NZVRS BULLETIN

Vol 36 No 3 2015 - iii

An STC 848 Radio Restoration

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 approximately quarterly. Contributions are always welcome. Any opinions expressed by writers are their's and not necessarily those of the Society. Any feedback, contributions, letters, etc can be sent to:

THE NZVRS EDITOR
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ASB Bank account 12 3067 0168223 00

A Calendar of Events is listed on our website at **www.nzvrs.pl.net/aaa/calendar**

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.
November: Monday 16 Unusual components & accessories
December: Monday 21 Last auction night of the year

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 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

This bulletin sees a couple of longer items hopefully of interest to members – firstly the backgrounder to an item we published some years ago about Robin Wood and La Wood Television. Now founder Colin Brookes has presented even more information about the origins of this company and some of his personal background before and during the set-up of this company and early television production in some local Auckland sites.
Another of the items is an STC 848 restoration by Roy Arbman – the cover story if you like and hopefully the pictures (especially in our digital edition) will convey an indication of the exceptional quality of the restoration to you.

With this bulletin will be a stuffer outlining the criteria of next year's AGM competition – a "simple radio receiver". Open to all members, the idea is to try and encourage any member to consider and enter a "receiver" capable of reception of medium wave broadcasts. By 'simple' this could be a crystal set through to 4 valve superhet radio. Note there should be a maximum of 4 active devices in the signal path – but they could be transistors. I'll leave it to you and the judges to consider the outcome – please consider entering; the idea is it should be fun rather then serious and any quirky ideas are especially appreciated.

Again we note the passing of several significant members of the society – unfortunately we have not had obituaries for them in time to be published in this issue.

Finally with another bulletin to get out before the end of the year, I note that I am low on copy for production. If you have any contributions – especially ideas about what could be an item, please feel free to send it in. They are always appreciated and single page or part page items are very helpful. Otherwise you will be stuck with what I can dredge up!

Cheers, David

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Roy Arbman has done a fantastic restoration on an STC 848. Read all about this in his item later in this bulletin.

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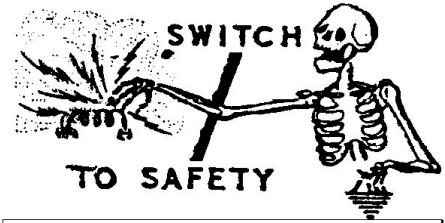


Always play safe with electricity – take care when servicing any mains powered device.

Broadcast Reception on Your ZC1 Mk II - from George Newlands

The unit to be described here is the result of one of those situations that started as a spontaneous idea then became a silly half hour and finally a couple of days work.

One of my casual and unofficial activities is to man the radio room at the Wrights Hill Fortress in Wellington on open days. This contains a collection of WW II radio gear which includes a ZC1 in full working order. As the room is concrete and underground, radio reception is minimal at best because an outdoor aerial is not practical.

Local vandalism would ensure that any such installation would last no time at all and apart from this; there is little to be heard on a ZC1 during daylight hours these days.

The physical layout and size of the converter.

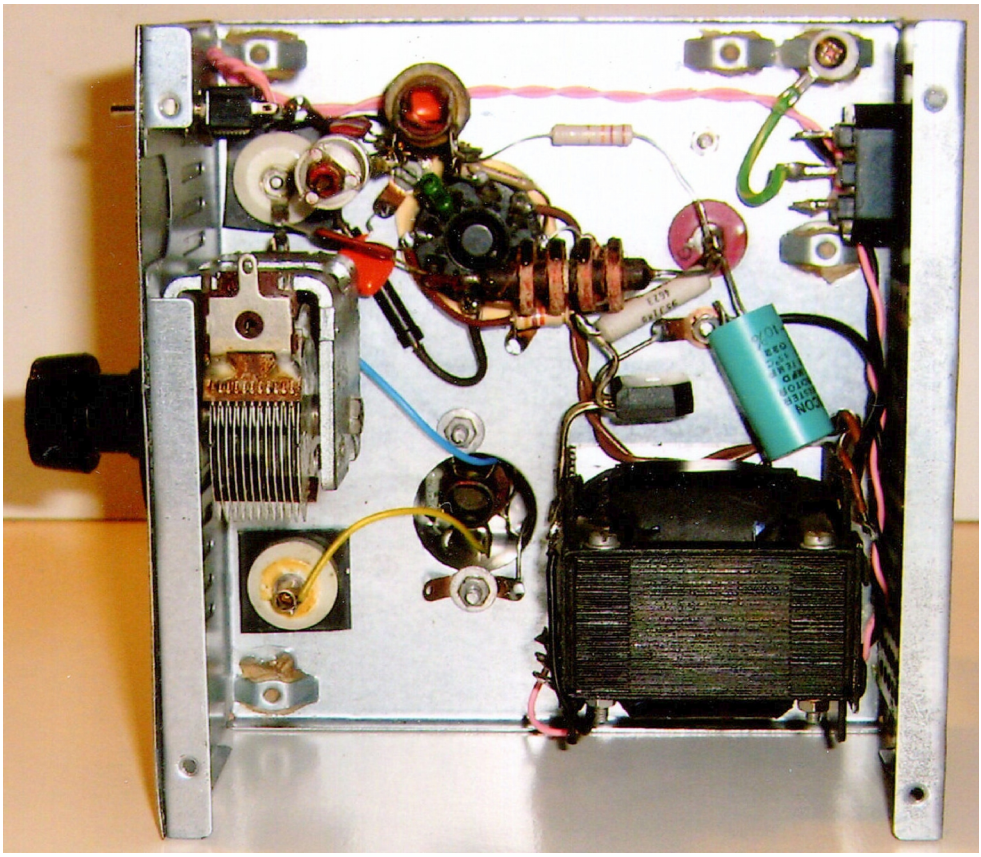
Some form of entertainment seemed to be in order. Static displays are all very well but if something can be made to react or perform when touched the whole atmosphere is considerably enhanced.

Something to put the broadcast band where the ZC1 could receive it was required. The ZC1 tuning covers 2-4 and 4-8MHz on two bands on scales only 140mm long so transferring the broadcast band to this was going to make for tight station-spacing. The lowest part of the low band; that with the broadest tuning, was the obvious part to go for, so a converter with a +2MHz shift was designed.

The circuit is no more than the converter stage of a conventional valve superhet with no A.V.C., the oscillator fix tuned at 2MHz and a 2.5mH choke as the anode load where the 1st IF transformer primary would have been. A 100pfd capacitor takes the output signal from the Heptode anode to a terminal which connects to the ZC1 aerial terminal. The valve is a 6J8G, chosen for availability although anything in that family would do, and the oscillator coil is a standard broadcast one. If the standard broadcast oscillator coil is run without the usual padder and parallel tuning it will oscillate somewhere between 2.5 and 3MHz so a small amount of

parallel capacity, about 25pfd in this case, will tune it to 2MHz. The rest, with the choke output, is entirely conventional. The input is a standard aerial coil tuned by a single variable capacitor which is necessary to peak the incoming signal and give the stage some gain. The 2MHz oscillator frequency can be set by listening to the receiver.

The power requirement is miniscule; 6.3v at 300mA and 250v at 10mA, and tapping into the ZC1 for this was considered but only briefly. Such arrangements are messy and I always favour self contained power supplies if space and weight requirements will permit them. This little unit runs directly from the mains using a power transformer recovered from a wrecked out tape recorder. The cabinet/chassis is the case of a computer power supply.
So there it is - broadcast stations on your ZC1. It is simply a matter of adding 2MHz to the frequency you want to receive and peaking the signal with the converter control.
When this unit was displayed at a Bring and Tell at our local branch it created a surprising amount of interest. That something so basic, simple and constructed in the best traditions of home-brewing made entirely from workshop scraps, could generate such an amount of interest was both astonishing and gratifying. It has also generated an order for another unit!

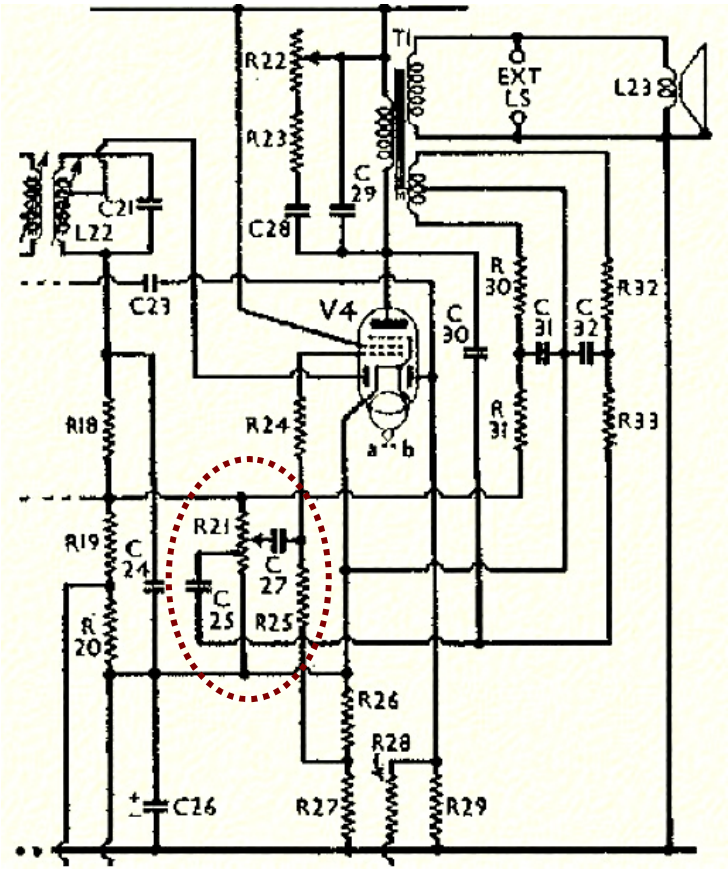


Underside view of George's converter.

Replacing the tapped volume control on the Philips 660

Philips radios are well known for their comparatively elaborate audio feedback circuits to achieve an effective quality audio output. It is a somewhat complex compromise but generally, to maintain a reasonable base (slight boost) at lower listening levels and less so at normal to higher listening levels, the use of a tapped audio volume control is commonly used. Whence the tapped feedback is more effective at the lower end of the control (lower volumes) and less effective (less wanted) at higher volume levels – to prevent speaking "booming".

