Marketplace

Members wishing to advertise in the next issue should ensure that their ads reach the Editor by the 21st April 1988. There is no charge for this service but please ensure that you include your name, address and phone number. No telephone or vebal ads accepted. The NZVRS is not responsible for any transactions between members

WANTED

Valves, types EL90/6AQ5, 6X4, Ech21, AF3; Friction dial drive assembly for Paciic radio similar to one p.62 'Golden Age'. Doug Virtue P.O.Box 18, Kingston, Southland.

One tone control knob and 4-pin speaker plug to suit Pilot model 403B (1937); one valve shield to suit Philco model 656. R.G.Lea, 73 Wallace Place,New Plymouth Ph 85344.

Dial assembly (die cast) and two knobs also schematic for Astor 'Mickey Mouse' 1938 model (dial mounts in front of speaker); Schematic for amplifier BAL AMI model 200 juke box; Schematic or any info on tester model VO5 made by Radio Corp of NZ; chassis for HMV 462 portable or will trade cabinet for same. Arthur Williams 26 Centre St, Invercargill

Chassis for Australian Radiola 55E/C89, complete or otherwise. Barry Houston 46 Croydon, Christchurch Ph.324-730

Info or ads (photocopies) on early N.Z. made transistor radios. Garry Otter 40 Titoki St, Te Atatu Nth, Auckland

Interesting bakelite, mirror or novelty radios, need not go. Paying $100 up for Healing bakelite cathedral etc. Harry Poster, P.O.Box 1883, S. Hack,N.J.07606 U.S.A.

Buy or swap, Stewart Warner horn speaker and/or Crosley Musicone speaker for what you might want. K.D.McIlraith, 2/28 Konini St,Riccarton, Christchurch

Headphone cord tip, old battery set parts, goodopen-type crystal detector, new 6K8 metal valve, valves - EA52,50A1, 6CD7, DA30, DA60, S4V,30. Donald Laing 80 High St,Ekatahuna, Wairarapa

Cabinet for AK 246; 8" magnetic speaker for Ak 768Q battery set also aluminium coil can lids 1.75"diam for above. Bryan Marsh, 20 Rimu Rd, Mangere Bridge, Auckland Ph 667712

Chassis only for Ak 558, any condition but complete. Bill Farmer, 26 Irirangi Rd Auckland Ph 665-549

Valves, 210, 203 early pip top type, any Arcturus blues, early valve sockets, buy or swap. Barry King, 16D Parity Place Glenfield Auckland 10 Ph 438-823

AVAILABLE

Knobs, mainly bakelite, plastic, some wooden, approx 100, pictures available; Pre-octal valves, vibrators. R.J.Goode, i/11 Lovelock Ave, Mt Eden, Auck Ph 606819

RCA Radiola model 17 (illus p.119 'Golden Age') complete with speaker; Philips 2510 with PCJ shell speaker; all sizes of Philips HT eliminators/ Enquiries or offers to K.D.McIlraith, 2/28 Konini St, Riccarton, Christchurch

NOW AVAILABLE NEW STOCKS "70YEARS OF RADIO TUBES AND VALVES" by John W.Stokes This is a new printing, soft cover only. Price is $32 posted anywhere in N.Z. Order from: The Wireless Shop,617 Dominion Rd, Mt Roskill, Auckland 4. Ph 604-213 Please make cheques payable to above.

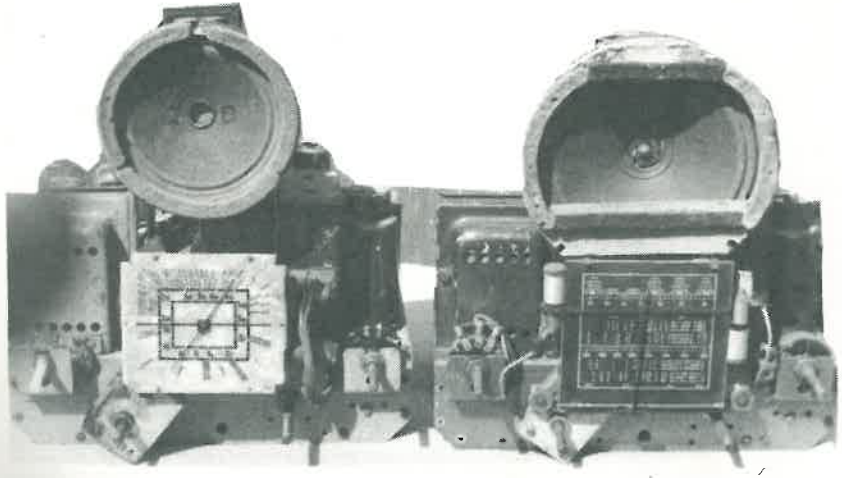
Bryan Marsh advises that the first shipment of the new British book RADIO! RADIO! is sold out. A further supply is on order and is expected in about three months time. Don't miss out, place your order now. Price is NZ$39 plus $1.90 postage anywhwere in N.Z. Order from: Bryan Marsh, 20 Rimu Rd, Mangere Bridge, Auckland Make cheques payable to the N.Z. Vintage Radio Society

