AVAILABLE (cont)

10 plastic radios $50 the lot, also valves 50 cents each. Call to view and collect ONLY. Rod Osborne, 9 Waikite Rd, Tauranga. Ph 07/5442887. email rod1@ihug.co.nz

WANTED

Dial Glasses or copies for Ultimate CDU, 203mm x 190mm, oval dial layout, also Ultimate BWU, 203 x 190, circular dial layout, also circuit details for early 30s Radio Ltd ROLLS 6SN, 180 deg. dial. Rex Handcock, 24 Fairfax St, Murchison, Ph 03/5239740 evenings.

Practical Wireless mags or radio constructor prior to 1970. Also any battery portable valve radios, need not be working, "as is" state but fairly complete if possible for collection/restoration. Also pair of Beacon audio output transformers type S 122 (for Mullard single ended 3 watt amps). Also pair Beacon S 57 transformers (for pushpull E95 amps). Wayne Griffin, Ph 09/5289118. email zl1ujk@xtra.co.nz

Spring motor and/or frontal photograph for a floor standing La Gloria gramophone circa 1930s with record storage at the bottom. Cabinet label says La Gloria Mfd & Patented by La Gloria Gramophones Ltd Auckland NZ. Bill Campbell, Ph 06/7532475.

Pre 1974 Tannoy hifi loudspeakers and any similar quality speakers of the older era. Ian Sangster, address details inside front page of Bulletin.

Chassis complete and working for Stewart Warner R146X, 8 valve. Also speaker for Atwater Kent Model 55. Also speaker for Pacific 5 valve Superhet, 1934, (art deco). Also speaker for 1938 Zenith, big black oval shutter dial model. Also speaker for Rolls BAU 1936. Alastair Watson, 30 Newman Ave, Brightwater, Nelson. Ph 03/5423733.

Philips Television Model Z22C473 with remote control. Will pay top price for set in excellent condition. Condition of cabinet not so important. John Cooper, PO Box 41, Whitianga. Ph 07/8665003 after 6pm.

Blue knobs and dial scale for Clipper model 5M4 - mantel plastic cased radio. Also road map/circuit/manual for Advance/Gould AM/FM SG63E signal generator. Barry Grumwald,. email b-grumwald@xtra.co.nz Ph 09/4087235

Black tuning knob for EKCO SW86. Paul McLaren, 33 Hopkins Cres, Kohimarama, Auckland. email pmclaren@ihug.co.nz , Ph 09/5241639.

Copy of article on the PR10 appearing in Aug 1933 Radio Engineering magazine. P Robb, 1275 Dominion Rd, Auckland. Ph 09/6207347

Chassis for Federal radio 1926-8E10/F11 or similar. R Iverson, 1/3 Akehurst Ave, New Lynn, Auckland. Ph 09/8275705.

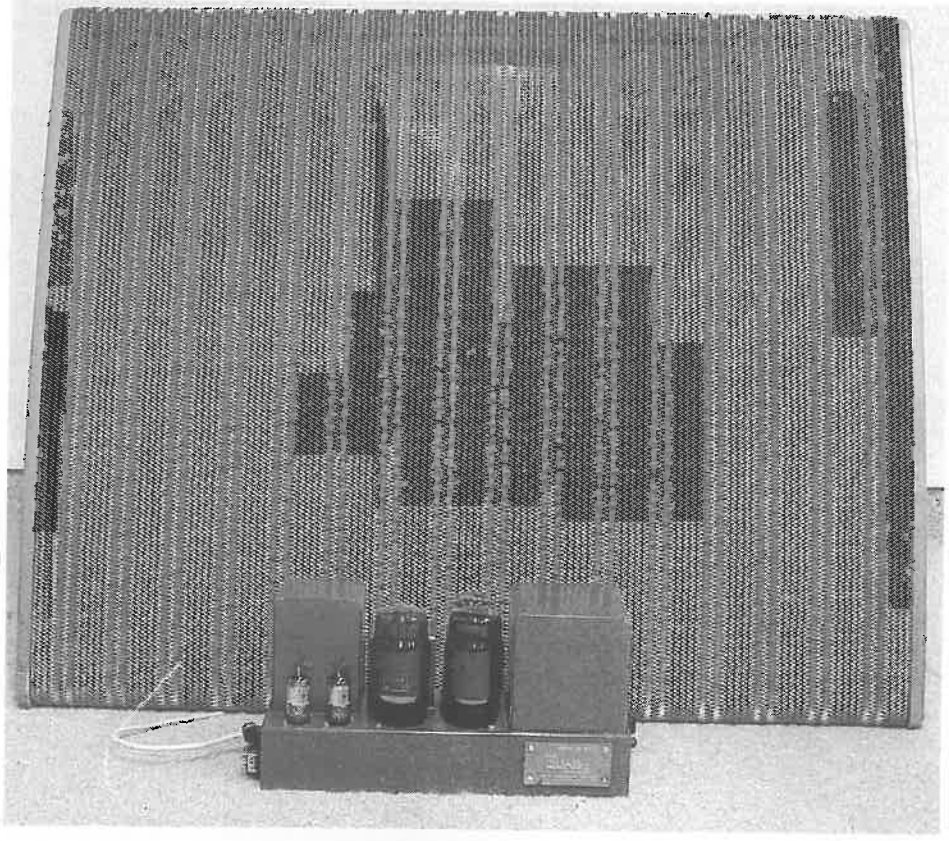
Valves type A409 (4 of), A415 (2 of), B406 (2 of). Will pay good price. David Jensen, 20 Walker St, Collinsville Q 4804. email KarinaJensen@bigpond.com Phone/fax intl+617 47 855999

Operating and/or Service manual for HP 334A Distortion Analyser. Either purchase or loan for copying with quick return assured. Reg Motion, 2A Hazel Tce, Tauranga. Ph 07/5768733. email regmotion@xtra.co.nz

3 PIN POWER PLUGS

The Society has some ivory "new old stock" power plugs for sale. They are surplus "Tilley" type and are available at $1.00 each (plus postage) from our Secretary.
Paul Woodcock - 09/8184740
2 Levy Rd. Glen Eden, Auckland.

NEW ZEALAND VINTAGE RADIO SOCIETY INC.
Vol. 23 No.2 **AUG 2002**



QUAD 11 AMPLIFIER
ESL 57 ELECTROSTATIC LOUDSPEAKER

NEW ZEALAND VINTAGE RADIO SOCIETY INC.

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

(Web site - http//www.nzvrs.pl.net email address office@nzvrs.pl.net)

PRESIDENT: Ian Sangster, 75 Anawata Rd, Piha, R.D, New Lynn, Auckland 1250. Ph 09-8149597, email: mailto:sangsfam@clear.net.nz

SECRETARY: Paul Woodcock, 2 Levy Rd, Glen Eden, Auckland. Ph 09/8184740. General correspondence, requests for purchase of books, badges and power cable are handled by the Secretary.

TREASURER: David Crozier, 154 Grey St, Onehunga. Ph 09-6365954or 0800-187161, email- dckh@pl.net Financial and membership matters are handled by the Treasurer. A list of members is available on application to the Treasurer with a self-addressed, stamped envelope.

LIBRARIAN, Ernie Hakanson, 17 Williamson Ave, Grey Lynn, Auckland. Ph 09/3766059. Requests for circuit diagrams, books and magazines (for personal use only) are handled by the Librarian at a small charge. Back numbers of most NZVRS bulletins are also available from the Librarian at $3.00 each for Vols 1 to 10 and $4.00 for issues from Vol 11 onwards. Cheques to be made out to NZVRS.

NZVRS BULLETIN is published quarterly in the months of February, May, August and November. Opinions expressed by writers are not necessarily those of the Society. Contributions should be sent to the **EDITOR** , Reg Motion, 2A Hazel Terrace, Tauranga. Ph 07-5768733, email regmotion@xtra.co.nz

BULLETIN DISTRIBUTION is arranged by Rod Osborne, P.O. Box 2098, Tauranga.

AUCKLAND MEETINGS will be held at the Horticultural Society Hall, 990 Great North Rd. (opposite Motion's Rd.).

Mon. 19 Aug. at 7.30pm Resistors.
Mon. 16 Sept. at 7.30pm Auction sale.
Mon. 21 Oct . at 7.30pm Wartime NZ Philips

WAIKATO MEETING. **Sunday, 4 Aug. at 11 am .** Meet at Kev's Museum, 5 Dunlop Rd, Te Puke. After viewing Museum, lunch at Kiwifruit Country then to Vintage Auto Barn . Afternoon tea and view bargains at Paengaroa Trading Post if time permits.

TARANAKI MEETINGS.
25th Aug at 1.30pm at Bill & Pat Campbell's place, 225a Tukapa St., New Plymouth. Ph 06/7532475
Local members - a plate for afternoon tea
27th Oct. at 1.30pm at Sam & Suzie Lowe's place, 23 Hurdon St., New Plymouth
Ph 06/7536693. Workshop on repairing plastic radio cabinets.
Local members - a plate for afternoon tea.

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 Bob Hatton, 40 Rose St, Wadestown. Ph 04-4728788.

CHRISTCHURCH MEETINGS. For details of meetings contact Jim Lovell, 41 Yardley St, Avonhead, Christchurch 8004. Ph 03-3427760

FROM THE EDITOR

Rod Osborne has provided an excellent account of his restoration of one of two Quad 11 amplifiers he has. In their day they were regarded as classic designs and even today they command a great deal of respect in the Hi Fi community. Peter Lancaster is back with an interesting account of his youthful activities during WW2 with his Hikers three and George Newland's request for info on the German Oster-Ganz valves has elicited two good responses - one from as far away as UK. Very few enthusiasts bother to couple a signal generator to a receiver via a dummy aerial when carrying out alignment and Bruce Churcher not only stresses the need but also given us details of suitable coupling units. Publication of John Stoke's Index of radio receivers produced by NZ manufacturers should provide a valuable reference for members. Murray Stevenson continues with his well researched story on 3 pin plugs.

News of a proposed communications museum to occupy part of the old radio station at Awarua will be of interest to members (see page 4). This will be the third such museum established since the demise of New Zealand Post Office, the first at Waikanae in the old NZ Post Office building where the committee features local memorabilia as well as communications equipment, and the second at Musick Point in the old radio station there. The latter is purely radio and is run by amateur radio members of NZART Branch 86. Public access times are limited which is quite understandable as management of these museums is by volunteers.

Probably the largest collection of historical NZ communications equipment which could be viewed freely by the public was maintained by New Zealand Post Offfice in Wellington. Unfortunately Telecom saw fit to close it as a cost cutting measure when they took over from NZPO and it has remained so since in spite of a number of attempts by interested parties to get it reopened. Rumour has it that Telecom are prepared to part with the exhibits to any organization which is prepared to display them properly on a fulltime basis. Running such a museum requires paid staff of the right quality and I guess this is a major stumbling block. Maybe the National Museum or the Museum of Transport and Technology may one day consider taking it over.

STOP PRESS

It appears that our article on a visit to Auckland Museum of Transport and Technology (Last issue, p29) may have caused some members to assume that MOTAT were preparing to dispose of some items from their collection.

The Administration at MOTAT assure us that this is not the case and have provided a very full and satisfying explanation of their present policy which we will publish in the our next issue.

NEW MEMBERS

Minchin H	Putaruru
Osborne H	Invercargill
Carter E	Te Kuiti
Aimers C	Dunedin
Watson G	Hamilton

CONTENTS

SOUTHLAND POST & TELEGRAPH COMMUNICATIONS MUSEUM

Since the Awarua Radio Station ceased operations in 1992 there have been some developments of interest to vintage radio enthusiasts. Brief details follow.