Service notes from Philips suggested that the volume control (R21) on the push button Philips model 660 which is of 0.7 Meg Ohms with a tap may in some instances be difficult to procure. In such cases a necessary replacement may be made with a standard 0.5 Meg Ohm control. The 0.05uF capacitor (C25) normally connect to the tap however should now be connected through a 50K Ohm ½ watt resistor to the "low" end of the new 500 K Ohm control.
"This method will be found to be a satisfactory means of replacing the control whilst leaving intact the feedback circuit which is normally applied via the tapping point on the volume control"
This is of course much simpler than hunting for unobtainium!



Outside Foil Detector

from David Crozier

Years ago (paper/foil) capacitor makers would indicate which lead was connected to the outside foil with a dark stripe, line or ring on the capacitor's outside packaging. This was the side of the capacitor that I was taught should be connected to the low impedance side of the circuit. This was especially important in the case of signal decoupling as this gave better signal screening qualities to the surrounding circuits - rather than signal injection should the outside foil connection be "hot" with signal.

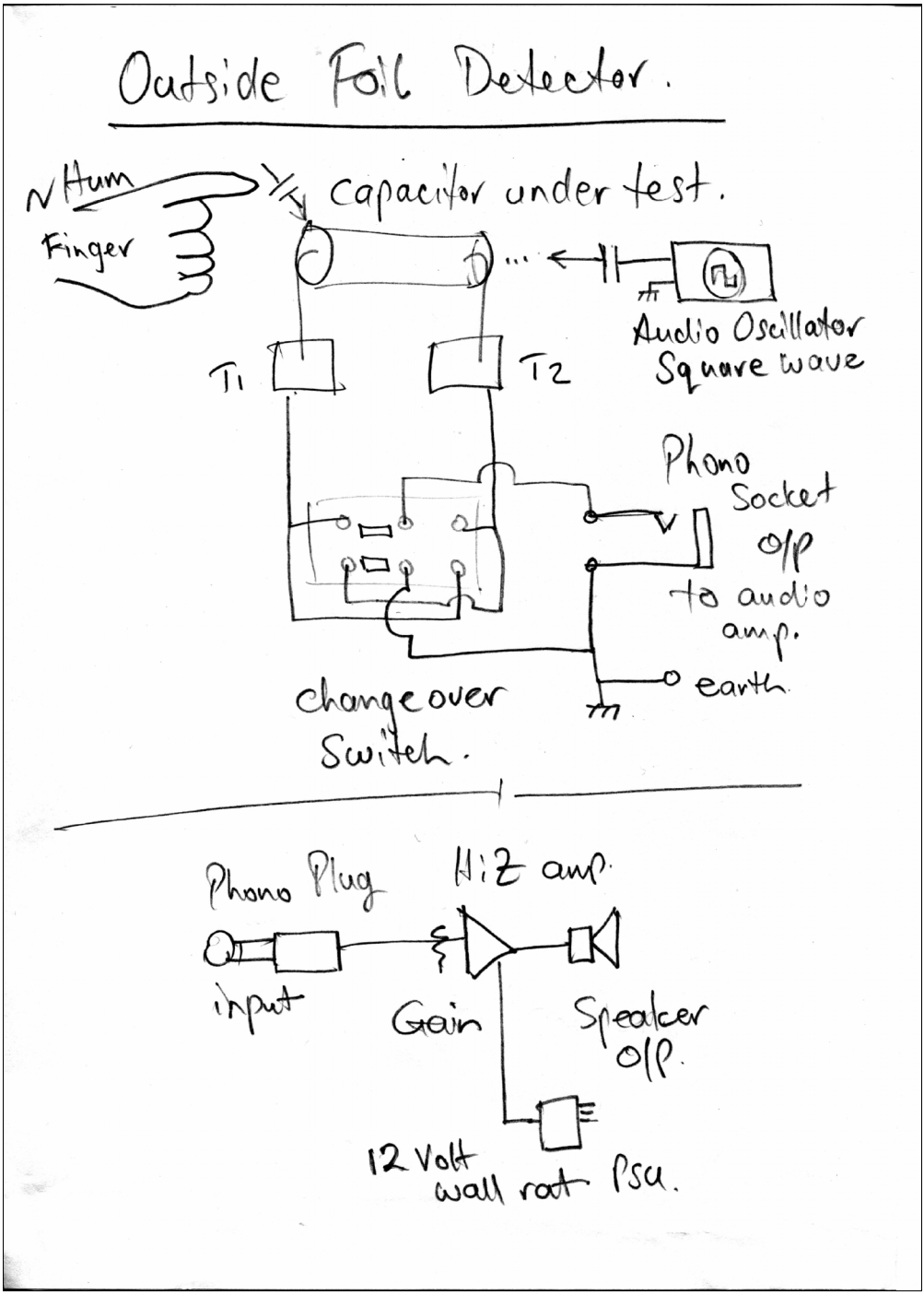
Still today, many manufacturers of "plastic capacitors" print a stripe or bar on one end of their capacitors – but the significance of this now seems lost as there are many examples where the "stripe side" is actually connected to the inside foil, a somewhat misleading indication.

In my searches to determine which lead is connected to the outside foil I came across a YouTube video that suggested using an oscilloscope connected across the capacitor and watching the amplitude of the trace to see which side of the capacitor picked up the most "finger induced" mains hum. {The highest hum level is of course obtained from the outside foil via capacitive coupling, when the other (internal) foil is earthed.} While this technique did the job it seemed a little cumbersome to me and not everyone has an oscilloscope on their repair bench waiting for this sort of job. Some thoughts were gathered pondering this issue and after a variety of sketches or circuit ideas, a simple device was made up to quickly connect a capacitor, apply lead reversal with a changeover switch and to allow a finger induced hum signal be feed to an audio amplifier for level comparison ie detection. This simple device allows a quick capacitor connection and the changeover switch allows lead reversal with a corresponding change hum level sufficient to clearly determine which is the outside foil of the capacitor under test.

In the prototype testing I used an audio frequency square wave generator to insert a signal via a paper clip on the capacitor and the indication of "outside foil" was definite, however for most cases simple finger insertion of mains hum seems to work well.

This device is low cost, uses few parts and the audio amplifier used as the "hum level detector" would probably have other uses on the repair bench. For the tester I used a simple plastic case with some press fit speaker lead connectors for the capacitor connection, a simple double throw changeover switch and a mono audio output socket – all parts found in my junk box. The audio amplifier came with some other goodies from a relatively recent VRS auction purchase and was slightly modified to make it even more sensitive by removing the feedback components from the amplifier circuit.

The only power requirement is the 12 volt power pack needed to run the audio amplifier, all the remaining items are passive.



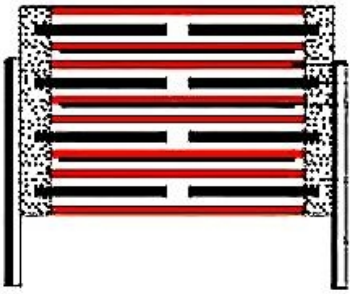
Sketch of Outside Foil Detector

Notes.

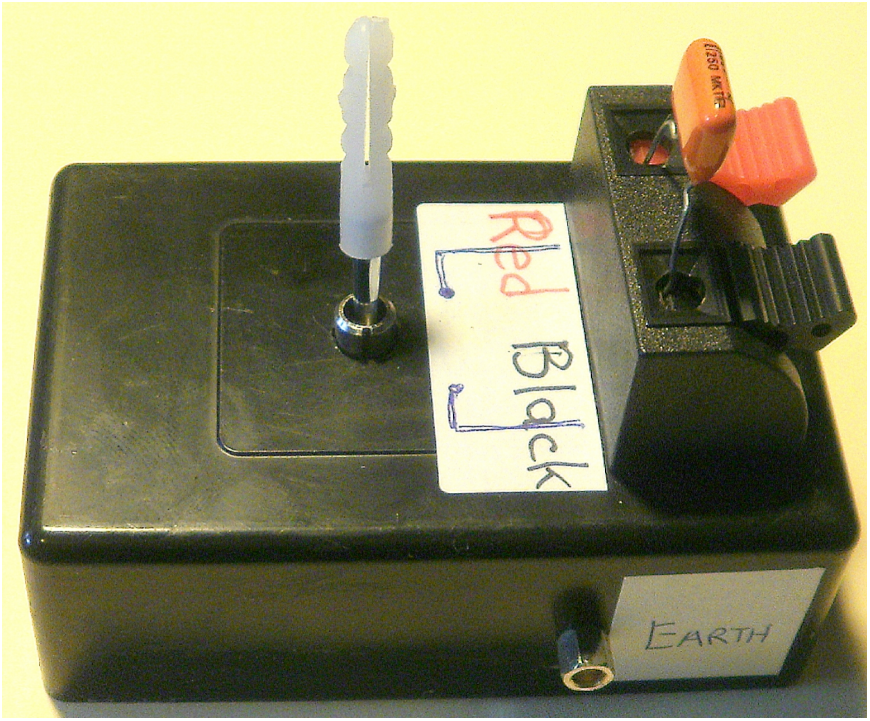
a) Only relatively low values of capacitance (ie less than 1uF) can be successfully determined for outside foil with this tester as the higher the capacitor value, the lower the hum impedance of the capacitor (ie the less difference in hum level signal on each lead).

b) In some types of capacitor such as disk ceramic, multi-layer ceramics or silver micas, there is no "outside foil" due to the physical construction of the capacitor – eg it is made of a single-block, or stacked layers of dielectric material and conductor, and the orientation of these capacitors makes no difference. Similarly, some high-voltage film capacitors can use a “double series” technique with two separate sections, side by side or end to end, with a common "floating" connection layer between them. All these types of capacitors have no inherent shielding qualities.

Construction of a double series plate capacitor;



Prototype “Outside Foil Detector” device:



La Wood Television Ltd

from Colin Brookes

The story of La Wood Television Ltd from its origins in the 1950's, through its development in Auckland in the 1960s until de-registration in 1985.