N.Z.V.R.S BULLETIN Vol.8 No.4 Feb. 1988

NEW ZEALAND VINTAGE RADIO SOCIETY

Model R33 (1936)

Model R37 (1937)



The dual-wave Radiolettes (se p.4)

NEW ZEALAND VINTAGE RADIO SOCIETY

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

PRESIDENT: Bill Farmer, 26 Irirangi Rd, One Tree Hill, Auck. Ph.665-549

SECRETARY: Don Strange, 10 Pendlebury St, Titirangi, Auck. Ph.817-8611

Treasurer: Bryan Marsh, 20 Rimu Rd, Mangere Bridge, Auck.Ph.667-712

BULLETIN EDITOR: John Stokes, 617 Dominion Rd, Balmoral, Auck.4. Ph.604-213

BULLETIN MAILING: Tim Gash, 32 Staveley Ave, Mt Roskill, Auck. Ph.657-526

The NZVRS BULLETIN is published quarterly in the months of February, May, August and November. Contributions from members are welcome and should be sent to the Editor.

Editorial Notes

Has it ever occurred to you that 'radio' seems to occupy a somewhat unique position amongst technical occupations in that to many people it represents both a livlihood and a hobby? While we may know of cases where a motor mechanic may go home to tinker with a vintage car, or where a professional photographer belongs to a local camera club, when one considers the scale of amateur radio activities there is really no comparison.

This does not mean that amongst the large body of amateur radio enthusiasts, long known as 'hams' the majority makes a living from some aspect of electronics, but the fact that a lot of them do illustrates the point, and it it this which sets radio apart from other activities

To enlarge a little. Amongst other occupations, whether professional, white collar, blue collar or any other level, members of these groups form organisations in which membership is usually dependent on the aaplicant having had some sort of formal training and/or making a living from the particular occupation; in other words they form peer groups. In the case of ham radio however we find professionals (using the word to mean those employed in the electronics industry) rubbing shoulders with non-professionals as members of the amateur fraternity.

All this has been leading up to a similar comparison with the position existing in vintage-radio groups where there exists a happy mix of 'work' and 'hobby' people amongst the membership; though the non-pro may perhaps wonder at the proclivity of the pro to take his work home with him! However, because in most respects modern high high-tech electronics is so far removed from vintage radio the latter may wel represent a satisfying hobby to those engaged in the industry.

J.W.S.

NOTICES

NEW MEMBERS

B.J.Cheetham Palmerston N.
N.Smith Auckland
G.S.Manning Auckland
K.R.Rogers Lower Hutt
J.Adams Auckland
T.Goodman Waikanae
G.B.Holden Auckland

MEETINGS

Regular monthly meetings of the NZVRS are held on the third Monday of every month of the year. Auction sales of vintage equipment are held on regular meeting nights in the months of March, June, September and December.

VENUE: Meeting Room of the Methodist Church at rear of the church itself.

TIME: 7.30 pm

LOCATION: 426 Dominion Rd, Mt Eden

PARKING: There is a parking area alongside the church.

MEMBERSHIP LISTS

Anyone requiring a current list of members may obtain a copy by writing to the Tresasurer and enclosing the sum of $1.50.

Bryan Marsh
20 Rimu Road
Mangere Bridge
Auckland

BADGES

Lapel badges (as illustrated on the membership card) are available at a cost of $5.00 posted. Order from the treasurer:

Bryan Marsh 20 Rimu Rd
Mangere Bridge, Auckland

BACK NUMBERS OF NZVRS BULLETIN

Back numbers of most issues of the NZVRS Bulletin are available at a cost of $1.60 each posted.

