NZVRS BULLETIN

Vol 31 No 2 **May 2010**

The 'Ham Can' or Philips 930A

NEW ZEALAND VINTAGE RADIO SOCIETY INC.

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

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Please address all NZVRS monies to P.O. Box 13 873, Onehunga, Auckland 1643, N.Z.

NZVRS LIBRARY
The NZVRS librarian is Ross Paton with assistance from Bruce Churcher. There is a lot of work to do before full member service is restored but requests may be forwarded to the NZVRS office (postal address at the top of this page) or Email; library@nzvrs.pl.net

NZVRS BULLETIN is a subscription magazine for members, published quarterly in the months of February, May, August and November. Opinions expressed by writers are not necessarily those of the Society. Contributions, letters, etc can be sent to:

THE EDITORIAL TEAM,
Ian Sangster, 75 Anawhata Rd, R.D.2. New Lynn 0772 or
David Crozier, P.O. Box 13873, Onehunga, Auckland 1643. Email: nzvrs@pl.net

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

NZVRS Display Queens Birthday weekend **5-7 June at the Alexander Park raceway** in conjunction with the NZART Convention. Public day will be on Saturday 5 June 2010.

NZVRS AGM will be held on Saturday 3 July 2010 at the Auckland clubrooms.
Details to be included in the May bulletin.

AUCKLAND MEETINGS are held at the Horticultural Society Hall, 990 Great North Road (opposite Motions Road.) Western Springs, on the third Monday of the month from 7.30pm.
July: Monday 19 Inductors night
August: Monday 16 Auction night
September: Monday 20 Military night
October: Monday 18 Auction night

TARANAKI AREA MEETINGS are held on the second Sunday in even months. Visitors are most welcome; contact either Bill Campbell, Phone 06-753 2475 or Graeme Lea, Phone 06-758 5344

WELLINGTON MEETINGS are held typically from 1pm on the second Sunday of every month at Tireti Hall, Te Pene Ave, Titahi Bay.
For details contact Bob Hatton, 40 Rose St, Wadestown. Phone: 04-472 8788.

CHRISTCHURCH MEETINGS are held on the first Tuesday of odd months at the Christchurch West Radio Clubrooms "Auburn Park", 333 Riccarton Road.
For further details contact Jim Lovell, 41 Yardley St, Avonhead, Christchurch 8004. Phone 03-342 7760

The subscription year is a calendar year (1 January – 31 Dec). Subscription renewal slips are sent in the November Bulletin with reminders in the February issue. NZ Rate is $25; $20 renewal before 15 March, $25 after.

EDITORIAL

A brief message about the **AGM** on Saturday 3 July seems appropriate. Generally the format will be the same as previous years; trading tables from 10 am, noon closure time for the restoration competition (before and after photos with short story), 1pm AGM starts then followed by the afternoon auction. A stuffer should be included with this bulletin.

Television New Zealand has recently celebrated the 50th anniversary of their start in TV transmissions. Our November 2007 bulletin had some background material on the various developments and early demonstrations of (closed circuit) television around NZ. Perhaps the PYE works, 1954 outside broadcast of the Harlequins and Barbarians match at Waihi's Rugby Park to local sets and hospital can be considered an NZ TV first. The rest they say is history!

Speaking of which, there are a couple of queries in this bulletin – people seeking information on the Bearing Head radio masts/station and the operator in the ZLW photo. Your assistance, as always, is appreciated.

May see you at the AGM perhaps!

Cheers, David Crozier

Cover Picture:

The 'Ham Can' or Philips 930A is an iconic set for some. One of the early Philips sets to come to New Zealand in 1932 and at an 'affordable price' of 15 pounds. Its 'British Made' branding ensured it found its way into many NZ homes and hearts.

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NEW MEMBERS:

N Bovin	**Christchurch**
K Briggs	**Waikato**

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

A reminder that the AGM competition is still open for member's "restoration project" – just supply before and after photos, along with some comments on a recent project, received before noon at the AGM, Saturday 3 July. The PO Box will be cleared Saturday morning. The winner will receive a complimentary subscription for the 2011 year.

Bearing Head Radio Station facility –

from Foss.Leach@University-of-Ngakuta.ac.nz

Please see attached photo *[opposite]* of the radio facility at Baring Head Wellington established 1937. Would there be anyone in the Society who might know anything about the radio operation at Baring Head at any stage, such as the type of antenna that was erected on the two masts and what operational frequencies were used there and what kind of radios were used?
I do hope someone may know something about this. With my sincere best wishes. Foss Leach ZL2JKP

Some background:
Baring Head is the nearest lighthouse to Wellington city. It was one of the last major lighthouse stations to be built in New Zealand. **Technical details;**
Location: latitude 41°25' South, longitude 174°52' East
Elevation: 87 metres above sea level
Construction: concrete tower
Tower height: 12.2 metres
Light configuration: flashing LED beacon
Light flash character: white oscillating light on for 9 seconds then off for 6 seconds
Power source: mains electricity
Range: 10 nautical miles (18 kilometres)
Date light first lit: 1935
Automated: 1989, **Demanned:** 1989

History of Baring Head Lighthouse
In 1932 it was decided to build a new light station at Baring Head to serve both as an approach light to the Wellington Harbour, and as a coastal light for Cook Strait. The lighthouse was built on land presented to the Government by a local farmer, Mr Eric Riddiford. Work commenced on the buildings, the lighthouse, and radio beacon towers in 1934. The Baring Head light was first lit in June 1935.
Baring Head was the first manned light to be built in New Zealand for 22 years. The previous manned lighthouse, Castle Point, was built in 1913. The lights built between 1913 and 1935 were all unmanned.
The light at Pencarrow Head had guided ships into Wellington Harbour before Baring Head Lighthouse was built. First lit in 1859, the Pencarrow Head Lighthouse was the first major lighthouse to be built in New Zealand. The old Pencarrow light was extinguished when the Baring Head light started operating.

Operation of the Baring Head light
Baring Head was the first light in New Zealand to start operating immediately on electricity. It was initially supplied by diesel generators until mains electricity arrived in 1950. After the Baring Head light was built, a programme of electrification of all major lights around New Zealand began. This was completed by 1957. The station was automated in 1989 and the last keeper was withdrawn.
In February 2005, the original light and associated equipment was replaced with a new LED beacon located out on the balcony of the lighthouse. The new light is powered by mains electricity backed up by battery power in the event of a mains failure and the facility is monitored remotely from Maritime New Zealand's Wellington office.

Life at Baring Head light station
The light station, being close to Wellington, was a popular posting for lighthouse keepers with families. Children were able to attend school which was an advantage that most other light stations did not provide. There were originally two keepers stationed at Baring Head but this was reduced to just one.

Baring Head Lighthouse was used as a signal station by the armed forces during the Second World War. Light keepers were exempt from conscription because their work contributed to the war effort. Keepers were issued with army jerseys to counter the extreme weather conditions under which they worked.

See; www.teara.govt.nz/en/lighthouses

Baring Head complex (pictured below) from the ATL.

Constructing a lighthouse involved more than building the tower. Keepers' houses and farm buildings also had to be built. This 1937 photograph of the Baring Head complex shows its numerous buildings and the two radio beacons that helped guide ships through Cook Strait and the entrance to Wellington Harbour.

ATL Picture

And from freepages.genealogy.rootsweb.ancestry.com/~ourstuff/Lighthouses.htm

Lighthouses - Safeguarding the Coast

Extract; "The first radio beacons, sending out a Morse signal, were installed on Cape Maria van Diemen in 1926 and at Baring Head in 1937 - the later being of great value to aircraft as well as shipping."

To add to the picture a little, I received this email from Brain Millar ZL1AZE Wellington. This suggests that wires were erected between the masts. Foss

"I did visit Baring Head a few times when I was working as a young engineer with the Post Office/Telecom in the 80s. The masts were still in place but they were not supporting any antennas at that stage. I did note that the masts had large pulleys on top for pulling up horizontal wires. It is my guess that some form of 'T antenna' for LF/MF use would have been erected between the two masts.
73, Brian ZL1AZE "

And an email from David Smith; "In Helen Beaglehole's recent work "Lighting the coast"; she suggests that the beacon was planned in 1934, installed in 1941 and decommissioned in 1981."

[So there is some variation in detail, and any additional information would be gratefully received. Ed]

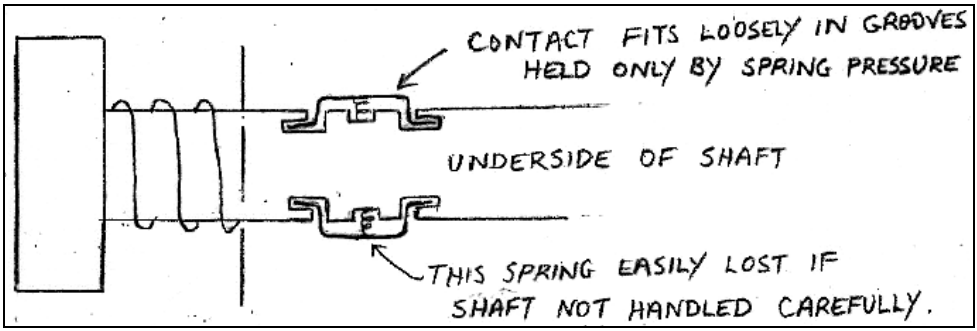
An Unusual Fault in a QUAD 33 Preamplifier.