In 1995 the Awarua Radio Station site was purchased by the Awarua Station Farm Trust and is currently farmed by the McKenzie Family. The original receiving station has become the McKenzie family home.

In 1997 the site itself was registered with the Historical Places Trust.

In 1999 the Southland Post & Telegraph Communications Museum Inc was formed and in December 2001 leased the former Awarua Radio transmitting station building to establish a communications museum.

The focus of the museum will be the history of the Awarua Radio Station with emphasis on education about the station and communications changes that have occurred from their inception in Southland. With the guidance of the Southland Museum and Art Gallery the executive committee has completed writing a Collection Management Policy and is now planning a proposal to submit to local funding authorities.

The museum will be called The Awarua Communications Museum whose administrative body is the Southland Post and Telegraph Communications Museum Inc executive committee.

Aims as summarised in the following 'Mission Statement' are:

. To record and recount the story of Awarua Radio Station.

. To detail the history of the development of telecommunications in Southland.

.To preserve and restore material associated with Awarua Radio Station and the development of telecommunications in Southland.

To comply with the necessary standards, the museum must meet strict requirements for security, fire prevention and detection: museum environment (light, humidity, temperature), health and safety requirements and must abide by Invercargill City Council by-laws. This will be costly.

The Executive Committee will appreciate help in any form, membership - as friend or contributing member ($20/annum), donations of material, volunteer labour or otherwise.

Interested Vintage Radio members may contact the committee through the Secretary, Paula McKenzie, 1276 Bluff Highway, Awarua, No 11 RD , Invercargill (Ph 03/2188206).

A visit to this museum will be a "must" for the next time you are in Southland.

Restoring a Classic Quad 11 Amp

By Rod Osborne

Most of my audio work this year has been repairing Guitar and Audio amps made in the 60's and 70's, where good design was tempered by the need to produce the maximum power for the fewest dollars. The last two repairs were on amps using push pull EL34's with 800 volts on the anodes. This design leaves no margin for error and to make matters worse the valves were mounted upside down, generating high temperature on the bakelite bases which can eventually cause breakdowns. With output valves such as EL34's and KT66's getting harder to find it almost seems a pity to use them in such amps, particularly as stereo models often require four such valves.

It was, therefore, a pleasant change to have the chance to restore a pair of Quad 11's.

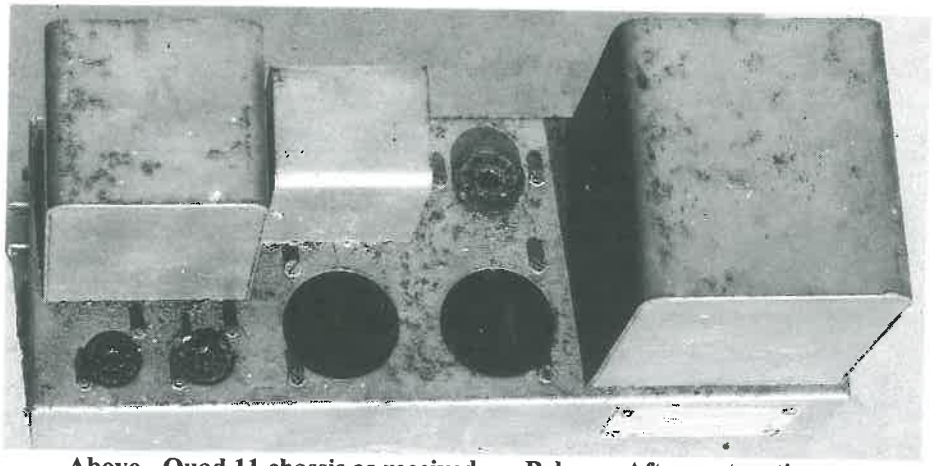
Quad equipment was manufactured by the Acoustical Manufacturing Company which was founded in 1936 by Peter Walker. The name Quad was an acronym for "Quality Unit Amplified Domestic". The Quad 11 was launched in the 50's as a control unit with two mono block amps.

Peter Walker with one of his ESL57 speakers

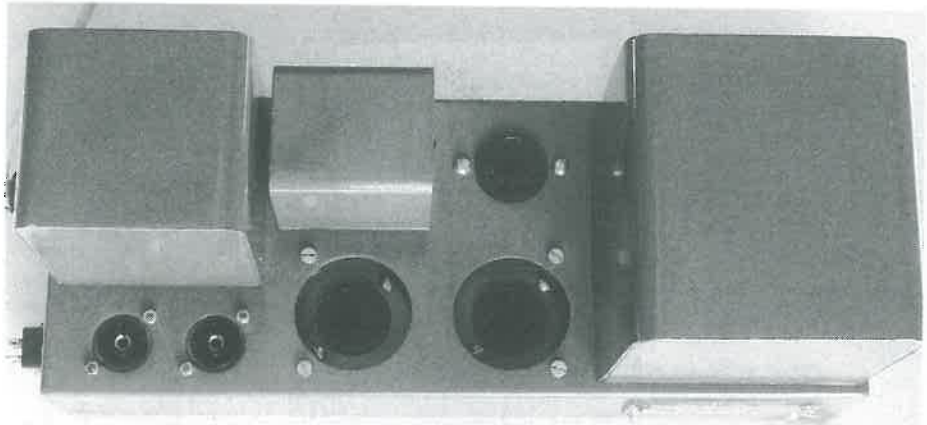
About this time concerts were given at both the Royal Festival Hall in London and Carnegie Hall in New York to demonstrate the quality of sound reproduction produced by top class sound equipment. Peter Walker was joined by Gilbert Briggs, the founder of Wharfedale, in these demonstrations.

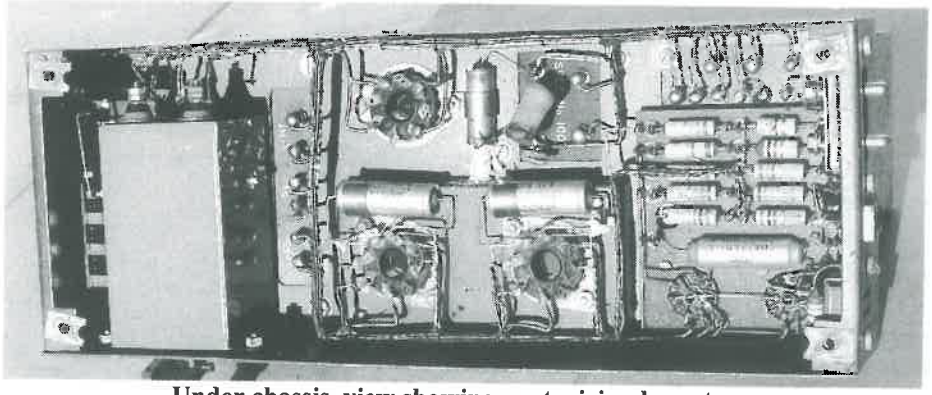
Greatly improved broadcasting standards also helped increase the demand for Hi Fi reproduction.

Quad also produced the electrostatic loudspeaker ESL57, nicknamed "Waltons Little Wonder", which was recently named "the greatest Hi Fi product of all time" by Hi Fi News magazine.



Above - Quad 11 chassis as received. Below - After restoration





Under chassis view showing neat wiring layout

My Quads arrived in a fairly rough condition having spent the last 25 years of their life in a wood shed.

I shall describe the restoration of one monoblock as they both required identical work.

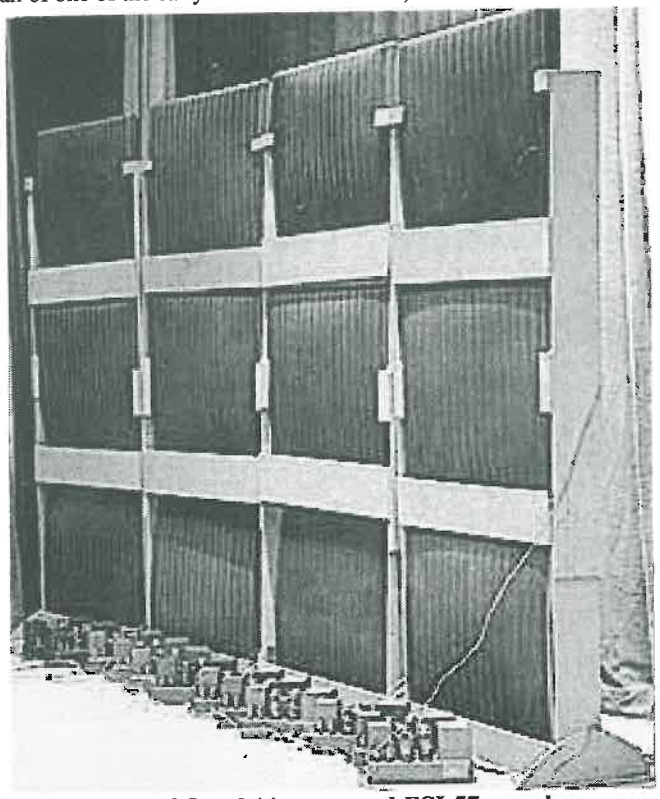
Names such as Quad, Leak, Pye, Goodmans, Shure, Western Electric etc were synonymous with quality audio reproduction in the 40's and 50's and were "built up to a quality, not down to a price". (That was the slogan of one of the early radio manufacturers).

Both amps showed the signs of years of neglect with rusting chassis and dust and mildew.

Some members say they prefer to leave vintage equipment in "as found" condition so opposite are pictures of before and after restoration for members to make up their own mind which they prefer. (The difference in the two pictures is 5 hours work and $3 worth of paint and rust killer).

The transformer cans had signs of pitch leaking out onto the chassis through overheating, although they tested OK electrically.

