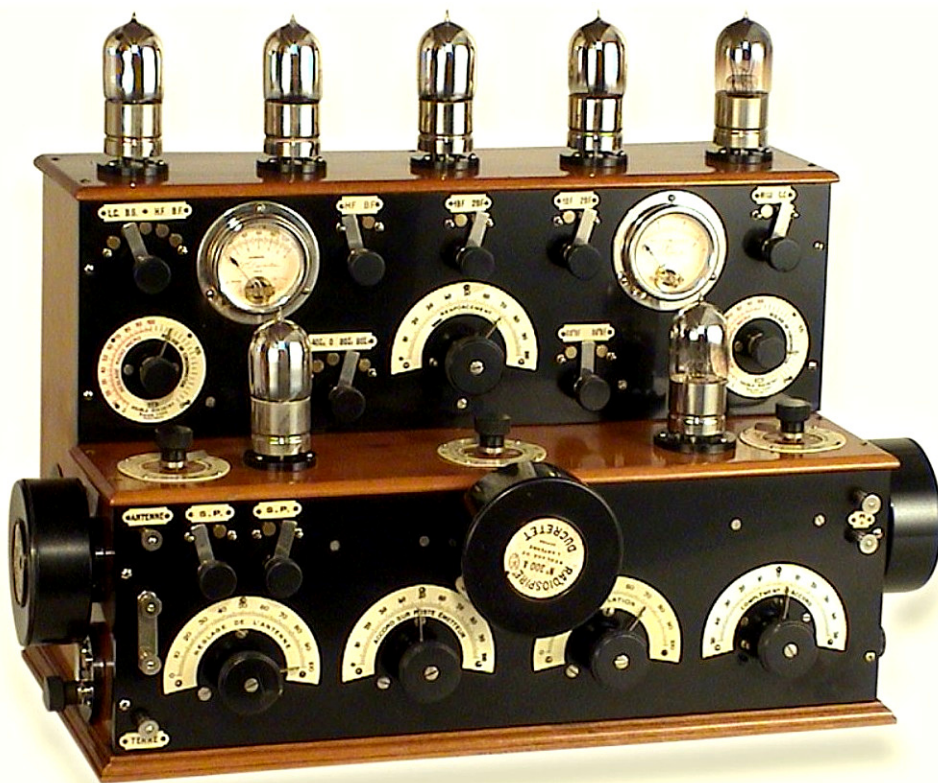


# NZVRS BULLETIN

Vol 35 No 4

2014 - iv



**A 7 lamp Ducretet Piano model Radio Demodulator**

# 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 BULLETIN** is a membership magazine for members only, published quarterly. Any opinions expressed by writers are not necessarily those of the Society. Any feedback, contributions, letters, etc can be sent to:

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A **Calendar of Events** is listed on our website at [www.nzvrs.pl.net/aaa/calendar](http://www.nzvrs.pl.net/aaa/calendar)

**AGM is on Saturday 19 July 2015**

**AUCKLAND MEETINGS** are held at the Horticultural Society Hall, **990 Great North Road** (opposite Motions Road.) Western Springs, on the **third Monday** of the month from 7.30pm.

**Dec: Monday 15** Auction Nite

**Jan: Monday 19** Test Devices Nite

**Feb: Monday 16** Auction Nite

**Mar: Monday 16** A "dangerous item".

**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 1pm on the second Sunday of every month at Tireti Hall, Te Pene Ave, Titahi Bay. For details contact Tony Humphris, Email: [tony\\_h@xtra.co.nz](mailto:tony_h@xtra.co.nz) Phone (04) 298 1550 .

**CHRISTCHURCH MEETINGS** are held on the first Tuesday of odd months at the Christchurch West Radio Clubrooms "Auburn Park", 333 Riccarton Road.

For further details contact Jim Lovell, 41 Yardley St, Avonhead, Christchurch 8004. Phone 03-342 7760 .

**SUBSCRIPTIONS:** The subscription year is a calendar year (1 January – 31 Dec). Subscription renewals are sent in the year end Bulletin with final reminders in the first issue in the new year.

The NZ Rate is \$30, with an early-bird renewal reduction. An email E-version is available at the world-wide rate of NZ \$20 p.a. Please note that these files are usually about 20 Meg to download.

## EDITORIAL

The end of year crashes down upon us and so with this bulletin are both a subscription renewal form and a complementary NZVRS Calendar for 2015. Also the annual accounts for 2013 that somehow got overlooked for inclusion in the previous bulletin. There are also the competition details for the 2015 AGM – an appropriate ‘device’ for use in the Vintage Radio craft – I hope that it is ‘open’ enough for a wider range of entrants than the last competition. Some lateral thinking, I am sure will see a range of interesting ideas come forth. This year has sped by with alarming speed but not without some unfortunate happenings. The number of noted passings is also greater than one would like – perhaps time to reflect we cannot get any younger I suppose. I am looking forward to the New Year however and hope it brings better tidings.

Of note and perhaps as a reflection of the distorted lives Aucklanders lead I see that the old NZVRS Library site recently sold for \$1.4M – quite amazing for a small plot of land with 2 “sheds”, running water but no power or sewerage. The sale is the first by the Hakanson family for over 60 years, the place being a demolition depot for some years operated by Ernie and his brother. Ernie of course died in 2008 and this site of the NZVRS Library was vacated by us only a couple of years ago.

This bulletin has a variety of topics and ideas from a range of contributing authors – this is always most appreciated and I do hope you enjoy them.

Seasonal felicitations to all and very best wishes for 2015.

Cheers, David

**NZVRS Bulletin**  
**P.O. Box 13 873, Onehunga,**  
**Auckland 1643**  
**Email: nzvrs@pl.net**

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## New Members

J Christie	Auckland
P Van Sambeek	Auckland

## Noted Passings

Brian Baker	Russell
Cedric Sutherland	Tauranga
Tarry Martin	Taranaki
Brother Patrick Dowd	noted valve collector, USA aged 94.

## The Cover Picture:

A rather rare Ducretet 7 valve (lamps) Piano model Radio-(de)Modulator made in France c1924. The 7 tube piano model was made in two versions but only a very few are known to still exist. These are called “piano” models due to their shape. Something nice for the Christmas stocking perhaps – do feel free to send one along!

## Tarry Martin - mort.

*Tarry pictured right with a 9kg radio set that he has carried to the top of Mount Taranaki 11 times.*

In 2009 Tarry received a Ministerial Long-Service Award for Civil Defence Emergency Management, after 56 years of floods, crashes, sinkings and searches. His was the only voice heard from Waitara during the great flood, the first to broadcast on top of Mt Taranaki. Inglewood's Tarry Martin, 82, has a lifetime of memories from his 56 years involved in search and rescue in Taranaki. After he got his ham radio licence in 1948 Tarry joined the Inglewood Amateur Radio Emergency Call team – attending his first major event in December 1953 when two Mustang planes collided mid-air in the Tongaporutu area on their way to Auckland.

His ZC1 "base station" transmitter, weighing 9.5kg, was built by radio serviceman Bill Ward and is still intact today. "I've been on the top 11 times and I've had that little radio with me each time." He broadcast during Waitara's floods in 1965 and 1971. On the second occasion the town was declared a disaster area and he was the only contact point. In 1961 the Taranaki Alpine Club recognised him as being the first to broadcast a voice message from the mountain peak. "I think somebody had a broken leg near the summit that night. "We just lay the aerial down on the snow because there's no trees or poles to tie the aerial to, just roll it down the mountain, about 66ft length of insulated wire." His voice was picked up by stations from Inglewood to Taumarunui. "Of course you had a good coverage area, nice and high up there." A significant achievement was when he plucked Christopher Bourke from the raging waters off Waitara on June 20, 1976. Bourke, his father, and the boat owner were picking up fishing nets when the weather "cut up" to 5m swells, which capsized and sank them. "They were exhausted. The father and the son managed to hang on for a while but they had to let the other fella go. The boy Christopher, aged about nine at the time, was 18 inches under water, lying face down" Mr Martin said. "When we got there it was far too dangerous to try and scoop anybody out of the water. I thought the radio mast was going to go through our rotors but the aerial actually stuck up between the float and the fuselage."

After several failed attempts, Mr Martin went out on the handrail and reaching down managed to grab Christopher's lifejacket. "I dragged him out, absolutely water-logged and lifeless, and managed to get him over the float, into the helicopter and onto the floor. The pilot asked 'Tarry, is he all right?' and I said 'no, he's dead' – his eyes were half open, no breath, no pulse, nothing." Refusing to give up, Tarry performed mouth-to-mouth resuscitation the whole return flight, until he noticed an air bubble in Christopher's nose. "Just one little bubble and I thought 'are we getting somewhere', when we landed on the pad they took him on the stretcher and worked on him. They got gallons and gallons of water out of him, but we saved his life." Today, Christopher lives in Australia with his wife and two teenage children and he visited the Martins just before Tarry's award. Tarry received several letters of commendation from other organisations, but nothing made him prouder than a birthday package from Australia two years ago. Inside there was a silver tankard." His eyes tear up as he reads the card again. "Dear Tarry, sorry we couldn't be there to help you celebrate your 80th, thank you so much again for saving my life, love Chris." "I don't think too many people get that on a birthday card, I'm very proud of that. I didn't have a son, but I call him my boy."





# Repair of AVO MkII Valve Tester from John Dodgshun

dodgshun@es.co.nz

When my trusty AVO valve tester failed, I assumed that it was something simple like a broken wire so I set about tracking the problem down. The symptoms were very straightforward. Nothing worked except the meter lamps. This ruled out a blown fuse. There was no response from any of the functions including the mains check/set. A check of the voltages at the valve bases showed that they were at least reasonable. After a considerable time checking everything else, it suddenly dawned on me that perhaps the meter movement was to blame. Sure enough it was open circuit.

I took it to a friend who is an expert at repairing meter movements but his answer was not what I hoped to hear. This presented several difficulties. Firstly, there was no information in the manual about the movement. Secondly, any replacement had to fit the space and more importantly should probably be fitted into the old meter case. After a lot of time spent looking in the corners of the internet, I found some military manuals which, as well as a full circuit, contained a parts list. The meter was listed as 440 microamperes. - a very odd value.

What was not listed was the DC resistance of the meter. I had picked up a meter movement at the branch 56 sale last winter that looked like it might be suitable. Firstly, with some mounting adaptation, I was able to fit it into the old case. The needle was too long so after shortening it, I had to rebalance the movement. So far so good.

Some further delving into an antique radio forum suggested that the meter needed to be 100Ω. After yet more consultation, this time with members from our local vintage radio group, I bread-boarded an operational amplifier interface using an LM725 precision op amp. ?E!#\$%&@ and much time later, I was no further ahead. I couldn't get the thing to sit still in one place for more than a few seconds. It kept drifting away.

More consultation with our group and the suggestion that I try an LM324 op amp. There are four op amps in this one package so I preceded the scaling amplifier with a voltage follower which very effectively isolates the scaling amp from the AVO because of the extremely high input impedance at the non-inverting input.

Now with a 100 ohm resistor across the input I could begin to get some sensible results, or so I thought. Not so. While I certainly got results, they made little sense and the meter multiplier switch wasn't working correctly at all.

