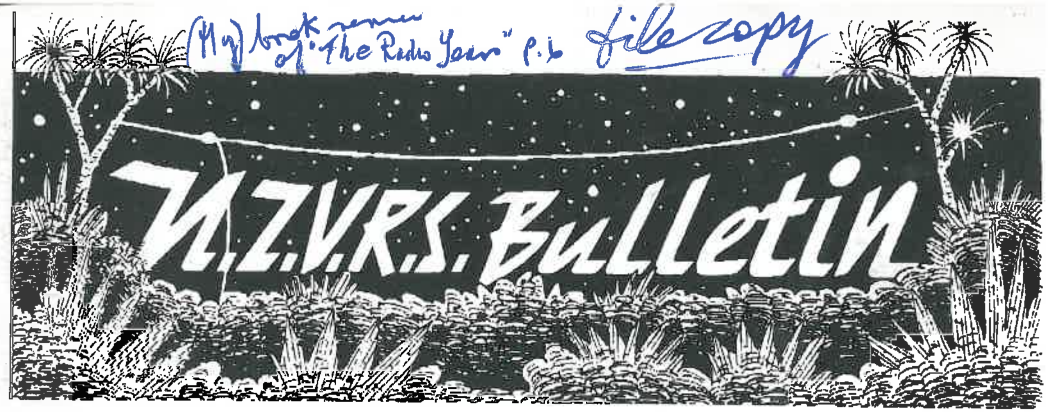
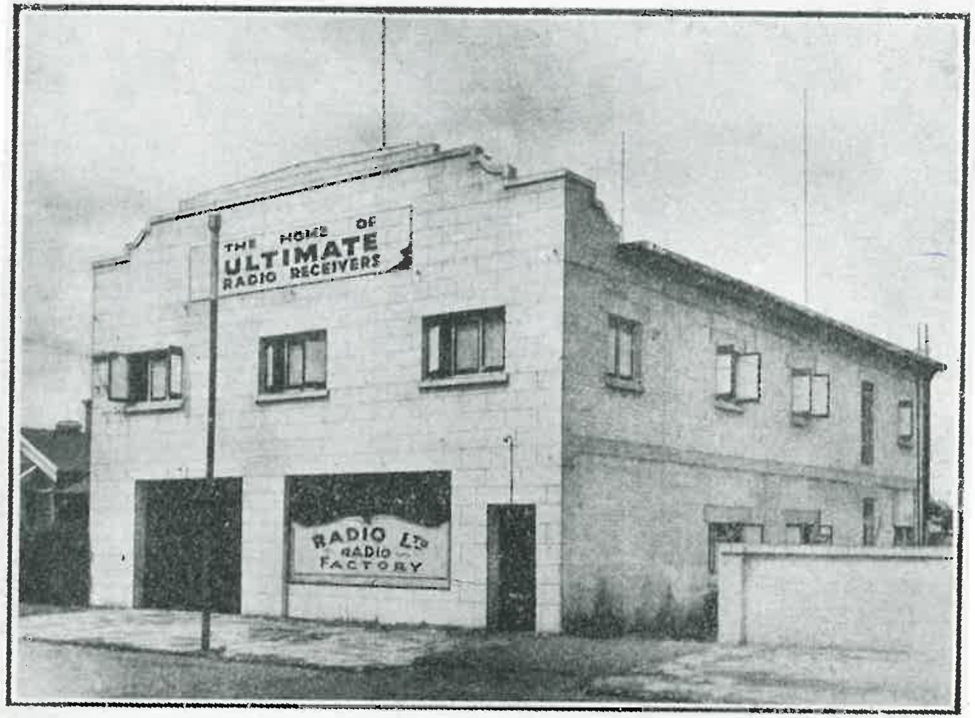
MARKETPLACE

Advertisements for the next issue must reach the Editor by the 16th January 1995. Ads should be either hand printed or typed on a separate page. Note: no verbal or phone ads will be accepted. Remember to include your name, address and phone number. There is no charge for ads but the NZVRS is not responsible for transactions between members. Address ads to;
Ian Sangster 75 Anawhata Road Piha R.D.1 New Lynn. 1232. New Zealand.

AVAILABLE



NEW ZEALAND VINTAGE RADIO SOCIETY
Vol. 15 No.3. November 1994



The above illustration shows where ULTIMATE Receivers are produced. It is a modern, two-storey building occupying over 6,000 sq. ft. of space in which special attention has been given to ventilation and lighting, which is necessary to ensure perfect workmanship. In this Factory over 15,000 ULTIMATE Receivers can be produced per annum.

The building still stands in Rocklands Ave Mt Eden. Photo from N.Z. Radio Annual 1932.

NEW ZEALAND VINTAGE RADIO SOCIETY

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

PRESIDENT; Murray Stevenson
62 Canal Road.
Avondale Auckland.
Phone 09-8280858

SECRETARY; Mark Thomson
7 Danbury Drive
Torbay Auckland 1310
Phone 09-4738388

TREASURER; Bryan Marsh
20 Rimu Road
Mangere Bridge Auckland 1701.
Phone 09-6367712

MEETINGS; Regular Auckland of the NZVRS are held on the third Monday of each month at 7.30pm.
VENUE; Meeting room of the Dominion Road Methodist Church (at the rear of the Church) 426 Dominion Road Mt Eden.
AUCTION SALES of vintage items are held quarterly in the months of March, June, September and December at that month's club meeting.
AUCKLAND MEETINGS CALENDAR
NOVEMBER Bring and tell, radio accessories.
DECEMBER Auction Sale.
JANUARY To be announced

WELLINGTON AREA MEETINGS
Monthly meeting are held at the Tireti Hall, Te Pene Ave. Titahi Bay at 1pm on the first Sunday of every month. For further details contact Neville Grubner at 2 Peckham Grove Linden Wellington Phone 2326806.
CHRISTCHURCH AREA Contact Russ McKee at 39 Halliwell Ave Christchurch for meeting details Ph. 3525778

THE NZVRS BULLETIN is published quarterly in the months of February, May, August and November. Contributions from members are always welcome and should be sent to the Editor. Opinions expressed by writers are not necessarily those of the society.
BULLETIN EDITOR
Ian Sangster. 75 Anawhata Rd.
Piha R.D.1. New Lynn 1232
FOUNDING EDITOR
John Stokes 281C Hillsborough Rd.
Mt. Roskill Auckland 1004.