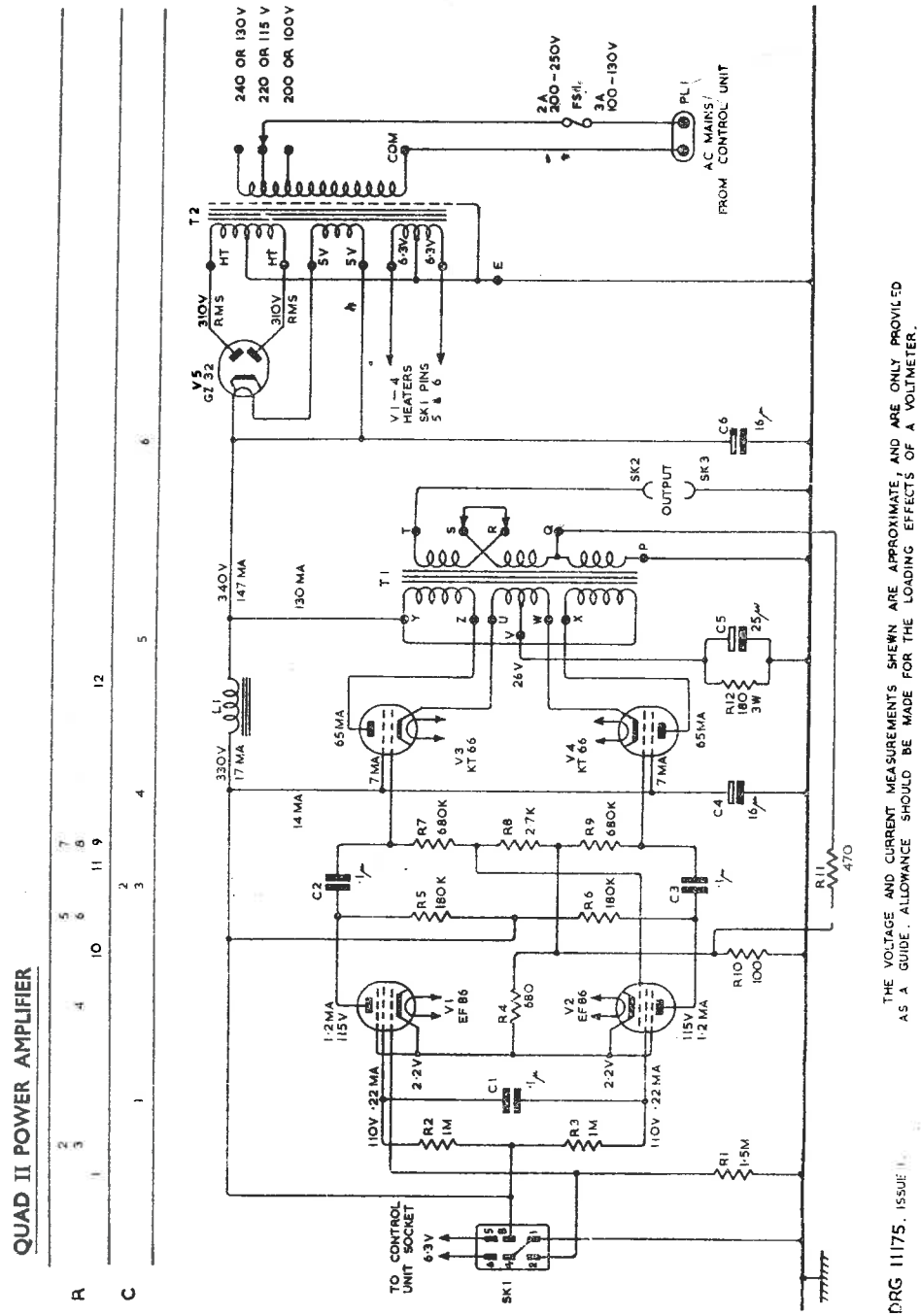
The under-chassis picture (opposite) shows the neat layout of components making servicing much simpler than the over crowded more modern amps.



An array of Quad 11 amps and ESL57 speakers.

As a matter of routine I replace all the capacitors in equipment of this age (they were all leaking anyway). The leaking 0.1mfd capacitors feeding the KT66 grids no doubt caused the overheating of the transformers and choke.

After drying the amp for a few days I tested the resistors and all were within tolerance except the grid resistors for the KT66's. These should have been 680K but measured approx 840k (more about this later).



THE VOLTAGE AND CURRENT MEASUREMENTS SHEWN ARE APPROXIMATE, AND ARE ONLY PROVIDED AS A GUIDE. ALLOWANCE SHOULD BE MADE FOR THE LOADING EFFECTS OF A VOLTMETER.

DRG 11175. ISSUE I.

Next came the valves. The two preamp and phase inverter valves were EF86's so no problems finding replacements for those. After testing several, I selected a couple of matched Dutch Philips as I have found these to be quiet and reliable. I know many audiophiles prefer Mullard (a Philips subsidiary) but when I worked at the Pye factory we invariably found Philips to be better and often changed Mullards for Philips to improve performance. Old habits die hard!

Because the KT66's had been used with the leaky capacitors which caused very high anode current, they all showed very low emission and had to be replaced. I like to match output valves in Hi Fi amps both for plate current and mutual conductance and finding two matched pairs among my mostly used KT66's was not easy but was finally accomplished.

The GZ32 rectifier valves were easier to find.

The circuit shows a fairly standard configuration for amps at that time. There are two feedback paths, the conventional path from the output transformer secondary to the first audio amp cathode plus the more unusual method of placing a small extra winding on the output transformer in series with the output valve cathodes. The Quad is the only amp I have serviced that used this method of feedback.

Having finally accomplished all the above tasks I was pretty confidant that I would plug it in and all would be well. How wrong I was!

It was quickly evident that the KT66's were still taking too much anode current and a quick check with the voltmeter showed positive voltage on both grids. I had already replaced the 0.1 mfd coupling capacitors with 1000 volt Dubiliers which had tested good on my ohmmeter but they proved not so good with 340 volts across them. I replaced them with Philips polyester capacitors and although they were only rated at 400 volts there was no sign of leakage. Ah! I thought, that was a quick fix and switched it back on. Same result – less grid voltage but still positive.

I removed the valves and the grid wire and sure enough the socket was leaking. I had underestimated the effect of 25 years of dampness. Two new sockets and a quick test showed no leakage so I knew I had fixed it. I replaced the valves and switched on full of confidence. Guess what – less voltage but still positive. With confidence now at low ebb I traced the voltage and found it came from a leak in the bakelite terminal board which held all the resistors. The KT66 grid resistor was connected to a terminal next to the EF86 plate resistor and there was leakage between these terminals. With my confidence restored I switched it back on – yes, one damn grid was still positive. When testing the KT66's I had failed to notice a half microamp grid current in one of the valves. This was accentuated by the high value grid resistors so I replaced these with the correct value, 680K, but I still had to find another matching KT66. This problem was solved on a chance visit to Athol Winger at Waiuku. He had two used ones and one of them was a good match for my KT66. He was looking for a Teledial cabinet and other components which I was able to supply as a swap. It sure pays to be a member of NZVRS.

Now at last the amp performed as it should and all was well with the world.

When I mentioned to Reg, our editor, that I was preparing this article for the bulletin he suggested I take the restored amp to his workshop and we would use his array of instruments to see how the specs compared with those published by the manufacturer about 50 years ago.

An HP334A Distortion Analyser was used to measure the Total Harmonic Distortion.

The individual harmonic distortion was checked on a Hatfield 1001 Selective Level Measuring Set with the amplifier supplied by a Radford Series 2 Low Distortion Oscillator.

Overall frequency response was measured with a Hatfield type 764 Level Measuring Set. This set supplies a measurable input signal and also measures the output from the amp over the full frequency range.

The following table shows the results of these tests. (THD =Total Harmonic Distortion)

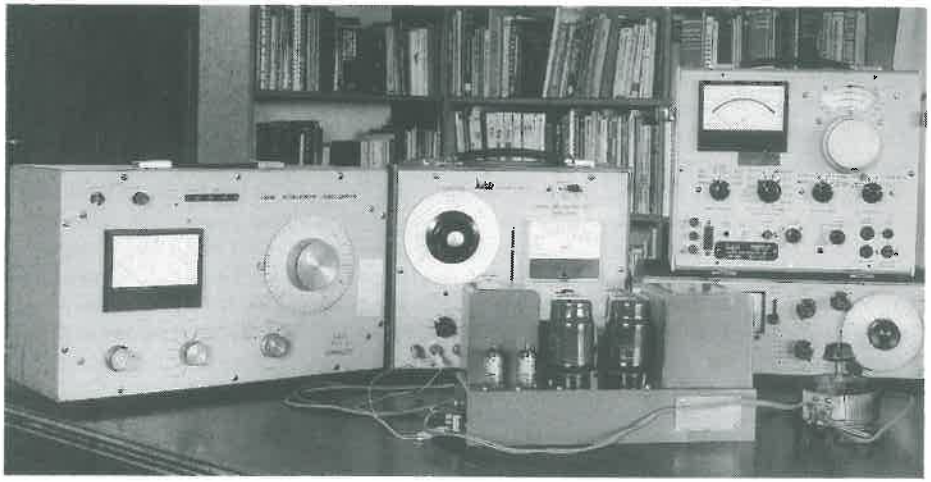
Freq	Watts	THD	2nd	3rd	4th
20Hz	1.2	2.30%	*	*	*
50Hz	1.2	0.15%	-62dB	-60dB	-85dB
50Hz	12.0	0.70%	-50dB	-43dB	-60dB
700Hz	12.0	0.40%	-52dB	-50dB	-73dB
7000Hz	12.0	1.25%	-41dB	-40dB	-50dB

* We were unable to measure the 2^{nd},3^{rd} and 4^{th} harmonic at 20hz as the lower limit of the selective measuring set (wave analyser) was 50hz.

The measured frequency response was virtually the same as that quoted in the manual
+ or - 0.2dB from 20 – 20,000Hz

The harmonic distortion quoted in the manual was slightly better than the above table.

Time permitting, the restoration and testing of the control unit/preamp will be covered in the next bulletin.



The Quad 11 under test

WHEN AMERICAN RADIO CAME TO NEW ZEALAND.

Peter Lankshear.

Readers with long memories will recall that until the advent of private radio, broadcasting in New Zealand was a very prim and starchy affair, modeled on Lord Reith's puritanical BBC standards with a few extra restrictions invented by our Professor Shelley himself. For example, pre war the solemnity of the occasion of an evening's broadcast was recognised by Mr. Announcer being required to wear a full dress suit whilst on duty! Moreover he stood at the microphone. Similar attitudes pervaded the whole serious business of broadcasting. Entertainment was very much secondary to education. Radio was not to be enjoyed!

Even as late as the 1960's, formality was the rule. I recall Director William Yates issuing an edict about humour on air. "Humour has no place in New Zealand Radio presentation. If you think that you are a comedian, let us know and we will use your ability in a proper manner"!

Many recordings were banned and when, for example, in the 1940's, the popular wartime song 'Rum & Coca Cola" arrived, several verses were banned because of "undesirable innuendo of a sexual nature". The National Commercial Broadcasting Service (the four ZB's plus 2ZA Palmerston North) did regularly kick over the traces, inciting the ire of "The Prof" and, incidentally, increasing the number of listeners, but generally radio remained very correct.

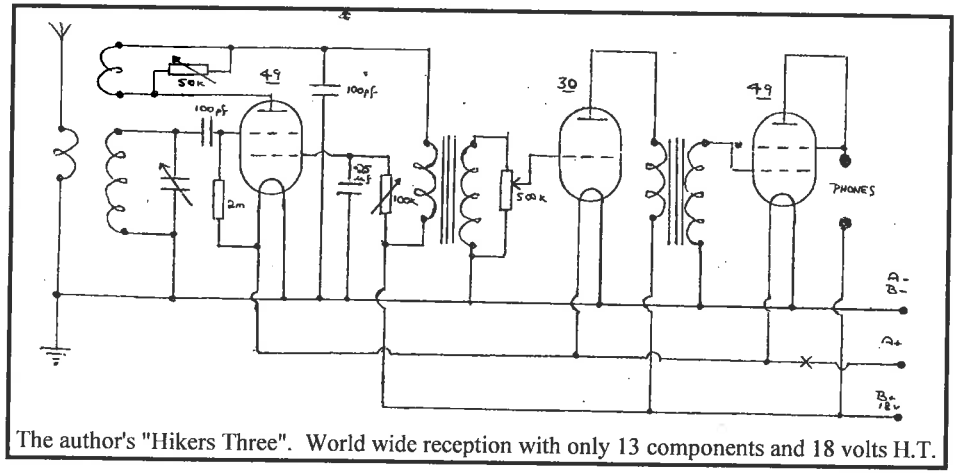
In 1944 I was a teenage boy living in New Plymouth and it was my habit to start the day by ignoring parental instructions to "get up" and instead, having a quick tune round the dial of my Hikers Three. (Yes, that's right, three, but more about the receiver later) Anyway, one morning in April I was astounded to find that a station on 1250 kilocycles was on air with a good signal, and a distinctly American voice was announcing that we were listening to the Mosquito Network and that the next item would be from Glenn Miller! I occasionally listened to Californian Stations such as KFI but only early on winter evenings. Normally 1250 was occupied by Auckland's 1ZM, one of the "B" stations that provided alternative programmes to the "National" stations, often operating with volunteer staff and some Government subsidies. And their type of music was definitely not the swing that I was hearing! Something very strange was going on.