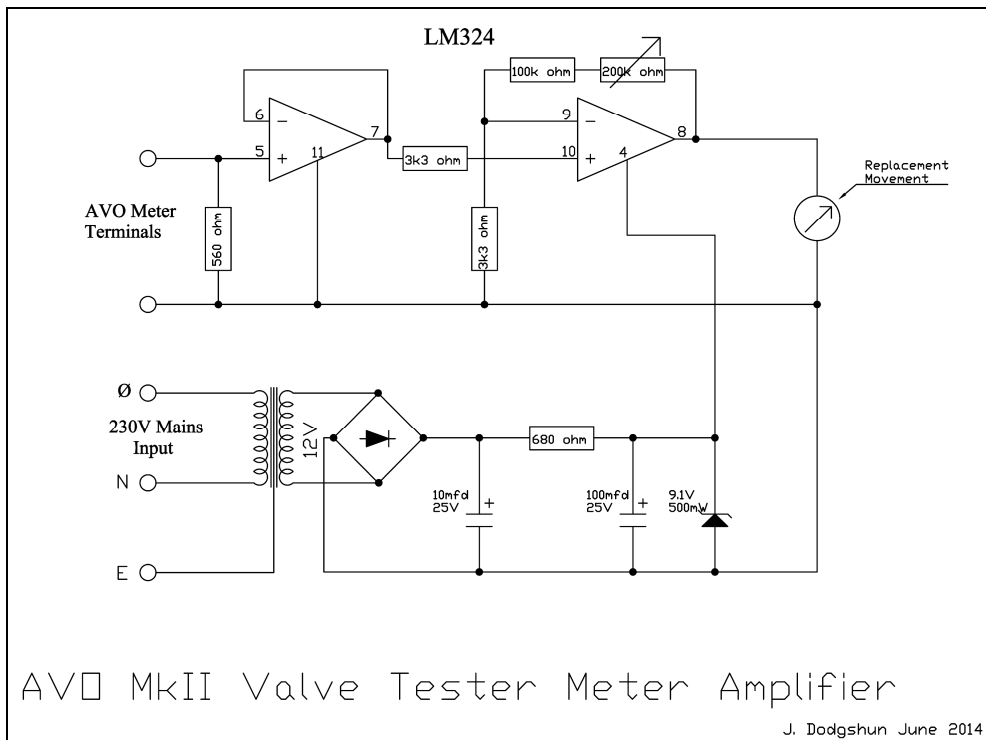
At this point I had to go to Wanganui for a work related repair. I took all the AVO info with me and as I had to wait in Wellington for three hours on my return, I was able, over a large coffee, to work through the calculations surrounding the meter multiplier switch.

It turned out that the original movement was not 100Ω but 410Ω. Armed with this new information, I raced out to the workshop on my return and replaced the 100 ohm resistor with one of 390Ω. It worked! – but not quite correctly. The resistor ended up being 560Ω.

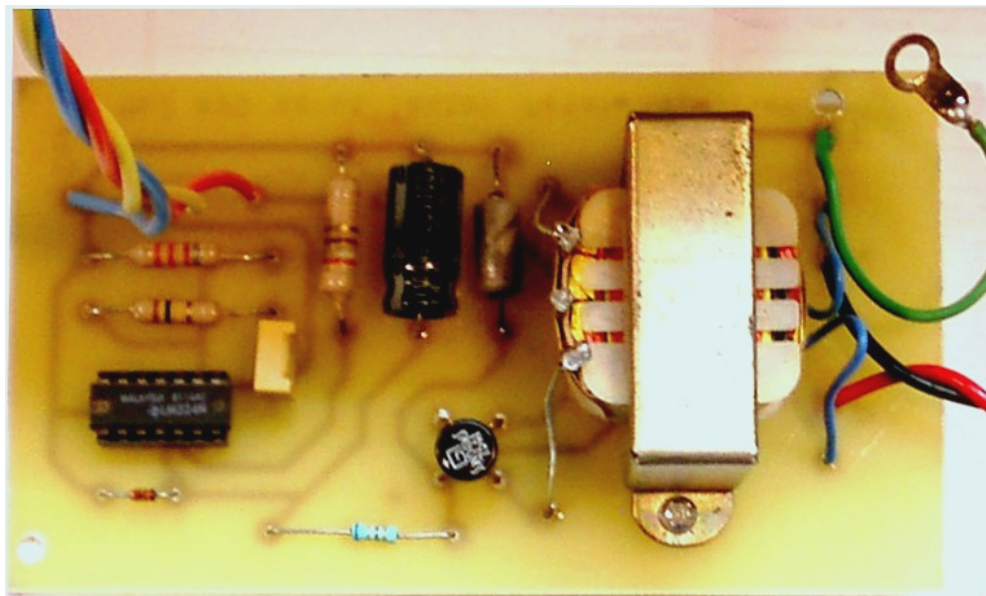
The gain of the scaling amplifier is adjustable so it can be suited to a number of different movements. There is a definite set up sequence to get the scaling amplifier gain correct – too long to explain here but I am happy to talk at length with anyone interested.

After a thorough re-alignment of the whole valve tester the results were as expected. There is a small problem with the meter not being quite zero because of the output offset of the op amp, however after the alignment, and only backing-off to this point for the gm measurement, the set gives adequate results.

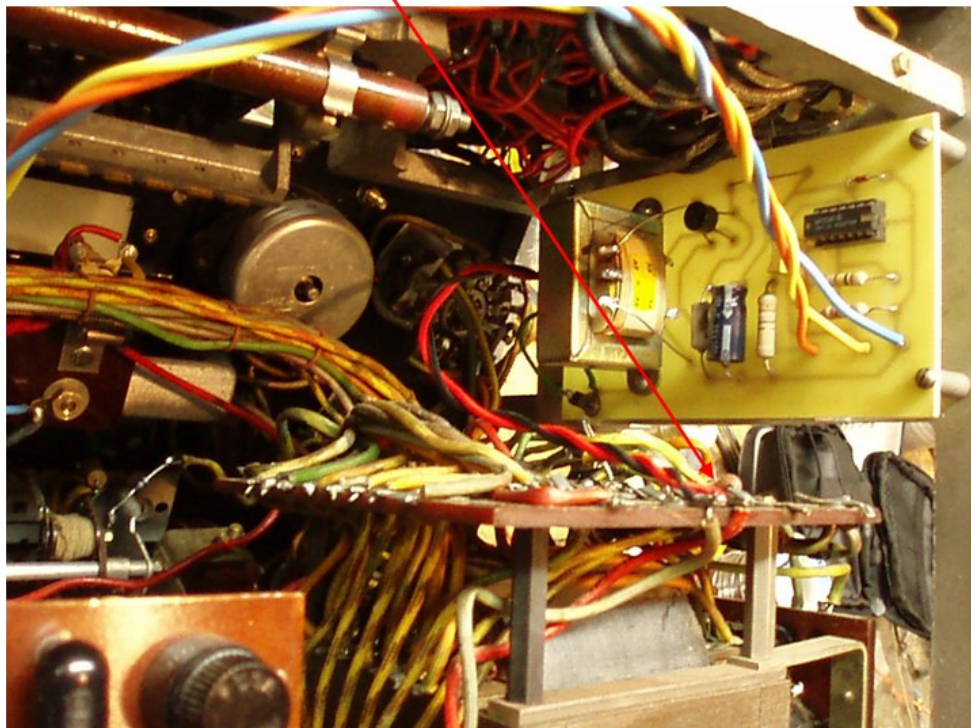
I have designed a PCB for the op amp unit and mounted it inside the AVO. A critical factor of the whole little circuit is that it has its own isolated, on-board power supply. The amplifier mains transformer 230 volts input is taken from a suitable spot off the AVO mains transformer. The circuit follows and I am happy to have boards made for anyone wanting them.



## Interface PCB



**Mains input arrowed, and PCB mounted on the frame**



## **Radio International Mailbox Programme Retires at 65**

Due to cost management – fixed funding and rising costs, Radio New Zealand International has axed its DX listener programme; Mailbox. Funds will instead be used to consolidate the core Pacific regional news and information services.

Mailbox had run since 1990 in the current format, produced and presented by Tony King then by Myra Oh with technical input from Adrian Sainsbury. But the programme had actually started when New Zealand began its short-wave service in 1949. There had always been a loyal following featuring a series of dedicated and knowledgeable contributors, including comment from listeners all across the world. The final Mailbox was broadcast on the 4<sup>th</sup> August 2014.

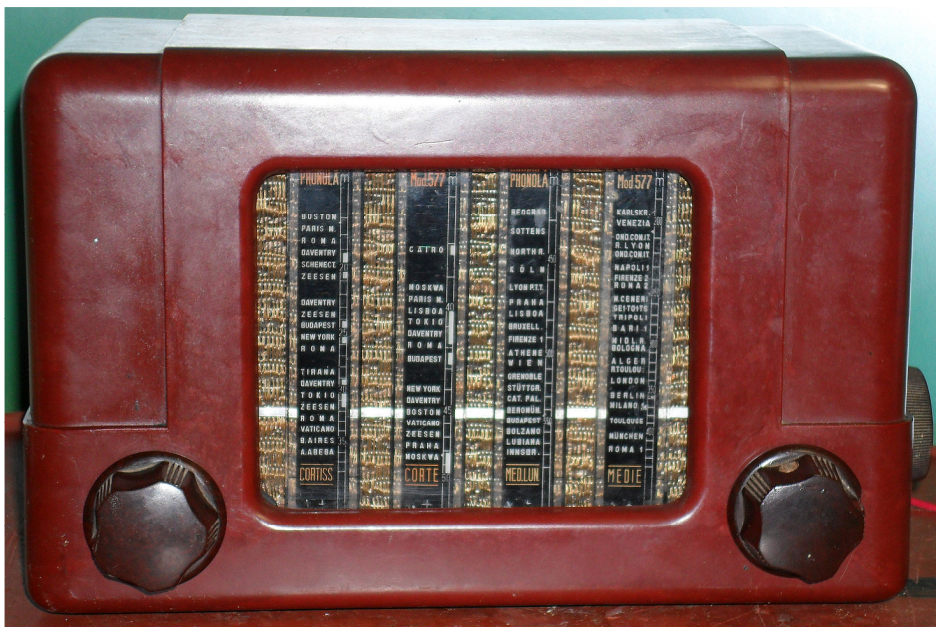
Mailbox had regular contributors Bryan Clark and John Durham who provide DX reviews and Kevin Hand provided reviews the 'Utility Bands'. There were occasional features on Pacific Radio from David Riquish. Frequency Manager Adrian Sainsbury attempts at answering technical questions and letters, and Mike Bird provided the latest in propagation news from IPS Radio & Space Services. The programme was designed for the short-wave listener / enthusiast. The final programme was a walk down memory lane with the voices of Arthur Cushen, Tony King, David Riquish, Bryan Clark, John Durham. Mike Bird had the Solar propagation news and Adrian Sainsbury - some letters to share.

See <http://www.radionz.co.nz/international/programmes/mailbox>  
for historical audio clips and snippets of previous broadcasts

# The Italian Job – a Phonola 577A

from Cliff Wright

As you all know I do quite a bit of restoration work both for individuals and museums as well as for TV and theatre groups. Last month this tiny Bakelite radio came in for restoration from the grandson of its original owner. It was an important bit of family history so it got the full treatment.