Order from: John Stokes
617 Dominion Rd
Balmoral, Auckland 4

OBITUARIES

Noel Allport of Auckland, a member since 1981 died on Jan.4,1988.

Jim Stevens of Masterton, a recent member died on Jan 16,1988

THE DUAL-WAVE RADIOLETTES

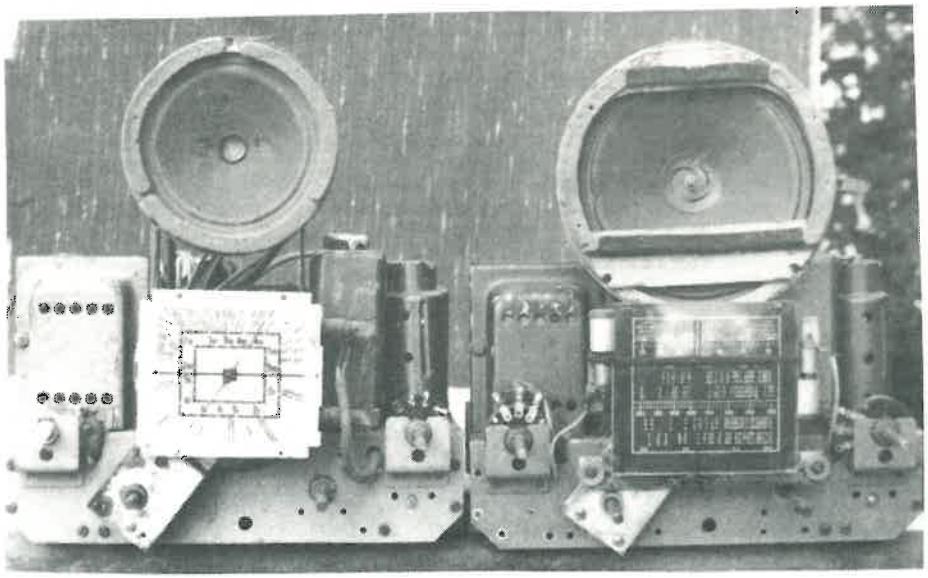
Following the success of the series of brodcast-band Radiolettes which had been introduced late in 1932, A.W.A released their first dual-wave version, model R33, some four years later in 1936.

Although using the same number (5) and types of valves as the BC model the circuitry differed in that the RF stage had been dispensed with, rather obviously to simplify the bandswitching arrangements,and an extra stage of IF was used instead, the reflexing being retained in its original form.The cabinets were of the same mouled material known as 'Radelec' but were slightly larger in size as well as being quite different in appearance; the were available in a range of colours and had contrasting feet and speaker grilles.The Square faced dial had a celluloid scale divided into upper and lower segments with the dial pointer covering a 180 degree sweep. Four controls appeared on the front - volume, tuning,bandswitch and sensitivity. the last named being in the form of a 3-position rotary switch which controlled the bias on the mixer and first IF valves.The same 5" speaker as used in the BC model was fitted and there was no tone control.

In 1937 an improved version known as the R37 superseded the earlier model, the differences being as follows

1. A 6 " speaker replaced the former 5" size.
2. The dial was now a slide-rule type with two separately illuminated glass scales.
3. A back was fitted to the cabinet.
4. A continuously variable tone control was fitted in the position formerly occupied by the tonecontrol.
5. The sensitivity was automatically increased when switching from BC to SW.
6. A local-distance toggle switch was fitted at the rear of the chassis.

Nowadays their highly distinctive appearance seems to offer a great appeal to devotees of art deco style. However, from the point of view of ease of handling all Radiolettes suffered from the same drawback - the difficulty in controlling volume consequent upon using an audio gain control in conjunction with reflexed circuitry. Not until the AF control was abandoned in favour of an Rf gain control in the mixer valve cathode circuit (e.g. the model 48 of 1938) was the trouble overcome in reflexed models.



FIFTY YEARS OF CATALIN RADIOS
Ed Lyon

During the middle of the 1930s, the Catalin Corporation began a new manufacturing process for producing durable, non-melting, odorless, and tasteless plastics. The objective was to make extremely attractive household and personal items of the new plastic they called Catalin. The basis of the new material was the same old phenol-formaldehyde resin that had made "Bakelite" a word as commonplace as "Jello." The novelty, though, was in the manufacturing method, one which yielded a phenolic plastic as colorful and glossy as any gemstone. While there is some controversy about who first tried casting the liquid phenolic resin, it was Catalin who first advertised the plastic, fashioned into jewelry, clock-cases, toilet articles, and kitchen items.