From Don Beswick

A few weeks ago I was asked by two owners if I could repair their Quad 33 preamps which drive the 303 power amplifiers. These units were made between 1968 and 1981. Both preamps were dead in one channel and what was curious was that with the stereo button pressed, the resistance of one section of the ganged volume control was 50 K ohms as expected but the dead channel appeared to have an earth fault on the top end of the volume control, not a dead short but a resistance of about 80 ohms which effectively shorted any audio signal to ground. The obvious first test was to disconnect the volume control and it tested correctly at 50 K which meant that the fault was in the wiring between the tape amplifier board and the output amplifier board. According to the circuit the only wiring is that of the left channel, right channel and stereo buttons which operate isostat switches. To all intents and purposes it looked like a fault in the isostat switch contacts. The service data does include a section on dismantling these switches so that a switch problem may have been suspected by service personnel at Quad.

The first preamp had been given to the owner in non-working condition, and there were various jumper wires connected across the mother board, and on the small circuit board above the switch bank one track had been cut and wires had been resoldered to different places on the board. The earth fault appeared initially to have been a switch contact problem and the modifications had apparently been attempted to isolate a presumed faulty section of the switch bank. But the fault was still there. I did dismantle two of the isostat switches but found nothing wrong, and I recommend that these be left well alone. The contacts on the square shaft of the switch are held in place by tiny springs about 1.5 mm in diameter and 3 mm long, and the contacts can easily drop out when the shaft is removed. Replacing them requires a magnifying glass on a stand, a pair of tweezers and a suitable tablecloth. (I used a pillowcase). In accordance with Murphy's Laws one of the springs flew out when I let go of the tweezers and I felt it flick against my neck and presumed that it had fallen on the floor. The sun was shining through the window of the sunroom and it was possible that the tiny spring might have been seen on the carpet. I did not see it so I wiped a magnet over the carpet around the writing desk but still no spring. I have a small cardboard box of isostat switches but they were all different from the one used on the Quad 33. At that point I became worried and tried to think how to explain the

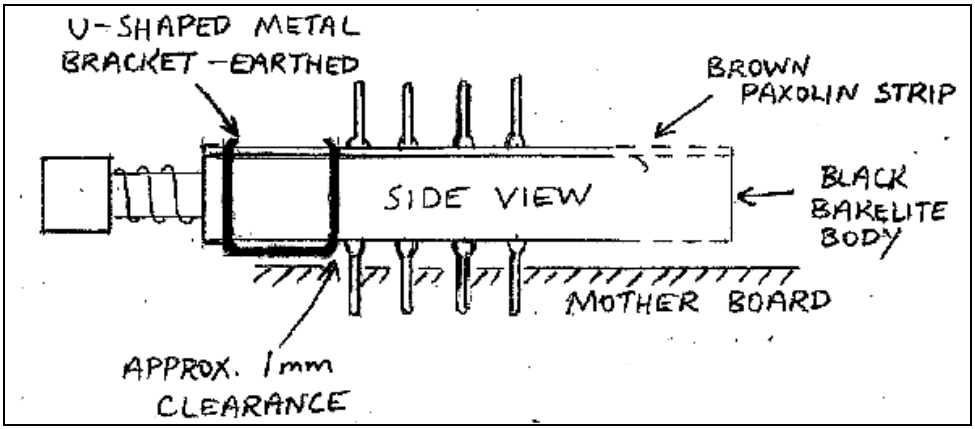
situation to the owner. I sat down in despair and looking down at a fold in my trousers below my waist and lo and behold – a tiny spring! What a relief, somebody up there must like me. So I tried again to put the spring back in position and this time it fitted OK. The lesson here is to leave these switches well alone. At this point we were back to square one and I put the preamp to one side.



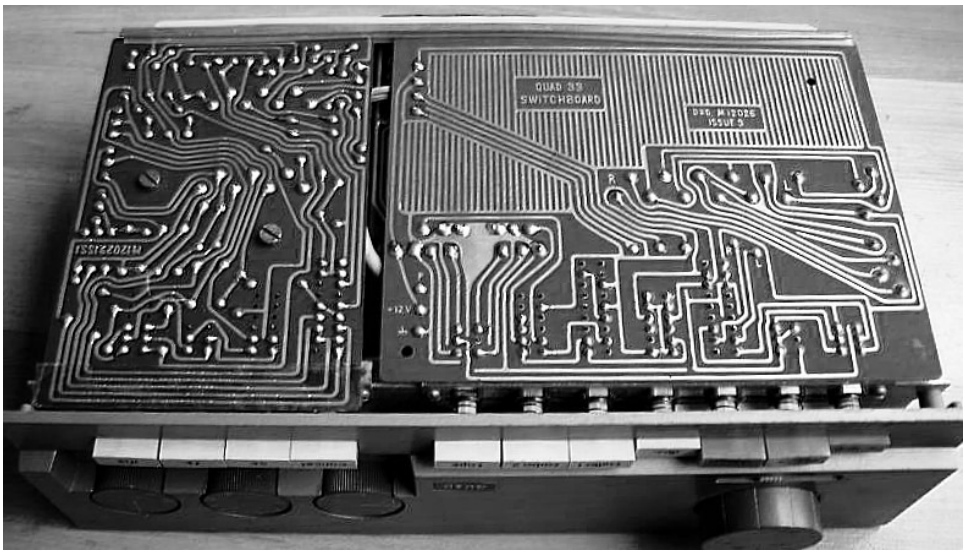
A week or so passed and another owner brought around his prized Quad 33 preamp which was dead in one channel and would you believe, it had an apparent earth fault on one section of the volume control, about 80 ohms to earth. This preamp was all original and had not been taken to anyone else. The owner had looked on the internet under problems with the Quad 33 and apparently an owner in London had experienced this problem and had asked for advice but had never received any replies. Here was a mystery that needed further investigation.

The owner of the modified preamp agreed to let me disassemble the preamp completely in order to locate the earth fault. The mains wiring and output wiring were disconnected from the power supply, and the supply and the black mounting plate were removed. The knobs and front panel were removed then the U-shaped bracket holding the seven isostat switches was unscrewed from the front chassis panel. The interconnections between the two mother boards were removed, and the wires to the small circuit board above the switch bank were also disconnected, and finally the mother board with the switch bank was removed completely from the preamp. At this point the fault still appeared to be around the stereo switch, so the top circuit board was desoldered (only 29 pins on this one). Removing this board removed various interconnections and still the fault appeared to be in the stereo switch. Finally the switch bank was desoldered from the mother board – now major surgery - 50 pins through the mother board. The novelty quickly wore off!

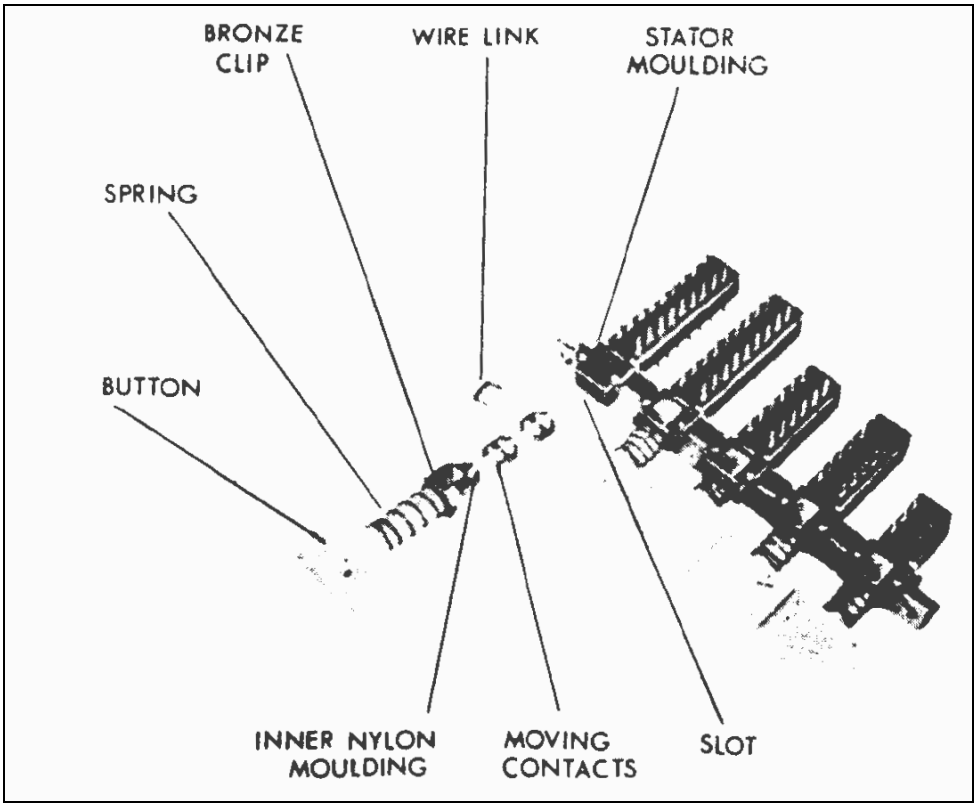
With the switch now isolated, an ohmmeter test showed about 80 ohms between one of the front pins of the stereo switch and the U-shaped metal bracket which is earthed. After handling the switch a few times I repeated the test and found that the earth fault on this switch had disappeared but had reappeared on one of the front pins of the Radio-2 switch. What is noticeable with this model of switch is that there is barely a millimetre of clearance between the front pins of the switches and the U-shaped metal bracket.