BACK NUMBERS OF THE NZVRS BULLETIN; Most issues are still available, though some of the earlier issues are now out of print. Price is $1 each for numbers up to volume 10 and $2 for issues from volume 10 onwards. Postage is extra. Cheques to be made out to NZVRS. Order from John Stokes at the above address.

NZVRS LIBRARY; Members are reminded that our NZVRS library contains a good selection of books plus magazines and newsletters of several overseas societies. A list of publications is available from our librarian: Clarry Schollum
34 Pentland Ave. Mt. Eden
Auckland. Phone 09-6307011.
WAIKATO AREA MEETINGS are held regularly, contact Murray Hall 802 Rolleston St. Thames.
Ph. 07-8688804.

LETTERS TO THE EDITOR

Further to my personal letter to you in June, and following your last Editorial, I feel it necessary and important to comment. I am offended that you have questioned my intentions in it, and verbally with other members of our Society. My letter was a friendly one, simply from one avid collector to another. It was not intended to fuel a fire, nor was it to encourage debate regarding the 'my one is bigger than yours' brigade. I am a determined collector, keen on the idea of an International Society, and hoped that you may have offered some constructive comments on the subject.

Your "bone of contention" is essentially about bakelite AWA Radiolettes - a product of Australia, a country with collectors who have been more than happy to trade with me. This 'point of origin' argument is merely one of the reasons I find this Editorial hypocritical. You have questioned whether I genuinely possess the sets advertised for trade. I do, and many more besides. I have had a wonderful response from the Antipodes and have sent sets that would 'make most collector's water'. Many of these sets are considerably rarer than Radiolettes, the Green one, bless it's heart, perhaps excepted. It is a shame that my desire to have all variation in my collection has created some jealousy. I am not a dealer, but do admit that worldwide swapping has enabled me to get sets which cashflow may have made more difficult. Somewhat similar to your approach, I suspect? However I am never shy to offer really exciting trades in exchange. A typical trade: black AWA Radiolette for a Philips 830A (300-400 pounds in Britain) seems fair to me! I offer below a detailed list of radios despatched by me as trades in the past to Australia and New Zealand normally by air mail, in order to acquire a comprehensive Australian collection;

Ekco AD65 circular black and chrome
Ekco A22 circular black and chrome
Ekco M23 (similar to SH25)
Philco 444 peoples set brown
Philips Superinductance 834A
Philips speaker 7 sided matches 820A
Philips 2634 Radioplayer
Gecophone smokers cabinet
Fada 1000 'bullet' butterscotch catalin
Various later 1920's sets
Royal Doulton parrot speaker multicoloured
Various horn speakers
Brown crystal set amplifier
Ekco AD65 circular brown
Ekco SH25 'walnut tree'
Philco 444 peoples set black
Two Philips Superinductance 830A
Philips Superinductance 820A
Philips 930A (hamtin)
Two Marconi V2's
AJS 4 valve c.1923
Various crystal sets (perhaps half a dozen)
Royal Doulton parrot speaker green
Andia 'Confusius' speaker
Westinghouse Aeriola 1 valve receiver

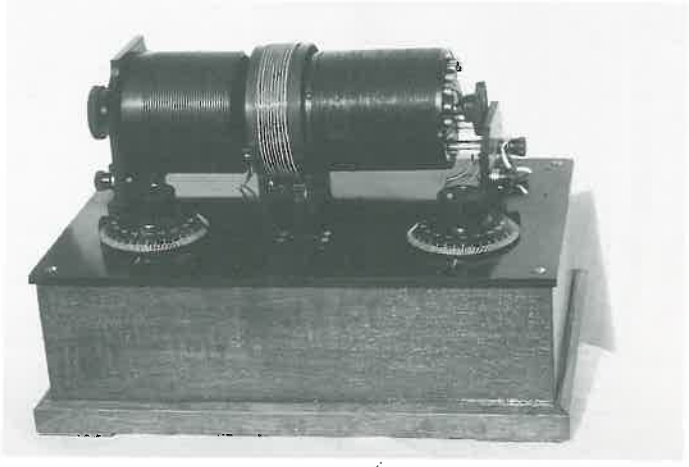
As you see, I have traded off many collectible radios, I use early wireless and crystal sets for swaps. I trade more with the US and have acquired a sizeable collection of catalin and stylish sets from there. I understand that you also indulge, more than most NZ collectors, in this practice. So the subject of hypocrisy is raised once more. I gather your vocation gives you 'carte blanche' to pluck sets from outside, and in, your home territory. I have no comparable opportunity, I'm afraid.

I've discovered that you have had one 'hit', probably more. I have been negotiating with a well known member in the South Island for some time. He is very keen to obtain a handful of my sets. He is aware of my specific desires and he has been trying to locate them to trade with me (incidentally neither green nor ivory Radiolettes are involved). He had tied up a trade with another collector, who has now pulled out because of your editorial. One of the radios I have to trade does not exist in NZ.

I take this matter very seriously, and consider the content in your Editorial questionable at best. Given that I am really the only one from abroad to advertise over the past few years, it is obvious to whom these comments are directed. You have made me, and others in NZ, very cross with such a regressive and self-centred attitude. There is no net outflow of sets from your country as far as my dealings are concerned. On the contrary, I believe that I am helping to enrich the radio fauna of New Zealand and would be happy to trade with anyone whatever their interest.