My interest in radio and electronics began during the latter years of my attendance at school. With the help of my father I took up amateur radio as a hobby, joining first the International Short Wave League and then both the RSGB and the ARRL. I converted some old WW2 German equipment that my father had brought home at the end of the war, made other units from circuits and Government surplus adverts in the Practical Wireless magazine and the ARRL Handbook (my bible). Later after leaving the London College of Technology, I successfully applied for a job at A.J.Whittemore (Aeradio) Ltd, located at Croydon Airport, as an aircraft radio repair and installation engineer. The work consisted of refurbishing and setting up to full working condition ex-WW2 British and American aircraft radio and electronic equipment for civilian use. This included the installation and testing of it in aircraft, and assistance in producing Polar Diagrams of aircraft Loop Radio systems for individual aircraft in the field. I worked on Douglas C47 Dakota, Percival Proctor, Avro Anson, De Havilland Rapide, Auster Aiglet Trainer, De Havilland Chipmunk, De Havilland Mosquito, De Havilland Dove, Airspeed Oxford, Miles Gemini and Miles Messenger aircraft.

There were three workshops; the main one with the administration offices and isolation test cage was in the front corner of the main airport building. We had further workshops in D Hanger and several smaller concrete buildings (ex-WW2 shelters) where we kept stores of ex-Government equipment. The company also purchased large numbers of aircraft direct from the RAF disposal auctions. Just before my leaving, the company changed its name to Avionics Ltd.

One of our small concrete stores with the company name on the side, and our Fordson van which we used to drive round the aircraft out on the open field when collecting signal strength for 'Polar Diagrams'. A C47 Dakota in front awaits the fitting of a loop and other equipment for the newly formed 'BOAC' Airways.

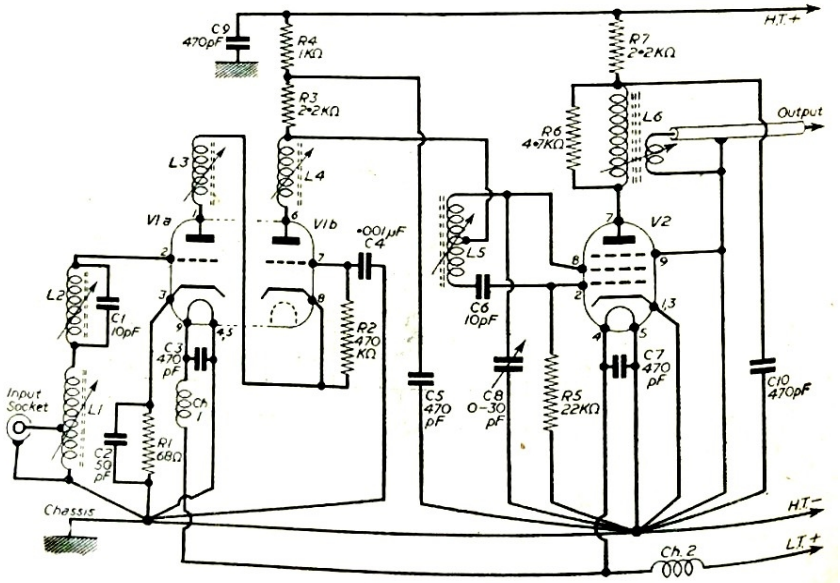
Examples of the radio and electronic equipment I worked with included;
SCR 269G - mainly Bendix - ADF / Radio Compass, MN26 - ADF / Radio Compass, BC 312, BC 342, BC 348 - LF, MF, HF receivers, BC375 Transmitters, BC221 Frequency Meters, TR1143 4 Channel Transceiver (British), SCR-522 4 Channel Transceiver (American), Interphone amplifiers - Packard-Bell, ILS equipment, SCR 578 Gibson Girl 500Kc/s calling channel Dinghy Emergency Transmitter, T1154, R1155, BC 300 .. etc

For years after WW2 there was an abundance of cheap ex-Government radio, radar and electronic components, equipment and part assemblies available through numerous shops. The best of these were in Lisle Street in the London Soho district and Henry's Radio in Edgeware, London. I often made trips to these shops and bought components, equipment and valves to either repair or make up units.

The Television Converter
In 1955 ITV introduced a new commercial channel on the UK TV network but on the higher VHF Band III frequency. The problem was that only recently made TVs were set up in readiness for it, so there became an instant demand for converters.
Our favourite magazine of the time was the Practical Wireless, which promptly published circuits for the required converters. These were very basic, unsophisticated ones of just two valves which could be plugged in between the aerial lead and the aerial input socket on the TV set. You could either make it with its own separate power supply or like I did, with leads connected to the TV's own power supply circuit. You could also make it slightly more sophisticated with a switch to change over between the two channels. The first one I built using a tobacco tin as the chassis, I then built an improved model with the whole unit inside a small wooden box. I made about a dozen more of these units which I then sold to family and friends.

Our home TV was a very early Cossor 237T with an 11" tube bought by my grandfather in 1936.

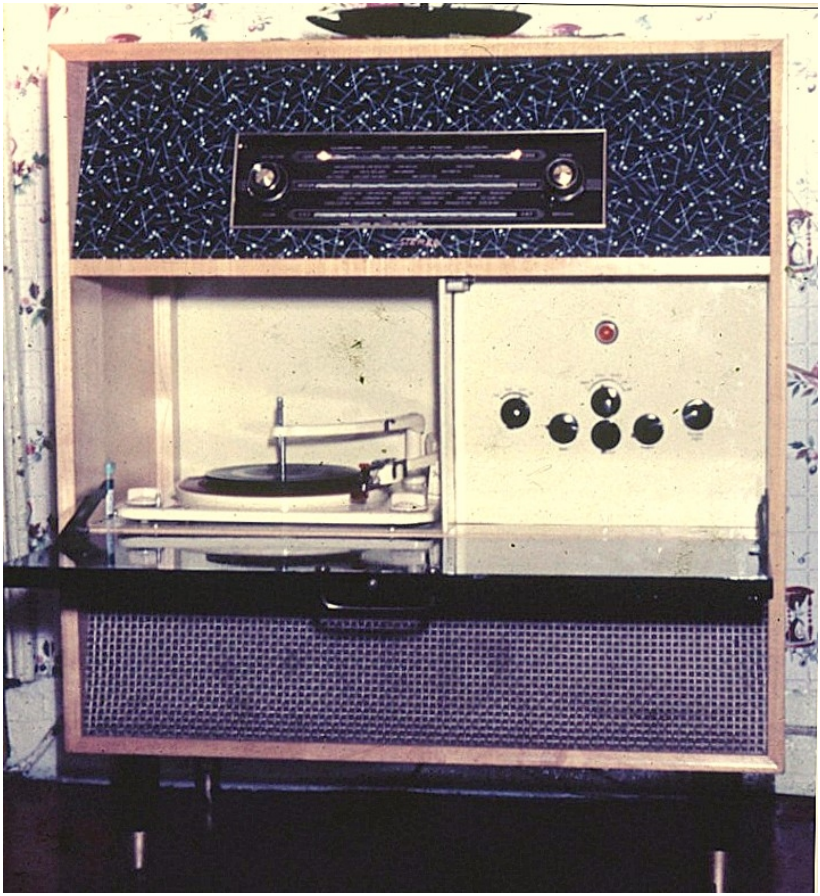
The above picture is of a 1936 Cossor 137T. Ours was a 237T model which had the extra auto record changer unit mounted above the TV and cost 120Gns when bought by my grandfather in 1936.



The simple circuit used for my converters which utilised an ECC81 double-triode and an EF80. The coils were wound on Osmor formers with cans. Power was supplied by connecting to the TV's own power circuit.

Then I was called up for National Service in the British Army and served as a Radio Technician in the Royal Corps of Signals, after passing my HNC certificate for Radio & Telecommunication at the Royal School of Signals in Catterick. After release from the army I worked for the Ministry of Defence on security contracts. However during this time I made my first stereo radiogram, branded as made by Colb Electronics and several radio telescopes for my own use initially but that I later sold.

Colb Electronics I used the brand name Colb Electronics on and off, for products I made from the mid 1950's until 1964. The first units I actually sold were the TV Converters in 1955. I built many power supply units and small front-end units for other people, a number of stereo pre-amps but only one complete stereo-gram unit (as shown below). Mantle radios were a passing interest in design and construction from time to time, but I never sold any.

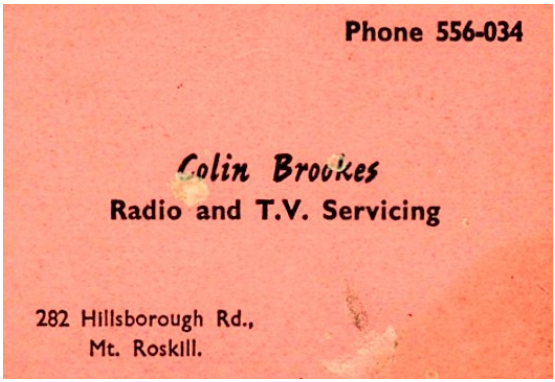


Above: My first Stereo Radiogram of the late 1950's. The radio unit and stereo head fitted in the Garrard record player were obtained from EMI Industries in Hayes Middlesex. The pre-amp was of my own design and build, as was the main power amp, with two lots of push-pull 6V6 valve units driving two separate speaker units fitted in concrete tubes. The power amp was mounted at the bottom behind the fabric cover.

Mantle Radio Sadly I have no remaining pictures of one. The only complete mantle radio that I kept at home was damaged and discarded after one of our intercontinental moves some years ago. It was based on circuitry from the ARRL handbook, similar to the Bell five valve unit using an EL84 for its output. There was a string operated pointer behind a glass dial in a wooden case - somewhat similar in looks to the transistorised mantle radios produced by La Wood Television Ltd (branded as the Linda model) after my departure.