The traditional "Bakelite" phenolic was made by injecting the powdered resin, coloring agent, mold release agent, and filler material into a "pump," which compressed the mixture into a heated (and very robust) steel mold, using pressures of up to 10,000 psi; this process cured the plastic almost instantaneously. But the Catalin process called for pouring the liquid resin, specially neutralized, and with finely dispersed water entrained, into thin lead molds, after which came five to twelve days of curing at elevated (175°F) temperatures. Thus, the new method resulted in CAST phenolic plastic, while the traditional phenolics were MOLDED.

Even after release from the molds, the two differed in treatment. The "Bakelite" phenolic emerged shiny and finished, except for possible "flashing," thin, fragile excess webs of material formed at the mold seams, easily broken off and buffed over. Meanwhile, the Catalin piece had to be "case-hardened" in the oven, then tumbled with abrasives, then with waxed pegs, then buffed, requiring two more days.

The tremendous difference in manual labor required to produce the two plastics created a condition wherein the Catalin item would cost, naturally, four to six times as much as the same thing in "Bakelite." But, what a difference in appearance! Catalin plastics are brightly colored (with a few exceptions), thick-walled, translucent, and quite rigid, while the "Bakelites" are opaque, dark-colored, and thin-walled. The more modern styrenes are brightly colored, but are soft, meltable, and very thin- walled.

At this point I should hasten to note that I use the term "Bakelite," in quotes, to mean the commonplace molded phenolics, no matter who the manufacturer might have been, while "Catalin," in quotes, means the cast phenolics. This may avoid confusion, because, soon after Catalin announced their new plastic, the Bakelite Corporation duplicated the stuff, which they called "Bakelite Cast Resin." They were followed by a host of others, including Monsanto's "Opalon," Marblette's "Marblette," and Catalin's "Prystal." All these manufacturers sought to create very colorful, jewel-like objects for the home, and such industrial items as pilot-light jewels, switch handles, cabinet pulls, warning signs, and colorful trim. This bright plastic material didn't take long to get the attention of radio cabinet designers.

These radio designers had just discovered "Bakelite" as an ideal radio cabinet material a few years before, and, by 1936, many manufacturers had already started to use urea-phenolic molded resins, which very closely resembled the "Bakelites," except that they could be made in any color, especially "ivory." Now, they had the opportunity to complement their line of wooden, "Walnut Bakelite," and "Ivory Plastic" radios with "the new Catalin plastics," in glossy, marble-like material with some "heft." These radio cabinets were heavy, usually being three-sixteenths of an inch (or more) thick, in contrast to the molded cabinets' thin walls.

Reprinted from the Antique Radio Gazette, official publication of the Antique Radio Club of America by arrangement.
(Abridged Ed)

USING YOUR RIDER'S

by John W.Stokes

Although John F.Rider's well known Perpetual Troubleshooters Manuals have long proved to be an essential 'tool' when servicing American receivers, from time to time users of the volumes may be frustrated by being unable to locate the circuit of a particular model in the index. In an attempt to at least partially overcome this problem the following information is presented.

Firstly, in order to be quite sure that the wanted schematic is not actually listed in the index it is necessary to have a complete index, or in the case of a vintage radio enthusiast, one that covers up to at least Volume 15. Now, before you protest that you aren't interested in radios made after 1938 (or whatever) read on. The need for an extended index is that in some cases a particular diagram was either overlooked or was not available when the volume in which it might be expected to appear was published. Sometimes this resulted in the missing diagram appearing years later.

To takean extreme case: suppose you were looking for the schematic of an RCA model R38 battery set of 1930 vintage,a set which you would normally expect to find in Vol.2, but can find no trace of it in an index covering covering up to Vol.9 It would be reasonable to assume that the circuit had missed out. Not so! It actually appeared some 17 years later in Volume 15! Just what use it would be to any serviceman likely to be working on one of these sets during its working lifetime is difficult to imagine.

Another problem. Sometimes it will be found that schematics for cerain popular models of even large manufacturers cannot be located in any index, even one covering up to Vol.15 or later.Don't despair, there is still hope if you are prepared to spend the time doing a little sleuthing.