Simon E.Wade

HELP WANTED



This unusual loose coupler was recently acquired by George Askey who has restored it externally to his usual high standard. Unfortunately the external wiring has been disturbed at some time in the past and George now requires details of the wiring to complete the job. There are no markings to be seen anywhere, yet the unit appears to be commercially made. The left hand coil is tuned by a .001μF capacitor and the right hand one by a .00015μF, both coils having connections to tapping switches. The right hand coil slides on two glass rods.

Anyone who can help George by supplying details is asked to contact him at; 106 North Avon Road Christchurch 1 ph. 03-3892024.

MY MYSTERY RADIO

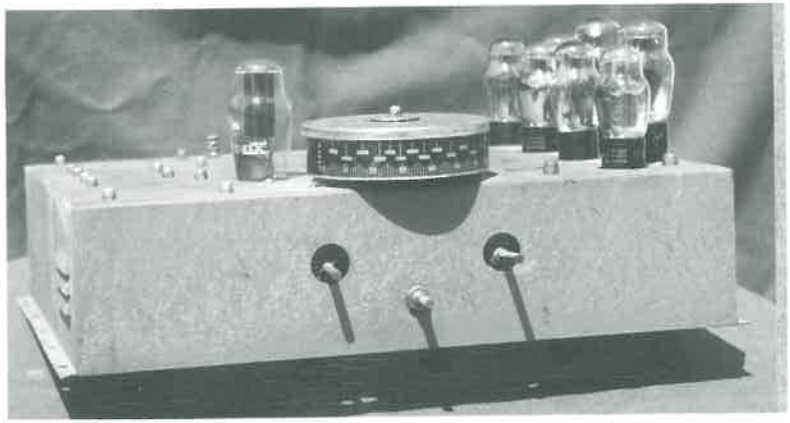
by Ned Matich

I recently added a radio-phonograph combination to my collection. This unit I believe to be in the 1929-31 period and possibly of U.S. origin, other than that at, the moment, I have been unable to identify it. Other, more knowledgeable members of the NZVRS have examined the chassis, without being able to put a name to it.

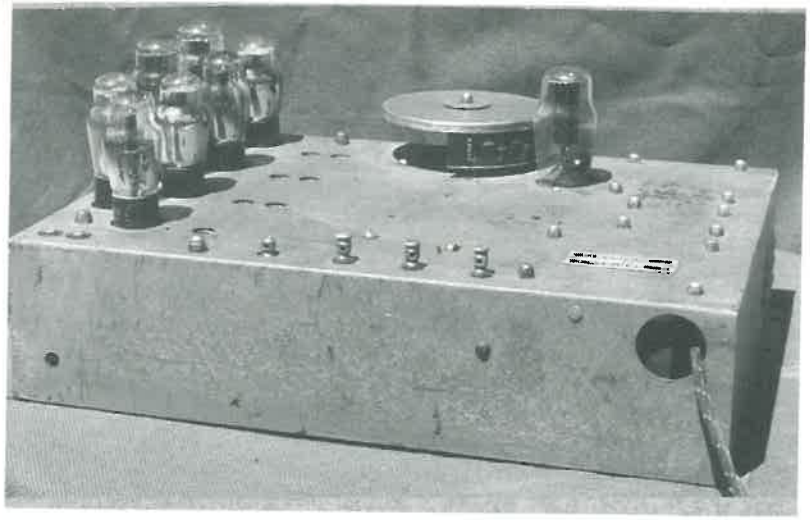
There are some unusual features regarding this chassis which may give readers some clue to its identity. It has a horizontal drum dial driven by bevel gears. The only components mounted above the chassis are the eight valves, drum dial and terminals for speaker, phono, aerial and earth. There is an aluminium plate on top of the chassis with the number 48-110 marked on it. The valve line up is five 227's, two 245's and one 280. Looking from the rear of the chassis all valves except the 280 are mounted on the extreme left side of the chassis, the 280 being near the mains transformer in the right front corner. The 280 valve socket is recessed down into the chassis about one inch. The side of the chassis has louvers for cooling air flow near the mains transformer. All components are fastened to the chassis by bolts with brass domed nuts on the top face of the chassis. All the original condensers were mounted in a can which bears the name "Potter" Chicago.

The set has a local-distant switch which incorporates an aerial trimmer. The other controls are a volume control combined with an on-off switch and the tuning control. I did not get a speaker with this set but it would appear that this was of the floor mounting type. The chassis is finished in a light brown crackle paint. The record player motor is a "Blue Flyer" with a "Webster" pickup arm.

The chassis is well made with all the wiring neatly tied. The tuning capacitor is a four gang and the circuit is a triode TRF. All the original condensers have now been replaced and the unit performs very well.



Front view of the chassis.



Rear view of Ned's chassis

BOOK REVIEW

The Radio Years A History of Broadcasting in New Zealand by Patrick Day. Auckland University Press 1994, $54.95. Reviewed by John Stokes

Until the arrival of this new book there has been no detailed history of New Zealand radio broadcasting available. Admittedly, J.H.Hall's work* was a beginning but unfortunately the author died before completing his task and when eventually published in 1980 it lacked an index. In the past, other books on the subject have been limited in their coverage and all have been written by people connected with broadcasting. With the publication of Patrick Day's *The Radio Years* there now exists as complete a history of the subject as is likely to be seen for a very long time; furthermore it is written by someone unconnected with broadcasting

The author is described as being a senior lecturer in sociology at Waikato University who was commissioned by the Broadcasting History Trust to write the book. With assured funding the author has been able to thoroughly research the subject ~~the subject~~ and has come up with a very readable and informative account of what went on in the years between the start of broadcasting in the early 1920s and the upheaval occurring in the early 1960s which saw the end of state control of the medium.