The Move to NZ in 1963. During the late 50's I met and married a ballerina from New Zealand who was on the stage in London but we found that it clashed with the idea of having a family and living a normal married life, so eventually a decision was made that not only would she give up the stage but as she was a little homesick for New Zealand we try and raise the very large amount of money required to travel to Auckland. In 1963 this was a huge sum, as much as one could purchase a house. We could not go the usual assisted emigration scheme way as my wife was already of New Zealand birth. With the help of my parents and us selling everything we had, the journey was undertaken by ship. After an eight week journey we arrived penniless in Auckland in April 1963. My wife's parents lived in Mt Roskill and her father had a small plumbing and building business, which he ran from a workshop built under his house. Using his contacts, he passed my CV to the office at the local Autocrat Radio Ltd, in Carr Rd, Mt Roskill and secured an immediate prospect of employment there - if I passed the interview. I was successful and so began my association with Autocrat as a radio testing inspector.

It was during my time at Autocrat that I met and became friends with several apprentices, one of whom was Robin Wood. Whilst employed by Autocrat I also started my part time business at evenings and week-ends of Colin Brookes Radio & TV Servicing. Although I continued to use the workshop at my wife's parents house up until the time I moved to Ponsonby, I stopped advertising their home address in Hillsborough Rd after only a few weeks due to concerns of people calling there. I took a P.O. Box in the Mt Roskill post office which was close by.



One of my original cards of the type I passed around the shops and local businesses in 1963-64

[Interestingly this was just across the road from John Stokes, our founder's address at 281c Hillsborough Rd. Ed.]

During this period I built several radio and electronic prototypes in preparation of starting a business production. This was especially so of my Mantle Radio design which I had again decided on the use of the brand name Colb Electronics. I built my business of radio & TV servicing not only by advertising in the NZ Herald newspaper, but by also offering my services to shops and stores selling home electrical appliances. One such shop which I struck up a business arrangement with was Easy Vision Ltd, of Blockhouse Bay. The director was an entrepreneur called Tom Hughes, he also owned another shop and an old bakery in Three Lamps, Ponsonby, Auckland. Easy Vision was mainly engaged in the rental business of home appliances with the accent on televisions. I came to an arrangement with Tom Hughes where I would prioritise the servicing of his rental

radios and televisions and at lower charges, in return for the use of the old bakery behind his shop in Ponsonby as a workshop. Furthermore, with help of one of his friends, he arranged the cheap rental of a house in Grey Lynn for me and my family not far from the workshop.

The Easy-Vision shop building at 259 Ponsonby Rd, near Three Lamps on the corner of Russell St – as it was pictured 50 years later in 2014.

The bakery being the rear two storied building (pictured with the upstairs window open). The lower building connecting it with the back of 259 Ponsonby Rd was not there. That area was a courtyard and back alleyway entrance to some of the shops. The old bakery certainly looks like it has had a big makeover.

So in March 1964 I moved into the old bakery and began business under the name of Colb Electronics. My group of friends mainly consisted of employees and apprentices who worked at Autocrat Radio, three in particular, Robin Wood and Bill Patient who were apprentices and Alf Maddock a technician.

Robin Hugh Wood moved from Gisborne to Auckland and undertook an apprenticeship at Autocrat Radio Ltd. During the whole period I knew him from our first meet at Autocrat to the time I sold my share in La Wood Television Ltd, he was unmarried and lived in a flat in Mission Bay with several other lads. During our association I made several trips to his parent's home in Gisborne with him, as well as a number of social outings with a Canadian who was flat sharing with him. Robin was Godfather to my daughter Christine. Robin is at least ten years younger than me.

William John Patient usually referred to as Bill was the first person I befriended after my arrival in New Zealand. Although Bill is even slightly younger than Robin Wood, we had a lot in common in tastes of music and I became a good friend of his father. It was I who employed Bill, but he and Robin often didn't see eye to eye. Bill left the company not long after me and went on to become very successful businessman. His first company was called Glass

Resurfacing Ltd, in Penrose where he polished and repaired car windscreens as well as installing car radio's and sound systems. Later he formed a new company in Church St, Penrose, called Juni New Zealand Ltd, where he advertised as Car Stereo and Accessory Importers. He also, for a short period, opened a shop in the Royal Oak shopping centre. He is now involved in property development.

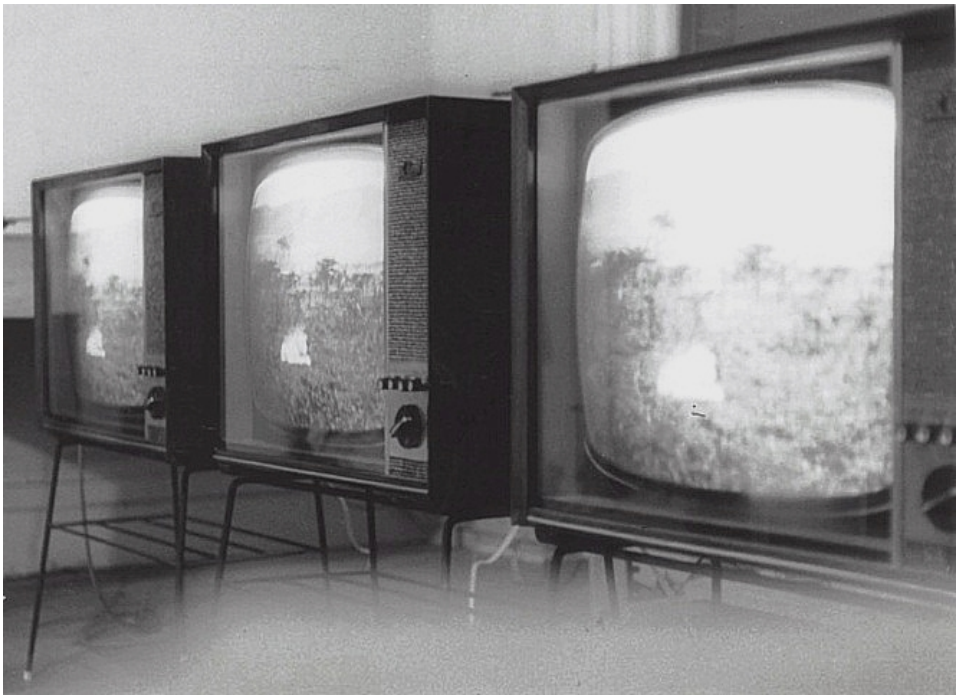
Alfred Maddock or Alf as he liked to be called by his friends was about the same age as me and was a technician at Autocrat when I met him. We became good friends and although from memory I believe he lived up on the East Coast Bays, he was a regular visitor to my home and stayed over with us on a number of occasions. At one time I arranged for accommodation with one of my relatives in Chelmsford, England, for Alf's younger brother while he went on his OE there to work at Marconi. Later, Alf bought all my shares in La Wood Television Ltd. He was a great asset with his skills of silk-screening for panels and glass, and I believe he carried on in that field for a while after I left. Sadly Alf passed away several years ago.

Robin Wood worked with me part time on the development of a new television for production. The mantle radio project that I had already completed went on the back burner for a later date. The project was a difficult one as import restrictions and availability of components were a big hurdle to say the least. The four major component supply problems were TV-tubes, valves, EHT transformers and turret-tuners. A run of five TV's was first undertaken after I managed to import five Brimar tubes sent individually via the help of friends in the trade back in England. My friend Kenny Lasky (later the man behind a chain of radio & television stores called Laskys throughout the UK), was dealing in ex WW2 Government surplus radio equipment and had a large quantity of CV138 (EF91) RF pentodes in stock. We designed the set around the use of as many CV138s as possible and Kenny sent out parcels of them to me. The basic circuitry of the television was drawn up by Robin whilst I procured the components and began the construction of the units.

At the Ponsonby workshop, the first cabinets, the metal stands, the aluminium chassis with all the drilling and fitting of the valve bases etc, the coils and the final assembly were made by me. Robin Wood produced the original circuit, made the silk screened panel, and sourced the turret tuner. We jointly did the wiring and assembly of the component chassis and the final test and tuning. I sourced and acquired all the remaining components, and acted as salesman throughout my whole time with the business until leaving.

I made the first wooden cabinets, metal stands and early chassis complete. Later we used Anglo Engineering to produce the blank chassis and had the wooden cabinets made and polished by several different cabinet manufacturers. With the help of our friend Alf Maddock, Robin undertook the silk screening of the faceplates.

One of the shops I had already made contact with was Redfern Radio, initially near Ponsonby *[157 Great North Rd in 1958-60, then 243 Gt Nth Rd 1960 – 61. Ed]* and then later moved out to Glen Eden *[81 Great North Rd, Glen Eden]* near the Waikumete Cemetery. They were specialising in the manufacture of transformers on a small scale and agreed to design and make a run of EHT transformers for us.
[At about this time Ralph Redfern was making his own TV the "Explorer One" of 1962. Ed.]



The first three completed 'La Wood', 19" televisions lined up in a room in my house in Grey Lynn.

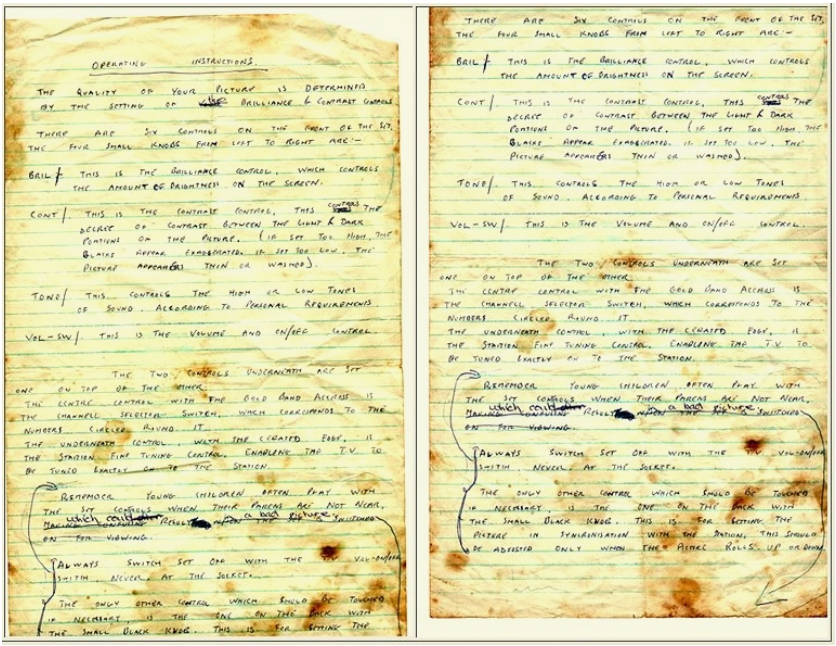
With the help of other friends at Autocrat, Robin was able to source some turret tuners. I made a coil-winder out of an old electric sewing machine, and purchased a quantity of Osmor coil-formers and cans from Gilberts in Anzac Ave.

