions there is an increased temptation never to develop the resources that are within us."

Early in 1930 Ponky shifted his studio to premises across the road. Known as Allen's Radio House, he set up business selling wirelesses, gramophones and other electrical goods, while continuing to broadcast. 2ZE usually went to air around 5.30 p.m. after he had shut up shop for the day; not every day, but always on a Wednesday. This was 2YA Wellington's silent day and was a lean period as far as music supplied by the other stations was concerned. There would be a varied programme of music, with occasional local news such as hockey and

football results. There were no advertisements as these were not permitted on a B class station.

2ZE had a short life. Better quality performance from the main stations meant less patronage and the fact that no income could be generated from advertisers made the operation uneconomic. It ceased operating in December 1932. However, Ponky still carried on his radio business for a while, as well as operating the local pictures. He eventually married Miss Doris Jewitt, a member of an old Eketahuna family, and subsequently achieved considerable success in the radio field in Australia. His old friend Jack Berney took over his shop, running a thriving electrical appliance business there for a number of years.

The station callsign 2ZE was subsequently reallocated to Blenheim in 1965 on 1539 kHz as Radio Marlborough, moving to FM in 1991. But today 2ZE is back as an Eketahuna FM station, located at the Tararua War Memorial Hall, Jones St, Eketahuna on a frequency of 88.3 MHz



'PHONE 27. P.O. BOX 24.

G. R. S. ALLEN,

LICENSED RADIO DEALER AND RADIO TECHNICIAN.

OWNER-OPERATOR 2ZE, EKETAHUNA—248 METRES. MAIN STREET. EKETAHUNA.

March 5th., 1930.

Sole Eketahuna and District Agent for:—

MIRACO and AIRZONE All-Electric or Battery RADIO SETS

Authorised WORLD BATTERY Sales and Service.

ALL MAKES OF SETS SERVICED AND REPAIRED.

PHILIPS RADIO

Mr, G. Inglis,
C/o G. P. Dasent, Esq.
Private Bag,
HASTINGS.

Dear Mr, Inglis,

I have to thank you for your report on reception from 2ZE, Eketahuna, such records as you specify having been played. Unfortunately I have never troubled to have a station card printed.

It is hard to understand the distortion you mention as modulation seemed crystal clear locally, but of course it would either be in the station or in the atmosphere, where the engineers at 2YA, etc., say it is!

On Sunday I had just installed a new bank of 50-watt Philips valves in the transmitter and was adjusting Up.

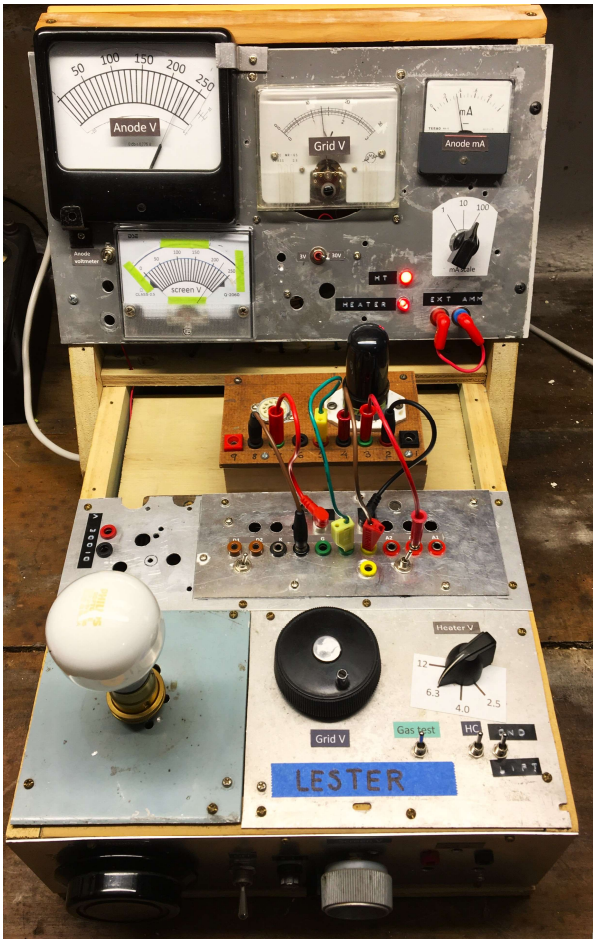
My power is about 35 watts, but the transmitting aerial is hung underneath the iron roof of The Eketahuna "Express".

Yours faithfully,

G. R. S. Allen.

LESTER the Valve Tester by James Davidson

The LESTER valve tester was built using transformers and panel meters from my 'junk' box of components kept for a rainy day. I named it after Lester Bestertester, a cartoon character by Don Martin in Mad magazine in the 1960s. It provides continuously variable regulated voltages for anode and screen (0-250V), and grid (0 to -30V) and can deliver up to 60mA of anode current.