As this review is intended only for the specialised readership of NZVRS members, no attempt has been made to provide a detailed analysis of the book's contents; it is sufficient to say that the sociological aspects of broadcasting predominate - policies and politics, people, personalities and programmes. A short coverage of pre-broadcasting developments, in which Rutherford is given considerably more space than Marconi, presumably because of the former's New Zealand roots, is included at the beginning of Chapter One, Radio and State Control. The rest of this chapter describes the first use of radio in New Zealand occurring with the establishment of government spark stations shortly before the outbreak of World War I.

* The History of Broadcasting in New Zealand 1920-1954, J.H.Hall 1980.

Early post-war developments, such as the experimental work of Professor Jack and others are also covered in this chapter. Judging by the contents of other books of this nature, published in both New Zealand and overseas, it was only to be expected that any technical aspects of either transmission or reception would be given scant attention, and such is certainly true of this new book. In this case, where the author does comment on developments having even the slightest degree of technicality it is evident that he is soon out of his depth. A couple of sentences from page 95 are quoted here as an indication of this:

"Until electric power was made widely available in New Zealand in the 1920s, **either** wet-cell batteries, such as a 6-volt car battery, **or** drycell B batteries were needed" (reviewers emphasis)

"The battery-operated sets were usually housed in small metal boxes. The electric sets were placed in wooden boxes....."

The book is illustrated throughout from photographs which are mostly individually credited as to source, but because so many of the pictures looked familiar I made point of checking up on this and discovered that twenty had previously been used in an earlier book** on broadcasting. Presumably because this book was published nearly twenty years ago and is now out of print, Day felt justified in making use of so many of the same pictures.

Now, as it so happens, the illustration appearing on page 54 is of personal interest to me. It is captioned "The transmitter and carbon microphone of 2YA Nelson, in 1923." This particular photograph was actually commissioned by me back in 1971, the items having been kindly loaned by Wilkins & Field Hardware Co. for this purpose. In 1976 I made this picture available to the authors of *Voices in the Air* where it can be seen on page 17 of that book. Later on, in May 1980, I made use of this same picture on the front cover of the first issue of the NZVRS Bulletin. Now it appears unexpectedly in Patrick Day's book with its source uncredited.

For the sake of historical accuracy it should be mentioned that the home-made mounting ring and base as shown fitted to the microphone were not in use in 1923, being later additions when the same outfit was used in Wilkins & Field's ham station licensed as z2BF in 1925-26

Welcome features of this new book are the inclusion of a particularly detailed three-part index and a most extensive degree of referencing. In fact, Chapter 7 fairly bristles with references, its 30 pages containing no less than 123! Also included are three appendices, one of which consists of a listing of transmitting stations licensed between the years 1922-1961, arranged in order of their appearance, together with changes in callsigns and dates of closure. This book is recommended to anyone interested in the history of New Zealand radio broadcasting. As indicated on the jacket flap, The Radio Years is the first two volumes, so the second volume is presumably in the pipeline.

** Voices in the Air, Peter Downes and Peter Harcourt 1976

Copies of The Radio Years, Volume One, will be available to NZVRS members at a discounted price of $32.95 if sufficient orders are forthcoming. Contact Barry King, 36 Flaxdale St. Birkdale Auckland 10. Ph. 4435639 (Bus.)

DESIGN AND PERFORMANCE IN 1934 THE ATWATER KENT 112.

by Reg Motion

Part 1

In this two part article Reg Motion describes the design and gives his assessment of the performance of an Atwater Kent model 112.

WHY?

At about seven years of age I became hooked on radio and my interest continues to this day. I suppose it was almost inevitable as broadcast radio entertainment began in Dunedin in the year I was born there. I grew up in an age of crystal sets, home built receivers and horn speakers together with pioneering amateur radio short wave exploits.

My first job was junior radio serviceman with the firm of McCracken and Walls in Dunedin where I was further contaminated by contact with enthusiasts like Val Pickerell who headed the radio workshop and engineered the B class radio station which the firm operated. McCracken and Walls were Dunedin agents for Atwater Kent radios and as I serviced them I developed an admiration for these quality sets with their high standard of workmanship and good performance.

Radio servicing did not hold me for long as radio communication soon became my premier interest and I obtained my amateur exam then joined the Post Office as a telephone technician with the promise of transfer to the Radio Section in Wellington when practicable. This opportunity came when war broke out. At the Post Office Radio Section I worked on the development and testing of communications radio equipment, learning in the process to use test equipment and to appreciate the finer points of radio receiver design. At this time I sometimes wondered how the Atwater Kents of my servicing days would have stood up to such critical testing. Fifty years was to pass before I was able to satisfy my curiosity.

ATWATER KENT MODEL 112

In the early 1980,s I persuaded my good friend Don Beswick to part with an Atwater Kent Model 112. This 12 valve console was in its day a "Rolls Royce" of the line with pushpull triode Class A output, ten inch loudspeaker and all wave reception. It was advertised as high fidelity and had a 1935 factory price of US$165, a princely sum to be afforded only by the well heeled and there were not many such persons in New Zealand in 1934 consequently only a few AK112's reached this country.

Atwater Kent model 112 is pictured on page 91 of John Stokes' "Golden Age of Radio in the Home". Its valve lineup is type 58 RF stage, 58 first detector, 58 oscillator, two type 58 IF stages, a 2B7 diode detector AVC and first audio stage followed by a 56 second audio stage transformer coupled to two 56's in pushpull which in turn are transformer coupled to two type 2A3's in a class A output stage. Type 5Z3 is used as the mains power rectifier.

The Atwater Kent 112 console

This set is designed for ease of use over broadcast and shortwave bands as well as for high fidelity reception of local broadcast stations. It contains extensive measures to optimise the frequency response for the wide range of operating conditions. To quote from the operating instructions as issued with the original set:

TONE AND SELECTIVITY CONTROL

In order to obtain high fidelity tone reproduction of local stations the receiver must tune broadly. But in order to separate weak stations and eliminate interference from other stations the receiver must not tune broadly, but must be very sharp or selective.