A closer inspection with a magnifying glass under a strong light showed what appeared to be a layer of fluff along the back edge of the V-shaped bracket and that the fluff was touching some of the front pins of the isostat switches, particularly those on the bottom which go into the mother board. This seemed most peculiar because there were circuit boards on the top and bottom of the switch bank and these would prevent the settling of dust or fluff on the switches. Further examination showed that the fluff had a metallic appearance rather like the residue left after polishing a surface with dry steel wool. The fluff appeared to be stalactites of metal, in effect fine filaments as in a spider's web, which had grown out of the plating on the rear and bottom surface of the V-shaped metal bracket. I brushed off the fluff using a small dry paint brush and an ohmmeter test showed that the earth fault had disappeared. The only difficulty here is that the switch has to be unsoldered from the mother board, and this is a long and laborious process not at all recommended.



Underside view indicating the switch bank connections to the circuit boards.



A few days later I disassembled the second preamp and started to desolder the top circuit board but at that point the O-ring in my solder sucker started to jam and this brought the process to a standstill. So I resoldered the board and reassembled the preamp, reversing the steps that I had carefully written down, and wondered whether there was an easier way of removing the partially conducting fluff. Eventually I realised that both side plates of the chassis have a square cutout in line with the switch bank, and it was possible that a jet of compressed air blown into the switch bank just might dislodge the unwanted fluff. The next morning I went down to the local garage and they let me use their air gun and I blew air in from both sides of the chassis. A painless operation. I took the preamp home and measured the resistance across both sections of the volume control. This was the moment of truth. The earth fault had disappeared and both tracks measured 50 K - I kid you not, and the preamp has been working perfectly for the last few weeks. So the lesson here is that before taking apart the isostat switches, try a jet of compressed air across the switch bank. It may save you a lot of work.

[This looks like another case of "metallic whiskers" as described in NZVRS bulletin Vol 29, No. 4 (Nov 2008). Also, when checking some of the background for this item, I was surprised at the amount of support information and suggested improvements (some subtle, others more dramatic) for these classic preamplifiers. There is a lot of information on the web but naught about this particular problem – well done Don! Ed.]

Southern Soundings. From Pete Ingram

The usual twenty odd members turned up for the AGM night on Tuesday 2nd March and quickly propelled Jim Lovell (chairman), David Chapple (secretary) and Albert Smith (treasurer) back into their respective jobs that they might have been trying to escape from. Fortunately, they took it all in good part and 2010 is truly launched.

We had the pleasure of Aucklander David Crozier as guest speaker to let us know how things are going up north. In a useful ten point discussion, such items as the future of the VRS library, branch activities in general, value for annual subscription, the workload involved with the bulletin, current membership numbers (340) and national locations (33% in Auckland, 23% Central, 9% Wellington, 22% Southern and 14% offshore.) – and not least, the financial gain of going for free Community Post to cover our mailings. David was roundly applauded for his ongoing VRS contribution - and on this occasion no small task in having to fly to Christchurch for the day and then to take the 'red eye' home at a very late hour.

"Ooohs" and "Ahhhs" at this meeting were for;
John Dodgson: 1955 General Radio bridge capacitance tester that had the bonus of dissipation rate metering. This piece of equipment was as good as new and by girth and quality, was most likely intended for laboratory use.
John Walker: a very neat 1952 500kHz - 18 MHz spy radio, a Mk 301 Receiver. Beautifully compact, so one could possibly swallow it if captured, it came as a bit of surprise when we are only mostly aware of John's 'heavy metal' collection.
Geoff Edwards: came up with a unique British Western Electric 1924 superhet that consumes VT5 triodes evidently, for two of the five valves were missing. In good condition all over, it will take little restoration work.
Albert Smith: to the fore again with an excellent piece of workmanship shown on a 1934 Philco Model 60. Photographs of the original state of things would have caused many to turn aside from such a project.
David Chapple: with two up - a 1941 Columbus Model 12 and 1945 Columbus Model 14, both with that just out of the factory look.
Jim Lovell: well, you know our Jim! Out of the CCC rubbish hag came a nice piece of fretworked 'Golden Knight' frontage with the tuning dial cut-out modified to take a profile head and shoulders shot of Jim, much like one sees on a King George V penny. It will look nice hanging on the wall. But it was not up for grabs- not even for the raffle!

Then there was a brief discussion on the location and condition of the 5ZB NZR studio carriage, which is somehow to be restored to its original 1939 format. We hope to update members on this subject in the near future.

Time was up, so we missed out on a proposed talk on members' home aerials and the general theory contained in such things. Never mind, plenty more meetings to come. And so to supper - Jim's usual high calorie stuff to burp away before bedtime.

A Tale of Two Sets - From Bill Campbell

A year or so back I was given two identical radios. Same model, same chassis, same cabinet, different name badges. Philips and Mullard model BZ356A.

They were both looking the worse for wear, and had been stored for some years. I sat them in the garage waiting for some inspiration to tackle the rejuvenation. That happened a few weeks ago.
I took them both into the workshop for the initial 'look see'. The usual basic checks told me that neither would be particularly easy. One had valves missing and the power transformer disconnected, the other had a broken dial cord and one valve missing. I decided to do the latter one first, the Mullard.

As neither set had the model number I had to search through the selection of circuits that I have. Fortunately Philips in their wisdom has included drawings of the radios on the service sheets. This was a big help, and saved a lot of time in the end.

After a quick power up it did seem to be in reasonable condition for its age. A complete recap (full of those Ducon waxies) and a quantity of the resistors changed as one was open circuited and others were up in value 50% or more. I powered up again and it burst into life. So far so good. As I had removed the chassis from the cabinet, it was time to do the dial cord.
This model has two dial cords and a third on the tone control. It was the main cord that was broken and once again good ole` Philips has the replacement instructions on the service sheet.

The set is a smallish 5 valve mantle radio but the cord is over a metre long with a collet fitted off centre and a lug on each end. All the measurements are in the old feet and inches something I haven't used for 30 years. I managed to find a rule with the required scale on it as the lengths ended in sixteenths!! This made it a lot easier. The collet is off centre and has to be right, I fitted it first and then the end lugs. The threading went reasonably well as one section goes around the drive spindle anticlockwise, and the other section goes clockwise on the same shaft. I must have got it right as both ends met exactly together in the dial drum ready for the tension spring.

I then polished the Bakelite cabinet, this was a slow process as it required several cuts however the final result was worth the effort.