For the **heater supply** I was lucky enough to have acquired a Beacon F10 transformer designed for valve testers, which supplies all the commonly used heater voltages. If a suitable heater transformer is not available, an alternative solution could be a DC heater supply using a voltage regulator such as the LM338. The heater circuit is connected to ground with a pair of 39Ω resistors as a "centre tap" to allow for testing of valves with directly heated filaments, and also to protect T3 against overload in case of a heater-cathode short. For directly heated filaments the cathode will be slightly positively biased (equivalent to a 19.5 Ω cathode bias resistor).

The **anode and screen voltages** (V_a and V_s) are supplied by a valve radio transformer (Beacon R84, 260/260V, 60mA). After rectification and filtering, the DC voltage of 350V is fed to the drains of two IRF740 power MOSFETs bolted directly (without insulation) to a single large heatsink. As the metal case of the IRF740 is internally connected to the drain, the heatsink is live at 350V (**Caution**!). The heatsink is therefore attached only to the wooden frame of the tester and is electrically isolated from other components. Two 130V Zener diodes provide reference voltages which are divided by potentiometers and feed the MOSFET gates. The sweeper of each potentiometer is connected to ground via a 10MΩ

resistor to ensure the MOSFET gate voltage is pulled down if the sweeper loses contact with the carbon track.

BC337 transistors provide current-limiting circuits. In the anode supply, a 7.8Ω current-sensing resistor generates a base-emitter voltage which switches on the BC337 when the anode current reaches 70mA, causing the gate voltage of the IRF740 to drop, thereby limiting the anode current. The screen current is limited to 20mA in similar fashion. The operation of this type of power supply circuit is explained in more detail in the excellent book 'Designing High-Fidelity Tube Preamps' by Merlin Blencowe (a.k.a. the Valve Wizard).

A large heatsink is needed because the power dissipation in the IRF740 may be considerable. Power dissipation P = (D-S voltage) x current (I). Therefore, P is maximal when current is high and output voltage is LOW. (e.g. for output voltage = 10V and I = 60mA, P = 340V x 0.06A = 20W).

Anode and screen voltages are monitored by panel meters V_A and V_S respectively. I chose to use analogue panel meters and I am especially fond of watching the ammeter needle climb as the valve warms up. Digital meters would serve equally well. The current drawn by V_A (0.1 mA at full scale) contributes to the measured anode current (I_a); this will be insignificant for most valves but in the case of valves with very low I_a to obtain an accurate reading V_A can be temporarily disconnected using the anode voltmeter switch. Alternatively, a high impedance (e.g. 10MΩ) digital voltmeter could be used which draws less current.

Anode current (I_a) is measured by ammeter A which has 3 ranges (1mA, 10mA and 100mA) and is protected by diodes. For valves with 2 anodes (e.g. double triodes and full-wave rectifiers) one anode is connected to socket A1, the other to A2, and a toggle switch

is used to select the active anode. Rectifiers should be tested with a suitable resistor (e.g. 4KΩ to 6KΩ, 20W) in series with each anode, to avoid excessive power dissipation in the MOSFET. For pentodes or tetrodes being tested in 'triode connection' mode, one A1 socket is used for the anode and the other A1 socket for the screen. Two banana sockets (normally shorted by a cable) are provided for the insertion of an external ammeter, in case a check on the built-in ammeter is needed.

Grid bias voltage (V_g) is supplied by a separate transformer, regulated by Zener diodes, controlled by a potentiometer, and monitored by panel meter V_G with ranges 0 to -3V or 0 to -30V. The meter is protected by a Zener diode. A large (50µF) reservoir capacitor is used in the grid bias supply to ensure a long time-constant, so that when the power is switched off V_g decreases more slowly than V_a. This was found necessary to prevent a surge of anode current at switch-off with some valves.

A 2.2KΩ grid stopper is included to discourage oscillation; this has the side-effect that if grid current is allowed to flow (e.g. if V_g is set to 0V), the actual grid voltage will be more negative than indicated by the meter due to the voltage drop across the grid stopper. For this reason, the V_g setting should be -0.5V or more negative.

Valve socket arrangement: I found that when a large number of valve sockets were connected together there was a tendency to oscillation with high-µ valves. For this reason, the valve sockets are mounted in removable panels, with no more than 3 sockets in each panel. The tester has a recessed slot for the panel to sit in. Banana plug jumper leads (as short as possible) connect the valve pin sockets to the anode, screen, grid, cathode, diode, and heater supplies. As an additional precaution to prevent oscillation, the wire connecting the pin sockets to each banana socket passes through a ferrite bead.