In the past a compromise was made between these two opposite requirements.

But now, rather than compromise between two features each of which it is desirable to retain to the fullest extent, Atwater Kent scientists have solved the entire question by designing a special tone and selectivity control.

This special control has four taps. Tap 1 (knob turned full right) provides broad tuning and high fidelity tone reproduction. Tap 1 should be used only for reception of strong stations with high fidelity transmitters.

Taps 2, 3 and 4 provide extremely high selectivity. Taps 2 and 3 are used for general reception, tap 3 giving deeper tone pitch. The choice of tap 2 or 3 depends on personal tone preference.

Tap 4 (knob turned full left) reduces the low and high-frequency tone response. This position is used for reception of short wave stations when electrical interference is present. Tap 4 is excellent for clarity of speech on either broadcast or short waves.

RESTORATION

As I obtained it the set was in reasonable physical condition though parts of the two speed dial drive, the shadowmeter and the power smoothing choke were missing. The badly scratched and faded cabinet had weathered the years without severe damage and has now been professionally restored to demonstrate its original beauty. New parts have been made to replace the missing dial drive and shadowmeter. Sufficient information was gleaned from the service data to design and manufacture a replacement for the smoothing choke.

Internally the wiring was in poor condition and there was evidence of component substitution

over the years. Since a major objective was to determine the electrical performance of the set as it left the factory I stripped its chassis completely and electrically tested the quality of every component. Most of the paper capacitors showed some degree of leakage and the higher values of flexible corded resistors were discontinuous. All paper capacitors were replaced with modern equivalents and wire wound resistors substituted for the faulty corded components. Luckily all of the RF coils, RF chokes, IF and audio frequency transformers were in good condition as also was the mains power transformer. Replacement of any of these components would have left a question mark on the final performance figures.

I was lucky to be able to obtain comprehensive service data including a diagram showing the actual location of most components which I carefully followed. My experience over the years has been that component placement is a major factor in the performance of radio receivers and other high gain radio equipments. The set was completely rewired using equivalent modern hookup wire.

One feature which I did not appreciate on this set was the mounting of the IF and RF valves together with the IF transformers and ganged RF tuning capacitor on a separate subchassis which is shock mounted on top of the main chassis. The wavechange switch and RF coil set are placed underneath the main chassis and the many soldered connecting leads between these two sections pass through holes in the main chassis.

In spite of my endeavours to ensure full operation of the subchassis circuitry before screwing it in place on the main chassis and wiring the interconnections I found it necessary to twice remove this subchassis to correct minor errors. Even with the expertise I gained from this exercise it still took over an hour to carry out this removal and replacement and I sympathised with past serviceman who had to change one of the many components hidden under the subchassis.

Aligning the RF section of the set produced a problem which I had not anticipated. I had thoroughly cleaned the wavechange switch and checked out all the coils for continuity and insulation when I had the set in pieces but neglected to examine the compression mica trimmer capacitors. These had been sealed at some stage by coating them with molten beeswax and at alignment time they just would not move. Murphy's law made sure that they were in an almost inaccessible place after assembly and it took me some hours to patiently pick out the wax, remove the mica then clean and replace it.

Alignment was relatively easy once the trimmers were made to work and I was delighted with the better than 1% accuracy of the resulting dial calibration.

Eventually, after a number of years of intermittent effort, restoration was complete and testing could begin.