Suppose you are looking for circuits of Wells Gardner chassis 7L, 7Q, A11, A13 or A15, all of which were sold in N.Z. but are not indexed under the name of the manufacturer , what can you do? Wells Gardner being a large 'private brand' supplier made sets for many different distributors, one of the largest being the firm of Montgomery Ward & Co, even though not all of the radios marketed by this firm were made by WG.

In this case a useful tip is to look through the circuits listed under Montgomery Ward in a likely volume until you come across the required

one. Although time consuming this is not as difficult as it may sound and with a little practice the Wells Gardner models can be distinguished from other makes. After having located the missing circuits it is a good idea to either add the missing model numbers in sequence on the appropriate space in the index or else prepare a small cross-index which can then be pasted in the main index in a convenient place. A suggested layout is given below.

Wells Gardner	Montgomery Ward
Chassis A11	Model 62-630 (Vol 9-32)
Chassis A13	Model 62-479 (Vol 9-69)
Chassis 7L	Model 62-226 (Vol 8-5)
Chassis 7Q	Model 62-327 (Vol 8-37)

WITH THE COLLECTORS (5) Ian Brown

Although Ian Brown is a foundation member of the NZVRS he keeps a fairly low profile and is consequently not very well known to most other collectors. However, Ian Has built up a modest collection of sets which includes some very nice console models. Shown here is a corner of his workshop-cum display area.

A DIFFERENT DETECTOR

by Peter Lankshear

By the mid 1930's, receiver design had stabilised, the majority of radios having a single pentode driving the loudspeaker. Some consoles and an occasional mantle set used pushpull output stages, with their potential for improved audio quality, but they were usually the "top of the line" models. By this time resistance coupled phase inverters for driving pushpull amplifiers were becoming common, although some designers still persisted with driver transformers. Transformers were expensive and unreliable and the type used for domestic receivers could not match resistance coupled circuits for quality.

It was, therefore, with interest that I studied a 1937/38 Lafayette D-50 mantle set which I had been asked to overhaul. It looked like just another typical U.S. made medium sized receiver of the period, good value but outwardly like a multitude of others. John Stokes found in a catalogue of Wholesale Radio & Television Inc that it was priced at U.S.$28.75.

The first thing I noticed was that it had pushpull 6F6G output valves, driven by a 6Y7G double triode, indicating it was likely to use a resistance coupled phase inverter. This was not your usual unremarkable mantle receiver. In fact, there were to be more surprises. As the R.F. lineup seemed standard enough with a 6A7 converter, 6D6 I.F. amplifier and a 6H6G detector, I had a fair idea of what I expected to find. Few sets used the full flexibility of the 6H6, with its two independent diodes. Many simply had the cathodes earthed with combination detection and A.G.C. from the two paralleled anodes, and I assumed that this would be no exception.

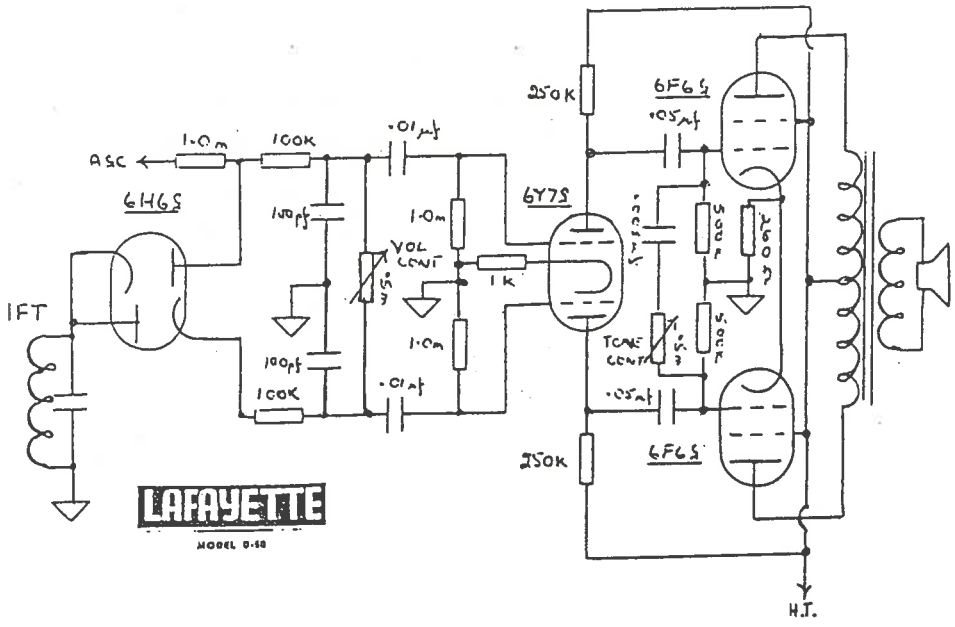
However, I was quite wrong. The next thing I noticed was that the 6Y7G was wired as a straight pushpull amplifier. Where did the phase inverter get the balanced signal to drive its control grids with a 180 degree phase difference? The 6H6 socket seemed to be wired in a strange manner. A diode cannot be used as a phase inverter - well, not quite. I drew the circuit out and the result is shown in the diagram. The 6H6 does indeed provide the two phase reversed signals, with one side producing a positive going signal as the other is going negative. As well, it generates an A.G.C. voltage. Readers familiar with F.M. receivers will notice a resemblance to a ratio detector. The Lafayette detector is elegant and simple design and its balanced operation means that distortion should be low. Even the volume control is unique and works by progressively shorting together the two 100k diode load resistors. Strangely, I can find no reference to this unique detector any of the usual reference books.