Mullard on left, Philips on right

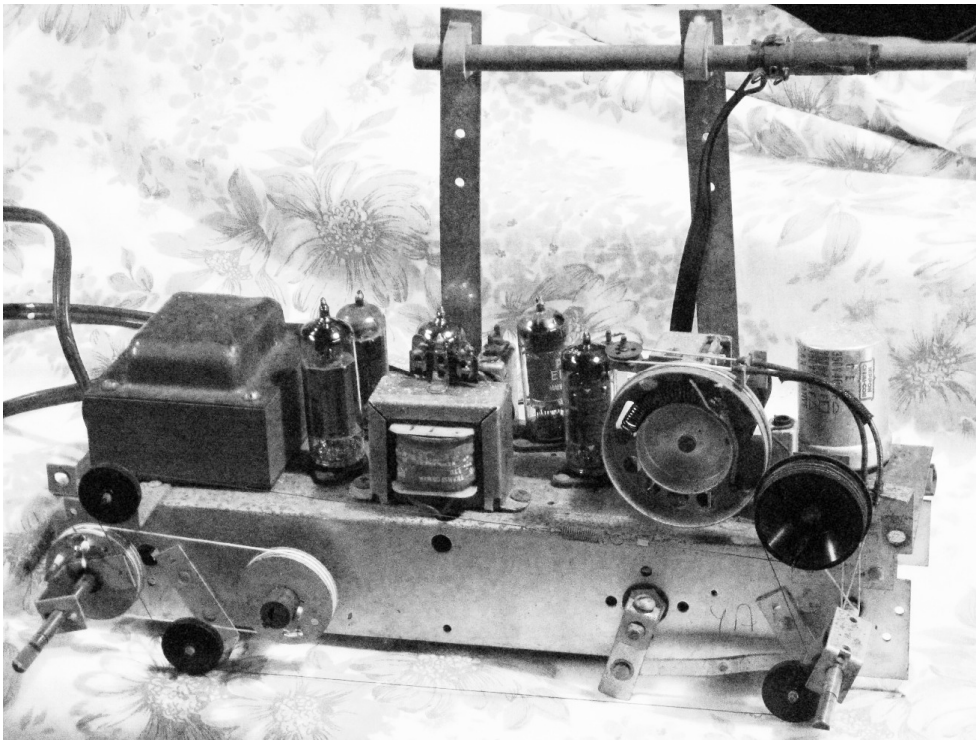
I then started on the Philips version .....
As I said the power transformer was disconnected and most of the valves missing. Testing the transformer confirmed that there was a short in the HT winding to frame, out it came. The second one I picked up was a Beacon that fitted and was soon in place, and terminated.

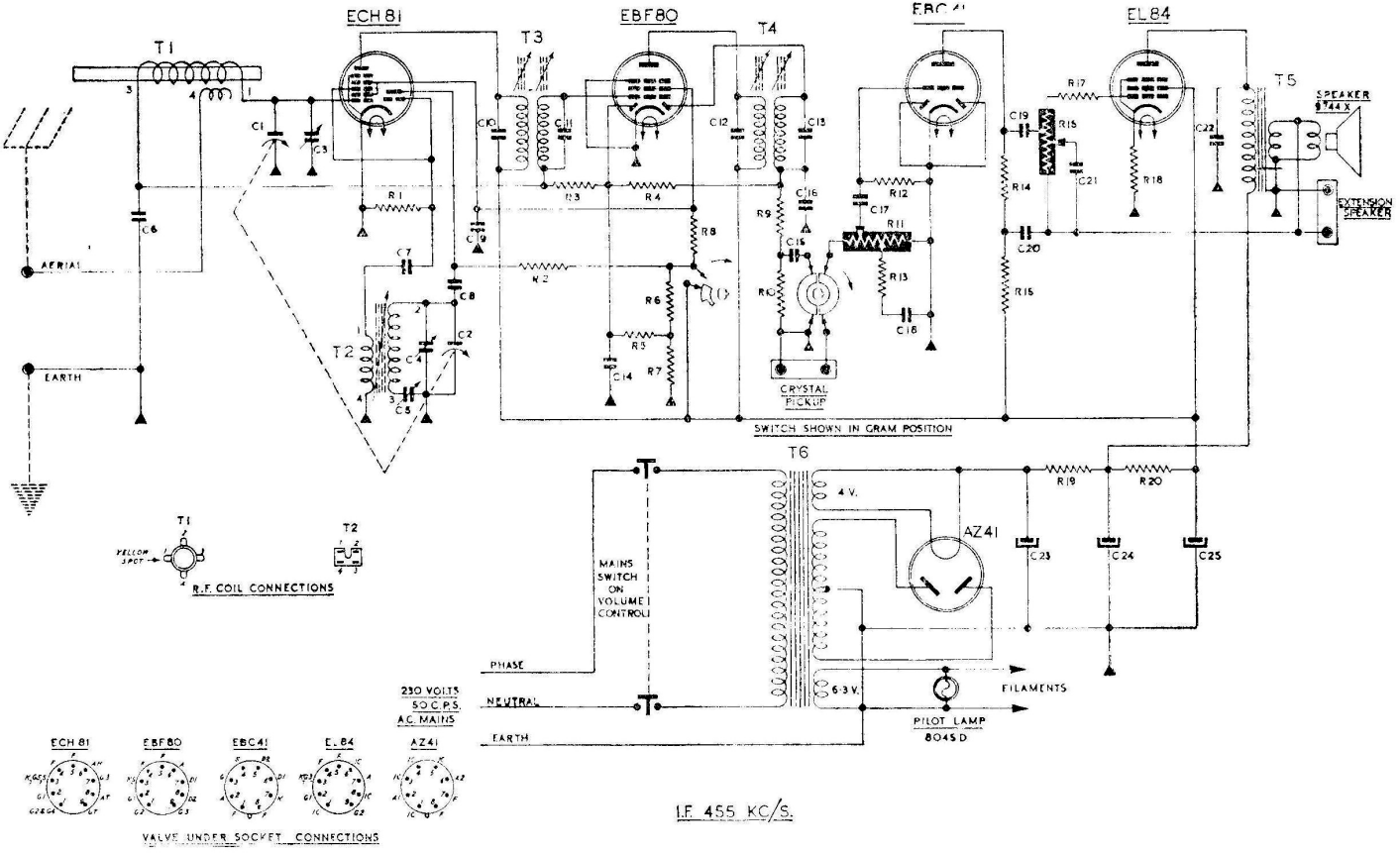
After locating and fitting the valves (thanks GB) I put power on, the set burst into life. This one had had some major repairs at some stage as the speaker and output transformer had been replaced as had a lot of the waxy capacitors. Then one of the filter resistors started to smoke as the EL84 failed. A new one fixed that problem. Now to replace the tone control cord.
I felt that it would be easy to do with the chassis still in the cabinet. Ha Ha.
Two hours later I followed the printed instructions, removed the chassis and completed the re-string in about ten minutes.

The photo show the two side by side as a before and after polishing. These radios perform very well and I am pleased with the results.

Additional info / update: The circuit shows the incorrect rectifier fitted is an EZ80 & the detector / audio is an EBC81. When I fitted the new power transformer I shifted the dial lights to the unused 5v winding as the 6.3v was overloaded.

Now for the next job.



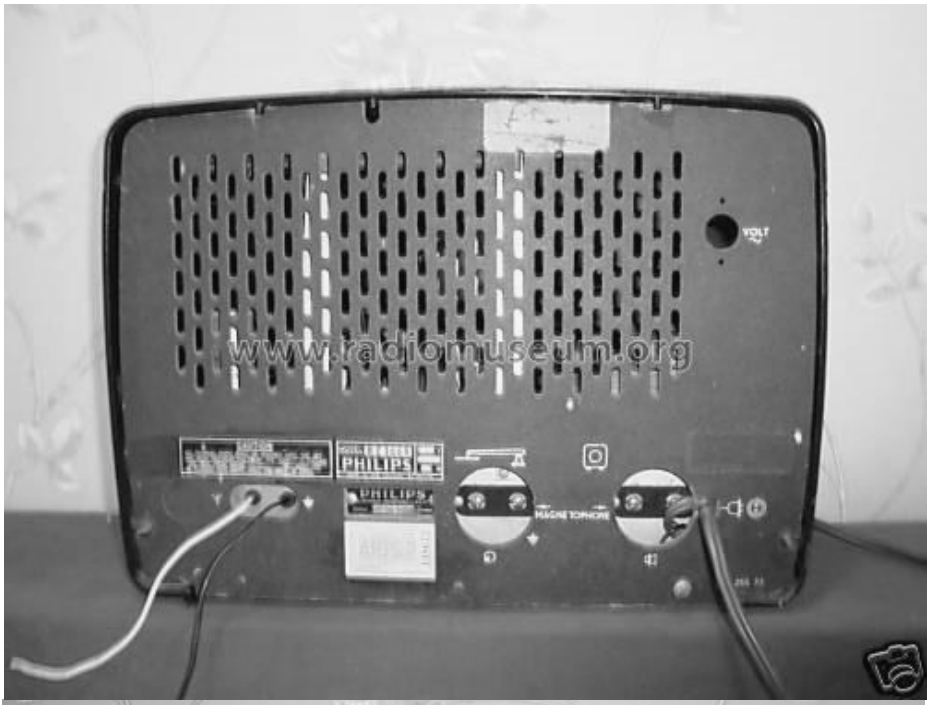

ECH81
EBF80
EBC41
EL84
T1
T2
T3
T4
T5
T6
AERIAL
EARTH
CRYSTAL PICKUP
SWITCH SHOWN IN GRAM POSITION
SPEAKER 9"x4"x
EXTENSION SPEAKER
AZ41
4 V.
6·3 V.
FILAMENTS
PILOT LAMP 805 D
MAINS SWITCH ON VOLUME CONTROL
PHASE
NEUTRAL
EARTH
230 VOLTS 50 C.P.S. A.C. MAINS
YELLOW SPOT
R.F. COIL CONNECTIONS
I.F. 455 KC/S.
VALVE UNDER SOCKET CONNECTIONS

Interestingly that the Radio Museum lists this as a Philips NZ Radio model BZ366A see http://www.radiomuseum.org/r/philnz_bz366a.html

Pity the rest of the label is not included to show the "Made in NZ" detail, but in the picture of the rear of the set you can just make out the ARTS&P and NZ Philips label below the model label enlargement above.