All the remaining small components I also purchased mainly through my account at Gilbert's. At a party of our friends (mainly from Autocrat) one evening in our house in Grey Lynn, we began the discussion of a brand name for the television. The suitability of the name Colb (my accounts were in the name of Colb Electronics) didn't appeal. The already very popular name of La Gloria was appealing to all and something similar was discussed. La Brookes sounded silly but all agreed that La Wood, sounded great, and as by now Robin was considering leaving Autocrat and joining me on a permanent basis, as well as injecting some money in to the project, La Wood was agreed upon. It was also decided that the first sets which were 19" were to be called the Bijou model; we also planed to make a 21" model at a later date. Three sets were completed in the first run. I handled all sales from the first produced set until the day I left the company in 1965. The first set I sold to Greenwoods at Greenwoods Corner on the Manukau Rd, the second set I sold to Mountjoy Radio in Royal Oak (the owners of both were friends of my wife's family). The third set I sold in Takapuna on the North Shore.
It was then agreed that Tom Hughes (of Easy Vision) would purchase an initial five sets for his TV rental business to be followed after their sales by another run of five sets.

Then the first disaster struck us (fortunately only a minor one). The three TV's already sold all began having problems with slipping horizontal hold. After making several visits to re-tune them the problem was discovered. The coils I had made on the Osmor formers I had dipped in hot beeswax to seal them in place. However the heat build-up inside the TV cabinets was sufficient to cause the beeswax to soften and the coils were slowly slipping down the formers, thus de-tuning from the tuning slug. I made a new batch of coils, this time sealing them with shellac and the situation was resolved.

However the next disaster really was a serious one. The first batch of sets was delivered to the Easy Vision shop in Ponsonby but almost immediately the company went in to liquidation. Robin and I could see our TVs on display in both the locked Ponsonby and Blockhouse Bay shops - but could not retrieve them. It was a financial as well as a psychological blow to both of us as we never received any payout from the Official Receiver. Easy Vision Ltd was of course a limited liability company and this didn't affect Tom Hughes' personal assets. We heard later that he had moved to Australia. However Robin and I came to an informal agreement to work together under the name of La Wood Television and he left Autocrat's.

Right: an impression from the first experimental 'La Wood, rubber stamp we had made - which we also adapted to make the casting for the name badge attached to the front of all the TV's made. The word 'Television', was dropped from the badge, and we decided to add the word 'for' to the final rubber stamp (handwritten in this example).



OPERATING INSTRUCTIONS.

THE QUALITY OF YOUR PICTURE IS DETERMINED BY THE SETTING OF BRILLIANCE & CONTRAST CONTROLS

THERE ARE SIX CONTROLS ON THE FRONT OF THE SET. THE FOUR SMALL KNOBS FROM LEFT TO RIGHT ARE:-

BRIL/ THIS IS THE BRILLIANCE CONTROL, WHICH CONTROLS THE AMOUNT OF BRIGHTNESS ON THE SCREEN.

CONT/ THIS IS THE CONTRAST CONTROL, THIS CONTROLS THE DEGREE OF CONTRAST BETWEEN THE LIGHT & DARK PORTIONS OF THE PICTURE. (IF SET TOO HIGH, THE BLACKS APPEAR EXAGGERATED. IF SET TOO LOW, THE PICTURE APPEARS THIN OR WASHED).

TONE/ THIS CONTROLS THE HIGH OR LOW TONES OF SOUND. ACCORDING TO PERSONAL REQUIREMENTS.

VOL-SW/ THIS IS THE VOLUME AND ON/OFF CONTROL.

THE TWO CONTROLS UNDERNEATH ARE SET ONE ON TOP OF THE OTHER.

THE CENTRE CONTROL WITH THE GOLD HAND ACCESS IS THE CHANNEL SELECTOR SWITCH, WHICH CORRESPONDS TO THE NUMBERS CIRCLED AROUND IT.

THE UNDERNEATH CONTROL, WITH THE SCRATCHED FACE, IS THE STATION FINE TUNING CONTROL. ENABLING THE T.V. TO BE TUNED EXACTLY ON TO THE STATION.

REMEMBER YOUNG CHILDREN often PLAY WITH THE SET CONTROLS WHEN THEIR PARENTS ARE NOT NEAR, which could RESULT in a poor PICTURE when the SET is SWITCHED ON FOR VIEWING.

ALWAYS SWITCH SET OFF WITH THE VOL-ON/OFF SWITCH. NEVER AT THE SELECT.

THE ONLY OTHER CONTROL WHICH SHOULD BE TOUCHED IF NECESSARY, IS THE ONE ON THE BACK WITH THE SMALL BLACK KNOB. THIS IS FOR SETTING THE

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ALWAYS SWITCH SET OFF WITH THE VOL-ON/OFF SWITCH. NEVER AT THE SELECT.

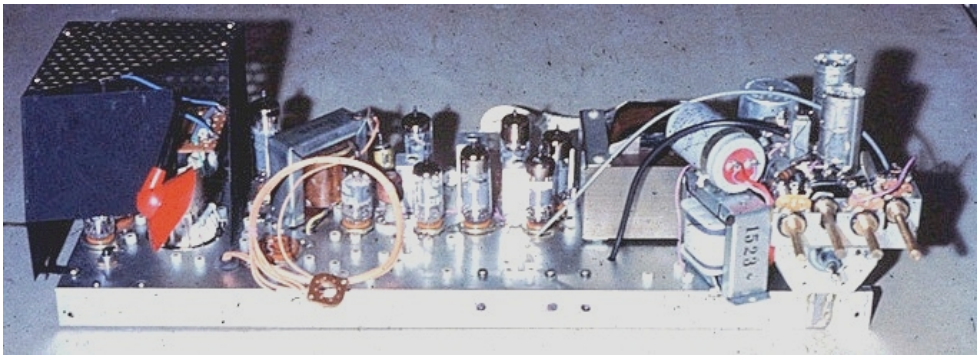
THE ONLY OTHER CONTROL WHICH SHOULD BE TOUCHED IF NECESSARY, IS THE ONE ON THE BACK WITH THE SMALL BLACK KNOB. THIS IS FOR SETTING THE PICTURE IN SYNCHRONISATION WITH THE STATION. THIS SHOULD BE ADJUSTED ONLY WHEN THE PICTURE ROLLS UP OR DOWN

Above: Scans of the original layout for a printed Manual & Instructions, to be given with each La Wood television, drawn up under discussion with a group of our Autocrat friends. We didn't have the funds to have it printed at the beginning, it was promised by Tom Hughes of Easy Vision but this didn't happen before his company collapsed.

We now had to move from the premises we had occupied in Ponsonby and in July 1964 we moved to premises above a stationary shop at 137, Queen Street, Onehunga, (pix right) operating under the name of La Wood Television. Here the owner allowed us to convert rooms into an office and workshops.

On several occasions I was approached by a wealthy Chinese gentleman, owner of Market Gardens in Mangere and a toy factory in Hong Kong, who wanted to put money into the business and act as a sleeping partner. I considered the options and guided by my wife decided against it. On the 29th of August 1964, I formed a formal partnership with Robin Wood and we registered ourselves on the NZ Company Register, as La Wood Television Ltd.

Production at Queen St, Onehunga was undertaken by several women overseen by Bill Patient (employed as the workshop manager). This was done by placing in front of each person a chassis with the appropriate section they were to assemble as a sample.



A completed La Wood Television chassis ready to be fitted in a cabinet.

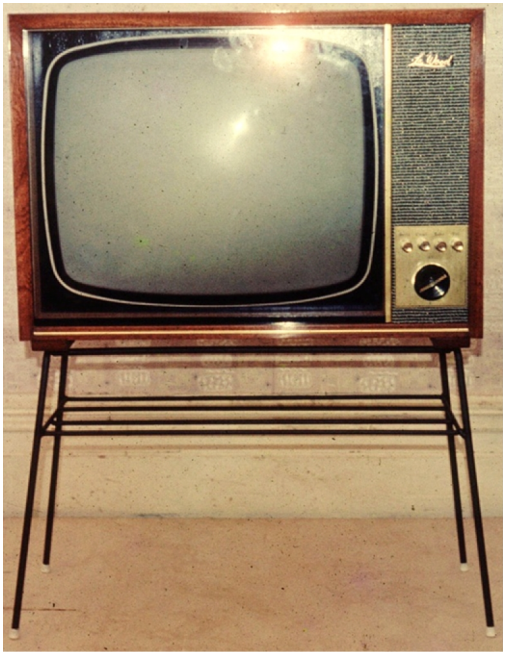
Colin Brookes at the final test-bench in the Queen St, Onehunga, workshop in 1964. (This job was normally undertaken by Robin Wood).

After considerable effort I managed to get an import licence for ten TV tubes. We fitted out the new premises for production and took on Bill Patient as our first employee and then later several women to help with chassis assembly. The operation of selling the TVs I began by driving around the country with three at a time loaded into my old Ford V8 car while Robin ran the factory. Later I hired a Ford Anglia from a local Onehunga car rental company as a sales vehicle. Most early sales were made to country branches of the Farmers Trading Co, Dalgety Limited or small furniture shops, with a few direct to individual customers. The supply of TV-tubes became critical until I happened to be introduced to the wife of the Postmaster General, Mrs Hackett. This was at a function in honour of NZ Ballet and theatre dancers who were members of the Royal Academy of Dancing. I told her my tale of woe and

described the blank wall I had come up against with the Department of Trade & Industry trying to obtain further import licences. Unexpectedly about a week later an import licence for another 20 TV tubes arrived, plus advice on the accepted procedures for the application of more. It proved the point that it was not what you knew but who you knew to be able to get anywhere in industry at that time.