Of course it must have weaknesses and one was what probably made the radio unusable. Any leakage between the cathode and heater of the lower diode puts a strong 50Hz hum on the programme. Replacing the 6H6 along with the three very sick audio valves, and renewing the driver anode resistors restored a very interesting and nice sounding radio. I was left wondering why this circuit was not used more for receivers with pushpull audio amplifiers. Possibly it was patented and it would have been difficult to accommodate a gramophone pickup.

$28.75

MODEL D-50

Lafayette 8-tube, 3-band table-model superhet with tubes. For 110/120 volts, 50/60 cycles a.c. Shpg. wt. 30 lbs. Size, 19" long x 8½" high x 9½" deep. Code WOFAN. List Price $57.50. YOUR COST **$28.75**
For 220 volt operation, add.....$2.50
Lafayette all-wave aerial kit.
K16479—
YOUR COST..... **$2.25**



A GENERAL MOTORS RADIO

By John W.Stokes

Towards the end of 1931 the firm of Todd Motors Ltd imported a line of American radios made by the General Motors Radio Corp of Dayton, Ohio. They were the first and only GM brand sets to be seen in N.Z. and were amongst the last to be made at the Dayton plant which ceased operations shortly afterwards.General Motors had been in the radio business since 1924 having taken over the old Dayton Fan &Motor Co at that time.Subsequently they purchased Crosley's Kokomo, Indiana plant in order to commence making car radios for installation in General Motors cars.

The set in question, model 250C,chassis S1C, was a 7-tube superhet housed in a slim cathedral-style cabinet measuring only 8" from front to back. Although advertised as the 'Super General' this model is listed in the Langley-McMahon Blue Book as the "Little General"and has the Little General trademark stamped on the back of thecabinet.

At first glance there is nothing to distinguish this particular receiver from the plethora of similar American midgets on the market at that time, but unlike most of them the Super General was a superhet, and a seven tuber at that. Closer inspection reveals the use of two IF stages, an uncommon feature in such a small set, plus the use of a separate oscillator tube, all on a chassis measuring only 12"X 7" by 1¼"deep. How was it done? The most obvious reason is the diminutive size of the RF coils and IF transformers which, bearing in mind the date of prod>ction were of very much smaller than average size.

Because no RF stage was used the mixer was fed from a preselector input which took the form of two separate coils housed in copper cans measuring only 1¼" in diameter by 1" high. These coils were bank wound with Litz wire at a time when other manufacturers were using large solenoid coils wound with plain enamelled wire.

The IF transformers were enclosed in small (1¼") cylindrical copper cans and had separate primary and secondary trimmers fitted at each end of the coils. That these coils and IFs were at least as efficient as their larger counterperts is evidenced by the lively performance of the Super General.In conclusion it may be said thatthis set was of advanced design as far as the coils and IFs are concerned and, because of its rarity nowadays is a most collectable item..

The circuit diagram will be found in Rider's Vol.2,page 7, General Motors.

The writer would be pleased to hear from anyone owning one of these sets.

THE S.H.B WIRELESS CO.