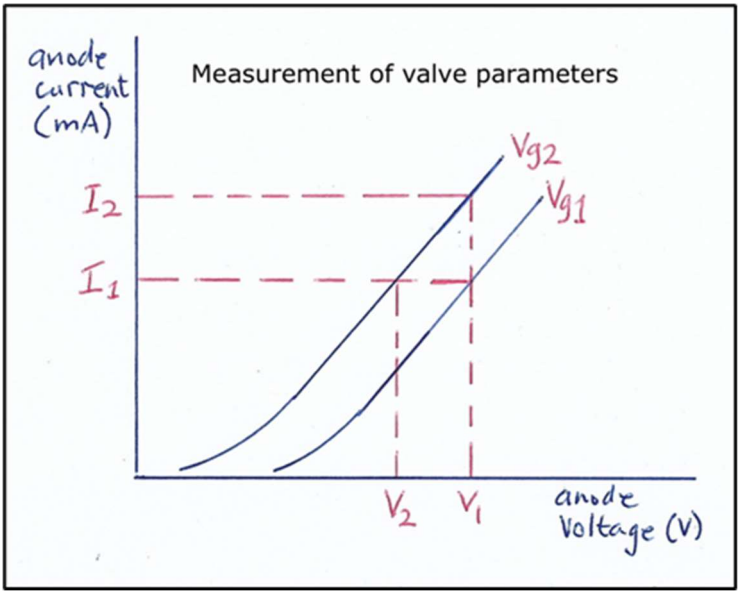
In addition to the current-limiting circuits, protection against **shorts** is provided by a 100W incandescent bulb in series with the HT power supply, as well as fuses in series with the transformer primary windings.

The **HC switch** is used to test for heater continuity and also to test for heater-cathode leakage when used in conjunction with the heater GND/LIFT switch. Depressing the HC switch causes the piezo buzzer to sound if heater continuity is intact. (Of course, it is only necessary to do this test if the valve appears "dead"). Depressing the heater GND/LIFT switch disconnects the heater from ground, and pressing the HC switch simultaneously will cause the piezo buzzer to sound if a heater-cathode short is present. The sound of the piezo buzzer is loudest with a dead short and gets softer with increasing heater-cathode resistance. It is still softly audible when the cathode-heater resistance is 500KΩ.

Gas test: Pressing the gas test switch introduces a 500KΩ resistor into the grid circuit. A small increase in anode current (usually less than 10% for most valves) is normal; a greater increase than this indicates a gassy valve. In a gassy valve, positive ions are attracted to the grid and generate a negative grid current (current flowing out of the grid towards the power supply) and the voltage drop across the resistor makes the grid less negative, which

causes an increase in anode current. (Note: if pressing the gas test switch causes a **decrease** in anode current, then this suggests the valve is oscillating.)

Measurement of valve parameters: A single measurement of anode current (I_a) compared with the expected value from the valve datasheet near the intended operating point gives a fair indication of the performance of the valve and is often all that is required. For a more complete assessment, the 3 valve parameters are determined as follows:



Mutual conductance (g_m) is calculated from 2 anode current readings at different V_g while keeping V_a constant: $g_m = (I_2 - I_1) / (V_{g1} - V_{g2})$

Anode resistance (r_a) is calculated from 2 anode current readings at different V_a while keeping V_g constant: $r_a = (V_1 - V_2) / (I_2 - I_1)$

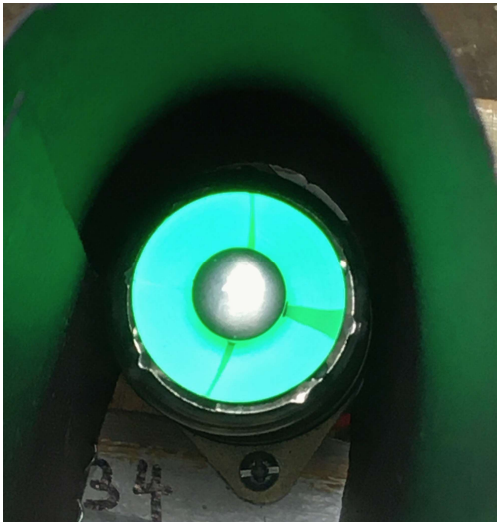
The **amplification factor (μ)** is given by: $\mu = (V_1 - V_2) / (V_{g1} - V_{g2})$

The results can be checked by confirming that they obey the equation $\mu = g_m \times r_a$

I have compiled a table of expected values for many valves, which I am happy to send to anyone who is interested.