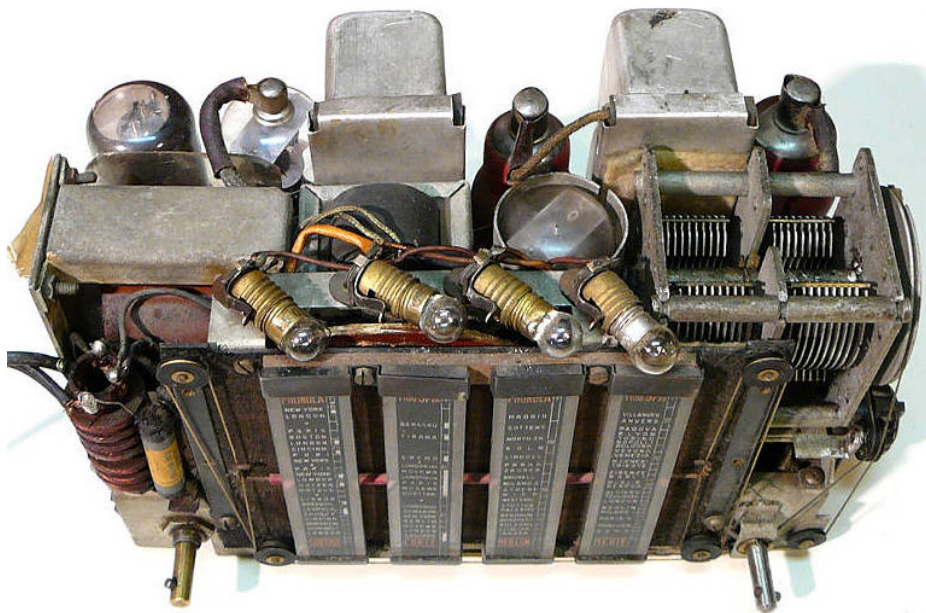
The first thing that you notice is its tiny size; it is only 220 mm wide, 140 mm high and 120 mm deep. Amazingly into this tiny space is packed a 5 valve superhet using side contact and octal valves. The line up is ECH4, EF9, 6Q7, 6V6 with (originally) a 6X4 rectifier. Also the speaker is cleverly mounted behind the four dial scale 'bars'.

That is not the only remarkable feature of this radio - It also has 4 bands labelled (in Italian);  
Medie - Which covers 200 to 430 metres (1500 to 695 kHz)  
Medie Lun - Which covers 430 to 560 metres (695 to 535 kHz)  
Corte (short) - Which covers 38 to 50 metres (7.9 to 6 MHz)  
Cortiss (I think that is shortest?) - Which covers 18 to 38 metres (16.7 to 7.9 MHz)

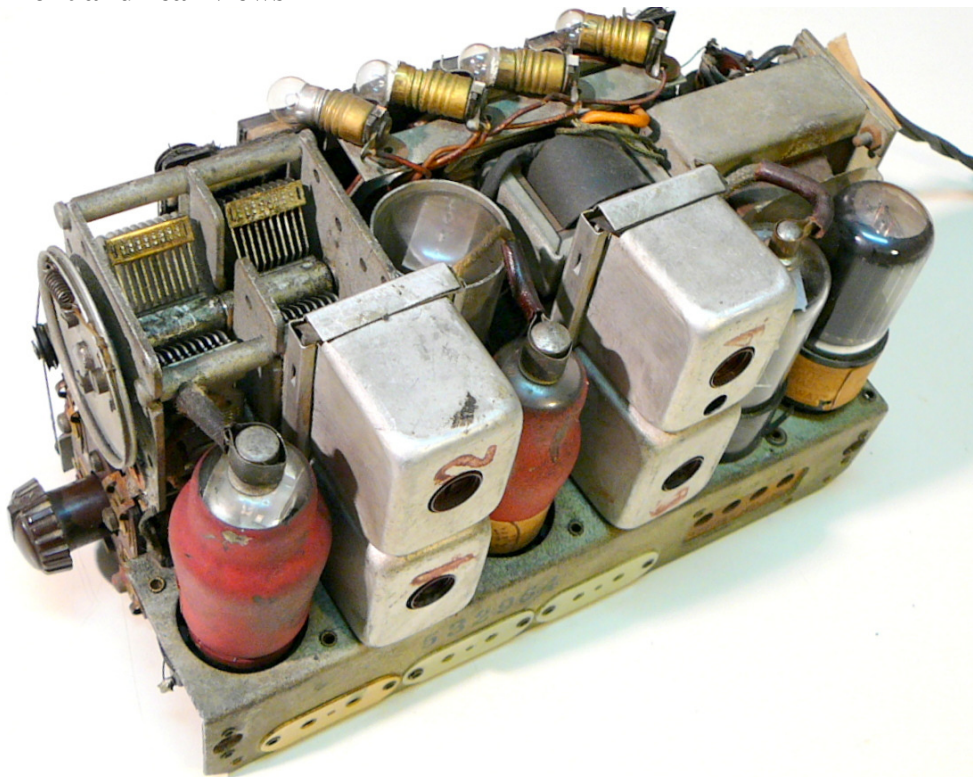
Exactly why the low end of the broadcast band should be spread out like that, is a mystery perhaps one of our members has an idea?

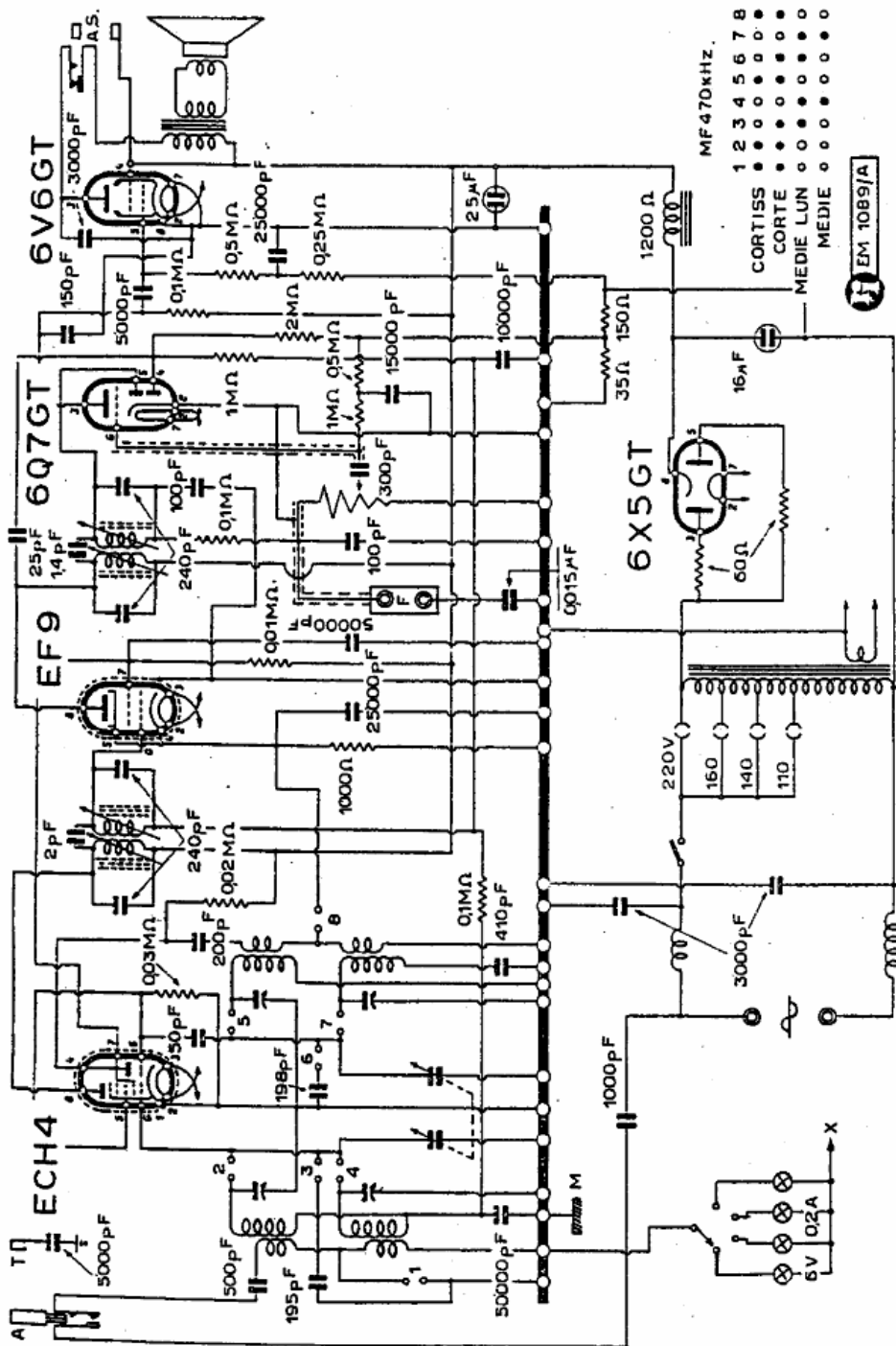
You will see from the circuit (which is available on line) that this is a "live chassis" set; the HT being directly rectified from an auto transformer, while the 6.3 volt heaters and dial lamps are supplied from a 6 volt winding. Oddly enough the set (despite what the circuit shows) had NO on/off switching and there definitely was not enough room around the volume control to fit one of the larger switched pots of the time.





**Front and rear views**





MF 470 kHz.

	1	2	3	4	5	6	7	8
CORTISS	●	●	○	○	○	○	○	○
CORTE	●	●	○	○	○	○	○	○
MEDIE LUN	○	○	○	○	○	○	○	○
MEDIE	○	○	○	○	○	○	○	○

EM 1089/A



Research showed that the set was built in Milan in 1946. The components were of very poor quality. The usual leaky paper capacitors with one or two marked in "Jars" or centimetres (shades of Marconi there?) Many of the resistors used had very poor lead anchorage and had to be replaced. Not only that, the set had been built using poorly made mica capacitors that varied so much in value that the set went off tune even on the broadcast band until they were replaced. However the coils and transformers were much better and could be reused.

Another oddity: I got the set working, but noticed considerable distortion that was not seen on my scope. So I checked out the speaker! Oh Dear! It had been got at some time, and as it turned out so had the whole radio. A broken cone surround had been glued up with so much F2 glue that the whole cone was unable to move freely. So, a new speaker was required. To my absolute amazement, I found that this was an electromagnet speaker! Certainly the smallest (at 4" dia) I had ever come across. My only course was to replace it with a 4" PM speaker I had and use RC filtering in the HT circuit.

Was that the end, you might ask? Well NO, It was working well and looking good with some suitable coloured knobs from my stock (tuning and volume knobs had gone missing over the years) but when I checked out the tuning I discovered that (presumably a Kiwi) repairman had NOT looked closely at the tuning scale. They had restrung the dial cord as if the dial was in kHz NOT metres. Oh well another happy hour working out how to restring the dial correctly. The usual bad language involved, but it finally came right. With 6 pulleys (some double) it took some working out – and the owner will be getting a conversion chart until he gets used to 1YA being at about 395 metres!