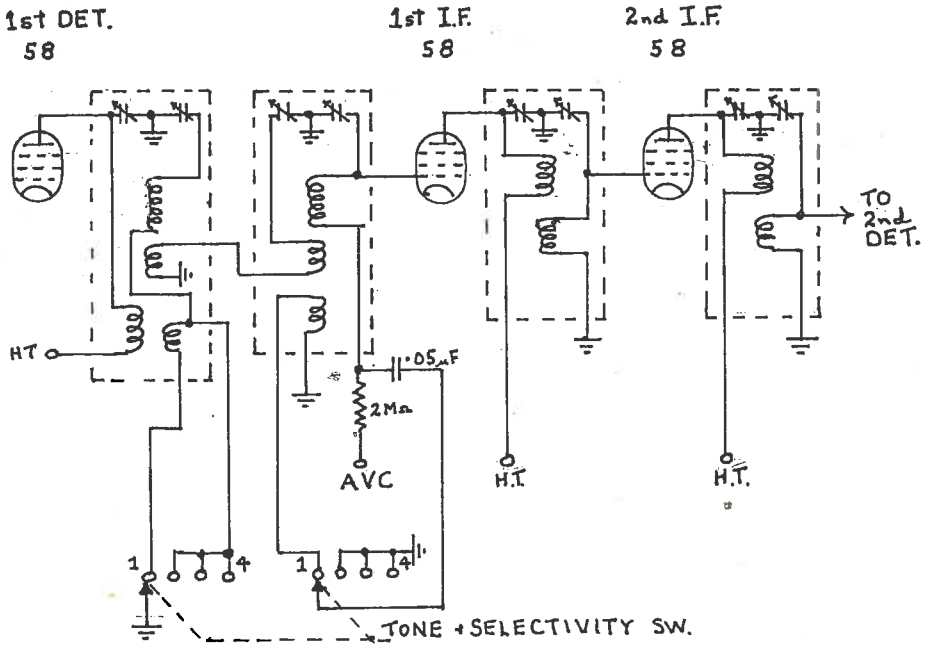


FIGURE 1. SKELETON CIRCUIT OF I.F. STAGES

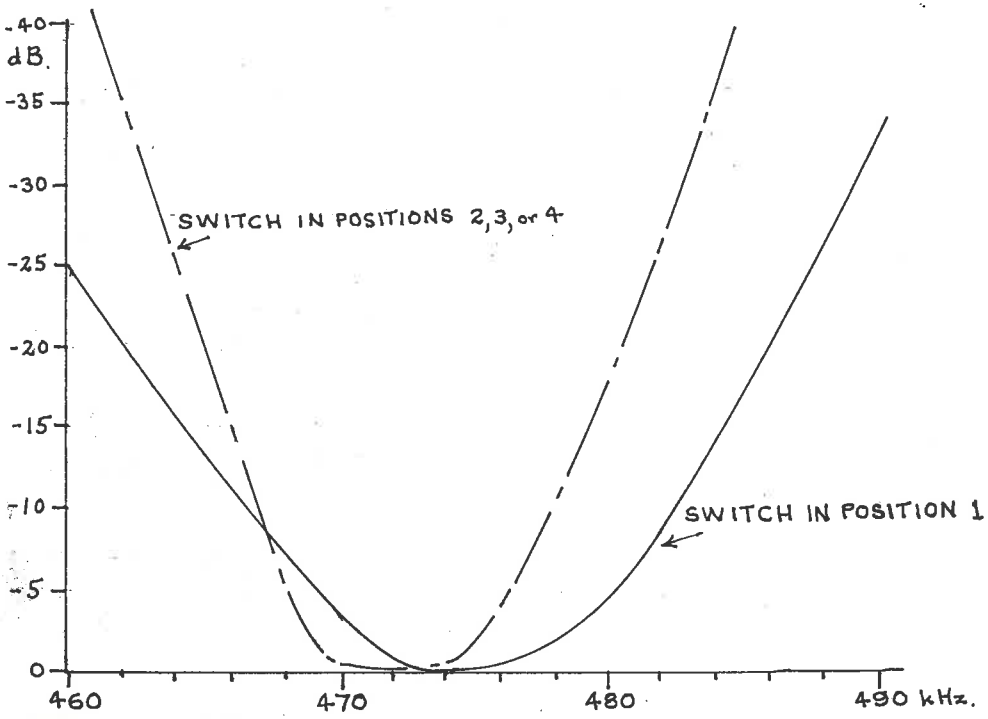


FIGURE 2. MEASURED I.F. RESPONSES.

see P. 8, Aug '94 for Jack Rhodes' article

INTERMEDIATE FREQUENCY DESIGN AND PERFORMANCE

IF Design and Performance
Intermediate Frequency

In the intermediate frequency stages low impedance inductive coupling is used between the two double tuned transformers which transfer the signal from the first detector to the first IF amplifier stage and this together with two double tuned transformers coupling the two IF stages and second detector provides a very high degree of selectivity. The skeleton circuit diagram is shown in figure 1 with the measured IF performance below (figure 2). Note the steep sides and flat top of the narrow band curve. This top is flat because all four IF transformers are slightly overcoupled to give a 6dB bandwidth of 9kHz. The result is a response passing sidebands up to 4.5kHz with over 20 dB of rejection of the adjacent channel. Positions 2,3 and 4 of the tone and selectivity control switch utilise this response.

Alignment of these overcoupled tuned circuits requires that dampening resistors be placed across one coupled circuit while the other is peaked otherwise the final result will be a lopsided response curve. Atwater Kent properly describe this procedure in their maintenance instructions.

When receiving high fidelity transmissions, position 1 of the tone and selectivity switch introduces extra coupling between the first two IF transformers, broadening and slightly detuning them to give increased bandwidth (figure 1). The resulting response is shown in the dotted curve of figure 2. A 6dB bandwidth of 13kHz is obtained in this position.

(To be continued)

P1
P4

Our Treasurer Bryan Marsh with a brace of Barlow Wadley's indulging in his hobby of dx'ing c.1980. Des Wright, past NZVRS president was the NZ Barlow Wadley importer.

brace = a pair (i.e. two) there are 3 in the picture!
see P.8, Aug 1994 for Jack Rhodes' article on the Barlow Wadley XCR-30

A PUZZLING HMV

New Zealand model 465

by Darryl Kasch

About twelve months ago, this set was brought to me for repair, as it had stopped working. When I studied the set more closely, I realized that this wasn't the usual Aussie made model, so took the chassis out to investigate. All the paper capacitors had been changed, so at first I couldn't determine what had stopped it. At first, judging by its styling I thought it was an American model. So I enquired further from the owner where it had come from, "oh, a New Zealand couple had owned it"! It must be a Kiwi set! A closer look at the dial, showing only NZ stations confirmed my suspicions.

In the meantime, I had switched the set on and quickly found that the resistor supplying the B+ feed to the 6V6 had gone open circuit, so was replaced, and the set burst into life! However , there was a strange whistling, so I thought I had better try to identify the model and procure a circuit from somewhere, as this set had caught me by complete surprise, though it shouldn't as it is in John Stokes' first "Golden Age" book (page 144). Actually this book is the first book I had ever bought on vintage radio after 'getting the bug' in 1986. And this book has been very useful ever since, as well as his follow up book (More Golden Age).

From that I was able to determine the model as a 465. I hadn't realised that HMV's had been made in NZ! According to John Stokes, this arrangement came about in the same way that numerous Aussie made models turned up (only, much earlier!) IMPORT RESTRICTIONS! This particular model was built by Collier & Beale, and the assembly and wiring is very neat and tidy, unlike many Aussie sets, with the exception of HMV! I noticed too, that the circuit appeared to be very simple, as it only used eight capacitor (plus electrolytics) in a very shallow chassis, only half an inch deep!

(actually one inch)

It's not surprising that I wasn't familiar with these sets, as they were never marketed in Australia, and because of their American styling, would have mistaken them for such when I visited NZ in June 1989. So, I wrote to John Stokes who provided the schematic, however informing me that only the dualwave circuit exists, as mine was a broadcast only model. It does appear that NZ was a bit lazy, much like the Australian manufacturers, in providing service information consistently!