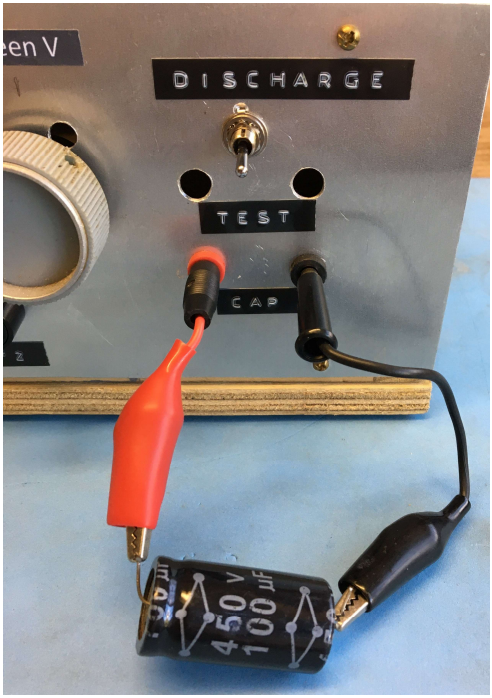
Diode testing: A 6.3V, 50Hz AC voltage is applied to the diode anode and the rectified average DC voltage developed across a 220KΩ load resistor is measured with a high-impedance (e.g. digital) voltmeter plugged into the 'diode voltmeter' sockets. A toggle

switch is used to select either diode 1 or diode 2. A typical silicon diode gives a value around -2.6V and a 6Q7 gives -2.5V.



Magic eye (tuning / indicator valve) testing: The magic eye is inserted into an adaptor containing the anode-target resistor. The adaptor is inserted into the valve socket. Performance of the magic eye is assessed visually. It is helpful to shield the magic eye from ambient light with a tube made of black paper.

Capacitor and diode testing: The tester can be used to measure leakage current in capacitors, and for re-forming old capacitors. The capacitor is charged from the anode supply via a 100KΩ series resistor. The capacitor is connected to the CAP sockets in the front (with care taken to ensure correct polarity in the case of electrolytic capacitors). With the ammeter scale initially set to 10mA, and the switch set to TEST, the anode voltage is gradually increased from zero up to the capacitor's rated value and the leakage current is displayed on the ammeter. After completing the test, the anode voltage should be decreased to zero, and the capacitor safely discharged by setting the switch to DISCHARGE. Tables of maximum allowable leakage current are available online.

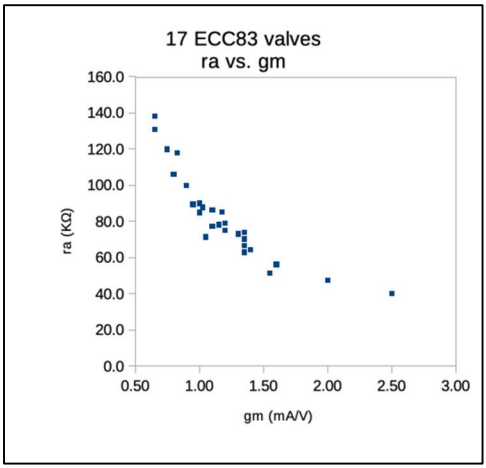


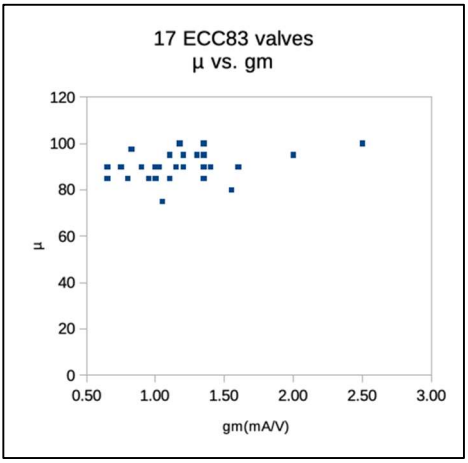
A useful rule-of-thumb for maximum leakage current is:
Imax(μA) = 0.01 x C(μF) x V
where C is the capacitance and V is the voltage. The same set up can be used for re-forming electrolytic capacitors. Similarly, solid-state diodes can be tested for reverse leakage up to their rated reverse voltage.