Does anyone have any good ideas for some insulating material for the back of the cabinet? There is so little room that the usual hardboard type material is out. But I don't like the set to be returned as it came with no protective back cover. It MUST of course be very well ventilated. Although the 6X4 has been replaced with a silicon diode to reduce heat and the 6V6 is run with a higher than normal grid bias to reduce its dissipation, a set as small as this will still run quite warm.

All in all an odd but very interesting set and probably made from war surplus parts as much as possible. I wonder if any other member has come across one of these?



# Restoration of a Murphy U102 Radio by Roy Arbman

This Murphy Radio, model U102 was given to me by Paul Woodcock. At the time there were two valves missing; a PEN383 and a U403. It was also missing the back cover and the power cord. The PEN383 is the output valve while the U403 is the rectifier.

I took it home from the AGM 2 years ago thinking it would be no problem getting a couple of valves, doing the necessary capacitor changes and getting it going again. A little research on the net showed that this was an AC/DC set made in England in 1946. This set is the U102 and not the U102A so it was the first in the series.

I did a brief check through my valve collection and came up empty handed. Then I advertised on the 'Wanted' column of the NZVRS Bulletin, but this was also unsuccessful.

During the last AGM in July 2014, I spoke to Gerry Billman who invited me to his house where we looked for the missing valves, but also to no avail.

Going home I thought I really should get the set going and decided to try fitting suitable substitutes for the valves. Well, this is easier said than done. Typical English valves have 200mA heaters and heater voltages that are uncommon whereas most American valves are 300mA. Also the changes would require a base change from Mazda Octal to International Octal, not a task to be taken lightly. In desperation I decided to have a thorough look through my valve collection again and after going through several boxes of mixed oddments found an elusive PEN383. Fortunately it was intact and the heaters measured OK.

I then took a punt and decided to restore the radio fully. This included replacing all the 'Hunts' paper capacitors along with one out of tolerance resistor.

The coils, choke and output transformer, all measured OK. The main filament dropping resistor was o/c in one section so this was bridged with a suitable 470 ohm 10W type. The main filter capacitor was a three in one affair; 2x 16uf and an 8uf. This was bulging at the end so I decided to replace what was inside. I carefully cut around the base, extracted the insides and replaced it with 2x 22uf and 1x 10uf, sealed it up and re-mounted it into chassis. Some of the rubber coated wiring was perished so this was replaced where necessary.

The U403 was replaced with a silicon diode (BY127) and I worked out the correct value resistor to be placed in the heater chain and added a series resistor (surge type) to the input of the BY127. If I am able to obtain a U403 valve in the future, all this can all be easily undone.

Adding a suitable power cord came next, making sure that the neutral was indeed attached to the chassis. After a general check I then tried the smoke test. To my great relief the set functioned and I was able to tune in several stations. The short wave band was also going.

The white reflector behind the dial had lost most of its paint so this was removed (after taking both dial cords off), cleaned and repainted from a white spray can.

The cabinet was next tackled; the studs that hold the chassis in place had been broken off at some time in the past. I fashioned up some cardboard and super-glued these in place in the shape of the missing bits of Bakelite. I then filled these cavities with 'Araldite' along with four new bolts and left this to cure for several days.

The gold painted front of the set was worse for wear; this was cleaned and re-sprayed with the appropriate spray can of gold paint, along with the tuning knob. When this was dry the cabinet was polished with Brasso.

A new back was fashioned from an old Philips back to closely fit and improve the safety aspect of the radio, along with a warning label. (You don't want prying fingers getting into an AC/DC set.)

The two smaller knobs were replaced with another set that were safe and suitable. The original knobs had broken skirts that exposed the grub screws which could potentially be lethal if touched.



**Top: The restored set front. Lower: The new safety back fitted.**



# A Mickey Mouse Story

Hullo David...I was quite intrigued with the article on the Emerson "Mickey Mouse" radio in the latest Bulletin [actually TradeMe Triode's item in Bulletin 35-1. Ed] considering I live near, and am friends with, the buyer. He prefers minimal publicity so he shall be 'Terry' but all the facts as printed are as the radio came to him. Terry is an electronics whiz with a fully equipped workshop so he knew what he was doing when he bought the cabinet. Briefly, with the aid of Riders and other printed data he bent up a new chassis, collected all the parts together and reconstructed the radio almost as it was - even making it 110v using a SD transformer. I can assure you that, having heard it and tuned around a little, it performs beautifully and probably better than when it was new. It now



occupies a prominent place in his lounge. Attached are some photos of the completed radio which you are free to use in the Bulletin if you think they may interest the membership. Cheers, Dave McLaren

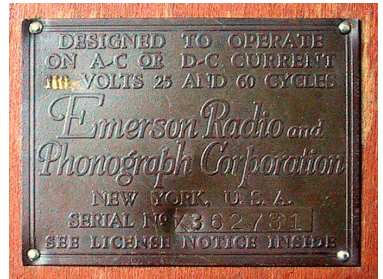
The TradeMe Mickey Mouse item appeared with a number of photographs and the following description: "Fantastic present for a special collector. Never seen another like it. Original valve replaced by transistor. Bought at antique auction over 30 years ago. 190mm high x 190mm wide x 130mm deep. Carved Mickeys on 4 sides as shown in photos. Original knobs and brass plates front and back. Super condition."

As commented by TradeMe Triode "What a real, real shame" *that the original works had been gutted and replaced by a transistor radio!* Well now we can say that a healthy bid was made but the time, patience, availability of parts (and expertise) of the purchaser has resulted in a great set. Just look at the final result in these following pictures:

Terry continues the story; Hello Dave, I have enclosed a picture showing the new chassis shoe horned into the cabinet; some members might like to see the fit. All chassis dimensions were strictly adhered to the original sizes, and the same goes for the gauge of zinc plated steel, the folds in the chassis were many and tricky so the stretching of the metal had to be taken into consideration. The inductance values were calculated measured and dimensions checked against pictures on the net showing under chassis details of other collectors MM radios overseas. The EM speaker was a lucky find with the right dimensions and another stroke of luck was the presence of the original knobs. Often these go missing or incorrect knobs get substituted. The set goes very well. Cheers, Terry.



**Left: The TradeMe sale item complete with transistor radio.**

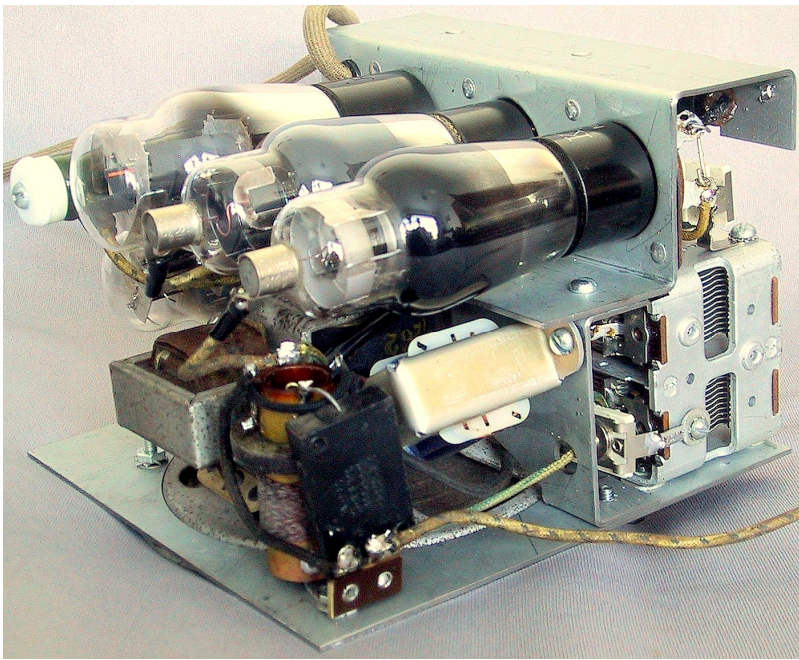


**Above the Emerson label.**

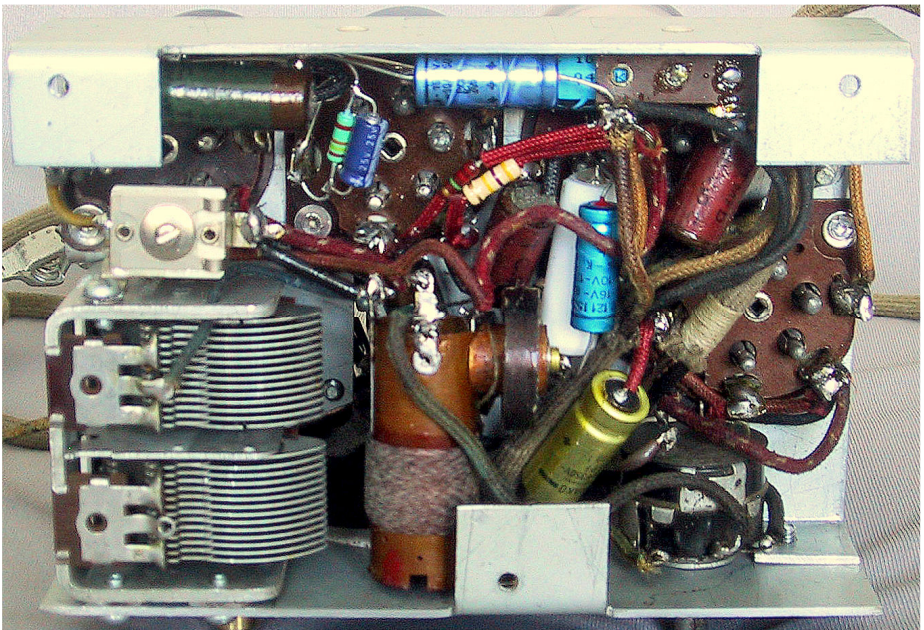
**Below: After Terry's skilful reproduction of 'the works'.**







**Above: Remanufactured set chassis for the internal reinstatement**

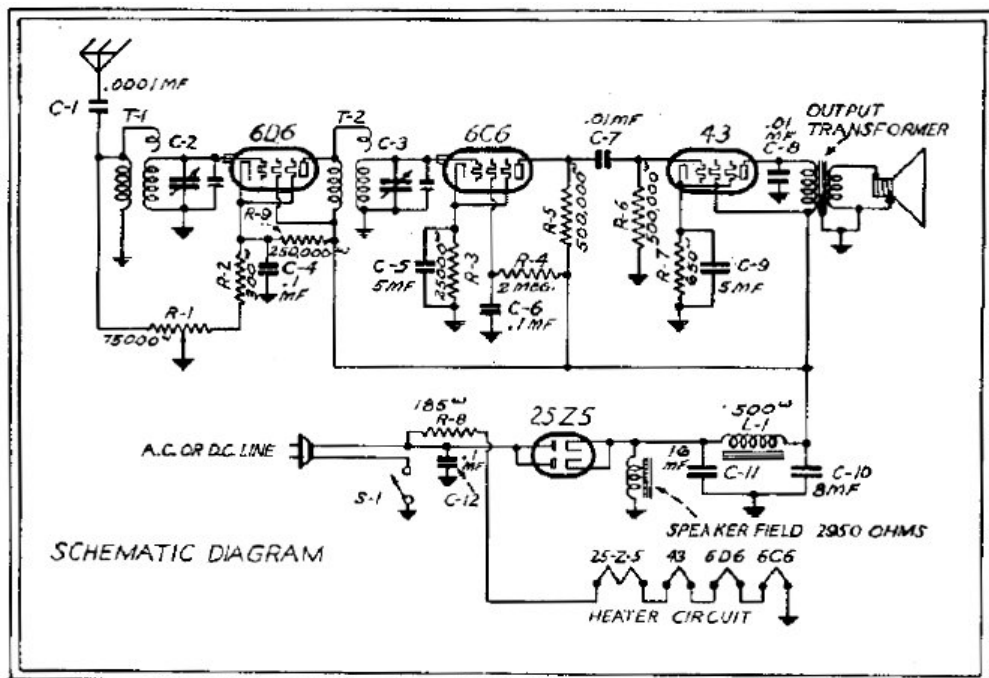


**Above: Underside reconstruction of the Mickey Mouse chassis.**





Above: The Emerson Mickey Mouse Repwood cabinetry (top of set).