ENTERTAINING THE TROOPS

The war in the Pacific involved an ever growing army and the Americans, always careful of their troops' welfare, provided small broadcast stations for their morale boosting and entertainment. These stations were scattered around the Pacific to form the "Mosquito Network" and provided a useful service broadcasting news, the latest shows, recordings and service announcements etc. and generally the sounds of home. By the end of 1943, New Zealand, especially the North Island, was increasingly being used by the U.S. military for "R.&.R." {Rest and Recreation) and American Servicemen were a common sight. With their smart uniforms, lavish spending and good manners they made plenty of conquests with New Zealand girls (and, let be it said, sometimes their mothers) and of course florists and taxi drivers approved of them mightily. The same cannot be said of their Kiwi male counterparts who were not very impressed.

The U.S. had a large camp in the Auckland area, from memory at Papakura, and to service this, from April to December 1944, they "borrowed" 1ZM Auckland with its 1.0 kilowatt transmitter. It was this transmission that I had discovered.

Needless to say, as a teenager I loved the upbeat presentation and lively programmes. Hollywood worked flat our providing entertainment for the troops and I would lie in bed with my headphones on to hear such favourites as "The Great Gildersleave" the "Bob Hope Show" and Bing Crosby's half hour. Believe me, National Radio was pretty tame in comparison and it was with much regret that I learnt in December that as the War was moving towards Japan, they were pulling out. Still it was great while it lasted!



The author's "Hikers Three". World wide reception with only 13 components and 18 volts H.T.

RECEPTION

Readers may be interested in the receiver that I "discovered" 1ZM with. It had developed from the well known Hikers One with its space charge 49 detector. The Hiker's receivers have been covered in previous *Bulletins* but briefly, they made use of a characteristic of a tetrode valve whereby the inner grid can be operated at a few volts positive. This produces a large "virtual cathode" of electrons which can then be controlled in the usual triode manner by the outer grid. The great advantage is that only a few volts of high tension is necessary for operation - very important for impecunious youths. The Hikers One worked well with only 9 volts H.T. and was the most extensively built New Zealand kitset receiver ever.

I had improved mine considerably by the popular method of adding an audio transformer and another 49 valve to make it a Hikers Two. This was very successful and I reasoned that a Hikers Three could be even better. A suitable amount of pocket money was rounded up and a type 30 triode was purchased. A bit of trading secured a second Philips 4003 audio transformer and the Hikers was rebuilt on a new chassis, this time with plug in coils. I had discovered that it was a good idea to be able to control the voltage to the inner grid of the 49 with a 100k potentiometer. Not only did this optimise the space charge, but used in conjunction with the regular control it enabled very fine adjustment of regeneration, especially useful for shortwave reception. With a total audio amplification of about 350, a volume control was now essential. My Hikers Three now had plenty of gain and at night I could receive many Australian stations, and when using the shortwave coil I was able to hear American, Australian and BBC transmissions.

Some readers who have not experienced conditions of 50 years ago may wonder at my being able to listen regularly during the day to a 1.0 kW transmitter more than 150 miles away. This was quite normal, for at that time the daytime programme for the majority of households in New Plymouth was 1ZB Auckland, also with only 1.0kw aerial power. Conditions then were very different from today. Most households had quite respectable aerials, mine was typical, being about 100ft long and 30ft high, and most importantly, electrical interference was only a fraction of the level now common in urban locations. It would be reasonable to say that away from metropolitan areas the majority of receivers had R.F. stages for good sensitivity. There was a down side though. Static from tropical thunderstorms could be bad, especially in the summer, and at night periodic distortion from selective fading marred most distant transmissions.

FOOTNOTES:

The Philips 4003 audio transformers were frequently found as replacements in the early TRF battery powered sets which at that time had no value. They had a good frequency response and above all did not develop open circuited windings, the bane of most audio transformers. The reason for their reliability was the use of silver wire for the primary and nickel for the secondaries. The two transformers I used in the Hikers Three are still in working condition.

It was common to find impressive aerials in remote country districts. In the back country of Taranaki, with its narrow valleys and precipitous ridges, at least one resourceful farmer used No 8 fencing wire stretched between the tops of two ridges and with a lead in at the centre to create a monster T aerial. Telephones for remote farms were frequently served by "do it yourself' single iron wire and earth return circuits and it was not unknown for insulators to be improvised in emergencies with beer bottles with their bottoms knocked out and jammed over the ends of convenient tree branches. Somehow I think that those lines would not have been suitable for 56k modems!

Taranaki Vintage Wireless Group Meetings

The April meeting was hosted by John Newport, and what a variety of treasures he and Sandra collect.

The two radios on display upstairs were Zenith consoles, cabinets were restored and one chassis completed and one to go, a good project well in hand.

We then ventured downstairs where there were at least 6 motorcycles, some in the process of restoration and some as they were delivered. The Honda Goldwing has pride of place in the display. The next room held the radio and telephone display. There were telephones from the early days, to the more modem types, both wall and desk mounting. Radios were to be seen everywhere, a wide variety of makes and models ranging from the early 1930s to the 1960s.

Sandra' 5 collection of china included a very nice dinner set and an unusual Carltonware vase.

Our June group meeting was hosted by Philip and Alison Brown.

Philip does not have a collection of radios but he does have an interest in radio which goes back many years. I understand that many frustrating hours were spent on the restoration of the ZC1 Mk 1, which he had on display. What we experienced was being part of a group that is willing to be interested in what other people collect and want to share that interest and knowledge with others. (continued overleaf)

(cont) Philip started collecting Military Medals and decorations in about 1941 and as one can well imagine his collection has grown to a considerable size. During the afternoon Philip shared his knowledge on the subject with all of us - did you know that when the ruling monarch changes from male to female or vice versa all the crowns on the medals have to be changed.

The venues etc for our August and October meetings have been finalized (see page 2) and it is now time to consider where and when we hold another Xmas potluck tea. All suggestions welcome.

All visitors to New Plymouth are welcome at our meetings but don't forget to phone the host and confirm your attendance. Local members don't forget the plate for afternoon tea.

OSTAR-GANZ VALVES.

(from "Valvulas Europeas", by R.J.de Darkness, 1954.)

Valve type	Filament voltage	Current (Amps)	Type of filament	Structure of valve	Function (A= gen. amp)
A442R	4	0.065	Filament	Tetrode	A, AF
A520	20	0.18	Cathode	Triode	A, AF
B2	2	0.1	Filament	Triode	A, AF
BAl	150	0.024	Cathode	Triode	A, AF
BA5	150	0.024	Cathode	Triode	A, AF
EG50	100-250	0~024	Cathode	S..Diode	H.W.Rect.
EGl000	100-250	0.024	Cathode	S. Diode	H.W.Rect.
ES32	4	0.1	Cathode	Tetrode	A,IF,AF
G5	100	0.024	Cathode	Heptode	Osc./Mix.
H3	100	0.024	Cathode	Pentode	A,AF
K2050	100-250	0.024	Cathode	Triode	A, AF, OP
K3560	100-250	0.024	Cathode	Triode	A, AF, OP
M43	100-250	0.037	Cathode	Pentode	AF, OP
M44	I00-250	0.037	Cathode	Pentode	AF, OP
MS18	100-250	0.024	Cathode	Tetrode	IF, AF
NG5O	250	0.044	Cathode	D. Diode	F.W.Rect.
NGlOO	250	0.044	Cathode	D. Diode	F.W.Rect.
PT3	250	0.024	Cathode	Pentode	A. AF, OP
PT43	20	0.18	Cathode	Pentode	A, AF, OP
S25	20	0.18	Cathode	Pentode	IF, AF
S1OO	4	0.1	Filament	Tetrode	A, AF
VHP2	2	0.15	Cathode	Pentode	A, AF
(V3	20	0.18	Cathode	Pentode	IF, A, AF)

The V3 valve was mainly manufactured by Fotos, but Ostar-Ganz may also have made it. Heaters taking 0.18A were common at that time in AC-DC series connections.

Ostar-Ganz Valves (1)

R. (Dick)Stevenson.(Auckland)

I am lucky to have a book ~Valvulas Europeas" printed in Spanish in 1954 which gives the characteristics of many European valves, going back to quite early ones. I have extracted all I can find about Ostar-Ganz valves (see table opposite). Perhaps this info. is however not completely reliable (one 0-G valve is described as having a filament of 1.8 volts but needing a current of 200 amps.!).

George Newland's collection is interesting, and raises a few questions:

(1) Most of the Ostar-Ganz valves for which I could find information are indirectly heated, which would solve any hum problem, although of high voltage. If we think of the 117 volt American valves it was apparently possible to stuff enough heater wire into a rather enlarged cathode.

(2) Yet there was an earlier demand in Europe for valves to work directly off D.C. mains. Such mains were provided by establishments that generated D.C. for motors, trains, trains, lifts and electroplating and any excess would be available for nearby residences. Low voltage valves were at a disadvantage, needing a series resistance or barretter, but of course high voltage valves would, if directly heated, contain a great length of fragile tungsten wire.

(3) The dual heater voltages of 100-250 volts are a little mysterious as heaters were not tapped. Perhaps a series-parallel connection was used but then the current would vary. Probably on A.C., the hum-sensitive early stages would use indirectly heated valves but later A.F. and O.P. stages could successfully use direct heating (remember the 247 pentode and the PX4 triode). On D.C. there would be no trouble, but such mains were notoriously noisy with switching transients and commutator sparking.

(4) Low voltage valves were apparently made by the firm as well. It would be extremely interesting to read about the history of the O-G valve company and find out whether it continued after 1945.

Bernards/Babini Valve Guides

In my search for other valve information I have discovered that the well-known Bernards/Babani Valve Guides (1934 - 1963) have been reprinted and the 5 books are still available from Wimborne Publishing Ltd.,
Allen House,
East Borough,
Wimborne, Dorset, BH21 1PF,
England.

I have been offered the set of 5 books plus index for 20.90 pounds sterling which includes airmail. NZVRS members may be interested in this offer as these books cover British, American, European, Japanese and Russian valves.