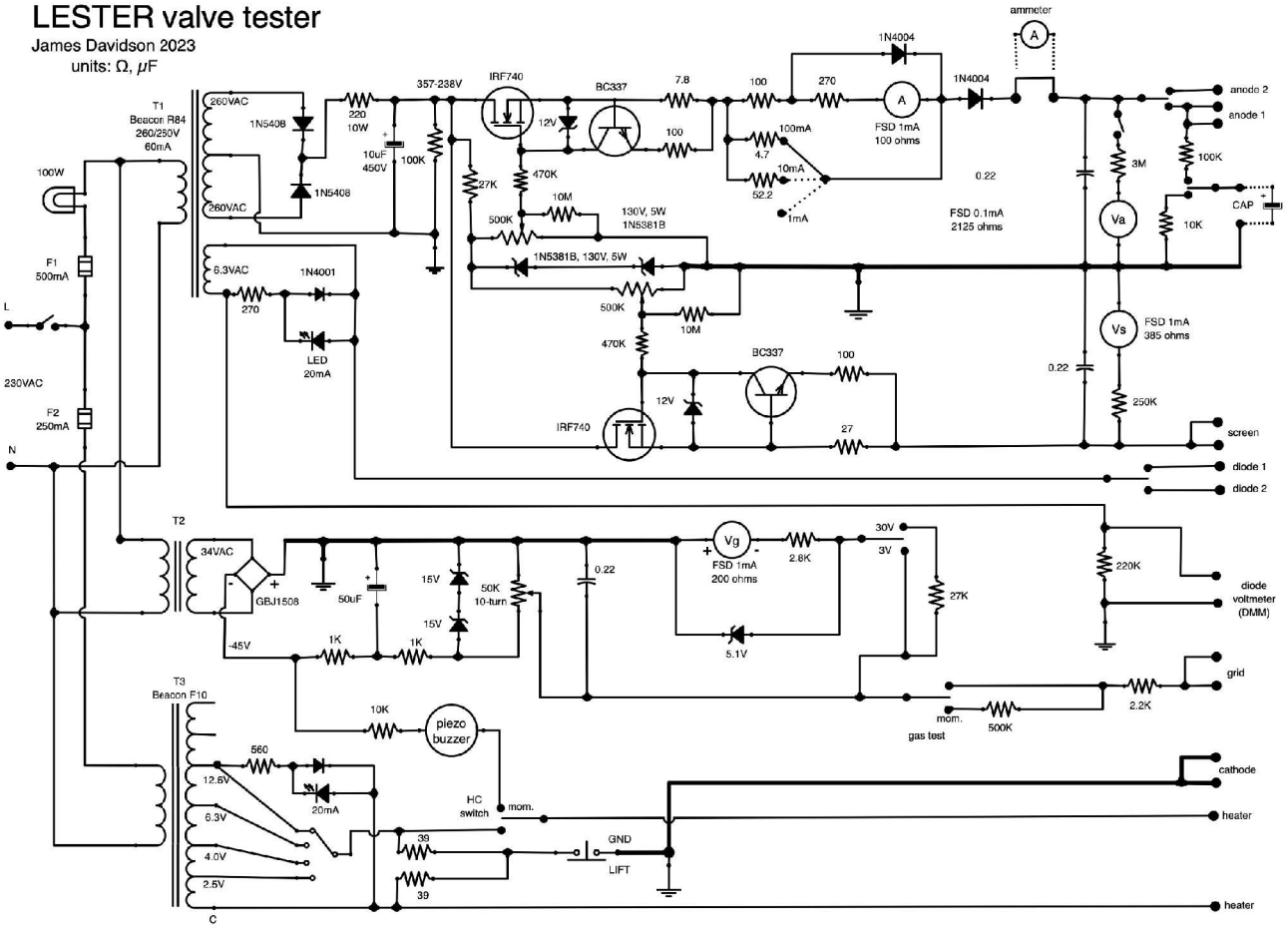
While Lester may not be a thing of great beauty, it was cheap to build and it works very well.

Front panel with the variable controls.

An example of some results obtained with Lester is shown below. The charts show values of g_m, r_a and μ measured on 17 used ECC83 valves of differing makes and ages. It can be seen that there is a reciprocal relationship between g_m and r_a, and that μ is almost independent of g_m. As a valve ages, g_m decreases and r_a increases, while μ tends to remain constant.






LESTER valve tester
James Davidson 2023
units: Ω, μF
T1
Beacon R84
260/250V
60mA
260VAC
260VAC
1N5408
1N5408
220
10W
10uF
450V
100K
357-238V
IRF740
12V
BC337
7.8
100
100
270
1N4004
1N4004
ammeter
A
A
FSD 1mA
100 ohms
100mA
4.7
10mA
52.2
1mA
0.22
FSD 0.1mA
2125 ohms
anode 2
anode 1
3M
100K
Va
10K
CAP
100W
F1
500mA
L
230VAC
F2
250mA
N
6.3VAC
1N4001
270
LED
20mA
27K
470K
10M
500K
130V, 5W
1N5381B
1N5381B, 130V, 5W
500K
10M
470K
BC337
100
12V
IRF740
27
0.22
Vs
FSD 1mA
385 ohms
250K
screen
diode 1
diode 2
T2
34VAC
GBJ1508
50uF
15V
15V
50K
10-turn
0.22
Vg
FSD 1mA
200 ohms
2.8K
30V
3V
27K
220K
diode
voltmeter
(DMM)
-45V
1K
1K
5.1V
T3
Beacon F10
10K
piezo
buzzer
560
12.6V
6.3V
4.0V
2.5V
C
20mA
HC
switch
mom.
39
39
GND
LIFT
mom.
gas test
500K
2.2K
grid
cathode
heater
heater

Seven Seas Radio by SD Mandeno. From B Churcher

A serviceman friend, now passed, sent me a couple of photos of his Seven Seas radio before he sold it at a Western Suburbs junk sale. I took a photo of the Seven seas school radio dial at one of our auctions. The photos, while not the greatest quality, may stimulate some interest.