Schematic of the Emerson Mickey Mouse Model 411 (TRF).

## A Vintage Pacemaker Transportable – from Peter McQuarrie

The Pacemaker model 127 is now over 50 years old. It was made in 1963 by Collier and Beale (C&B) in Wellington, the last year that C&B also produced a domestic valve radio receiver. The 127 was the last of the fully hand-wired C&B transistor radios; from 1964 onwards they all had printed circuit boards.



The 127 followed the designs of the earlier Pacemaker transistor sets produced in 1957, 1958 and 1960, but with some noteworthy differences. The expensive American

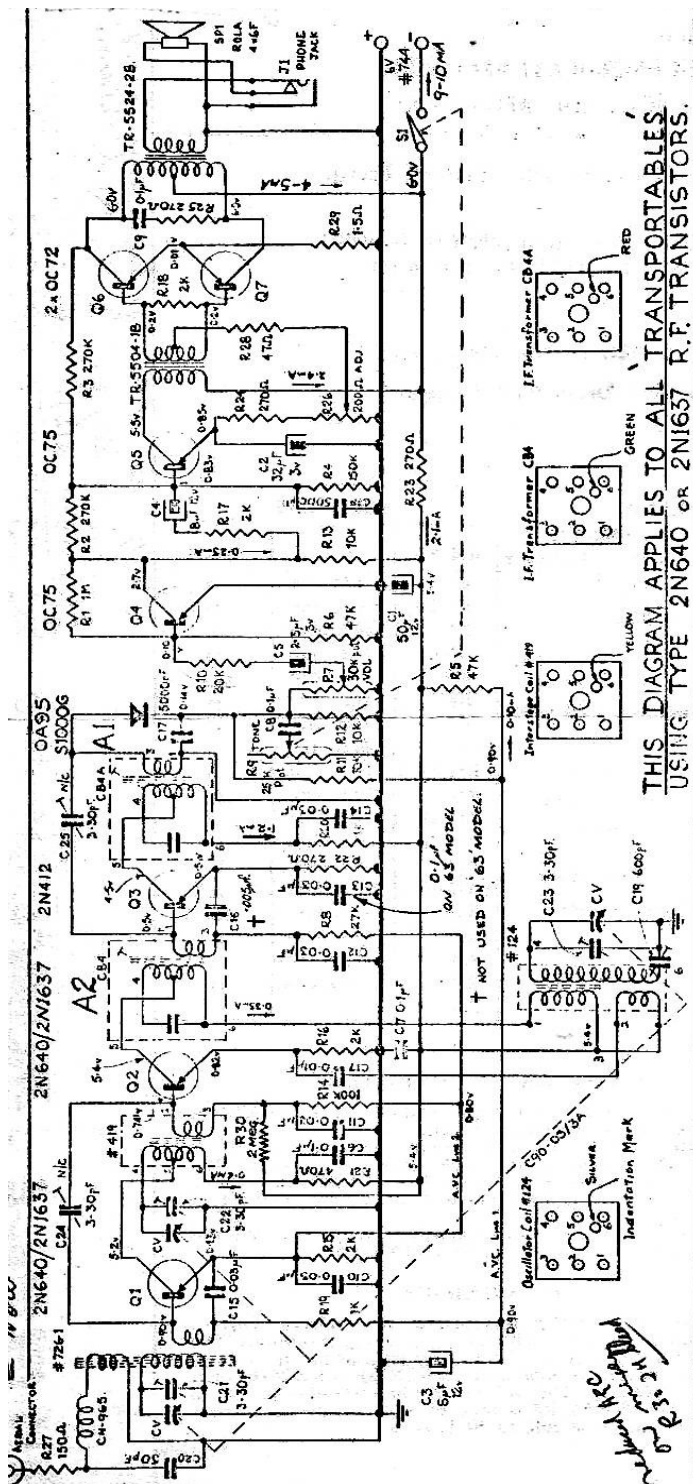
made, RCA “diffused field” transistors (2N219 & 2N242) used in the earlier models were replaced by Australian made AWV transistors (2N412 & 2N1637). Amalgamated Wireless Valves (AWV), a valve manufacturing subsidiary of Amalgamated Wireless Australasia (AWA), had commenced making transistors and semiconductor diodes in 1958, under licence to RCA. No doubt these AWV transistors cost less than the RCA types.

A surprising feature of the 127 is that the chassis is made of copper. Not copper-plated steel such as was used by C&B in making the ZC1 army radios during WWII – but solid copper. The original Pacemaker transistor radio had an aluminium chassis. The second model used “tin-plate”. It cost less than aluminium and chassis connections could be soldered directly to it, eliminating the need for additional chassis terminals and fasteners and also making the chassis connections electrically more reliable. Tin plate was used in the 1958 and 1960 models. The reason for the change to more expensive copper in 1963 in the 127 remains a mystery.

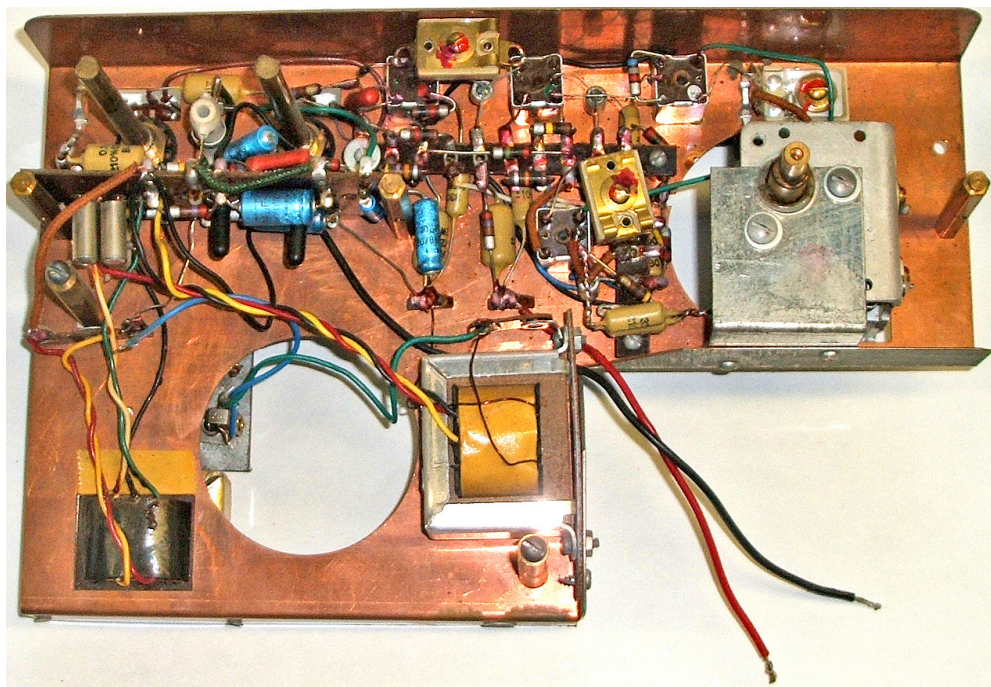
Another difference with the 127 was that the tuning capacitor and other controls were mounted so that the control knobs were on the front and not on top of the case. The case was not of solid oak and oak veneer as in the earlier models but of plywood covered in vinyl plastic. The covering material used was described as “vynair” by the manufacturer and came in three colours; ivory, red and yellow.

The Ducon waxed-paper capacitors in the earlier models were replaced by polyester capacitors made by Philips. These were still tubular foil type of capacitors with axial leads, not the smaller metalised-polymer types we are familiar with today. But because polyester dielectric was used instead of waxed-paper, they were far more stable with greatly increased insulation resistance.

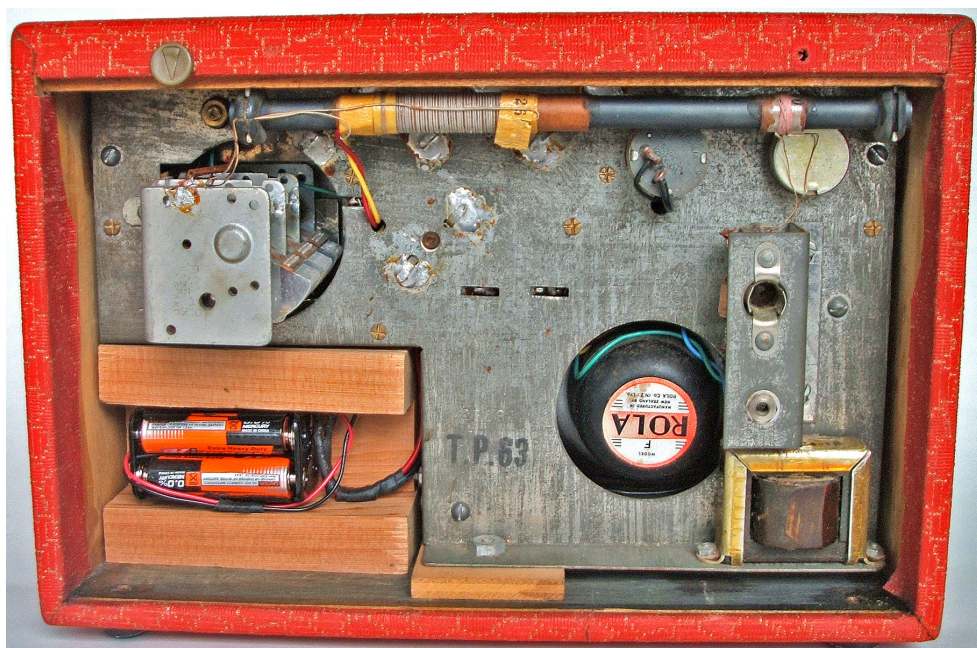
Acknowledgement: Thanks to Bruce Churcher, NZVRS Librarian, for providing a circuit diagram and other technical information.