In early 1965 relations between Robin Wood and I became strained. We had both drawn only minimal wages from the company since its inception. This was causing problems for me as I was married with a family to support. Robin at this time was a bachelor living in a flat shared with several others at Mission Bay. We also had disagreements on the way forward; Robin wanting to move towards the development and manufacture of car radios. This needed an input of more capital which I was unable to raise. Robin had already been promised backing by his father in Gisborne. At this stage my interest in radio and electronics was waning and I was beginning to spend any leisure time I could get in following my newer interests in boating. The final crunch came in May 1965 when the Inland Revenue called in to our workshop and produced a huge demand for Provisional Tax, for the expected turnover in the next 6 month period, based on our current quick successes. Robin could raise his half with the help of his father but I had no one I could call on as a guarantor (my wife's father having passed away in 1963).
In May 1965 I sold my share of the company and all outstanding responsibilities to it, to Alfred Maddock.

For the whole period of my involvement with the business, all items that were manufactured used valves (tubes in American) for their operation. The introduction of semiconductor devices and hybrid manufactured sets under the name of La Wood Television Ltd occurred after I had left. During my time in the business we produced two valve versions of TV's; a 19" and a 21". I produced two mantle radios, one complete which I kept for home use and one without a cabinet which was left at the Queen St premises as a sample.



On 18th January 1985 La Wood Television Ltd was removed from the NZ Company Register.

Most of this material comes with permission from Colin's new website at www.lawoodtelevision.co.nz

Colin moved on to develop his interest in boats (and continues today with Hartley Boats). He now lives near Thames.

Colin would be very interested to know if any of the original La Wood televisions still exist – better still if someone was willing to part with one.
You can contact Colin at email: colb@xtra.co.nz

Restoration of an STC Model 848 (Chassis 84) By Roy Arbman

This STC console radio was manufactured in Australia in 1933 and imported into New Zealand at about that time as a complete radio with cabinet. A sticker at the back of the cabinet states “STC Cabinet by Beale, Reg No 10067”. Beale being an Australian cabinet maker.

This radio, a BC only model seems to be a transition between Chassis 74 and Chassis 84. The 74 chassis has Anode bend detection, whilst the 84 has normal diode detection. This receiver is the former and has a 57 as 2nd detector, whilst the 84 chassis has a 55. Chassis 74 has no AVC, gain being controlled by changing the bias to the cathodes of the RF and IF valves. There is also a Local/Distant switch for strong local stations.

Valve line up is RF 58, Mixer 57, Oscillator 27, IF 58, 2nd Detector 57, Power output 2x 47's and Rectifier 80.

The other major differences are that this receiver has parallel 47's in the audio output stages and twin speakers, making this an 8 valve receiver, whereas the 74 chassis is only 7 valves with a single 47 and one speaker.

Schematics for this model appear to be un-obtainable, so I had to work between the schematics of the two different versions. (See schematics)

To start I made sure all the transformers, IFTs and front end coils were all intact, especially the RFC choke in the anode circuit of the anode bend detector ran the mains transformer (without load) for several hours and as there was no undue heating decided that it was OK. Insulation checks were made and these proved to be OK as well.

The next job was to replace all the paper capacitors; these are mounted in square metal cans sealed with pitch. These all proved to be leaky, so the pitch was melted out and suitable replacements fitted inside and then re-sealed. A few of the resistors were out of tolerance and were replaced, along with bridging part of the large wire wound Candohm resistor. The electrolytic capacitors were also replaced, leaving a couple of dummy can types to make the set look more authentic.

I was fortunate to have a pair of brand new 47 valves so these were fitted. The set was switched on via a Variac and the voltage slowly wound up, all appeared to be OK, measured voltages settled down to what was expected. The set was picking up several stations and a minor re-alignment was carried out to improve performance. Not bad after 80 odd years.

I then stripped everything of the chassis, making numerous notes to make sure it would all be put together correctly when the chassis was restored.

The bare chassis was then sanded down and treated for rust. The chassis was then masked where necessary with masking tape and sprayed with an etch primer (grey) and left to dry. All the cans, valve shields, transformer cover etc were treated in a similar fashion.

A trip down to our local paint specialist with a sample of the special gold coloured paint for matching was made and later 2 spray cans with the correct matched paint was applied to all the relevant metal parts.
The chassis and other parts were then left for the paint to harden over several weeks.
All the brass screws were cleaned and polished, prior to re-assembly. The tuning gang was cleaned and oiled.
Several weeks later, when time permitted, the chassis was re-assembled and tested again, with a sigh of relief the set was going just as it was before the strip down.
The dial light was replaced and the dial cord re-strung.
Next came the cabinet restoration. All the shellac had turned dark and cracked; it wasn't clear what sort of timbers were underneath all the old shellac. The wood work was carefully sanded down, revealing a mixture of different veneers. This receiver is very 'Art Deco' in style, being mainly square cornered with all the inlaid veneers at right angles to each other. The base, top edges and fret work were then stained, followed by several spray coats of clear polyurethane. The escutcheons were cleaned and polished and re-fitted. The chassis was re-installed and the set left to run for several days, all was working OK. This restoration has taken the best part of two years to complete, although it was a stop start affair, the end result has been very rewarding.
Thanks to Bruce in particular for sourcing the relevant schematics as drawn by the late John Stokes.

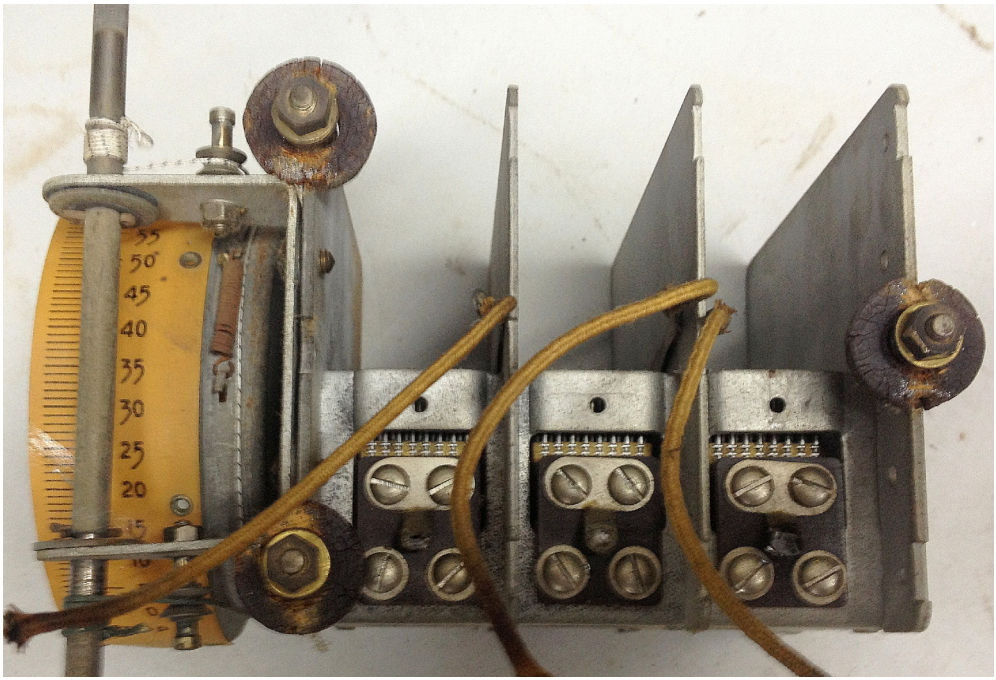
STC database gives the following info:

Year	Model no	Chassis no	Description AC BC	Valves	IF (kHz)	Original price
1933	848	84	Con.	8	170	£44/10/0

STC Radio Australian Headquarters, in the late 1940s, were located at 252 - 274 Botany Rd. Alexandria N.S.W.

The parent company, Standard Telephones and Cables Ltd (later STC PLC) was a British telephone, telegraph, radio, telecommunications and related equipment R&D manufacturer. During its lifetime, STC invented and developed groundbreaking new technologies including PCM (Pulse Code Modulation patented in 1939), microwave and optical fibre transmission techniques.
The company began life in London as International Western Electric in 1883, from 1925 to mid 1982 was owned by ITT of the USA. The company was then listed on the London Stock Exchange and at one time was a constituent of the FTSE 100 Index. It was subsequently acquired by Nortel in 1991.