On page 11 of the February 1986 issue of the NZVRS Bulletin there appeared a then recent photograph of one Cyril Brandon, then 94 years old. By contrast this picture shows him as a youngster of 17. The three youths were the self-styled "S.H.B,Wireless Co", shown here with their receiving apparatus in Dunedin in September 1908. Cyril Brandon is at the left of the group.

ORPHEUS RADIO MUEUM

We are in receipt of a handsome illustrated brochure from a newly formed radio museum located at Ballarat in Victoria, Australia. The name 'Orpheus' was chosen to commemorate the brandname of a line radio receivers manufactured during the 1930s by the grandfather of the Museum's founder Mr Richard R.Wilson.
The museum is open 7 days a week and there is no admission charge.

The address is: Orpheus Radio Museum, cnr. Ring Rd & Western Highway
Ballarat, Victoria, Australia Ph (053)34 2513

CAPACITORS

By Peter Lankshear

Prior to about 1950, only four different types of fixed capacitor were in general use in receivers. These were, mica, paper and wet and dry electrolytics. Of these, today only dry electrolytics remain readily available. For the others, there is a a bewildering range of alternatives to choose from, including mylar, polyester, polycarbonate, polystyrene, polypropelene, tantalum and several varieties of ceramic. Each type is available in a range of working voltages and lead arrangements and all have the advantage of being much smaller and considerably more reliable than the earlier varieties. The only real problems today are finding capacitors with sufficient working voltage and deciding which type to use.

Original electrolytic and paper capacitors will be showing their age. Although most radios will have had some replacements fitted, unless they are modern types, even these can be suspect. Today, it is common practice in commercial servicing of valve receivers to replace all capacitors regardless of their condition. Capacitors purchased in bulk are not expensive and the extra cost is more than offset by minimising possible callbacks and complete replacement is some insurance against the bane of servicing, the intermittent fault. However, a less draconian approach is to check each capacitor, taking into accoumnt its condition and working situation before replacing it.

Waxed paper dielectric capacitors were the most commonly used and survivors will generally have inadequate dielectric resistance. One exception can be the "Solar" molded type with the sky blue unwaxed paper labels. These were used by some smaller manufacturers and by servicemen, and will often be found to be in excellent condition. However, as a rule, the writer recommends that all paper audio coupling and A.G.C. bypass capacitors should be replaced. A good capacitor in these locations should have an insulation resistance of at least 100 megohms but few test meters can measure this magnitude of resistance. Even a 10 megohm leakage to the grid of an output valve could reduce the effective bias by 5.0 volts, serious in the case of a 6V6 and disasterous for a EL33. Because they are shunted by low value resistors, moderate leakage in R.F. cathode bypass capacitors is not a problem. However, bear in mind that many paper capacitors had primative methods of internally connecting the foils to the lead out wires and can produce frustrating intermittent faults.

Paper capacitors can be replaced by any of the "poly" or mylar equivalents or, in many cases, ceramic types. The most important factor is working voltage. Although modern electronic equipment uses quite low voltages and component ratings reflect this, high voltage capacitors are still available. Cathode, grid bias and A.G.C. voltages are low and 50 volt capacitors are suitable for these circuits. However, 400 or even 600 working voltage types should be used in anode circuits. 250 volt capacitors will do at a pinch for audio coupling and screen bypassing in receivers using indirectly heated rectifiers. Some capacitors are marked TV along with the voltage rating. This stands for Test Voltage and is twice the maximum working voltage. For example, a TV rating of 1200 indicates a maximum safe working voltage of 600.

Most components today are made for printed circuit board mounting and have radial leads, the old axial lead pattern being harder to find. This is not normally a problem however.

Mica capacitors are likely to be in good order. However, they can have intermittent faults and can short circuit when subject to conditions of H.T. stress such as in anode bypassing. They have been superceeded by ceramic and polystyrene capacitors but it is important to use the correct type for replacement.

Although they were introduced in the 1930's, notably by Philips, it was not until after 1950 that ceramic capacitors began to appear in any number in receivers. There is a large range of different types available, so much so that it would be possible to completely replace all non electrolytic capacitors in a receiver with suitable ceramics. They fall into two classes; general purpose for bypassing or coupling, and the more expensive close tolerance types for tuned circuits etc, situations formerly requiring mica capacitors. The general purpose ceramics come in all shapes and sizes, the commonest being round or square plates, blobs and tubular. They are known as "high K" are characterised by small size, poor power factor, and variations in capacitance with temperature and voltage changes. They are outstanding for R.F. bypassing and make excellent audio couplers, but voltage ratings must be taken into account. In the unlikely event of a fixed capacitor in a tuned circuit needing replacement, a high stability, low temperature coefficient ceramic or a polystyrene type should be used.