**Solid copper chassis above, tin plated side below within the carry case.**



# Chasing “Goliath” – The Giant from Fort Wayne.

## Part 3 Broken Dreams / Sleeping Giant

By Mark Thomson

Previously, in Part 2 of our story, it was suggested that there was a more sinister scenario and quite likely a number of factors responsible for what was to be a massive change of fortune for the Steinite Radio Co. In order to background the devastation faced by the Abelson Bros and Oscar Getz at the helm of The Steinite Radio Co during those final days of October 1929, let us look more closely at the events that completely changed their lives in ‘the flick of an economic switch’. The Headlines in the New York Times on the morning of ‘Black Tuesday’ on October 29<sup>th</sup> 1929 must have come as a catastrophic shock to hundreds of thousands of hard working individuals. The collapse of the Stock Market on New York’s Wall St made the headlines of The New York Times grim reading:



Nearly 3 Million shares were traded in a single hour with 16.5 Million shares traded in total for that fateful day (remember this was 1929 and systems were more manual in those days). I speculated in Part 2 of our story, that perhaps “the darkening clouds on the financial horizon were somehow either not in clear view or that they were simply ignored. The rapidity with which the situation developed into ‘Financial free-fall’ was frightening – it is still so even 85 years on:

Following a period of rapid expansion in the early to mid 1920’s, the American Stock Exchange reached a peak in August of 1929 with business confidence ‘riding’ at an all-time high. However underneath this buoyancy, rapidly brewing was a ‘toxic mix’ of business and socio-economic fragility. Significant factors in play involved growing unemployment and low wages, leading to declining consumption, down turns in production and debt proliferation. These, when coupled to a weak agricultural sector and an excess of major Bank Loans unable to be liquidated, left stock values artificially high - far in excess of their real value. Late September 1929 stock values began to decline. On October 18<sup>th</sup> the fall began and as downward share value momentum gathered pace, panic ensued. Fearing imminent collapse, some leading Bankers attempted to bring stability to the market by buying up massive blocks of stock, which resulted in a moderate rally the following day. The weekend of October 26

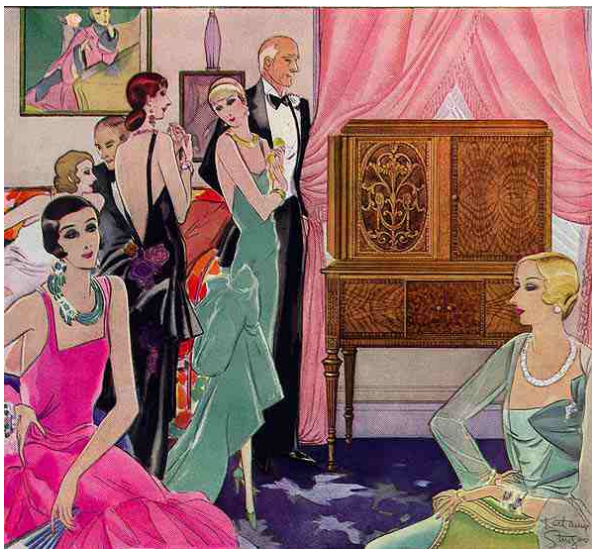


must have been a nightmare for investors with no time whatsoever in which to extricate themselves from a downward-spiralling, 'grid-locked' market, close to collapse. On the morning of Oct 27<sup>th</sup> ("Black Monday") the market went into an uncontrollable 'free-fall' and on that dreadful Tuesday, Oct 29<sup>th</sup>, 1929, stock prices completely collapsed. Investors traded 16,410,030 stocks on the NY Stock Exchange and lost Billions of dollars on that day.

To illustrate that this was no "quick fix", in January 1931 breadlines were commonplace, work, practically unobtainable and rather than showing signs of recovery, the economic crisis had actually deepened. A year on, in early 1932, stock prices were on average worth just 20% of their value prior to 'the crash'. By early 1933, almost half of America's banks had failed and unemployment was just short of 15 million people, a staggering 30% of the American workforce.

The Great Depression was "the field of devastation" facing The Steinite Radio Co (and so many other companies) in that fateful October. It was a time when industry giants had far further to fall than their commercial "minnow" cousins. What then of the Steinite radio Co? Had the Abelsons erected business insurance "props" against such a "horror-story" business landscape? Prior to the October '29 crash, most radio companies would have placed their pre-Christmas advertising "copy" with their agencies. Advertisements extolling the virtues of "Owning the radio receiver you have waited for - for so long", "Witnessing, in your own living room, the admiring smiles of family and friends, as you demonstrate the tonal quality, station clarity, superior volume and design excellence of your brand new STEINITE" and "Make Christmas 1929, a STEINITE CHRISTMAS"! Confident, welcoming and happy tones indeed, beckoning the prospective buyer to "Come on in".

The 1929 radio industry was booming, business confidence and sales figures high, and the console style of radio "this magnificent piece of household furniture" reigned supreme. I have emphasised previously that the console radio was not only fine craftsmanship furniture, the entertainment centre of the home and a status-symbol; it was all three. Radio industry manufacturers had invested heavily in this type of radio; in research, design and development, cabinet-making, chassis plating, componentry and in the acquisition



of speakers and valves — it all cost money and in quantity, BIG money. The cost of promotion, their advertisements in theatres, books, newspapers and magazines right through to that 'rock-solid' financial return on investment; advertising via radio itself – yes it all cost money!



The promotion of the console radio was carried aloft with aggressive marketing and advertising initiatives. But the Steinite Radio Co was not alone in this manner, these huge and often beautiful survivors from many radio manufacturers from this period today repose graciously in radio collections the world over. Between 1928 and 1930, Majestic (Grigsby – Grunow Co), Atwater Kent and The Philadelphia Storage Battery Co (Philco) were among the many companies who boasted fine examples of wireless technology housed inside magnificent console cabinets.

Some companies had diversified, spreading their pricing structure with radio set ranges (as risk mitigation strategies). Their product range offered fine variety; from the tin-box and wooden-cased “chest – table models”, right on up to the stately consoles. 1929 saw the “miniaturisation” of radios with the down-sizing of console units. Placing the loudspeaker inside a cabinet of smaller size and without legs and mounting it above the radio chassis gave the cabinet a pleasing symmetry. This was congruent with the Gothic style fashion vogue of the time, but calling all of this a ‘Cathedral’ or ‘Gothic Compact’ had yet to come. Soon this very type of radio would be heralded as ‘The Midget’ - a design driven by the simple necessity to save costs and it was waiting in the wings to take the stage and the radio world by storm.

It is interesting to reflect upon the fortunes of other prominent U.S. producers of the console style of radio, at this time. Majestic, the Chicago, Illinois headquartered megalith was a company whose business (like Steinite’s) was based largely on the production of the expensive console radio. Caught out by the killer combination of over-production of expensive console radios (producing 3,500+ each day) coupled with the sudden inability of the man in the street to afford them, Majestic desperately “held on” for three long years before finally succumbing to the effects of the Great Depression, going into receivership on November 24<sup>th</sup> 1933.

Further east in Philadelphia, Pennsylvania, the fortunes of Philco (under the brilliant business management and dynamic leadership of General Manager {and soon to become President} James M Skinner) was an entirely different story. Employing a brave and innovative business strategy, Philco chose exactly the opposite business direction to other companies in crisis. In mid-1929, Philco had gone deeply into debt taking on huge bank loans in order to gear-up and mount an attack on its Philadelphia business rival, Atwater Kent and that company’s coveted position as radio-industry sales leader (a position it had held for several years during the mid-1920’s). Philco had borrowed a colossal US\$7M to fund its campaign. Immediately following the stock market collapse those (few) companies that survived laid off staff, downscaled production, cut advertising costs and drastically “tightened their financial belts” in order to survive. Not Philco! It did exactly the opposite; Philco took on more staff, expanded its plants, attacked its competitors with aggressive advertising and early in the new (1930) year, James Skinner played his trump cards: Diversity of style and a wide range of price. “A radio for every person at a price to suit EVERY pocket” his advertising headlines proclaimed. In August of 1930, as the Great Depression worsened and many of its opposition fell, in a master-stroke of design, convenience, portability and price, Philco unleashed its *pièce de résistance*; the seven – tube, TRF circuited, Model 20 ‘compact’ (Baby Grand “Cathedral”). It was a great performer, its elegant gothic design, entirely a modern fashion statement, its chassis and speaker cleverly housed, all in one cabinet. Messy, inconvenient extension speakers, that had placed extra expense on an impoverished purchasing public, were banished to the halls of history in one

masterful stroke of the business brush! Best of all the price; all this (less tubes) for just \$49.50! The great little name in radio “The Philco Baby Grand” had well and truly arrived. Priced strategically above the cost of the now obsolete extension speakers, but at just half the cost of most of its competitor’s cheapest Lowboy consoles, Philco went into mass production of the Model 20. Several elegant consoles, sporting the same well-performing chassis as the “Baby Grand” ‘Cathedral’ were marketed, for the “selective and discerning taste of only the finest households”. ‘Philco’ sold 343,903 Model 20 “Baby Grands” and by the end of 1930 had shot to the # 1 position as radio industry sales leader in the USA. There Philco stayed for the next ten years; all because it reacted quickly to the economic crisis by employing a policy of attack (not retreat) with diversity in a range of style and price to expand its market.

With regard to the impact of the Stock Market collapse and the onset of the Great Depression on the Steinite Radio Co it will become clear how frighteningly quickly Steinite, this massive business giant, fell helplessly to its knees. The Abelson Bros, Jacob and Lester were throughout the 1920’s successful industrialists and investors with wide business interests both within and outside the radio industry; the profits from which had doubtless contributed to the continued growth and success of The Steinite Co after their take-over of the company from Fredrick Stein in 1928. Some sources point to its fall, solely because of the substantial business risks involved in adopting a non-diversification approach to its business strategies, advertising, marketing and product-line. The limited range of sets Steinite had on offer to the frequently changing whim and affordability of its purchasing public certainly cannot be factored out of this scenario. In the business relationship of time, commitment, momentum and steerage (business direction, strategies and leadership) is a phenomenon similar to that known in nautical terms as “head reach”. The Maritime Dictionary defines it as: --- “Distance travelled by a vessel from the time when the “Full Astern” telegraph order is given until the vessel comes to a complete stop in the water by whatever means.” For example a giant Supertanker with its massive bulk, locked-into a pre-determined course, travelling at full speed on ‘auto-pilot’, requires three vital elements in order to change course and avoid pending disaster. These elements are those of intervention-potential, time and distance. I believe it is possible to relate The Steinite Radio Company’s situation to the case of the Supertanker, “Torrey Canyon” which slammed into the Scilly Isles off the south coast of Cornwall on March 18<sup>th</sup> 1967, causing the largest shipwreck and biggest oil spill in history at that time. The “Torrey Canyon” was another giant, travelling too fast on auto-pilot, locked inexorably into a pre-set course with no capability of decreasing speed or altering course in the time and distance available to it, to prevent its catastrophic end.