Ernst Erb's Radio Museum detail at www.radiomuseum.org

Country: New Zealand	Manufacturer/Brand: Philips Elec. Ind. of N.Z Ltd
Year: 1955	Type: Radio or Tuner
Valves / Tubes 5:	ECH80 EBF80 EBC81 EL84 EZ80
Principle	Super-Heterodyne (Super in general)
Tuned circuits	
Wave bands	Broadcast only (MW).
Power type and voltage	Alternating Current supply (AC) / 230 Volt
Loudspeaker/pwr.out	Permanent Magnet Dynamic (PDyn) Loudspeaker (moving coil)
from Radiomuseum.org	Model: BZ366A
Material	Bakelite case
Shape	Tablemodel, Mantle/Midget/Compact but not a Portable (Mains only).
Dimensions (WHD)	380 x 270 x 195 mm / 15 x 10.6 x 7.7 inch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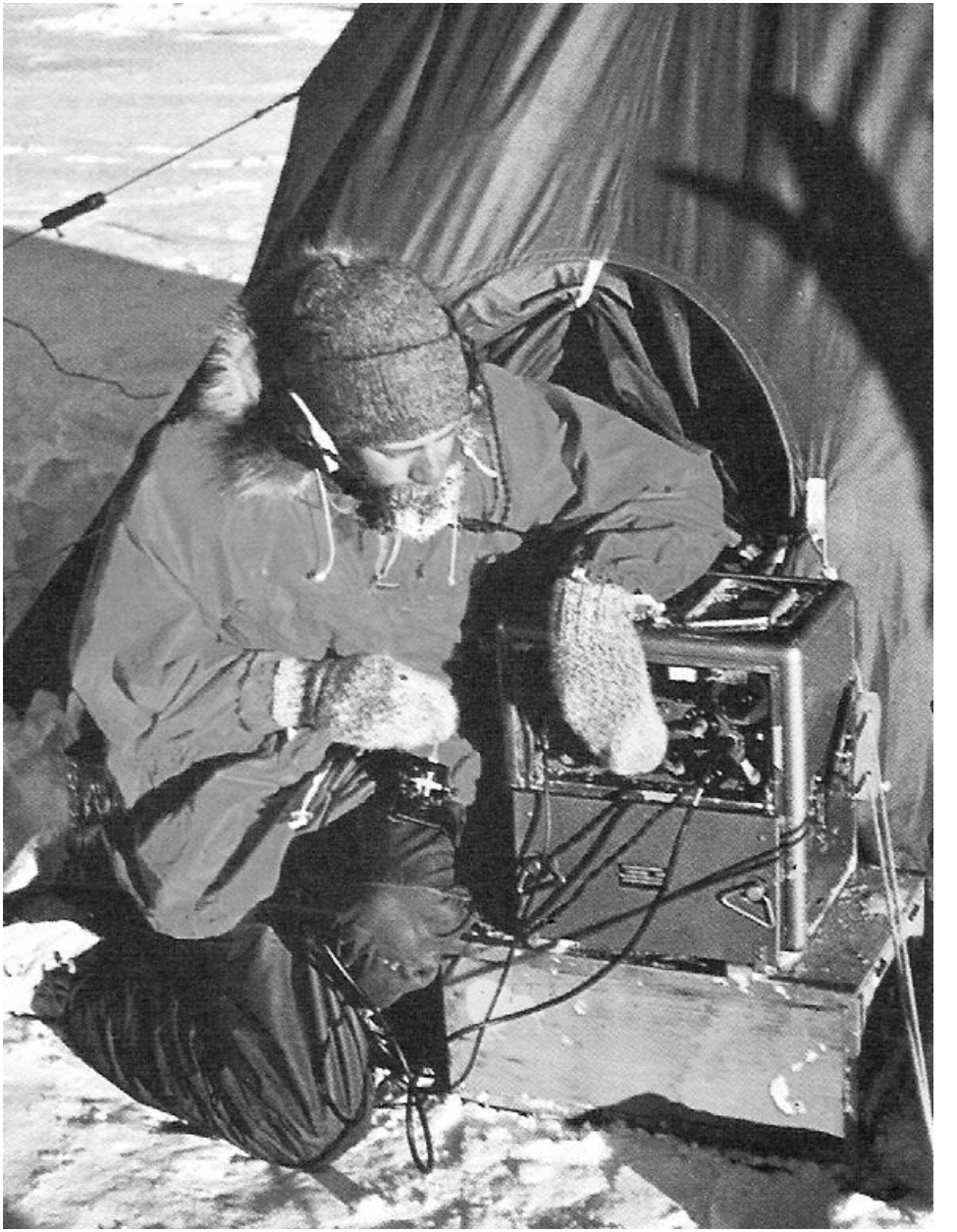
Centrefold Pictures



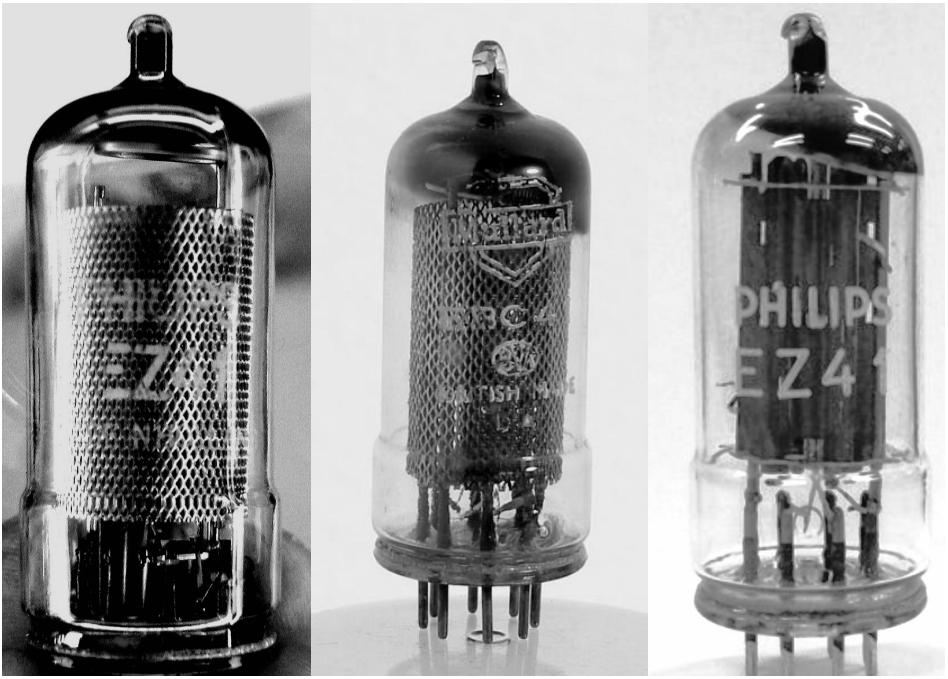
Collier and Beale's 557HF transceiver in field use c1965
(see previous bulletin for additional details)

Radio Communications Room Scott Base c1960-65

A Clipper Tail from John Roberts "Pentagrid" <pentagrid@paradise.net.nz>

Some people take on challenges and sometimes get surprises – not the least in this story from John;

Dear Eds. I've been working on a Small Clipper mantel set and of course removed the valves to avoid damage. I was slightly perplexed when I looked closely the detector/first audio valve! Picture attached. I hope the photo comes out clearly but I won't be disappointed if it doesn't show.
John.