STC Pty in Australia was an independent subsidiary of STC in the UK and was established in the 1920s to manufacture radio receivers, transmitters and telephone equipment. Radios from 1923 to 1926 were imported from Britain under the brand "Western Electric". From 1926 they were manufactured under the brand "STC". It later expanded to manufacture valves and military equipment until 1987 when it was purchased by Alcatel.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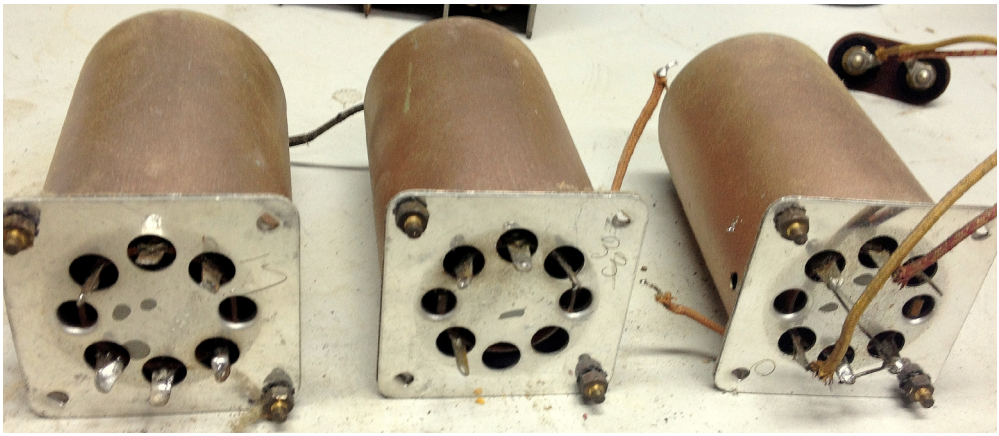
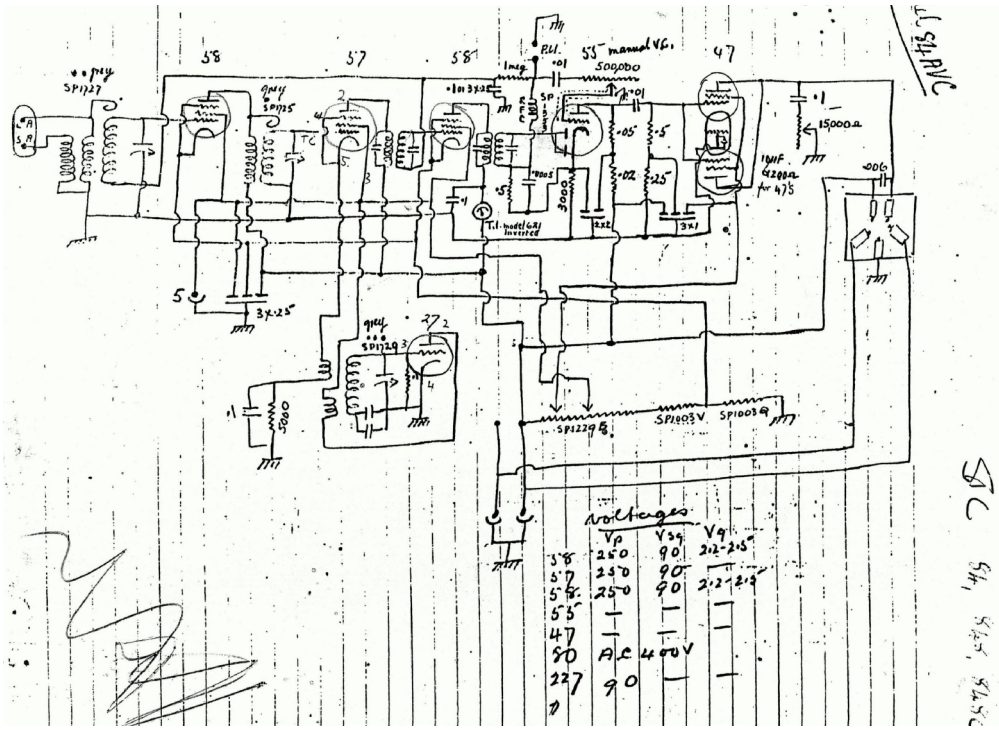
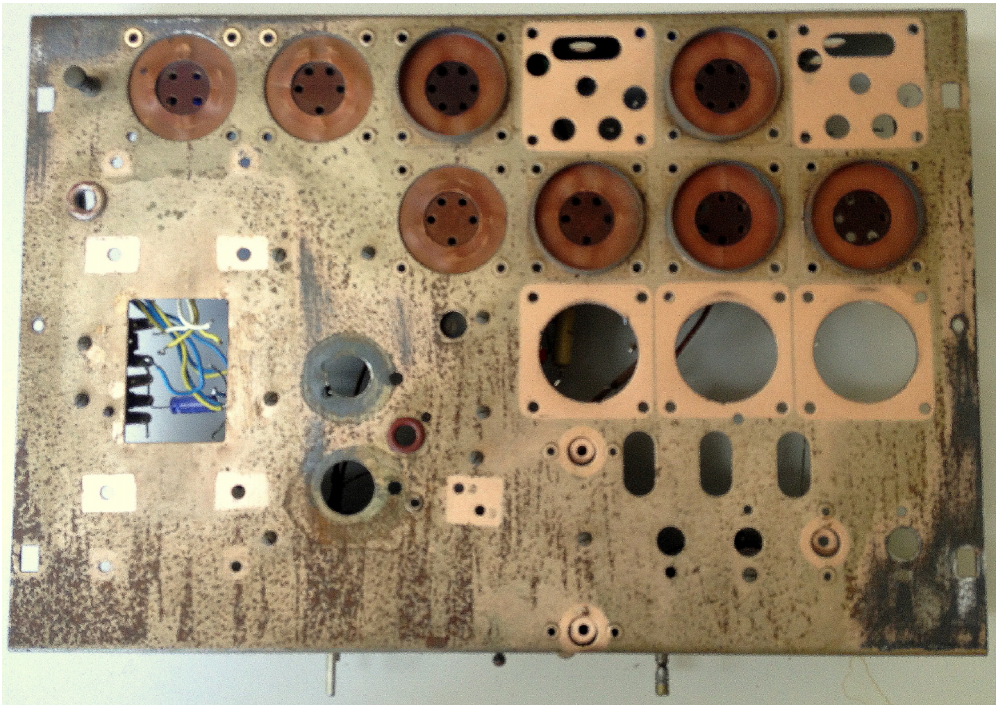


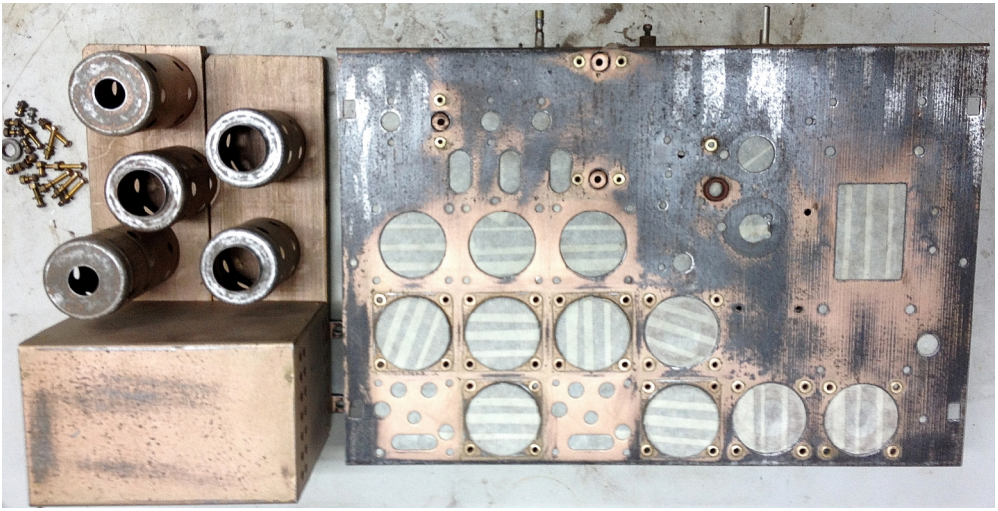
RF Coils and shields in good condition.

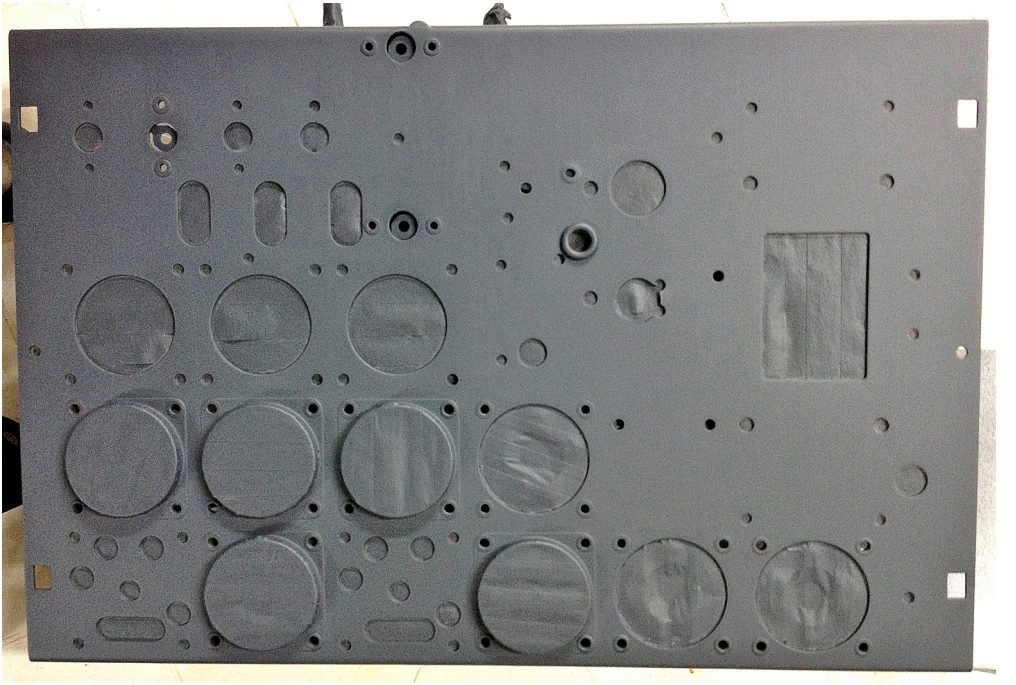


The John Stokes sketch of the STC 848 circuit and voltages above - one of two variations in the same format from John's archive.

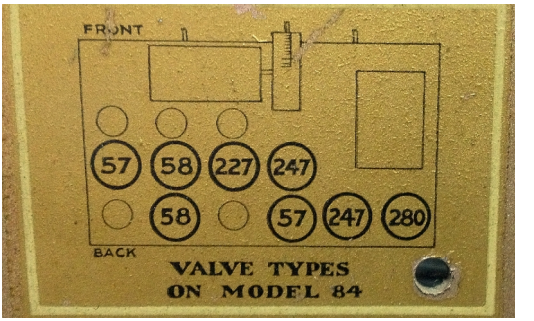


Cleared chassis awaiting cleaning and spray painting.