The speed and momentum of Steinite as a company, one of such massive bulk was committed to a set course of business which in the time available to it, was totally unstoppable. It was locked into a collision-course with the rocks of business oblivion, during a financial storm - the likes of which the world had never seen. We can ponder on the awesome momentum of this business giant. In the space of just seven years Steinite had risen from a tiny company, manufacturing Galena crystals, into one of major prominence and respect among members of the US radio industry for the outstanding quality and technical innovation of its product. Massive financial investment during 1929 had seen (four months before the Stock Market ‘crash’) not one, but two manufacturing plants added to Steinite’s empire, including the brand

new 210,000 sq ft plant in Fort Wayne, Indiana. Business over-commitment and its consequent over-investment and excessively high gearing would have certainly contributed to the derailment of this radio giant and with such astonishing speed. Steinite's near total commitment to investment in the ongoing production of console radios (which some sources state were already declining in favour by the time the Stock Market 'crashed') would have fuelled the failure potential equation. Steinite must have been a company in distress, haemorrhaging financially, frantically issuing "Stop acquisition" orders for component parts and "Sell Now/Any Price" notices for excess stock on hand.

The huge sums of loan monies from the banks (themselves in crisis) would have had them scrambling mercilessly to recover any portions of the debts. What a sad Christmas 1929 must have been. The Steinite Radio Co, having peaked production at 2,000+ sets per day in the latter quarter of 1929) was shocked, shaken and shattered, but struggled briefly on. As the Steinite Manufacturing Company and Jim Tully (ex of the Bremer Tully Mfg Co) at the helm, Steinite lasted just a few more months. In early April of 1930, with debts totalling US\$1.3M, the receivers strode in. Over the following months (May/June 1930) Magnavox, the huge US radio-loudspeaker manufacturing company, purchased Steinite's still near-new Fort Wayne, Indiana, manufacturing plant. In October 1930, Steinite again reorganised with the intention of manufacturing a line of private brand radios, but by early 1932 the company was gone.

What of Frederick W Stein? In 1930 an 8 valve Cathedral radio model under the brand name of 'Aztec' appeared on the market. A nameplate attached to its front panel read: "The Fred. W. Stein Radio Co, Atchison, Kansas. USA". It seems that Stein wanted to raise one last defiant flag of his own. Fred Stein however was also a clever inventor and in the late 1920's he had invented a device for testing the moisture content in grain (so very important in the mid-West). That business **did** survive both the Wall Street crash and the Great Depression of the 1930's following it. Indeed, that business still exists today as Fred Stein Labs Inc, run by Fred's son and still located in Atchison, Kansas. Fred Stein departed this earth in 1972 aged 84 years.

#### **Part 4 of Chasing Goliath, The Giant from Fort Wayne. The Giant Awakes – prologue.**

Having come full-cycle, I must now refer you back to my own giant of the 1920's radio world. Inoperative, "Goliath" was in every sense a Sleeping Giant and made a forlorn, if imposing, sight the day we brought it home to Gerry's place for examination - that day of our exit from 'The Labyrinth'. Even as Gerry and I "Oooood" and "Ahhhed" (yet again) over both its magnificence (and that of Gerry's' coffee and homemade cakes - equally legendary) I made a silent promise to those who had gone before us; the Abelson Bros (Jacob and Lester) and Oscar Getz, to Fred W Stein and also to myself, that I would research and learn everything I could about this radio, the history of Steinite, the company, its product and the people who had built it and grown it to prominence. I vowed that perhaps one day, in honour of their memory, this giant wireless would sing, as they intended it to, once again.

Thank you dear reader, for your forbearance over this lengthy saga, it is my first attempt at such a task and I apologise in advance for any errors. I have enjoyed immensely bringing it to you. I will now hand you over to my friend Gerry Billman, or 'Dr Steinite' as we now know him, a man whose technical expertise and radio restoration talents need no introduction to you at all I'm sure, to conclude our story. Gerry, The Giant Awakens ... or does it?

To be continued...

# O rings in Repair of Vintage Equipment From Tim Sanders

## Patterson Radio 84 AW

The circular dial assembly has an angled steel rim which is friction driven by a moulded rubber piece mounted on the tuning shaft. Spring pressure holds the rubber against the rim for tuning. Pushing the tuning knob in disengages the drive and the rear of the shaft slots into the wave change switch

The rubber moulding was badly distorted so as replacement I thought something could be made using O rings. I had a box of many different sizes (from the local hardware chain) so experimented with stacking; starting with one that fitted the shaft and adding others to make a tapered pile

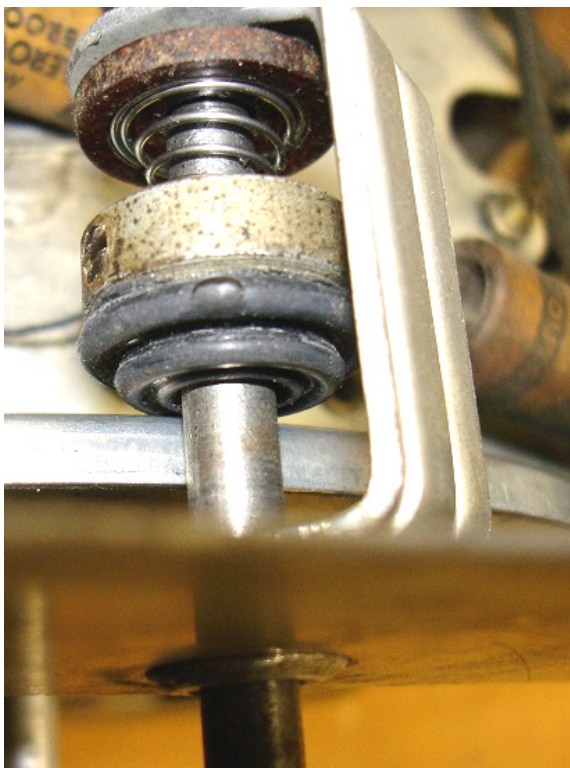
The stack was placed over a suitably sized drill bit shaft held vertical in a vice, and when everything looked aligned, superglue was dripped into the joins and allowed to set. Some cling-film stopped the rings sticking to the drill bit.

The faces of the rings that meet the rim were roughened a bit with sandpaper before installing back into the set.

Happily everything worked well without any further shaping of the rings to a more tapered profile.

**Right Top: Tuner shaft engaged with wave change switch.**

**Lower: Tuner engaged with tuning rim.**



## **Pye Radio/Record Player.**

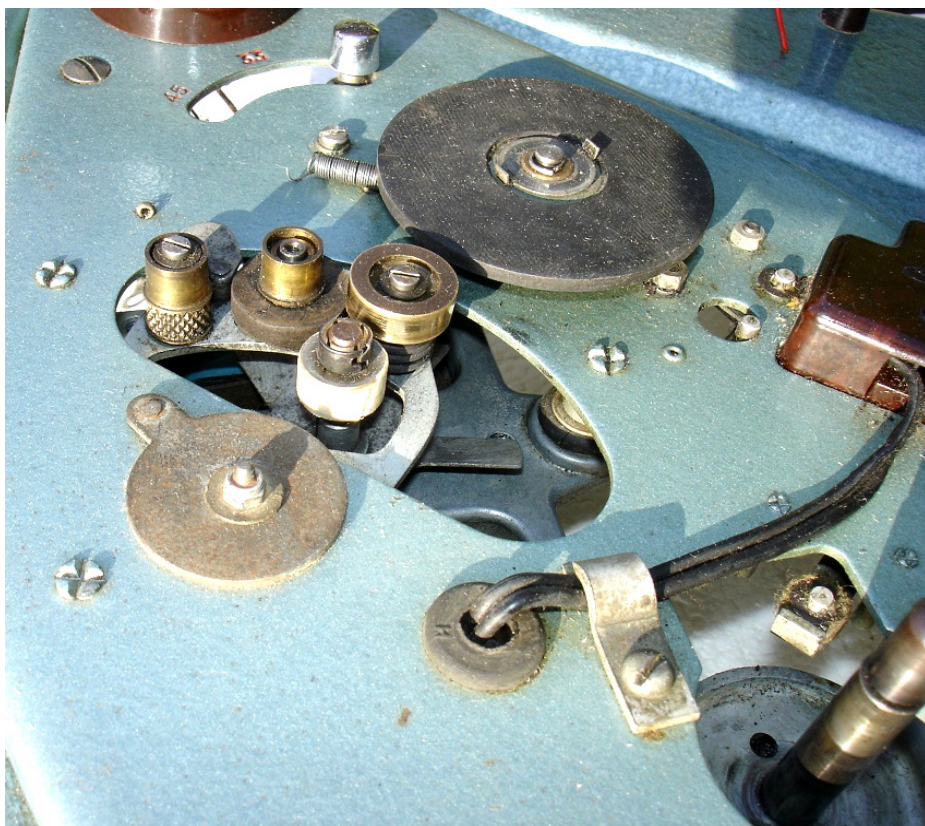
The Collaro deck doesn't use the usual stepped diameter shaft driving an idler wheel against the platter rim; instead each of the three speeds has its own intermediate wheel with a rubber lower section engaging with a fixed diameter brass piece on the motor shaft, and a brass top which contacts the main idler driving the platter.

Originally rubber was moulded onto the brass, but only one speed remained useable. Rubber on the others had crumbled almost completely away, leaving only a dimpled brass shaft.

The diameter of the rubber is critical to correct speed.

Again O rings came to the rescue. Rings were pushed onto the bare brass, choosing ones that gave a larger diameter than ideal, then with the motor driving the wheel a file and sandpaper held against the rings, reduced the diameter and gave a flatter surface.

The tedious bit was replacing the platter and measuring the RPM after each filing session until correct.



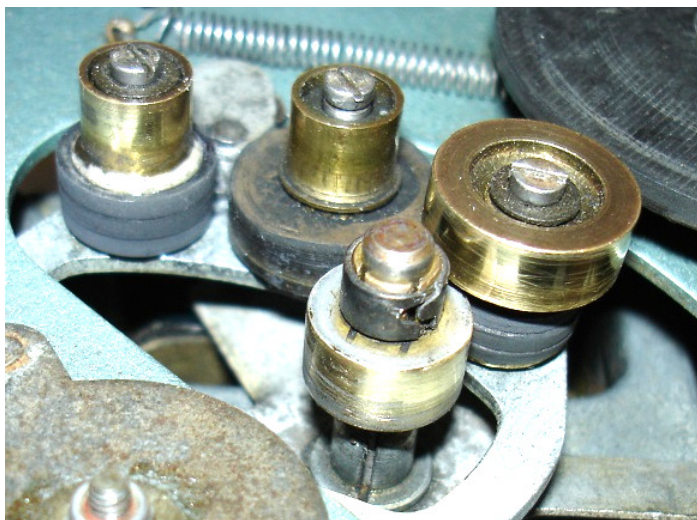
**Above: Before rubber replacement.**





**Left: Filing of the rubber O rings to adjust the turntable speed.**

**Right: Completed assembly after filing.**



**Below: The O Ring Box Set from hardware supply.**





## Little Radios by Rex Handcock

Collecting teeny-weeny transistor radios can be an interesting addition to mainstream radio collecting and restoration. Due to the variety of shapes, sizes, colours and miniature reproductions of earlier standard radios gives this hobby a “buzz” status. One never knows what may turn up and a reasonable collection doesn’t need a lot of shelf space.

I do pop into auctions, landfill recycling sheds, car boot sales, old farm sheds, clearing sales, weekend garage sales, second-hand shops in odd out of the way places when travelling. None of them on a consistent basis, just when the whim to pop in and have a look arises.