The brand name Seven Seas used by the Auckland firm of S.D. Mandeno, is one of the rarer NZ made radios. While GAR lists them as manufacturing from 1935-40, this pearlised plastic case radio with miniature valves suggests a build date circa 1950. The unusual thumbwheel controls are easy to operate when the fingers rest on the cabinet top. No circuit or data are held by the NZVRS Library for this brand.

The slide-rule dial shown with the Seven Seas logo is fitted to a School Radio made by Sonophone. This firm was a manufacturer and agent for a variety of audio products. S.D. Mandeno operated as agents for various electronic equipment beyond 2000.

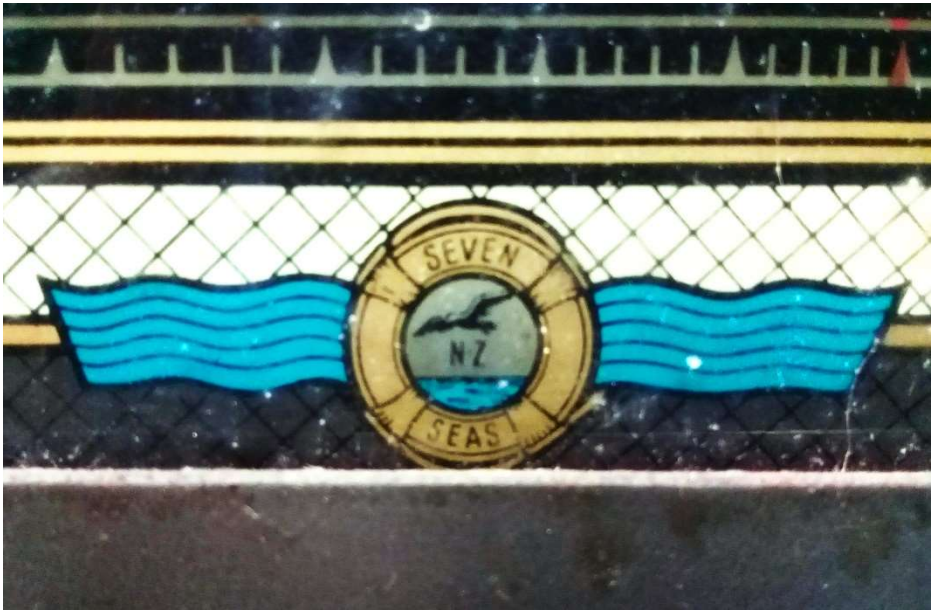
Brief Company History

Mr Sam Mandeno established the company in 1968 trading as S. D. Mandeno Electronic Equipment Co.

On 11th June 1991 the company was incorporated as a limited liability company, formally trading from 1st August 1991 as Mandeno Electronic Equipment Ltd.

On 1st April 2016 the company was purchased by Hassan Hamidi and now trades as Mandeno Electronics (2015) Ltd. It is a private company owned and operated by Hassan Hamidi and staff members, specialising in a range of electronic products including computer peripherals, related software lines, electronic components, sensors and associated measuring instruments.

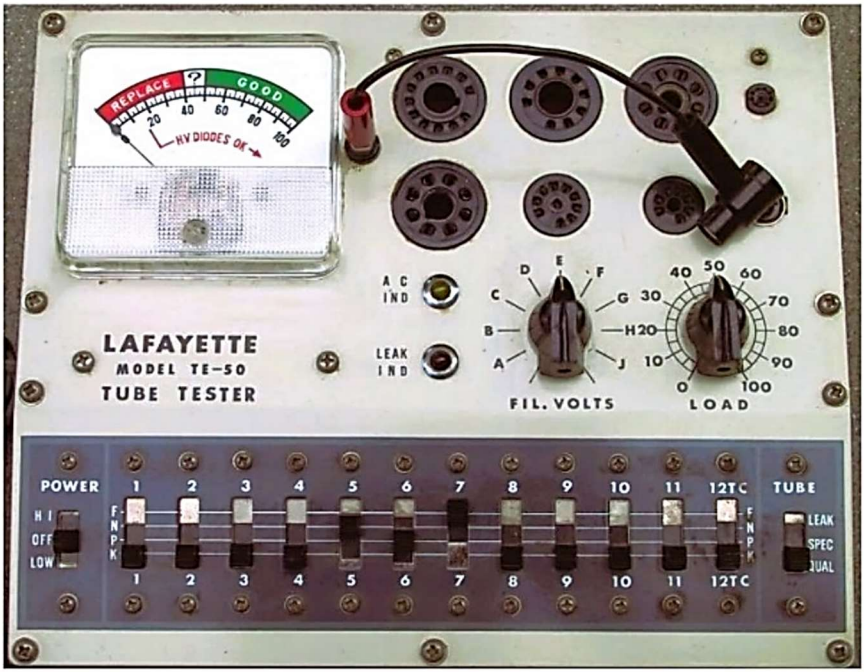

SOLAR
DYZX10-450
10 MFD 450 V
MADE IN U.S.A.
739


SEVEN
NZ
SEAS

Kyoritsu K118 (and Lafayette TE-50) Tube Emission Testers - Electrical Hazards

Posted on the VRS Forum and other internet locations.