As I was born in Detroit, the dog and gramophone symbol is identified with RCA, not HMV! The set looks very American, including the dial, so I wonder how much interchange occurred between HMV and RCA. Finally, the odd squealing was caused by a lack of shielding of the IF amp., an EF39 which, as usual, had lost its metalised shield. Brian Smith of Rockhampton was able to replace it neatly with a Mullard like grey lead based paint and, once dried, revealed that the squealing had disappeared. An alternative would have been to rewire the socket to use a 6K7. The chassis shows a base shield in place, but no doubt the factory ran out of 6K7's and were forced to use EF39's (never used in the Aussie models) which was a

common postwar occurrence everywhere, as there was a widespread shortage of parts in all factories.

I noted that the cabinet had been refinished and the famous HMV transfer was missing as well as the dark brown stain outline, so obtained a new transfer from Nostalgic Wireless Melbourne, and using water based brown paint mixed with metho, finished off the set. My thanks to John Stokes for all his help in unveiling the mystery of a set that I was previously unaware of.

P.S. For anyone grumbling about the marks shown on top of the cabinet after my refinishing, I was informed by antique furniture restorers that you are supposed to leave any old marks (caused by someone sitting a glass of water on it) in the wood, as it adds to its value!!

Darryl's HMV 465 before the restaining and transfer replacement

---

NOTICE

Our Treasurer and Membership Secretary Bryan Marsh who handles many member's requests has been seriously ill of late, he has had three weeks in hospital, been discharged and now been re-admitted. Bear with us if you are waiting for cable, membership business, circuits or any of the other business Bryan handles. We wish you a speedy recovery and at least a bit better short wave reception than you achieved in your last stay in Middlemore. Editor

C3
R3

REPLICA A.K. CAPACITORS

Peter Lankshear

One of the aspects of Atwater Kent receivers that makes them so collectable is the unique character of their components. In its day, A.K 's. plant in Philadelphia was the biggest radio factory in the world, and full use was made of the extensive facilities, involving the making of as many components, including capacitors, as possible.

Originally, their paper bypass and coupling capacitors were sealed in tinned iron boxes, often in multiple units, but during 1933, in line with much of the rest of the industry, these expensive cases were superseded by the familiar waxed paper sleeves. True to form though, even these had their own distinctive A.K. appearance, with coloured paper labels and radial flexible leads, rather than the more conventional solid tangential pattern.

Unfortunately even A.K. components are mortal and their capacitors have not stood up to the rigours of sixty years without some evidence of frailty. (Who has?) The outcome is that restoration of a chassis entails replacing most, if not all the paper capacitors.

Many restorers consider under chassis appearance to be important, for although this area is normally out of sight, it is as much part of the character of a receiver as the valve shields or knobs, and the capacitors are an important part of this. Today we use modern polyester capacitors which are significantly smaller and more efficient than the originals, and these can be inserted in the A.K. tin boxes with a little patience. However, it is not so easy to retain the appearance of the later tubular variety. The wax can be softened and the contents pulled out, but the paper shells are fragile, and with foreigners from previous servicing episodes, there is unlikely to be a full complement. Fortunately, it is possible, without too much difficulty, to make very convincing replicas.

As the original A.K. capacitors had a nominal 200 - 250 working voltage, any replacement rated at 400 volts or higher will be quite satisfactory. Tubular types are easiest to work with, but the newer radial lead pattern can be used.

Chop the original leads off close to the body and attach tinned stranded leads. (Thin hookup wire with the insulation removed is fine for this). Now cut a strip of paper as wide as the replacement capacitor is long. If you can still find some, the preglued brown paper strip once used for sealing large parcels is ideal for this project, otherwise use a strip of brown paper and paper gum. Wind the strip of paper around the capacitor, until the diameter of the roll is nearly that of the original capacitor. Now cut a second strip of paper, this time with a width equal to the length of the original A.K. capacitor. Roll about three layers coated with gum or glue around the replacement so that it is now enclosed in a cylinder of the same size as the original capacitor.

When the gum has hardened, using a sharp needle, bore a hole about 5 mm from each end through the casing and thread the flexible leads through. Now melt some wax in a small can,

squashed somewhat flat to facilitate pouring, and fill the ends of the casing and allow to harden. As pure paraffin wax tends to be too white to look original, some colouring is desirable. I use the brown casing from a discarded hard wax covered capacitor mixed into the hot wax.

The replacement capacitor now needs a label to match the original red, green or buff coloured strip. A few years ago, to print labels would have been an insurmountable problem, but today home computers can readily make a very convincing job. A 24 pin dot matrix printer is quite adequate, and to provide a good range of fonts, and refinements such as kerning, one of the major word processing programs such as Microsoft Word or WordPerfect is desirable. Dedicated computer enthusiasts might prefer to use a scanner to read and reproduce the original printing although others may think that would be a bit over the top!

With the label pasted on, there only remains to dunk the finished capacitor briefly in melted wax to complete a fairly convincing replica. The finished product can look very original, so, to avoid confusion in the distant future, it might be a good idea to note on the label in small type that it is a replica. After all, with a plastic dielectric, the replacement could well have a life expectancy of centuries and you won't be around to remember its history!

Guess which is the original Atwater Kent capacitor. Actually, it is the rear one, but wired into a chassis, the replica is practically indistinguishable from the real thing.

NEW MEMBERS

B.Maddern	Auckland	B.G.Gallagher	Lower Hutt
K.R.Webb	Christchurch	A.P.Dixon	Lincoln Chch.
T.Sanders	Hamilton	D.J.Marusich	Auckland
E.Carson	Australia	R.D.Stewart	Gore
B.T.Smith	Australia		

WANTED

AVO Valve Characteristic Meter Mk.IV, have mint Mk. III for possible trade + cash. Receivers; Hallicrafters SX117, Eddystone EA12 and S880. Book "Fundamentals of Single Sideband" published by Collins Radio Co.
Lloyd Anderson. 19A Tui Glen Rd. Birkenhead Auckland 10. 09-4805652.