What can be interesting are mixed lots of household odds and ends that come in the good old cardboard banana boxes. These are worth a rummage through and can turn up some real early radio associated items as seen in early hobby journals and ‘The Lamphouse’ catalogues. Such items as early high-impedance earphones, early Morse code relays and keys, adjustable antenna matching devices, various unusual receiving antenna insulators etc to name a few, plus a whole range of early fittings, nuts, bolts etc..

The photo [below] is of a recent addition from an auction box lot; a Fisher and Paykel AM-FM Transistor Radio, celebrating their first 50 years. Inscribed “An appreciation of 50 years serving N.Z. Fisher and Paykel Ltd. 1934 – 84” and on the accompanying packing box – “Thanks to Nola McInnes, from Fisher and Paykel”.

This unit does not appear to have been used as it is in mint condition.

Another 20 years and maybe Fisher and Paykel will celebrate their century likewise.



# Crystal Clear - a Book Review by Reg Motion

Written by Richard J Thompson Jr. this book reviews the struggle for reliable communications technology in USA during World War 2. It starts with a short history of communications used by the US Army and Air Force prior to the war which were largely messenger services supplemented by telegraph and telephone carried by wires in the army with radio in the mobile units. The latter used tuneable inductance/capacity oscillators to generate their operating frequency so that this could be readily changed by the operators. Stability and resetability in service were problems but crystal control was resisted as multichannel quartz crystal units were bulky and crystals were impossible to obtain in the quantities required. However the need for simple reliable channel changing increased as the number and use of mobile units expanded and in the end the problems of supply of quartz crystals in the large numbers required had to be faced.

Prior to the war quartz crystal suppliers were small and there were only a few in USA. Crystals were mainly used by radio

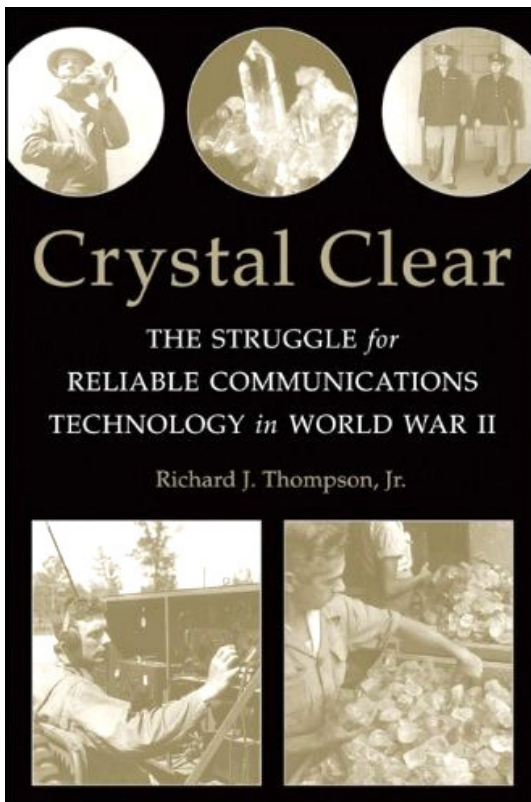
amateurs and broadcast stations. In the years immediately before USA entered WW2 a large effort was made to increase the number of suppliers by setting up many small firms and teaching the staff the elements of crystal production.

A massive effort also began to obtain the necessary supply of suitable raw quartz which could only be provided by Brazil, a neutral country. This quartz came from deposits produced by nature as the world cooled and had to be broken away using hand tools. A great increase in the number of Brazilian personnel was required. Since Brazil supplied all the world diplomatic and other efforts were necessary to ensure a continuing supply to USA.

Once the resultant crystals entered service a further serious difficulty turned up. The frequency produced by each of the crystals provided slowly drifted with time. The drift was small but wartime demands made it necessary to increase the number of channels in the limited frequency spectrum available for each of the services (air, ground mobile and ground fixed). The reasons for this drift had to be found and remedies introduced. This took time and time was a limited quantity in war. Physics came to the rescue with the reasons but rapidly introducing these changes required a large well planned management effort for the small technical staff available at military headquarters.

How all these problems came about and were solved is the subject of this book.

The publication is soft covered of A5 size and has 250 pages. It is well written and covers technical subjects in clear everyday language.



## MARKETPLACE

Advertisements for the next bulletin should reach the editor by the 15<sup>th</sup> of the prior month. These must be neatly hand printed, typed or printed on a separate page, posted to the NZVRS (for details see page 2) or emailed to [nzvrs@pl.net](mailto:nzvrs@pl.net)

Please - no verbal or telephoned adverts, also don't forget to include some contact details; eg postal, telephone & email if applicable. There is no charge for members' adverts but please remember that the NZVRS is not responsible for any transactions between members.

## AVAILABLE

**Valve Cartons** – plain white flat packs

- Small size \$12 per 100
- GT size \$12 per 100
- Medium size \$15 per 100
- Large size \$25 per 100

**NZ & Oz supplied, contact Paul for post and package charges per order.**

Contact: Paul Burt, 44 Hastings St West, Christchurch 8023.

Tel: 03 - 960 7158, Mob: 021 0236 1748

Email: [dawn.lloyd@clear.net.nz](mailto:dawn.lloyd@clear.net.nz)

## Society Sales:

**NZVRS supplied CAPACITORS for sale to NZVRS NZ members only please order via Bryan Powell, 279 Spur Road, RD3, Silverdale 0993.**

Tel: 09 - 44 22 514 or 029 415 5119

Email, . [bapowell@xtra.co.nz](mailto:bapowell@xtra.co.nz)

Metal polyester film, axial leads, ( $\mu$ F):

0.001	630 Volts	50 cents each
0.002	630 volts	50 cents each
0.005	630 volts	50 cents each
0.01	630 Volts	50 cents each
0.022	630 Volts	50 cents each
0.033	630 Volts	50 cents each
0.05	630 Volts	50 cents each
0.068	630 volts	50 cents each
0.1	630 Volts	50 cents each
0.22	630 Volts	50 cents each
0.33	630 Volts	50 cents each

1 $\mu$ F	400 Volts	\$1.00 each
Electrolytic capacitors, <b>polarized</b> , axial		
10 $\mu$ F	450 Volts	\$1.50 each
10 $\mu$ F	600 Volts	\$3.00 each
20 $\mu$ F	450 Volts	\$2.00 each
40 $\mu$ F	450 Volts	\$3.00 each
47 $\mu$ F	450 Volts	\$3.50 each
100 $\mu$ F	450 Volts	\$5.00 each

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

### Extra specials while stocks last:

Box of 10, globular 12volt, 250mA MES lamps at \$2 per box. Limited supply – only one box per order please.

**For all orders please add \$3.50 for P&P.**



**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.

Contact the NZVRS Secretary Paul Woodcock, 2 Levy Road, Glen Eden, Auckland 0602.

Email: [paul.woodcock@opus.co.nz](mailto:paul.woodcock@opus.co.nz)

**All Society Sales cheques to be made out to the "NZVRS" and crossed "Not Transferable" please. Direct banking options are available to the NZVRS ASB bank account – see bottom of page 2.**



## WANTED

Hi, I am still looking for anything on this type of theatre amplifier made by Collier and Beale Wellington. Anything complete or parts only and any circuit information would be nice. Happy to pay for any bits.

Regards, Sam Lowe

23 Hurdon St, Westown,

New Plymouth 4310

Tel: 06-753 6693 Email:

samlowe@clear.net.nz

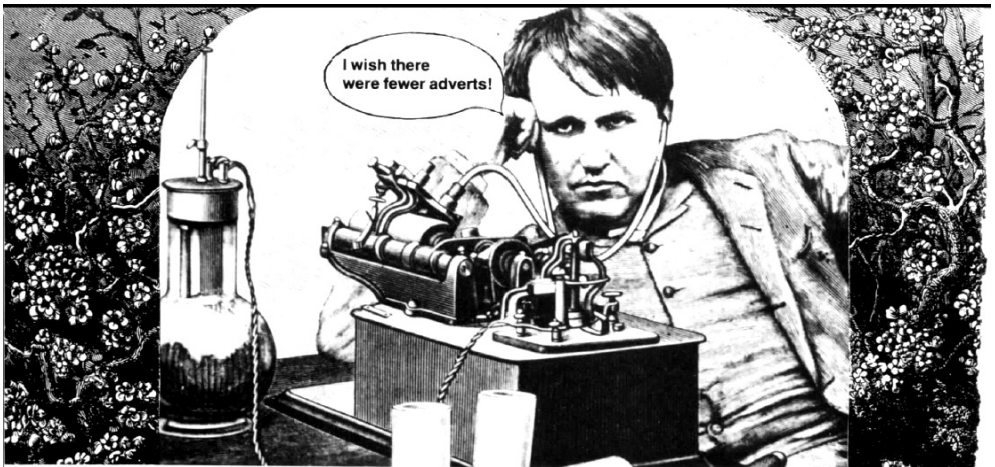
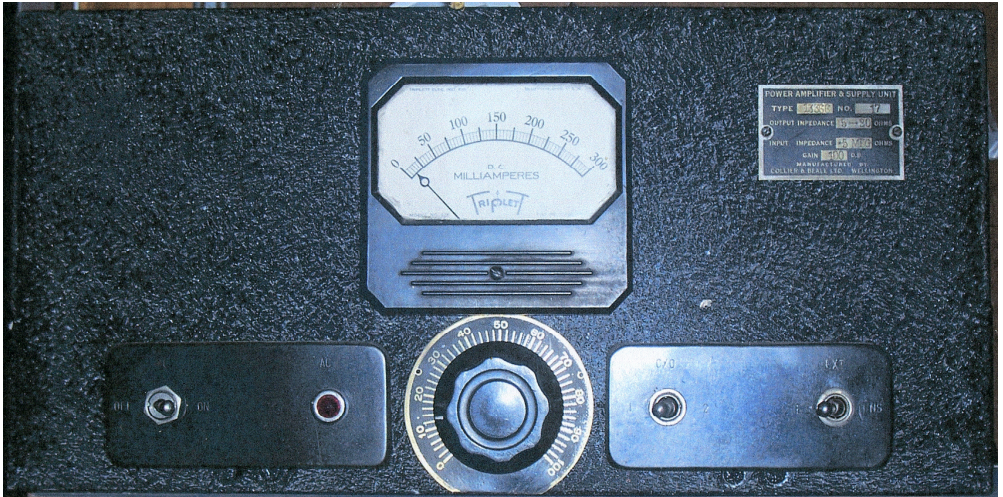
Dear Sirs,

Would you be so kind as to place the following data in your magazine?

The foundation of TECHNO-nostalgica organizes an international collection fair of ancient techniques at February 14th 2015 From 9.30 a.m. to 15.30 p.m. at the Hampshire Hotel, Van Schaikweg 55, Emmen, The Netherlands

With kind regards, Geert Schrik

[www.nvhr.nl/data/emmen-flyer2015.pdf](http://www.nvhr.nl/data/emmen-flyer2015.pdf)



THE MARCH OF MUSICAL TIME...1877: Thomas Edison invents the first phonograph.