"I was happy to pick up this K-118 tester recently, but less happy when it gave me a powerful belt. I was following the instructions and checking an ECH35. "Remove the tube from the socket", it said. I placed one hand on the metal box of the tester and grasped the valve with the other, and pow!



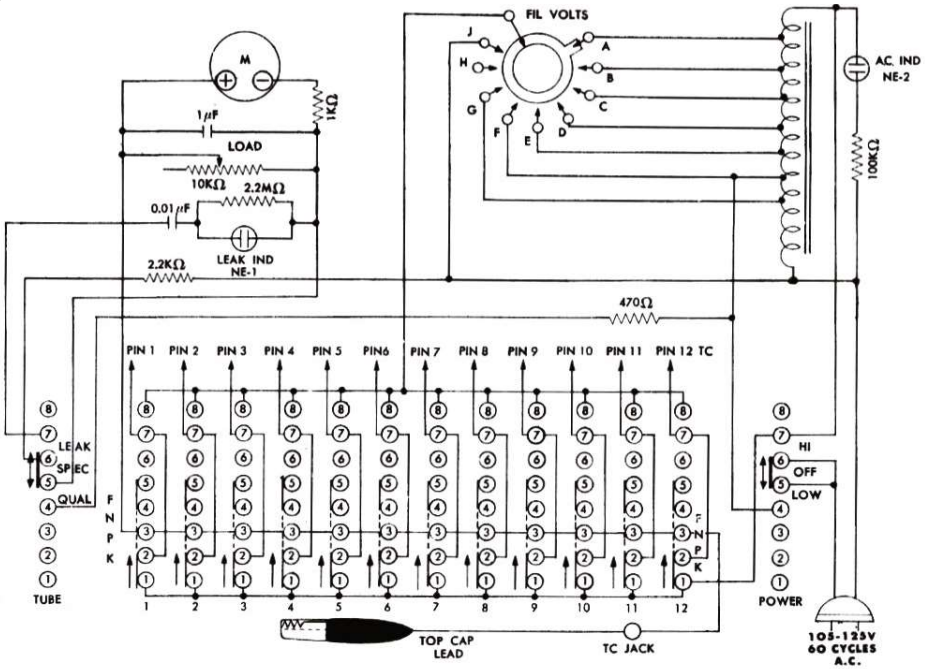
When I checked the circuit, it appears that in normal operation of the tester, the phase input is connected to the M pin of the valve under test, in this case the red conducting paint. So, a shock is pretty much inevitable!

Now that I know, I'll be careful. The tester otherwise does seem to do a reasonable job. For glass tubes there isn't a problem, and for metal or metallised ones I can disconnect the M pin or simply turn everything off before touching the valve. But there does seem to be a significant design flaw!"

Lawerence, Peter, et al are in by no means a minority when it comes to getting belts from these valve testers – the internet also has a number of close-call stories. Interestingly most at the 110/115 volt level from the Lafayette TE-50 model. Perhaps there are more of these testers about – or are they just the stories from the survivors?

As the forum posts indicate the ac mains for these testers is **not** isolated from the testing leads, and usually the case is not earthed via the power cord as only a two-wire lead with an unpolarised plug is supplied.
A look at the circuit shows the issues; under the right switch selection there is;
a) Mains to one side of the valve test connectors,
b) Mains to the top cap test clip

The hi / low voltage switch is to select the mains voltage. On the Lafayette Low is for 110 – 115 volts, Hi for 115 – 128 Volts. On the Kyritsu the Lo setting is for voltages 105/115 or 200/215 and the Hi for mains voltages 115/125 or 215/240 depending on the transformer installed. There is a paper label, located on the side where the power lead enters the tester, that indicates the supply voltage. Should this be missing there is also a stamp indicating the same information on the inside chassis beside the transformer.
Also of note is the filament voltage selector switch. This is not marked with volts but rather the range "A" – "J". This setting obtained from the test chart booklet in the slide drawer – should that still be present!
It would be well recommended to supply this tester from a fully isolating 230 / 115 type step down transformer for NZ use, or a 1:1, 230/230v for the 230 volt version. Even then there is the potential for relatively high voltages between the test leads, metal outside shield and top cap test leads depending upon the tester switch settings. With the case earthed via a three-lead power cord this still does not prevent the inter-lead issues. So, treat this tester with the greatest of care!