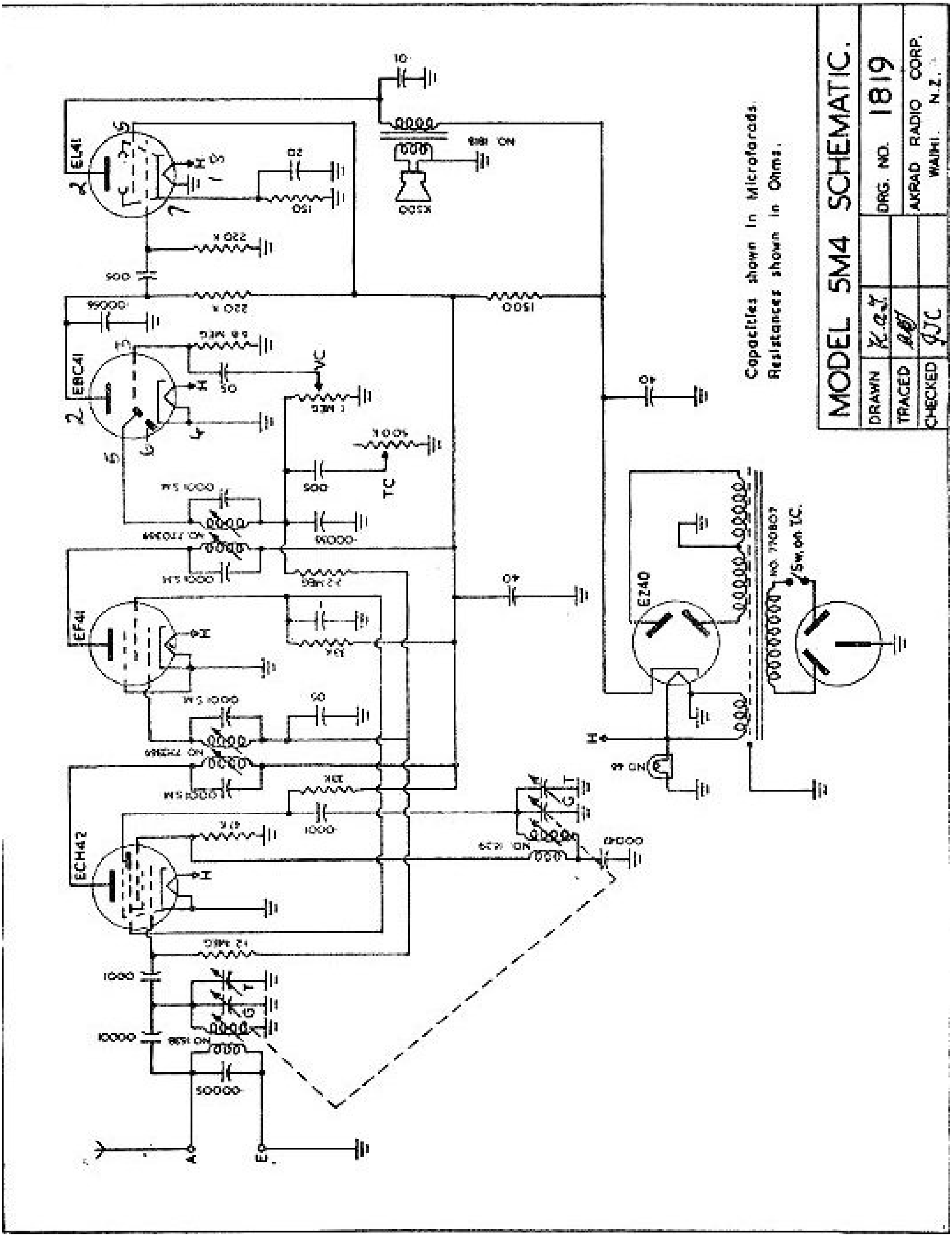


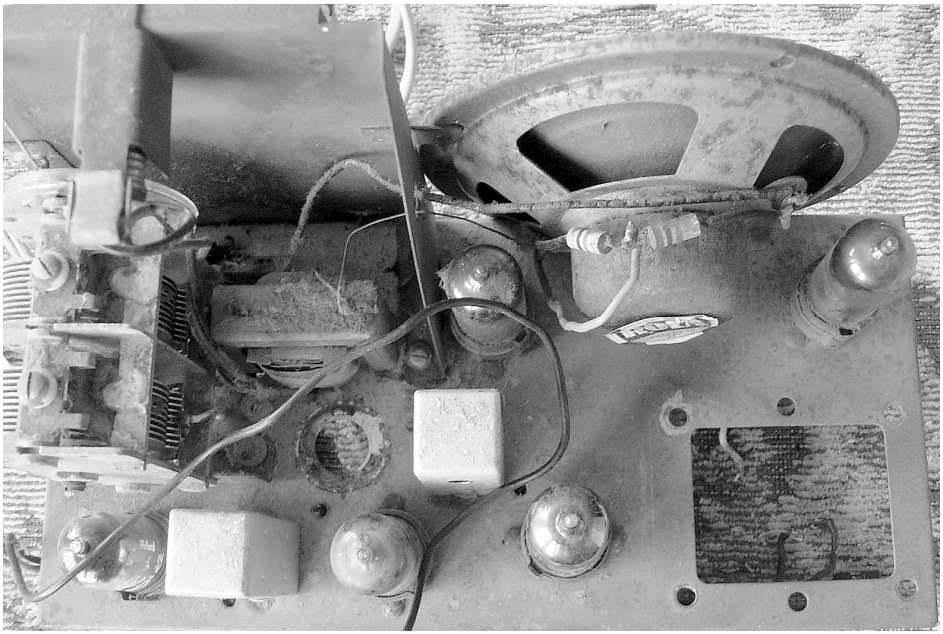
Above: Left) the "EZ41" labelled EBC41 as found in John's Clipper, Centre) the more correct EBC41 double diode, triode, and Right) the EZ41 double diode rectifier.

I'll see what I can do! It's actually an EBC41 although I don't think it would confuse anyone who is familiar with valve construction.

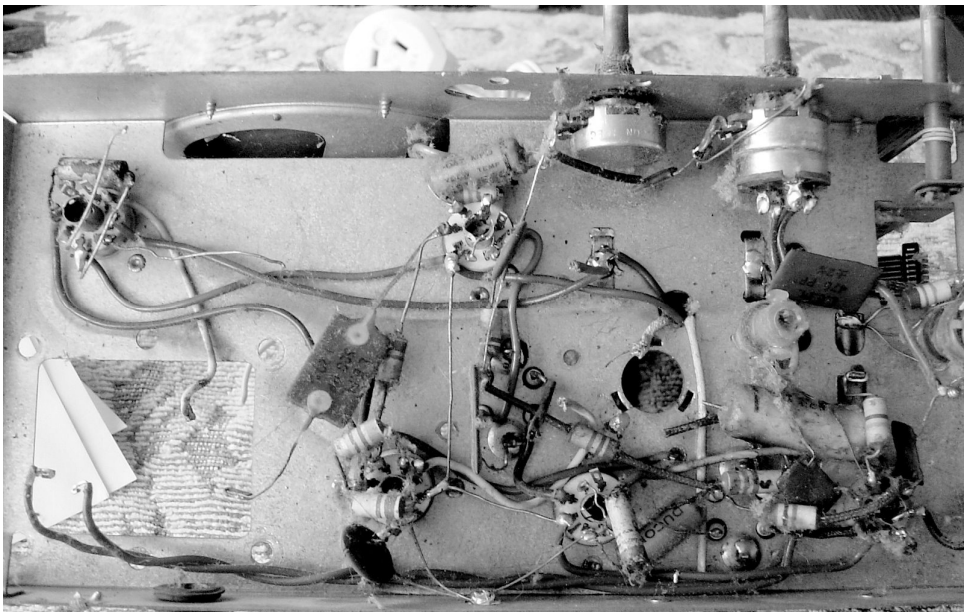
I do have a small favour if I may. The valve is from a Clipper mantel set on which I am currently working & I was wondering if you could suggest a possible remedy. The radio is running but is a tad noisy. It's not the aerial system 'cos the previous radio, a lovely red Bell Colt worked fine with it.

Gerry B kindly sent me a circuit diagram of the radio:


MODEL 5M4 SCHEMATIC.
DRG. NO. 1819
AKRAD RADIO CORP. WAIHI. N.Z.
DRAWN
TRACED
CHECKED
Capacities shown in Microfarads.
Resistances shown in Ohms.
EL41
EBC41
EF41
ECH42
EZ40
VC
TC
Sw. on T.C.



But there are some "funnies". Firstly; someone has added negative feedback across the O/P stage. (See Clipper Top pictured above). The extra wire (blue) runs from the junction of the two resistors to the bottom end of the volume control which is no longer returned to earth. The 47 ohm resistor connects to earth and the other, a 1K in this case, goes to the "hot" end of the speaker feed.
Secondly (see Clipper Underside below)



There is a 8.2K resistor between the 220K grid leak/.005uF coupling capacitor & the grid of the EL41 - a grid stopper?

And thirdly, the 10pF capacitor across the aerial transformer is missing.

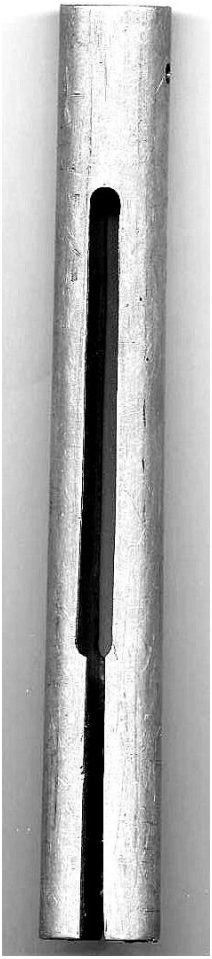
I bought three Clippers & all have these modifications/omissions & they look original, so I think these are meant to be that way. All doubtful resistors have been replaced along with all the electros & waxed beasties. I have left the red mica, (I think), caps alone 'cos in my experience, these rarely give trouble. The mains transformer is out 'cos I took it to work, to test it on the megger there.