Primer coatings applied and valve layout sticker below



STOP
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S.T.C.
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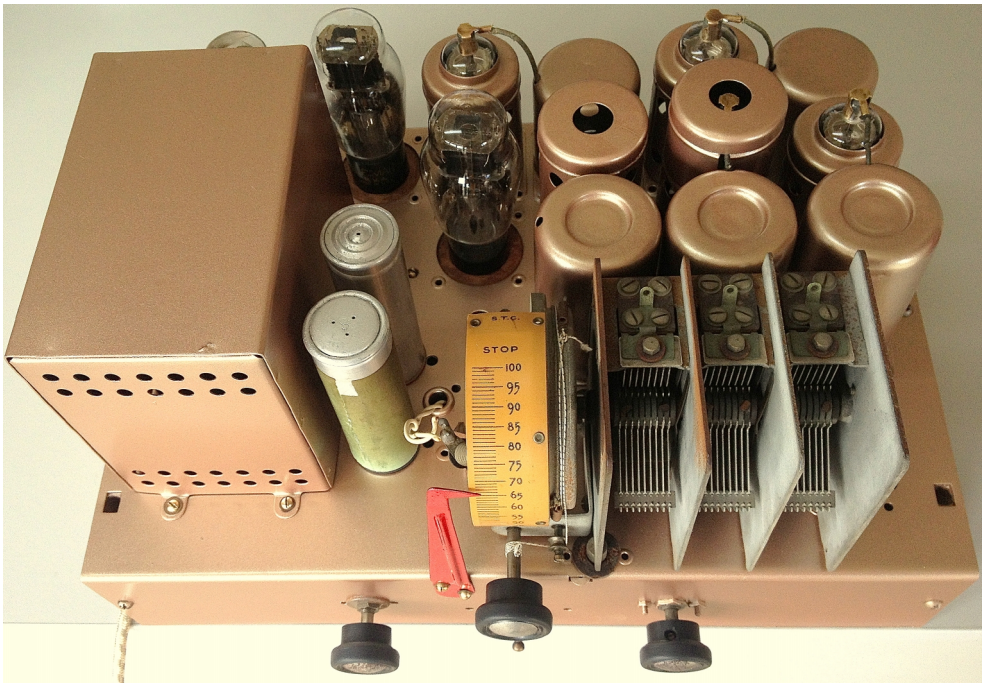
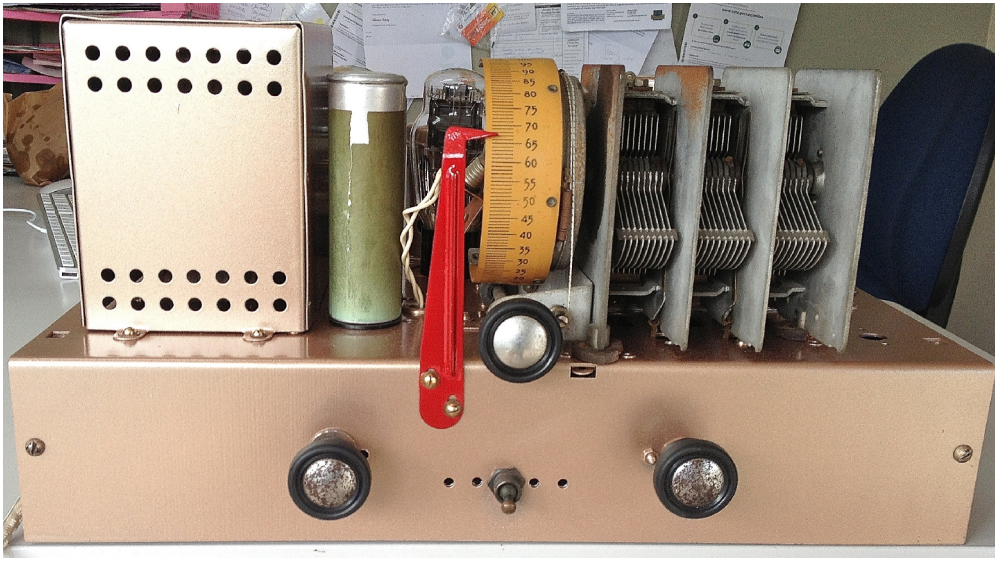
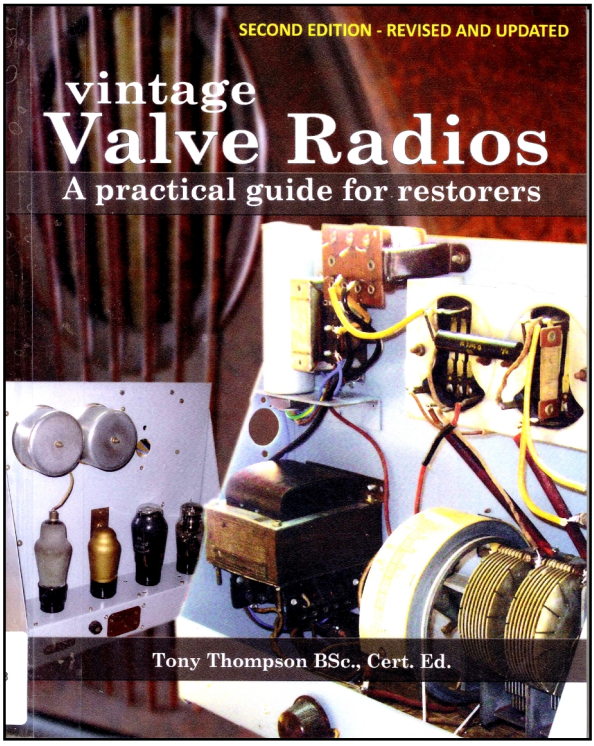


Left – before and after shots, above and below the finished chassis



Book Review: Vintage Valve Radios; A practical guide for restorers, 2nd edition. By Tony Thompson, BSc, Cert.Ed.

179 pp, VRW Publications, 2015. ISBN 978-09538218-4-6



This book was written in response to many requests for information and guidance on all aspects of the problems associated with the restoration of domestic valve radios. It is not a just a service manual but aims to cover the multitude of problems arising from age, poor storage and misuse. Throughout the book the emphasis is on the problems encountered with restoration.

The first four chapters provide an introduction to the basics of radio theory and an understanding of radio circuitry and components. Topics covered include schematic diagrams, an introduction to valves and valve circuitry. I found the section on the repair and restoration of loudspeakers particularly interesting.

Chapters 5 – 10 go into detail on topics such as servicing the vintage chassis, the problems and pitfalls when obtaining your first set, followed by an outline of the essential tools and equipment is given in Chapter 7.

Chapters 8 to 10 go into more detail on initial fault finding, the use of test equipment and the construction of a simple, but useful, signal injector /tracer. This is further exemplified with descriptions of a wide range of fault finding in typical circuits and components found in vintage radios.

The remaining chapters deal with the problems and procedures associated with both the mechanical aspects such as capacitors, valve replacement and component restoration.

Chapters 13 and 14 provide valuable advice and hints on cabinet restoration, for both wooden and Bakelite examples, and also the merits of different procedures for refinishing wooden cabinets.

Finally there is an appendix including a capacitor chart, colour codes, valve bases and other useful information. To conclude I would say this book is very readable and should be very helpful to the newcomer to radio restoration. However it is primarily focussed on British-made sets with only limited reference to American sets.

By John Walker

*[This book is available at about $36 from major NZ on-line booksellers (Whitcoulls, Fishpond etc). However the NZVRS has **one** new copy available at $35 posted free in NZ. Contact Ed.]*

MARKETPLACE

Advertisements for the next bulletin should reach the editor by the 15th 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*

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: **paulburt444@gmail.com**

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 mob: 029 415 5119
Email: **bapowell@xtra.co.nz**
Please note we have reluctantly increased the price of the smaller capacitors to cover the reduced purchasing power of the NZ Dollar.

Metal polyester film, axial leads, (µF):

0.001	630 Volts	**60** cents each
0.002	630 volts	**60** cents each
0.005	630 volts	**60** cents each
0.01	630 Volts	**60** cents each
0.022	630 Volts	**60** cents each
0.033	630 Volts	**60** cents each
0.05	630 Volts	**60** cents each
0.068	630 volts	**60** cents each
0.1	630 Volts	**60** cents each
0.22	630 Volts	**60** cents each
0.33	630 Volts	60 cents each
1 µF	400 Volts	$1.00 each

Electrolytic capacitors, **polarized**, axial

10 µF	450 Volts	$1.50 each
10 µF	600 Volts	$3.00 each
20 µF	450 Volts	$2.00 each
40 µF	450 Volts	$3.00 each
47 µF	450 Volts	$3.50 each
100 µF	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.

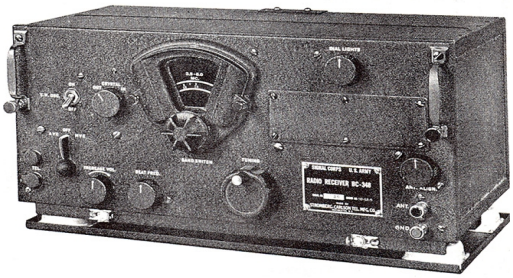
Power plugs (Tilley white plastic type with unprotected brass pins as pictured above) available at 50 cents each plus $4 post and package per set of 4 (ie $6 for set of 4, posted to an NZ address).

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**

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.

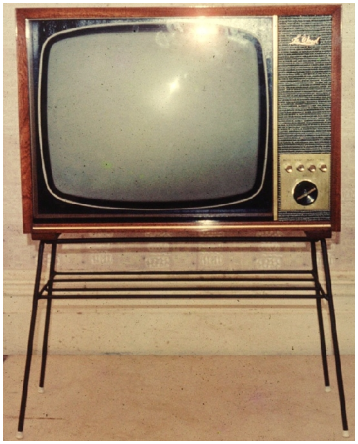
Dial light housing cover (Pic attached) for a BC-348. My set is a -Q variant but I think I can use the part from any of the models. If you can help with this or have a "junker" you are willing to part with please contact Terry Collins at **terry295@clear.net.nz** or call 03-366-3930



BC 348 rig above.

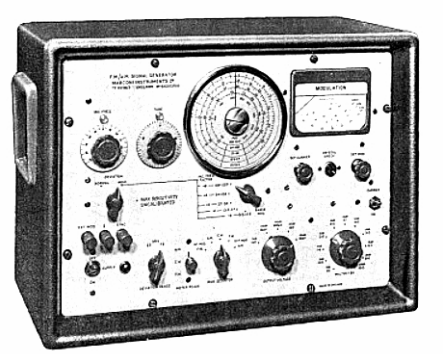
Wanted:

Colin Brookes is looking for a La Wood TV – any model. Email: colb@xtra.co.nz



AVAILABLE

Marconi AM/FM Signal Generator TF 995B/5 in good working order, with manual..



Also Taylor Signal Generator Model 65B. Due to weight, for pickup only.

Contact Stu Stidolph, Napier, 06 844 5591 or Email: **stustid@xtra.co.nz**

Wanted:

More items or ideas to fill the copy basket! Contact the editor.