Polystyrene capacitors, whilst looking like standard plastic and foil general purpose types, are intended for use in tuned circuits. They will often be found in I.F. transformers, and are generally equivalent to high stability ceramic or mica capacitors.

Receivers built prior to 1940 frequently used wet electrolytic filter capacitors. Chances of finding any still in working condition are remote and it is likely that they will have long since been replaced by dry tubular types. The wet electrolytics can be left in position for appearance and some purists unobtrusively disembowel them and fit the replacements inside. Many chassis mounted capacitors will be found to be dry types and multiple units are common. Proper testing of electrolytic capacitors is not really possible without a capacitor bridge. Some hard cases judge a capacitor's condition by charging it up and seeing how long it takes to self discharge, the size of the "splat" on short circuiting giving some idea of the capacitance. In any event, replacement with modern 450 volt units is a good idea because a defective filter capacitor can easily damage a rectifier and/or transformer. Electrolytics which have been out of service for some time may need to reform, passing excessive current in the process. Check for heating after a few minutes operation. Overheated electrolytics can explode with quite dramatic consequences. Television has made available compact high voltage capacitors of 100mfd or more. NEVER use these immediately after the rectifier. To do so may damage the rectifier, overheat the transformer and increase the H.T. voltage. Unless the receiver is known to use 30-50 mfd types, don't use more than 22mfd for input filters. Receivers with directly heated rectifiers can supply very high voltages to the H.T. lines during warmup so be wary of using under rated capacitors. Low voltage electrolytic capacitors were used for bypassing cathode bias resistors in audio stages. Early types were unreliable, so replace them as a matter of course with the much superior and compact modern equivalents.

Tantalum capacitors are a specialist form of electrolytic, very vulnerable to voltage spikes and should not be used in valve equipment.

L.B.Scott Ltd, a well known Christchurch radio firm in the 1930s, were South Island distributors for Crosley receivers. In this 1933 picture can be seen a Crosley model 130 9-valve 'cathedral' displayed on the table in the foreground. (photo courtesy Radio Preservation Society of N.Z.(Ferrymead) Inc.

BOOK REVIEW

Practical Wireless 24 Sept.1924 WORK
Reprint by Dean Farrar Print Productions

This is the second offering of its kind from this NZ publisher, this time a reprint from an early British wireless magazine. As mentioned in the introduction, this 31-page booklet consists of a collection of a few articles from a 1924 issue of 'Work', a weekly DIY publication.

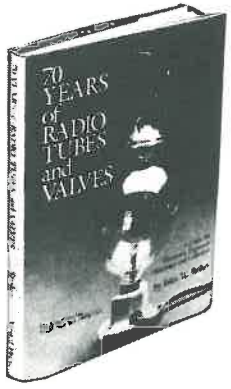
Described in the booklet are articles on how to construct two crystal sets and two 1-valve sets using as many home-made components as possible.There are also several pages illustrating commercially available components of the day.
The present publisher's stated aim is to reproduce material of interest to present-day vintage radio enthusiasts, and for those who are looking for something to add to their libraries of historical radio literature this little booklet should fill the bill.

J.W.S.

---

70 YEARS OF RADIO TUBES AND VALVES By John Stokes

We sold out the complete print run of this famous book last December, but there are still folks who are just hearing about it for the first time and who want a copy. So we're bringing it back in paperback, and it should be ready about April 15. For *House Organ* readers who are not already familiar with it, it's the complete illustrated history of the development of the vacuum tube (or valve, in British terminology) from the time Edison noted the 'effect' that's named for him, to the introduction of the transistor in the 1960's. It's a basic book for anyone who really wants to know what has taken place in the development of electronics.



NOW AVAILABLE

Special price to NZVRS members is $38 or $39 posted anywhere in N.Z.
Order from: The Wireless Shop
617 Dominion Rd,Balmoral,
Auckland 4

Both these books are now available from the address below. Note that the new printing of '70 Years of Radio Tubes and Valves' is now in in a soft-cover version at $32 post free anywhere in N.Z.
Please make cheques payable to:
The Wireless Shop
617 Dominion Rd
Mt Roskill, Auckland 4