Anyway, the bit which is confusing me is the high hash. I've lined the set up as per the instructions in Radio & Hobbies & this improved things a bit. I have added the 10pF across the aerial coil, swapped out the ECH42 & EF41 but to no avail - it's still noisy. Any advice you could give would be very very much appreciated

I am very happy to write this up for the bulletin - maybe use this correspondence as a start point? & am happy to have any assumptions I have made, corrected if needs be. I want to learn :)

Yours sincerely,
John Roberts.
Pentagrid@paradise.net.nz

The Handee Miniature Tube Puller



While looking through one of my electronic folders of interesting things – (looking for some half page fill for the bulletin), I came across this image on right.
I'm not sure of its origins, but it's a miniature valve puller made of aluminium tube (with the internal dimensions to fit loosely over miniature valves ie about 18-20 mm internal diameter) with a through cut slot to allow the ends of the puller to flex slightly and grip the valve.
This facilitates easy valve extraction in those most difficult or crowded spots of your set – where the fingers or hand just cannot get to. Communications receiver owners will probably appreciate the usefulness of such a tool.

Not showing so well in this reproduction is the addition of a "gripping agent" at the business end of the puller to permit easier extraction of those tubes well attached to their bases. It looks like some dark plastic (almost an early version of Velcro?) attached to the inside of the tube. This I would imagine gives a much better grip on the valve than just the aluminium. This could also make the standard 20 mm id aluminium tube the ideal size for the tool?

This tool seems so simple I could imagine it being a standard part of the tool rack of most radio depots and stations of the valve era, let alone the toolkit of radio and TV service people.
The drilled end suggests simple attachment to the tool shadow board (on its associated nail) or perhaps a cord through these holes could be a simple wrist strap for ease of holding? Well perhaps someone can enlighten me? Ed.

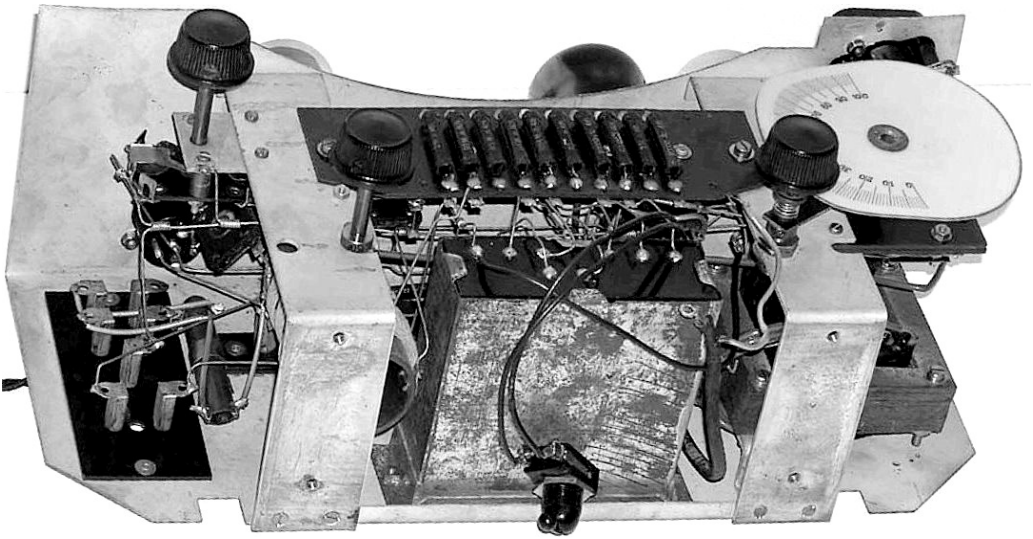
The Philips 930A Receiver

Des Davey of Te Kuiti wrote in to say he had recently received a QSL Card from Radio Romania International, Bucharest, with a nice picture of the Philips 930A or the "Ham/Spam Can" model as it was perhaps more commonly known by some.
This stimulated a little research for some background information and a possible circuit. Of course John Stokes had written up some details back in the Nov '86 Bulletin (Vol 7 No.3) and there were further details on the great Swiss website of Ernst Erb's European radios at www.radiomuseum.org

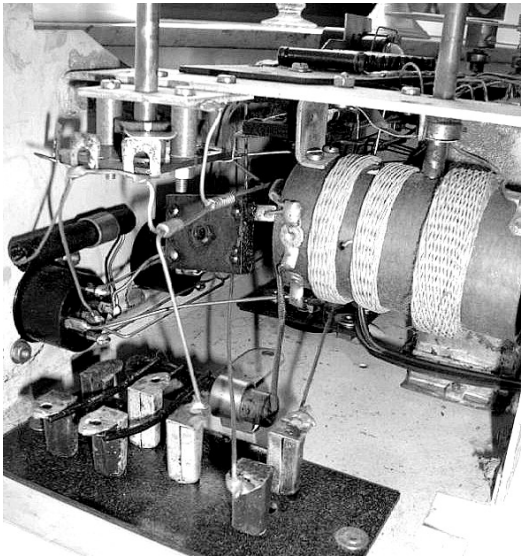
John, in his item, had the following typically pithy comments to say about the set in New Zealand;
"From the collectors point of view the Philips model 930A with its distinctive 'Arborlite' cabinet must surely rate as one of the most sought-after models in the Philips range, even though its appeal would seem to lie more in its appearance than its performance! It is rather difficult to classify this set's particular styling which does not really fit any of the usual categories. That its overall shape owed something to the contemporary American 'cathedral' influence can hardly be doubted, even though this particular styling never really became popular in either Great Britain or the Continent.
Undoubtedly the incorporation of the famous Philips waves and stars logo in the design of the speaker grille contributed a lot to the set's distinctive appearance, though of course the use was not unique to this particular model. Incidentally, according to Philips the meaning of the logo is explained as follows: the circle represents friendship, the waves radio and the stars represent eternity. How about that? The last use of this logo as a motif for a speaker grille appears to have been in the 1937 model 247B car radio, though of course the NZ made bakelite extension speaker of 1954 vintage used an almost identical grille.
Nowadays, in seeking a suitable adjective to describe the 930's appearance the word 'quaint' seems as good a word as any, though the French collectors' phrase "Boite à Jambon" (the ham tin) is also rather apt.
Although the 930 was normally marketed in an Arborlite cabinet it is on record that, in the UK at least, it was also available in a pagoda-top wooden cabinet at the same price of £12. So much for the idea that Arborlite was cheaper than wood [at that time].
Originally marketed in Europe during 1931, the 930 was not seen in NZ until May 1932, its late arrival in this part of the world giving the impression that the factory may have been clearing out old stock prior to launching the new Super Inductance models 630A and 730A which arrived a few months later.
To enlarge on the earlier remarks referring to the 930's performance, this can only be described as mediocre. By comparison with other British 3-V + rect sets of the period, the 930 was the only one not using a screen grid tuned RF stage.

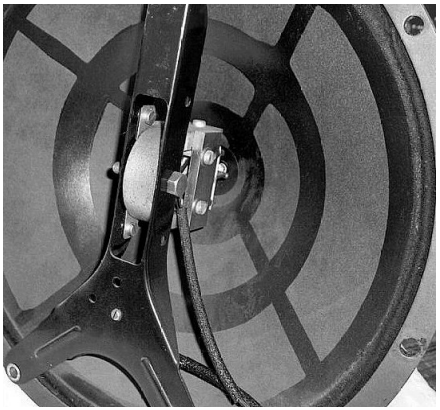
Furthermore its single tuning condenser was one of the solid dielectric type and the long outmoded rotating tickler system of regeneration was used. Altogether a most unprogressive design, difficult to account for as Philips were marketing other models at the same time, such as the 2514, which used a stage of tuned SG amplification ahead of the detector.
An unusual feature of the 930 was the use of a two-stage resistance-capacitance coupled audio section ahead of the B443 (PM24) output pentode, causing the set to be described as having "large LF amplification". Large LF amplification it may have but it was a different story when it came to the front end. Here, lack of selectivity, consequent upon the use of only one tuned circuit, was the set's main weakness.
Because of this it might have been expected that when Philips brought out the 5-valve model – the 932A – using the same chassis and cabinet, that this aspect of the set's performance would have been improved upon. Not so! Although now using a screen-grid valve ahead of the detector, the stage itself was untuned and so contributed virtually nothing to improve selectivity. Admittedly, it would have been impossible to find room for a two-ganged tuning capacitor and the extra coil needed, to say nothing of the band-switching complication on the existing chassis, but one gets the feeling that the addition of the screen-grid valve served little purpose other than to allow the set to be advertised as a 'screen-grid model'.
Here in NZ both models were being advertised side by side in 1932, the 930 at £15 and the 932 at £29-10. Bearing in mind that the SG RF stage of the latter was very much in the nature of a makeshift addition, the enormous difference in the prices is hard to reconcile. Rather obviously the earlier model was being sold at under its true price in order to clear out existing stocks."