TYPE	Triodes					Screen Grid			Pentodes				Pentode grid	Diodes		Rectifiers			
	O.150 high-mu triode	A. 520 general purpose	U. 950 output	L. 1250 output	K. 2040 super power	K. 2040 super power	S. 25 S.G. (SS. 25)	S. 100 S.G.	MS. 10 var.-mu	MS. 70 var.-mu	Pn. 2 multi-grid	M. 40 super power pentode	N. 3 r.f. pentode (straight)	V. 3 r.f. pentode var.-mu	Q. 5 Penta-grid converter	D. 2 double diode	ES. 50 half-wave rectifier	EG. 100 half-wave rect.	NG. 30 volt. doubler	NG. 100 volt. doubler
Heater voltage	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	to 250	100-150	100-150
Heater consumption (watts)	4—6	4—6	4—6	4—6	4—6	11	4—6	4—6	4—6	4—6	4—6	7	4—6	4—6	4—6	6	—	—	11	11
Max. anode voltage	300	300	300	300	300	220	250	250	250	250	250	250	250	250	250	—	50	120	50	100
Max. D. C. output (milliamperes)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Max. screen grid voltage	—	—	—	—	—	—	100	100	100	100	250	250	—	—	75	—	—	—	—	—
Max. mutual conductance (slope) milliamp./volts	3.5	2.5	3	3	5	6	3.8	4	3	3	3.5	3.2	3.5	3	—	—	—	—	—	—
Amplification factor	100	22	11	6.5	5	3	800	4000	1150	1100 to 3300	350	88	3750	3750	—	—	—	—	—	—
Impedance (ohms)	40,000	8,800	3,700	1850	1000	500	250,000	Triopode 500,000	1 megohm	0.5 megohm	100,000	35,000	1.5 megohms	1.5 megohms	—	—	—	—	—	—
Grid voltage	—1	—1.5 to —7	—9 to —14	—6 to —26	—40	—50	—2	—1	—2	—2 to —10 to —40	—15 to —20	—24	—1.3	—1.3	—	—	—	—	—	—
Anode current (milliamperes)	4	4	7	20	40	50	5 to 7	1	5	4	20	40	3.5	4	—	—	—	—	—	—
Max. anode dissipation (watts)	—	—	6	6	10	10	—	—	—	—	6	8	—	—	—	—	—	—	—	—
Max. undistorted output (watts)	—	—	1.5	1.5	3	3	—	—	—	—	1.5	3.5	—	—	—	—	—	—	—	—
Highest admissible D. C. of diode (milliamperes)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	—	—	—	—
Length excluding socket pins (mm)	92	90	90	90	95	95	122	122	122	122	122	108	120	120	120	117	92	92	92	92
Diameter (mm)	40	50	50	55	48	48	38	38	38	38	40	47	41	41	41	41	40	40	40	40
Socket	7-pin	7 (2.5	5	5	5	5	7	7	7	7	7	7	7	7	7	7	4	4	7	7
Price	17/6	16/6	16/6	17/—	25/6	25/6	18/9	18/9	18/9	18/9	18/9	19/6	19/6	19/6	19/9	17/6	12/—	14/9	22/9	24/—

OSTER-GANZ

Universal high voltage valves, indirectly heated for A.C and D.C.

Ostar-Ganz Valves (2)

Philip Taylor, Billingshurst, W. Sussex

Re Ostar Ganz mention in the May NZVRS Bulletin enclosed is a data sheet on the entire range (see opposing page).

These valves with mains rated heaters were first sold in the UK, and no doubt throughout most of Europe, in 1931/32.

As the first successful indirectly heated cathode did not appear in the UK until 1927/28 (Cosmos AC/G and AC/R), to have a heater rated at 110 to 250v represents a huge technological leap. There was an amazing length of wire needed for the heater - the heater rating depended on where the valves were sold. In the UK the rating was generally 220-250v and two valves recently found in France have 110v heaters.

Valves were introduced gradually throughout the 1930s and by the end of the 30s a complete range was available. They were made in Austria and were sold in the UK by Eugen J. Forbat who had an address in London WC2.

Forbat marketed complete radios and kits designed to take the valves but as far as I know only one radio has survived. Ads appeared in the Wireless World most weeks, ranging from a column inch to a quarter of a page, maybe depending on how sales were going at the time.

I have a complete data manual if you would be interested in a copy - this has one valve per page data on most, if not all types (The NZVRS gratefully accepts this offer and the data manual will be held in our library - Ed).

You can see from the prices that Ostar Ganz valves were not cheap - price levels being around or a little more than BVA valves at the time. Imports ceased in 1939. Gustav Ganz fell victim to the Nazis and it is likely his company did not survive WW2.

To compare Ostar Ganz mains rated valve heaters with other efforts: the Americans had a limited number of types with their 117L7, 117N7, 117P7 and 117Z6, being 3 pentode-rectifiers and a rectifier-doubler. These had 117v heaters rated at 90 or 75mA and were first sold in 1940.

A German valve with a high heater rating was the VCL11 (and VEL11) with 90v 5OmA heaters, intended for series AC/DC use in simple receivers from about 1938.

Earlier in the USA, Lestron announced valves with 110v rated heaters in 1925 and 1931 but these were not a success and it is unlikely they progressed beyond samples. One example on hand here has the cathode coating all flaked off.

In the UK, valves with higher heater voltages were conventional AC/DC types developed here or by Philips in Holland, and the maximum ratings would not exceed 50v before WW2 and 80v after. Like the VCL11 etc they were designed for series running via a dropper resistor or barretter.

Turning to Dick Stevenson's article about the death of the pinch, he is right in that the B9G 'EF50' base was not too popular. However while it did last, the EF50 was the valve which 'won the war', along with the Mazda octal 5P41 and 5P61 used in countless IF strips etc in the newly utilised VHF radar and communications equipment. Note that the use of the EF50 was almost exclusively Allied - there was little use of this valve by the German forces. It was available in Europe during WW2 according to a Krieggmarine valve availability list dated 1942, but it is likely the Telefunken developed EF14 was more widely used, being a similar steep slope steel envelope RF pentode on the German octal base.

In the late 1940s the EF50 was used in huge numbers in Bush and Pye TV sets, and in the Viewmaster kit TV. Ham radio enthusiasts used it in RF pre-amps and its cousin the EF54 was used in a Marconi communications receiver.

Other valves to use the B9G base include EC52, EE50, EF55 and MOV types KT67 and double tranmsitting tetrodes TT12, 14, 15 and 19.

Because of the large number of EF50s needed during WW2, they were second sourced from Raytheon in the USA. All Raytheon production was red painted, with British production being both red paint and plain aluminium coloured. A very few had brass cans. Post war the EF50 was sold by Cossor as the 63SPT and made and possibly sold by MOV as the Z90. It was marketed by Tungsram as the EF50 and it is likely that some of these valves would be cleaned up and re-printed war surplus. This was permitted under BVA rules but prices were strictly controlled as the valve companies were not supposed to make a profit twice.

The one big snag with the EF50 and its B9G relatives was short pins. The best EF50s have silver plated pins and are used with a socket with a screw-down retaining ring. A cheaper retainer using spring strip to grip the valve just above the ridge around the base was used by TV set manufacturers. Old time service engineers used to complain about being bitten by CRT EHT when changing EF50s at the front of a TV chassis without switching off the set or removing it from its cabinet. Can't waste time waiting for sets to warm up just for the sake of renewing a valve!

Another long term application for the EF50 was in low level stages in the Marconi Marine 'Oceanspan' transmitter. These transmitters survived into the 1980s but by then Marconi had devised a B9A to B9G adapter to use the miniature 6CH6 as a substitute. Making a B9G plug with hollow brass pins was no mean feat, but no doubt it would have spoiled the fun to advise Marconi Marine that companies like Z&I Aero Services, Chelmer Valve and Lagrex were sitting on thousands of perfectly good surplus EF50s. If the man in the stores is advised by Mullard that the EF50 was obsolete, then who is he to argue ? 'More than my job's worth, mate'.

The B9G base was also pressed into use for what may be an early analogue computer element - 3 sub-miniature wire-in triodes, 9 or so resistors and a diode, all in a can fitted with a B9G base. This looks like a 1950s item, but without an expert opinion it is not possible to decide whether it is a commercial product or made for the MOD.

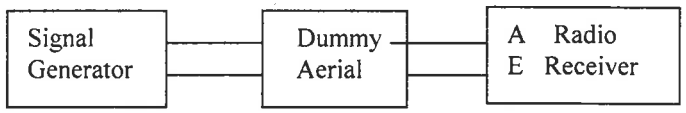
COUPLING A SIGNAL GENERATOR TO A RECEIVER

Bruce Churcher

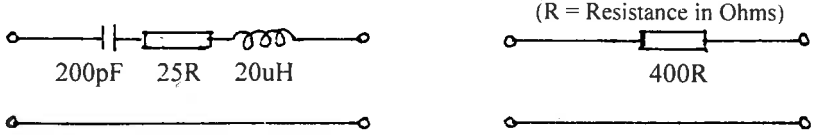
The electrical restoration of a receiver would be incomplete without an alignment. Component values in crucial areas may drift with age causing performance to drop. Bumps from transport can cause a similar effect. Re-alignment will ensure that your precious radio is working at its best.

Gerry Billman's article in the last NZVRS Bulletin (May 2002, p19) describes the alignment process in detail. Briefly, by injecting an IF or RF signal from a Signal Generator into a receiver at appropriate points, the tuned circuits may be peaked for maximum signal. The usual technique is to progressively work from the last IF coil back to the aerial terminal of the receiver.

Direct connection of a signal generator to the receiver aerial connection presents the receiver input circuitry with a source impedance (commonly 75 ohms or less) which differs widely from that of the average aerial thus alignment under this condition leaves the receiver input circuitry off tune when connected to its normal aerial. An aerial can have a wide range of impedance depending upon physical factors such as length, height and operating frequency. An artificial (or dummy) aerial connected between the signal generator and the receiver input offers a more realistic simulation of an aerial than does direct connection.

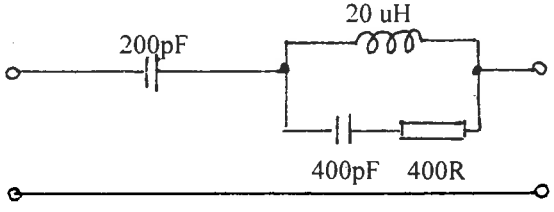


As a radio servicing apprentice I became aware of the usual dummy aerial network but while studying Philip's service manuals for receivers from the 1930s I was mystified by reference to a Medium Wave Dummy Aerial and a separate Short wave Dummy Aerial. By chance I found an explanation (reference 1). Initially the two dummy aerials were:



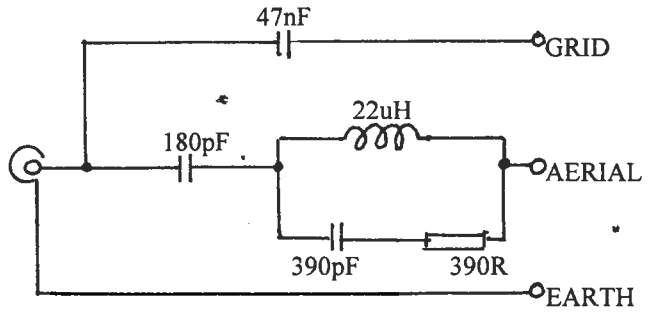
Medium wave (below 2.5MHz) Short Wave (above 2.5 MHz)

In 1938 the International Radio Engineers (IRE) in USA combined these two networks into the dummy aerial network that I was familiar with



This combined network provides a gradual transition between the impedances of the original networks as would occur with the average real aerial between two and three MHz.

For convenience I decided to make up the IRE Dummy Antenna and to add a coupling capacitor for IF signal injection into the convertor valve grid (this isolated output -labelled GRID - will require an external resistor of about 1M to earth when injecting signal into a top cap type valve with the usual top cap disconnected).



(35mm of 30swg enamelled wire close wound on a 10mm diam. former (3/8 " dowel) is 22uH -ed.)

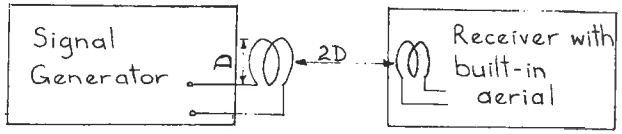
These component values are now modern preferred values but fall within 10% of the originals. With care all components fit into a plastic utility box 48 x 95 x 37 mm. Domestic receivers usually have unscreened aerial terminals so it was not considered necessary to use a screened box but do use short connections to the receiver. For sensitivity tests or communication receiver alignment full screening of the dummy aerial would be wise.