SCHEMATIC DIAGRAM

MARKETPLACE

Advertisements should be neatly hand printed, typed or printed onto a separate page, posted to the NZVRS or emailed to *nzvrs@pl.net*

Often a picture will help members understand your item. No verbal or telephoned adverts thank you, and don't forget to include some contact details; eg postal, telephone & email. There is no charge for members' adverts but the NZVRS is in no way responsible for the outcome of any transactions between members.

AVAILABLE
Society Sales:

CAPACITORS for sale to NZVRS NZ members only please.

Please note that as stock is replaced the landed price has significantly increased, also some values listed below may no longer be available. Please check the website spreadsheet for the current prices and with Bryan for availability.

nzvrs.com/components-for-sale

Metal polyester film, axial leads, (µF):

0.001	630 Volts	$1.00 each
0.002	630 volts	$1.00 each
0.005	630 volts	$1.00 each
0.01	630 Volts	$1.00 each
0.022	630 Volts	$1.00 each
0.033	630 Volts	$1.00 each
0.05	630 Volts	$1.00 each
0.068	630 volts	$1.00 each
0.1	630 Volts	$1.00 each
0.22	630 Volts	$1.00 each
0.33	630 Volts	$1.00 each
1 µF	630 Volts	$3.00 each

Electrolytic capacitors, polarized, axial

10 µF	450 Volts	$2.00 each
10 µF	600 Volts	$3.00 each
20 µF	450 Volts	$5.00 each
33 uF	450 Volts	$5.00 each
40 µF	450 Volts	$7.00 each
47	450 Volts	$7.00 each
100 µF	450 Volts	$7.00 each

Lamps 6.3 volts 150 mA (low wattage)
MES & Bayonet 50c each

We have a limited quantity of 500k ohm log taper, switched pots available to members for $8.00 each

Prices on all items are subject to change. Please check the website or with Bryan when ordering.

Order any of the above via Bryan Powell, 279 Spur Road, RD3, Silverdale 0993.
Tel: 09 - 44 22 514 or mob: 029 415 5119
Email: **bapowell@xtra.co.nz**

P&P: For all orders please add $6.00 for urban and $10.00 for rural delivery.

Power plugs (Tilley white plastic type with unprotected brass pins as pictured above) available at 50 cents each plus $4 post and package per set of 4 (ie $6 for set of 4, posted to an NZ address).

KTW62 valves (actually VR100 10E/278 or 6U7 GT, CV1100) NOS $1 each collected club nights or $15 for packs of 5 P&P inclusive. Quantity limited and may be rationed per member.
For plugs and valves, contact the NZVRS Secretary Paul Woodcock, 2 Levy Road, Glen Eden, Auckland 0602.
Email: **Paul.Woodcock@wsp.com**

All Society Sales payments should be made via direct banking deposit to the NZVRS ASB bank account

12 3067 0168223 00

{or credit card via PayPal to : nzvrs@pl.net but please add $3 for cc transaction fees.}

FOR SALE.

Flat Pack Valve Cartons
of white card are now available from Graham Hawtree of Wanganui.
He has;
GT size (approx 44 x 44 x 130mm) cartons at $15.00 per 50 flat pack cartons
and smaller size (approx 25 x 25 x 90mm) at $11.00 per 50 flat pack cartons.
Larger size (approx 60 x 60 x 155mm) under manufacturing consideration depending on demand.
Post and Package additional.
Please contact Graham Hawtree on
Tel: 06 344 7501 or
grahamandval1@xtra.co.nz

WANTED

Valves wanted for Philips 2510 TRF rebuild:

- 2x E442 RF tetrodes or equivalent eg Mullard VP4, Mazda AC/SG or close substitute such as SP4, S4V, etc
- 1x C443 or E443H output pentode or substitute such as PM24A
- 1x 506 rectifier or substitute such as 1805, 1821, 1823, R1 etc

Contact John Reid
E: John.Reid@OjiFS.com or T: 027 246 3648

TUBE-ITIS

When I was young and full of hope,
The diode tube was all the dope.
Then came the tri-ode and high-mu,
The latest thing, I'm telling you.
Next came the tetrode with its screen,
And then the pentode hit the scene,
We thought they surely were the last
But from then on things happened fast.

Duo-diode, Pentode-triode,
Pentagrid converter,
Duplex-diode, detector-triode,
Pentagrid inverter:
Now tubes arrived by every train,
'Twas at this point I showed the strain.
Now I am old beyond my years,
I've got grey hair behind my ears,
And to this world I tell my wrongs,
Why do tubes have so many prongs?

Advert:
"James D McEwen will call at Your Convenience to Discuss your radio problems. Expert Advice. Clients under no obligation."

Reply: But I don't keep the radio in the "convenience", I keep it in the kitchen!
[(Dunedin) Evening Star, 23 June 1947]