Left hand name plate escutcheon for Zenith 825A, similar to 827 (see p.128 Golden Age)
Paul Burt. 44 Hastings St. Christchurch 2. Ph.03-3327157.

Leader LAG-26 audio signal generator, with manual. Philco 37-60 chassis and knobs. Radio parts, knobs, IFT's, transformers etc. to carry out repairs/restoration of radios.
Peter Walsham. 14 Willowbrook Pukekohe. Ph. 09-2384520 a.h., 09-2389223 bus.

One MURAD radio frequency transformer.
Kenneth S. Jaffery. 9 Mandalay Avenue Nelly Bay Queensland. 4819. Australia.

Dial glass for PYE PZ43, see Golden Age p.39. Mazda octal battery valves AR8, ATP4 and ARP12. Circuit diagrams for RF26 and RF27 units, (WWII Admiralty).
Dennis Seymour. PO box 23474 Papatoetoe. Ph. 5730800 wk. 2779480 hm.

Books "Television Today" publisher George Newnes, two volumes.
E. Hakanson. 17 Williamson Ave Grey Lynn Auckland 1002. Ph. 09-3766059.

Zenith Walton shutter dial tombstone 12 valve, will pay $1000 Australian, must be in mint condition. Other Zenith tombstones and Philips Superinductance.
E. Carson. 1/297 Port Hacking Rd. Miranda NSW 2228 Australia.

Any literature on Thomas A. Edison radios?? I am chasing data or original manual for C6 (Light-O-Matic) console 1929/30. Purchased from A.R.Harris Christchurch. Top money paid for chassis and speaker for 1931/32 Matheson-Bell 13" semi-cathedral, two knobs 100mm. apart, tulip petal grille with small window escutcheon.
Grahame Lindsey c/o Early Sounds. Ph. 09-3661344 bus. 09-4192033 a/hrs.

Tunnel diodes required preferably in the 2, 4.7 and 10mA range, but anything considered, to repair older Tektronix scope trigger circuitry. White painted Ultimate and other Radio Ltd. RU bakelite sets or cabinets. Columbus or other Radio Corp. 43. Radiolettes and chassis for them in any condition. Ian Sangster. Address in ad header. Ph. 09-8149597.

Columbus 75A dial glass or will buy complete chassis.
E.J.(Ned) Matich. Melody Park 38 James Laurie St. Henderson. Ph.09-8364400.

WANTED

Four valve shields for a Majestic 90B or 100B, dimensions 60mm x 110mm high with 19 holes in the top. Even one would help. Will buy or swap.
Dave McLaren. 25 Aotea St. Dunedin. Ph. 03-4550693 (collect, evenings).

Radios wanted, RCA 121, AWA Radiolettes, Radiolas etc. Do you have any sets for sale? Cabinets wanted, Atwater Kent 808, 708, Lyric S7, RCA R28. Chassis wanted, AK 206 or complete set, Airline 62-13Y (cathedral). Parts wanted AWA Radiolettes, Radiolas chassis or any parts at all. AK caps for coil shields, output trans. plus covers. Valve shields wanted for HMV R37, Philco 90, Echophone S-5 and Atwater Kents. Valves wanted, working 25B8 and any blue Arcturus.
Bob Cook. 3/ 475 Blockhouse Bay Road. Blockhouse Bay Auckland. ph. 6266241.

Cabinet, knobs and escutcheon for Zenith 6S129 (see p.128 Golden Age). Four valve shields and two small knobs for AK 627. RCA 100A speaker. Chassis and knobs for Wells Gardner 7L. Chris Lohle 4/ 7 Keys Tce. St. Heliers Bay Auckland 1005. Ph. 09-5753903.

TRF coils, aerial, RF, RF with reaction. Cat. no. EC56, EC357, EC358 refer Lamphouse Annual 1938. Any radio dials refer pages 54 and 61. Type 19 and 30 valve. Will pay courier post. M.F.Edwards. 6 Melody Lane Otahuhu Auckland 1106.

Three small plastic rosette knobs for Philco 52E, same knob as on the 81E & 48E on p.110 Golden Age. Two plastic backs for Pacemaker battery electric 5153AB or 5155AB, one white and one grey, see back cover of More Golden Age. Info wanted for STC (UK) valves type 3A/144A and 3A/147A CV1639. Both have a 4 pin lock in socket but not like an 80, all pins are much shorter and are the same size.
Des Smith. 156 Rangitoto Road Papatoetoe. Ph.2783541.

For trade. Circular black and chrome Ekco AD36, Ekco black and white AD94, Ekco black and chrome ACT96, Philips 930A hamtin, Philco peoples set, Defiant M900 (rare hairline), Bush AC3 cathedral (the holy grail?), Sonorette, Sonora "Cadillac", crystal sets by Elwell and Ediswan, Marconi V2A for restoration. If there are any British, European or US sets you fancy I may well have them. If not, I may be able to obtain them. I wish to trade for both styles of Radiolettes, especially a backed ivory 'Empire State' and a black '38' with green trim- for my collection, promise. Genuine advert! Simon Wade. "Finchcroft" Broadwater Down Tunbridge Wells Kent TN2 5PE UK Ph. (44) 892543505.

Valves: ECC81, ECC82, ECC83, ECC88, 12BH7, 6DJ8, 6350, 6922, 7025, 6SL7, 6SN7, EL34, 807, KT66, KT77, KT88, 6550A, 300B, 211/VT4C, 803, 805, 829, 830, 838 845. Plus W.H.Y. Also RCA or similar receiving and transmitting valve handbooks etc.
Ross Chatwin. 94 Vale Rd. St. Heliers Auckland 5. Ph. 5753355.

Columbus 91 table cabinet, on/off switch knob and Courtenay bakelite knob with monogram.
J.Riddle East Takaka R.D.1 Takaka.