I used a BNC socket for the coaxial input from the Signal Generator and binding posts with 4mm sockets for the connections to the receiver. If the 47nF isolation capacitor is a 400 volt or more rated component the GRID output can be used to inject RF or IF signals anywhere in the receiver without fear of feeding a high voltage back into the Signal Generator output attenuator and burning out components there which are difficult to replace. - believe me, not all desirable input points in a receiver are isolated from high voltage.!

If you intend using only a particular aerial there is a trick to get optimum performance on that aerial. Some communication receivers have a separate operator adjusted capacitor (Aerial Trim) to compensate for various aerials (e.g. ZC1). Alternatively, after aligning with the Siganl Generator and dummy aerial connect your usual aerial and repeak the trimmer on atmospheric noise between stations or couple the Signal Generator to a piece of wire placed near your aerial.

Receivers with Loop or Ferrite Rod Aerials

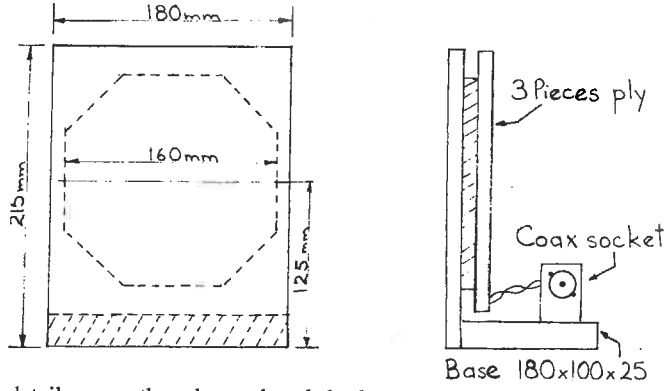
Alignment of receivers with loop or ferrite rod aerials requires a different approach. The signal generator now needs to feed a signal into a loop to create an electromagnetic field to couple to the receiver.



To ensure the coupling loop does not cause detuniong of the receiver, the two should be separated by at least twice the coupling loop diameter (reference 2).

For a practical arrangement the situation is explained well in service details for the Philips BZ246U. This receiver has external Aerial and Earth terminals as well as a ferrite rod aerial (ferroceptor in Philips speak). To quote:

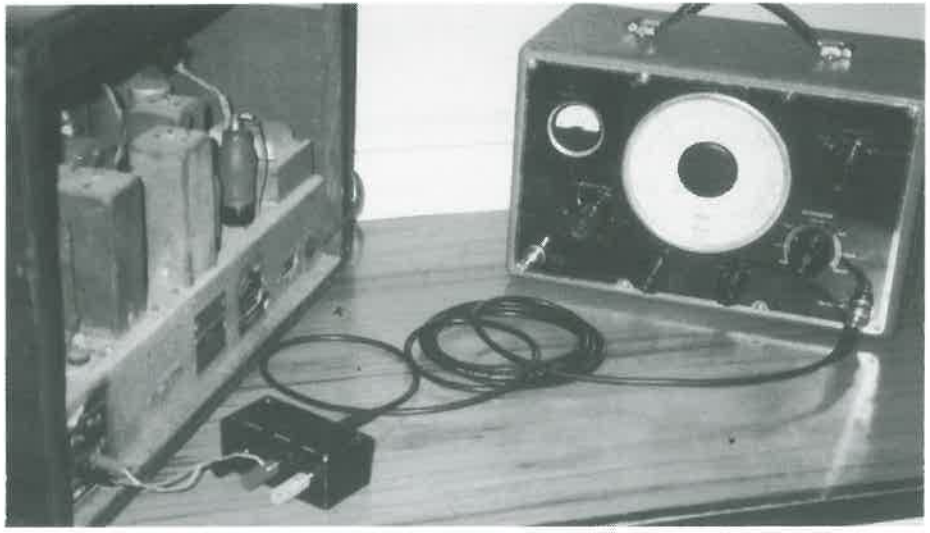
> "The rather low impedance of the signal generator and dummy damps the high Q value of the input circuit so that if the receiver is to have optimum performance on the Ferroceptor, the final adjustment of the aerial trimmer and Ferroceptor should be made by radiating the signal to the receiver, feeding the signal generator into a loop of six turns of approximately 6" diameter, mounted in a vertical plane with its centre 5" above the bench at right angles to the longitudinal axis of the Ferroceptor and about 12" inches away."



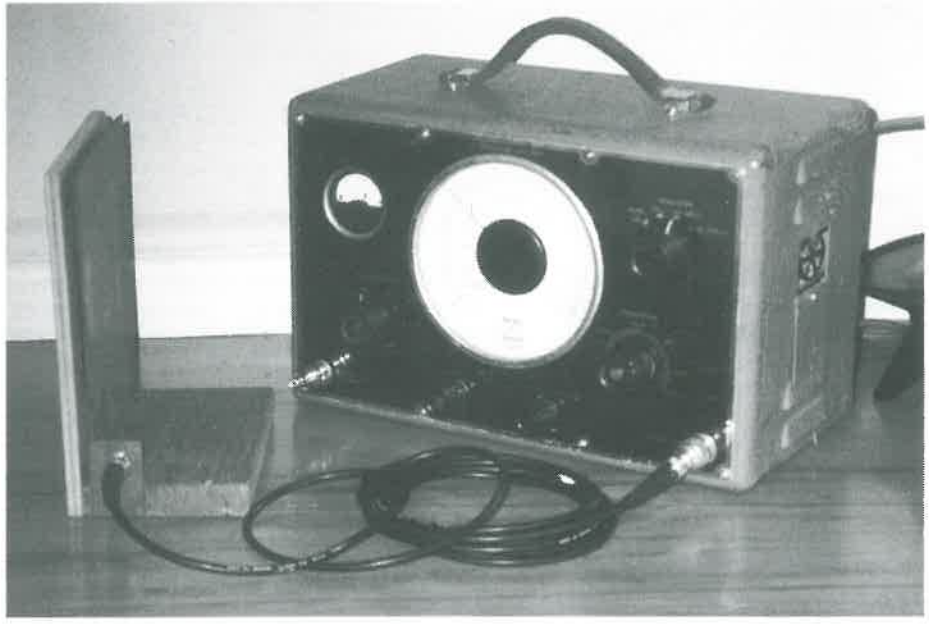
With these details some thought produced the layout shown in the diagram. In effect three pieces of insulation material (plywood etc) are sandwiched to form a bobbin upon which the loop is wound. The loop former was made by cutting the corners off a 160 mm square piece of ply making an octagon. I used ordinary plastic covered hook-up wire, scramble wound, for the loop and passed the ends through small holes to a BNC socket. Remember to adjust the height of the loop, or receiver, with packing pieces so the centres of loop and ferrite rod or loop receptor are approximately level and do maintain the 300mm separation.

Amateur Radio markets and vintage radio auctions often offer Signal Generators at reasonable prices but I have yet to see one with the artificial aerial they were often supplied with. The details given here show how simple it is to make your own.

Reference 1 - Radiotron Designers Handbook, 3rd edn. 1940, p229
Reference 2 - Electronic Measurements - Terman and Pettit, 2nd edn, 1952, p403
Further reading - Signal Generators and Dummy aerials - C J Maye -
Radio Electronics and Communications, Oct. 1964, p23



Dummy aerial in use



Loop aerial set up for use

HISTORY OF THE AUSTRALASIAN 3 PIN PLUG

Part 5

Murray Stevenson

ENGLISH PLUGS.

CRABTREE ELECTRICAL INDUSTRIES Ltd. Electrical accessories have been imported into New Zealand since at least 1925 (REF12) by Ellis and Company Ltd. who are still the Crabtree agents.

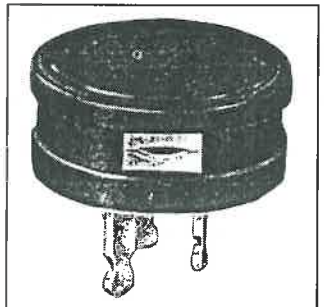


Fig 20

Amongst all the accessories Crabtree made were Australasian type 3-pin sockets, a tap-on (piggy-back plug), and a 3-pin plug, list Nr 8385. (Fig 20). This plug was designed in 1929 (Fig 21 - a copy of the original drawing). Referring to this drawing, part Nr 4236 is a diamond shaped brass washer through which the pin passes and is crimped to at both edges there-by holding it, the pin, firmly in the base Nr *2571* of the plug. This was a Crabtree patent. The conductor is secured to the pin with a screw which serves no other purpose.

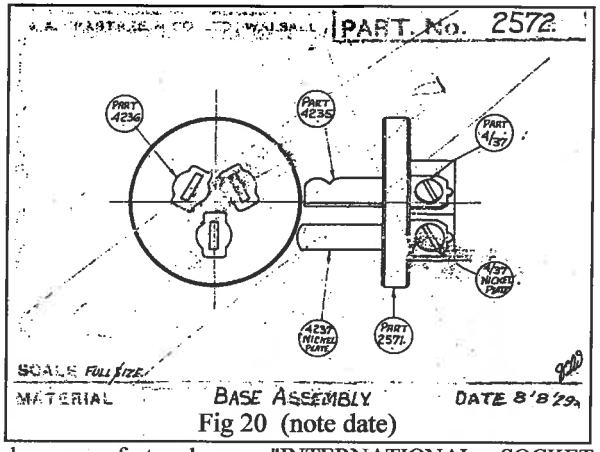


Fig 20 (note date)

2 screws, clamps down over the base and holds the sheath of the flex securely with fibre grips (which often got lost or disregarded) held in grooves moulded into the plug. These plugs were used in the 1950'S by Fisher & Paykel on their washing machines. These plugs had a rubber cover over the top of them and on this was moulded the letters "F & P".

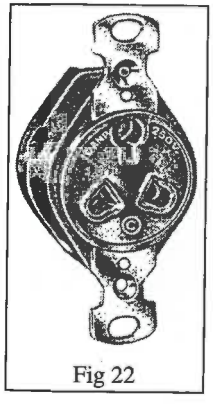


Fig 22

Crabtree also manufactured an "INTERNATIONAL SOCKET OUTLET" (FIG 22) which would receive British Standard Round Pin Plugs, Australasian and American flat pin plugs, and certain Continental plugs. I have not seen one of these sockets, so if any Reader has I would be pleased to hear from them.

SPERRYN. The earliest Sperryn plug I have seen is a top-entry made of 'Vulcanite' painted black (FIG 23).This plug has moulded on the cover, as well as SPERRYN 'REG Nr.721121' it also has Aus.Reg.Nr.6119 and NZ Reg.Nr.2324. I have been unable to trace these numbers. The pins all have indentations at the end

Fig 23

and no nicks on the edges. The earliest of these plugs had wider earth pins, just like the current 15 amp 3-pin plug. These pins were often filed down so the plug would fit other than the Sperryn socket that had the wider earth pin slot. A dictionary definition of VULCANITE is "a kind of vulcanised cautchoue (India rubber from South America.) differing from ordinary vulcanised cautchoue in containing a larger proportion of sulphur, and being made at a higher temperature."

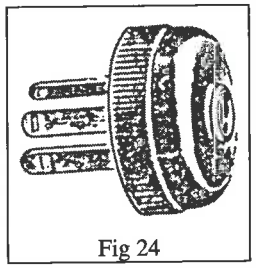


Fig 24

The most common Sperryn plug (Fig. 24) is made of bakelite and was on the market in 1935. (Ref. 13), and was probably still available circa 1963 when Sperryn lamp-holders were being used. Over the years there were a few changes to this plug,- [l] The external screw-nut securing the binding-post terminal was discontinued and a threaded nut was moulded into the base for the binding-post, [2] The knurling around the rim of the base was discontinued, and [3] the indentation at the ends of the pins was discontinued. I have not been able to date these changes. Sperryn also made a similar looking plug that was smaller both in diameter and thickness (height). The conductors were secured under nuts & washers instead of binding-posts. I do not know when they were introduced & discontinued. Sperryn eventually became part of the Delta Group. (Ref. 14).

"SPERSOM'.I have very little information on this make. I have seen a bakelite "T" type 2 pin plug with SPERRYN SPERSOM moulded on it so there is obviously some connection between the two. All the Sperryn plugs I have seen are top-entry while all the Spersom plugs I have seen are side entry. Just like the Sperryn the earliest Spersom plugs were made of Vulcanite, had a wide earth pin & no voltage or current rating marked on the plug. Unlike the early Vulcanite Sperryn which had screw terminals for the conductors and no cord grip, clamp, or tortuous path for the wire all the Spersom plugs had binding-post terminals and an internal cord clamp, just like PDL cat.38.


Fig 25

The Vulcanite plug (Fig. 25) has Reg. No.742649 moulded on it. The later bakelite plug (Fig. 26) has Prov.Pat 13O5/32 and the voltage & current rating marked on it, the pins indentations at the end and no nicks in the edges, just like Sperryn plugs. TUCKER plugs (Fig. 27) are made of bakelite and are a two-piece enclosed screw terminal type. They have an optional side or top cord entry. In the side entry the cable is firmly clamped by the cover, whilst for top entry a membrane of bakelite in the middle of the cover is broken to allow entry of the cable. There is no cord-grip in this position. The type of pin varies---some have pins just like Sperryn plugs while others have shorter pins that have holes in them and nicks in the edges and no indentation at the tip. There is no voltage/current markings on these plugs. The Tucker company became part of the Delta Group (Ref. I4), just like Sperryn. GEC plugs (Fig. 28) are a solid two piece bakelite side entry type, the cover, which is secured by three screws, acts as an effective cord clamp. The pins have nicks in their edges. The cat.No. is S662, and all plugs, even the


Fig 26

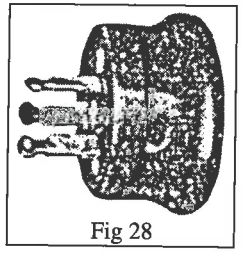


Fig 28


Fig 29 Note thin cover on base

early ones that have the 'MAGNET' symbol instead of the letters GEC on them have binding-post terminals and the voltage/current rating marked on them. The later plugs had P (phase) N (neutral) and E (earth) marked on them. When the MAGNET symbol was discontinued and the letters GEC were adopted the binding-post method of attachment was changed from a screw fastening to riveting. I have been unable to ascertain when this happened. Can any reader help? (The same binding-post method of attachment was eventually done on GEC tap-ons. These plugs were around in 1935 as they are pictured in a LAMPHOUSE Annual of that year. John Stokes told me that a house he was living in during 1932 had these plugs & sockets and that the plug & socket were often sold as one unit, looking through old catalogues does confirm this. As far as I can tell these plugs were available up to circa 1960. The colour of these plugs were various shades of brown and later they were available in white. Unlike other plugs, the cover is held on with three screws rather than the usual two this would place a more even strain on the cover as it gripped the cord, lessening the chance of the cover cracking.

FIG 29 shows a similar looking vulcanite plug which may? be an early MAGNET / GEC, or one made by a Company taken over by GEC. Although the plug looks the same as a GEC the construction is different---the pins, which have nicks in the edges and no indentations, are fastened to the top with screws and the wires are connected under the heads of other screws along-side the pin securing screws. A bakelite cover about 3mm thick, secured by three counter-sunk screws, is on the under-side covering the terminals and acting as a cord-grip. There is no writing or marks on the plug whatsoever.


Fig 30

KERSON made three Bakelite plugs, two top entry and a side entry. The top entry plug (Fig. 30) did not have a cord grip but the other top entry (Fig. 31) had two tapered wedges of wood compressing the flexible cord as a threaded brass ring was screwed down onto the wedges. The wires were connected to the pins under the heads of screws, and the connections had a fibre cover over them secured by 3 small screws. I do not know if the non-cord-grip and the cord-grip plugs were both available at the same time or if the cord-grip type was a modification to the non-cord-grip plug carried out when the 1929 Electrical Wiring Regulations required a cord-grip for rubber sheathed flexible cord.


Fig 31

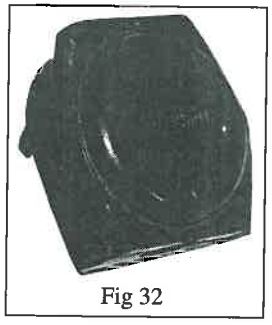


Fig 32

The KERSON side entry plug (Fig. 32) has a separate clamp type cord-grip held by 2 screws and binding post terminals and is very similar to PDL cat.38 except that the cord entry is directly in line with the earth pin rather than over to one side. I suppose that

some similarity between various makes can be expected when the same type of terminal, pin and lay-out is used. The only marking on both plugs is the name KERSON. Kerson also made other electrical accessories such as brass lamp-holders. Following the death of one of the Founders the Company was sold to Tuckers just after the War. (Ref. 14).

TUNION plugs (Fig. 33) were fitted to the MORPHY-RICHARDS toasters & irons that were imported into N.Z. circa 1950. The plugs are a 3 piece top type, the third part being a bakelite funnel-like cord entry tube that screws into the centre-top of the cover compressing a rubber washer that grips the cord. The bakelite around the pins and binding post terminals is very thin and weak and breaks easily as it has on the samples I have. The pins have no nicks in them but the neutral & phase (live) pins have indentations at the ends, just like Sperryn. It seems that the British were the only ones to do this, and like all other English plugs the threads were BA. The voltage & current ratings were moulded onto the base. Tunion also made other bakelite electrical accessories, such as lamp-holders. MYCROMET plugs.(Fig. 34) The 2 examples that I have are one piece top entry and made of vulcanite, there is no cord-grip or tortuous path for the wire and no ratings although the one with the larger cord entry hole does have moulded around the circumference 'Phase' 'Neutral' 'Earth' to identify the pins which have nicks in their edges. Around the cord entry hole is stamped 'British make.' I have no information about these plugs at all.

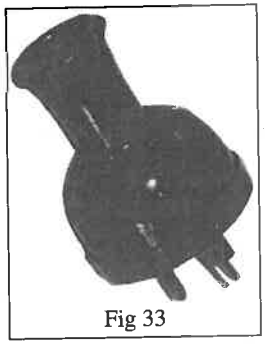


Fig 33

Fig 34

References 12 Early dated sales graph supplied by Crabtree.
13 Drawing in 1935 Lamphouse annual.
14, Letter from Electrical Installation Equipment Manufacturers' Association Ltd.
(NOTE -Some of this information may be now out of date due to the constantly changing commercial world.)

OBITUARY

Regretfully we announce the death of **Douglas Hector McDonald** on 25 May this year at the age of 74.

Doug used to work for Collier and Beale Ltd in Wellington then set up his own company, Radiosound Ltd in Auckland from where he supplied specialist electronic equipment such as amplifiers, dials, panels, labels, printed circuit boards and Kitmac Kitsets.

He joined the NZVRS in 1984 and was active in the administration being a member of the committee for some years. His vintage specialty was battery sets and crystal sets.

We extend our sympathies to his wife, June, and family.

JOHN STOKE'S NZ RADIO MODEL INDEX

This index was composed by John Stokes during his research into NZ Radio History and has aided our librarian in compiling our library of circuits. Since it may also be of general interest to NZVRS members it will be reprinted in the bulletin as space permits. Readers are asked to please notify the editor of any errors or omissions they detect.

Ian Sangster

INDEX TO MODEL NUMBERS OF COLUMBUS AND COURTENAY RECEIVERS

Part 1 - Courtenay receivers made up to late 1935 i.e. before the introduction of the Columbus brand name. They are listed in order of

Model	Year	Valves	Remarks
5A	1932	5	Autodyne superhet
5B	1932	5	" "
5B1	1935	5	Battery superhet
5BS	1935	5	" "
5C.	1933	5	Autodyne superhet
5C	1933	6	Improved, separate osc.
5D	1935	5	'Stella' brand only
5DC	1934	4	DC mains superhet
5H	1934	5	'Troubadour' brand
5V	1934	5	'Radioplayer' only
6	1931	3	TRF, separate spkr
~~6A~~	~~1934~~	6	'Stella' only
6BS	1933	6	Battery superhet
6DC	1934	5	DC mains superhet
6V	1934	6	'Troubadour' only
7A	1932	7	TRF, diode detector
7BD	1935	7	Dual-wave batt. set
7BS	1934	7	Battery superhet
7B1	1935	7	Battery set (465kc)
8	1935	6	Dual wave
8A	1932?		No details
10	1935	2	SW convertor
11	1935	7	DW, two IF stages
15	1935	5	
66	1932	4	TRF, mantel
103	1933	5	Same as 5C
104	1934	5	Like 5C but has improved volume control
105	1934	5	Has AVC
106	1931	6	TRF, console cabinet
~~106~~	~~1935~~	~~6~~	Superhet with AVC
107	1934	7	Has NSC. Two arc dials
108	1934	6	First DW, first aero dial
109	1934	5	" "
140	1933	7	has separate oscillator
205	1933	5	Same as 105
206	1931	6	TRF, console
207	1933	6	Same as 107
206	1931	6	TRF, console radiogram

NOTES:

1. In 1930 there were two versions of a mains operated crystal set with a 2-valve amplifier (they were thefirst radios to bear the name Courtenay) but no model numbers were assigned.

2. The model number '106' was used on two completely different receivers, as indicated above.

3. During the period covered in Part 1 (above) there were several "private brand" names in use on receivers made by Radio Corporation, but by the end of 1937 all were discontinued. Because many of these private brand sets used chassis which were slightly different from standard models, or because they used different model numbers or no model numbers at all, it has been impossible to include them all in the above listing.

INDEX TO MODEL NUMBERS OF COLUMBUS AND COURTENAY RADIOS MADE FROM 1936 ONWARDS*

Model	Year	Valves	Remarks
4	1952	4	Alarm clock model
5A	1951		
5,5B	1953	5	
5B6	1936	5	Battery set
6	1946	5	Columbus only
MC7	1948	5	Car radio
MC8	1951		" "
7B6	1936	7 DW	Battery set
7BV	1936	7 DW	Vibrator set
10	1935	2	S W Converter
12, A	1941	5	
14,	1947-48	5	
14R	1945-48	5	uses osc.bias
15	1936	5	
17	1946-47	5	Courtenay only
17	1948-49	5	" (uses 6SA7)
18	1936	6 DW	
18DC	1936	5	
19	1951	5	Tablegram
19N,P	1952	5	"
21	1936	5 DW	Metal valves
22	1940	5	
022	1941	5	
23			No details
24,24E	1937	5	24E has magic eye
25,25E	1937	5DW	25E " " "
26N	1952	5	
26P	1954	5	Has PM speaker
27	1948	5	
27M	1951	5	Miniature valves
28	1951	5 DW	Vibrator set
31	1936	7 DW	
32	1948	6	
032	1950	6 DW	
33	1936	8 AW	Metal valves
33G32	1936	8 AW	32 volt motor gen.
34	1947	5+AW	Has magic eye
35	1938	5+DW	" "
35	1939	5+DW	Octal valves
38	1937	6+AW	Uses spiral dial
39	1937	5 DW	
40	1939	5	Same as 49
40S	1939	5	
42	1942	5	Vibrator set
43	1937	8+ AW	Metal valves
44	1948	7+	Semi-bandspread
45	1954	5	The last Courtenay
46	1954	5DW	
47	1937	13 AW	Separate amp.
49	1939	5	Battery set
50	1940		
51	1940	5	
051	1940	5	Uses Osram valves
52S	1940	5DW	Semi-bandspread
052	1940	5 DW	Uses Osram valves
53A	1946	5	
53R,S	1947	5	
54	1939	5+	Push buttons
55	1946	5 DW	
55A	1946	5 DW	
56	1940	5 DW	Same as 52S
056	1940	5 DW	Uses Osram valves
57B	1937	5	Battery set
57V	1937	5	Vibrator set
58V	1938	5+	" "
59	1939	5 DW	Battery set
60	1939	5+ DW	Push buttons
61	1947	6 DW	Uses PM skeaker
061	1950	6 DW	
X62	1940	6DW	
62S	1940	6 DW	
63	1940	5 AW	Semi-bandspread
64	1940	6+ DW	
65	1939	6+ DW	Push buttons
66,E	1941	6 DW	
66A,W	1946	6 DW	
67B	1937	6+ DW	Battery set
68V	1938	6+ DW	Vibrator set
69	1941	6 BS	" "
70	~~1947~~	6 BS	" "
70R,W	1948	6 BS	" "
71	1949	6 BS	
75	1940	6+ BS	Full bandspread
75A,L	1941	6+ BS	" "
75XA	1940	10+ BS	Separate amp.
77B	1937	7+ AW	Battery set
79	1939	7+ DW	P/B batt set
80	1940	7+ DW	Vibrator set
84,E	1938	5	84E has magic eye
85,E	1938	5 DW,	85E " "
86	1941	6 BS	Battery set
86P	1941	6+ BS	Non-octal valves
87	1939	5	AC/Vib
88	1939	8+ AW	Motorised P/B
90	1942	6+ BS	
90W	1947	6+ BS	
90X	1949	6+ BS,	issued up to 1949
91	1950	7+ BS	
91P	1954	7+ BS	Uses PM speaker
91R	1955	8+ BS	Last model
92	1954	6+ BS	Uses oval spkr
94	1940	5	
95	1939	5 DW	
96	1949	6+ BS	Vibrator set
97	1937	6	AC/Vibrator
99	1946	12+	Uses PP 807s
100	1941	5	First portable
101	1941	5	Portable
102	1940	5+ DW	Battery set
132			No details

INDEX TO MODEL NUMBERS OF COLUMBUS AND COURTENAY RADIOS MADE FROM 1936 ONWARDS

Model	Year	Valves	Remarks
151	1940	5	
152	1940	5 DW	
161			No details
162	1939	5	
163			No details
166,S	1949	6 DW	Octal valves
166M,N	1952	6 DW	Mini valves
166P	1953	6 DW	Uses PM spkr
167			No details
172	1940	6 DW	Push button
173	1940	6 DW	Slide-rule dial
199	1946	12+	Same as 99
201	1941	5	Portable
301,A	1947	5	"
402	1948	6	First AC/Batt
402	1948	5	Uses 3Q5GT
402Z	1952	5	Uses mini valves
501A	1955	5	Gram.
501B	1957	5	"
502	1952		AC/Batt
504	1955	5	
505			No details
509	1959	5	Stereogram
515	1957	5	
521	1955	5	Gram
525A	1960	5	
563	1955	5	Alarm clock
565C	1955	5	Also Radiola
566	1958	5 DW	Has oval speaker
589P	1959	5	Portable gram
601	1957	6	
602	1957	6 DW	
605	1957	5+	Uses EM80 eye
605A	1958	5+	Console gram
606	1956	6	4-bands, AWA design
607	1957	6	Dual speakers
619S	1959	6	Stereogram
653	1955	5+	AC/Batt AWA design
705	1957	6+	Uses EM80 eye
703	1958	8+	" "
803S	1959	6=	Stereogram
810S	1958	7 DW	Mono gram
810S	1959	7+ DW	Stereogram
812S	1959	7+ DW	"
827			No details
1006	1956	6	Same as 606
1108	1957	6+	Tuner and amp
1108S	1959		Stereo version
1302	1959	11+	Uses PP 807s
1508S	1959		Uses typr AT1 tuner
AS101	1959	1	Pre-amplifier
AT1S	1959	5+	Stereo tuner
AT1	1959	6+	Mono tuner
RG11	1960	5	Stereo, mfd by Akrad

TRANSISTOR PORTABLES

117P,Y	1959	7	transistors (AWA design)
694P	1959		" "
897P	1958	7	"
CP2	1960	7	(Same as Pye PZ129)

NOTES

Where a "+" sign follows the number of valves thus: 6+, it indicates that a magic-eye tuning indicator is used.

Unless otherwise indicated, band coverage is Broadcast (MW) only
DW = Dual Wave, AW = All Wave, BS = Bandspread on shortwave.

The dates listed are those given in the relevant Service Bulletins or schematics. In most cases these dates correspond to the year in which the model was released though in some cases production extended over several years. Details of the date coding incorporated in Radio Corp's serial numbering system will be found in the book 'The Golden Age of Radio in the Home', page 67.

* Also includes any 'Stella' brand radios sold in 1936-37.

FROM THE LIBRARY

The following are extracts of articles from vintage radio magazines received by the NZVRS library. Photocopies of these articles are available (for personal use only) at $1 each, plus postage, from the librarian - Ernie Hakanson, 17 Williamson Ave, Grey Lynn, Auckland. Phone 09/3766059

544 The Electric Telegraph in its Early Days. Wheatstone, Hughes, equipment photographs, history, descriptions. Radio Bygones No 70, April/May 2001. p20

545 Phonetic Alphabets over the ages. 1904 onwards. Radio Bygones No 70, April/May 2001. p28

546 A MW/LW Aerial for Classic Valve Receivers. fitting a ferrite rod type aerial to replace the long wire type. Radio Bygones No 70, April/May 2001. p32

547 Restoration of the Hacker RP25 "Sovereign" Mark II. Transistor radio, description, circuit, test voltages. Radio Bygones No 71, June/July 2001. p16

548 Marconi Calling Web Site. Interactive online Marconi Museum, www.marconicalling.com , description. Radio Bygones No 71, June/July 2001. p21

549 Marconi AD2 Aircraft Radio. Photos, description, history. Radio Bygones No 71, June/July 2001. p24

550 Fair Radio. Surplus shop in Limka, Ohio. Photos. description. Radio Bygones No 71, June/July 2001. p28

551 Experiment at Koo-Wee-Rup. First direct wireless communication between Britain and Australia. 1918 long wave tests, photo, circuit diagrams, description, results. HRSA Radio Waves No 76,April 2001, p8

552 Palec Signal Generator Model SG1. Photos, circuit, description. HRSA Radio Waves No 76,April 2001, p18

553 A Self-contained "B" Battery for Portables. AA battery powered 67.5 volt replacement for an Eveready battery. constructional details. HRSA Radio Waves No 76,April 2001, p35

554 Amplion Dragon Horn Speaker. Evolution of its design. Photos, diagrams, descriptions. BVWS Bulletin vol 26/1 Spring 2001, p4

555 "Machine Age" EKCO Stands of the 1930s. design of stands to make table radios free-standing. Photos, descriptions.. BVWS Bulletin vol 26/1 Spring 2001, p8

556 Enigma. Design of this famous code-breaking machine, photos, diagrams, schematic. BVWS Bulletin vol 26/1 Spring 2001, p26

557 The National Company HRO-7. Photos, history. OTB May 2001, p27

558 Message Received - Signal Hill: detectors of a bygone age. Spark gap, magnetic detector, coherers etc. Description, photos BVWS Bulletin, vol 26/2 Summer 2001, p4

559 The EKCO B53 Battery Receiver. Photos , description, coil and dial cord details. BVWS Bulletin, vol 26/2 Summer 2001, p12

560 Electrolytic Myths. good and bad ways of reforming electorlytics. BVWS Bulletin, vol 26/2 Summer 2001, p14

561 Crystal Gazing. On crystal sets of the past with photos and descriptions. BVWS Bulletin, vol 26/2 Summer 2001, p16

562 Installing Aerials and Earths - a forgotten skill. some tips on MW and FM antennas with diagrams. BVWS Bulletin, vol 26/2 Summer 2001, p26

563 A Dutch Interior - Philips portable LX 548 AB - photos, description, circuit. BVWS bulletin, Vol 26/3, Autumn 2001, P11

564 Clandestine - The Romney Marsh collection of clandestine transmitters and receivers. Photos, descriptions. BVWS bulletin, Vol 26/3, Autumn 2001, P14

565 Zenith Transoceanic 600 versus Hallicrafters TW-2000. Photos, descriptions restoration details, comparison. BVWS bulletin, Vol 26/3, Autumn 2001, P22.

566 The Bush TR82 - A Design Classic. Photos, description, restoration details. BVWS bulletin, Vol 26/3, Autumn 2001, P28

567 In Marconi's footsteps - Restoration of Marconi station at Poldhu. Photos, description of restoration. BVWS bulletin, Vol 26/3, Autumn 2001, P32

568 The Haynes-Griffin DX Receiver. 1923 one tube receiver plus two tube amplifier. photos, description, circuit. Antique Radio Classified August 2001, P8

569 Equipment Restoration - four alternative replacements for resistor line cords. The OTB, Vol42/3, Aug 2001.P14

570 The Acorn Tube. descriptions, diagrams, usage details The OTB, Vol42/3, Aug 2001.P21

571 Marconi Transatlantic Wireless Receiving station Novia Scotia, Canada. description, photos. The OTB, Vol42/3, Aug 2001.P44

MARKETPLACE

Advertisements for the next issue must reach the editor by the **12th October 2002.** Ads must be either hand printed, typed on a separate page or emailed. No verbal or phone ads. 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 Reg Motion, 2A Hazel Terrace, Tauranga, New Zealand or email regmotion@xtra.co.nz

AVAILABLE

QST magazine collection, 1934 to 1984, few missing copies. ARRL handbooks, 28 copies 1934 to 1980. Radio/Jones Handbooks, 4 copies, 1938 to 1967. Full detailed listing from Des Wright, 3 Tamatea Drive, Snells Beach 1240, Ph 09/4256068.

I have an AVO valve tester and a collection of books on vintage radio and related subjects. NZVRS members , especially those in the South Canterbury area are welcome to make use of these resources.
S K Wallace, 31 Woodland Rd, Timaru, Ph 03/6888075

NIVICO record player with radio - $80. NIVICO 5 band transistor radio - $80. PILOT radio model 403B - $80.Grid Dip Meter, model LDM810 - $80. Joseph Earle, Glen Eden, Auckland. Ph 09/8187978.

Following books for sale or swap. Principles of Wireless Telegraphy, part 2, R D Bangay, 1917. Radio vol 1 &2, City and Guilds 1959. Radio Valve Data, Wireless World 1964. Basic Electronics, US Bureau of Naval Personnel 1963. Stuart Wallace, 31 Woodlands Rd, Timaru. Ph 03/6888075. email skemw@xtra.co.nz