Ernst Erb's site has more comment and there is a forum discussion about the set design and the differing types of base; the wooden and moulded Bakelite factory made variations.

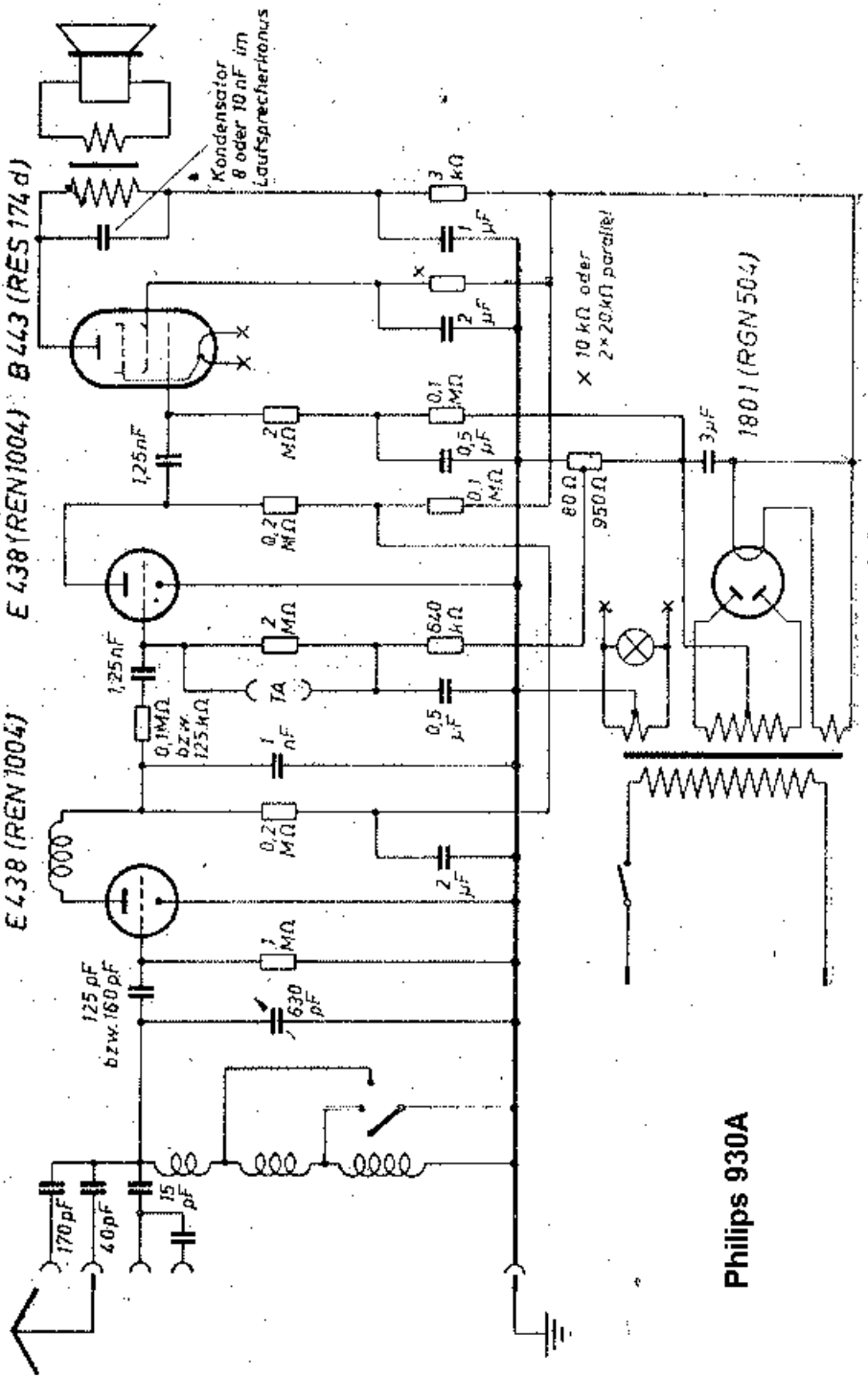


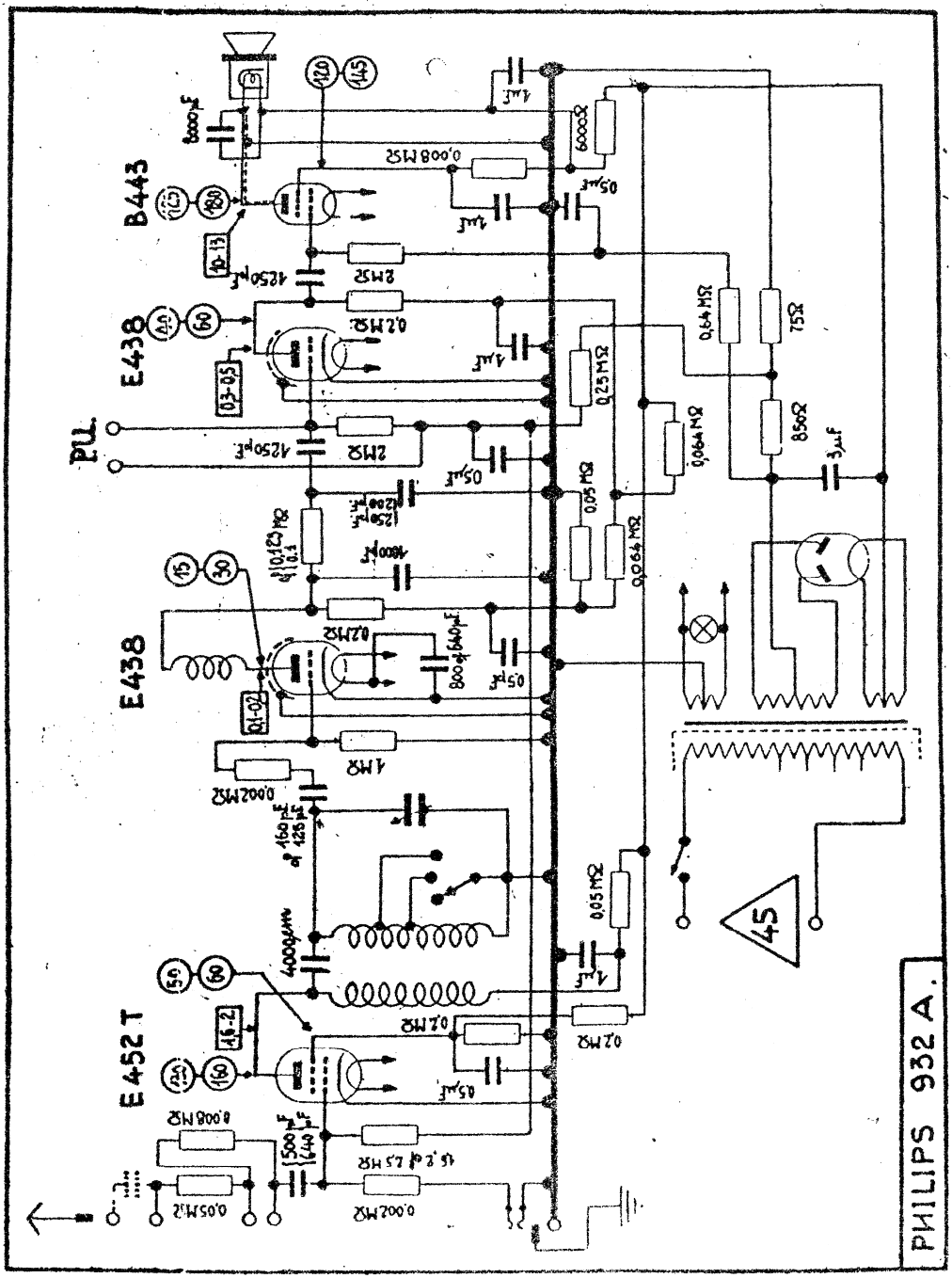
The somewhat simple but clean layout and design of the Philips 930A chassis





Left: Closer detail of the chassis assembly and variometer coil. Above the speaker internal driver, and below the rear view.


B 443 (RES 174 d)
E 438 (REN 1004)
E 438 (REN 1004)
1801 (RGN 504)
Philips 930A
Kondensator 8 oder 10 nF im Lautsprecherkreuz
× 10 kΩ oder 2 × 20 kΩ parallel
170 pF
40 pF
15 pF
125 pF bzw. 160 pF
630 pF
1 MΩ
0,2 MΩ
2 MΩ
0,1 MΩ bzw. 125 kΩ
1,25 nF
1 nF
640 kΩ
0,1 MΩ
0,5 µF
2 µF
1 µF
3 kΩ
3 µF
80 Ω
950 Ω
TA

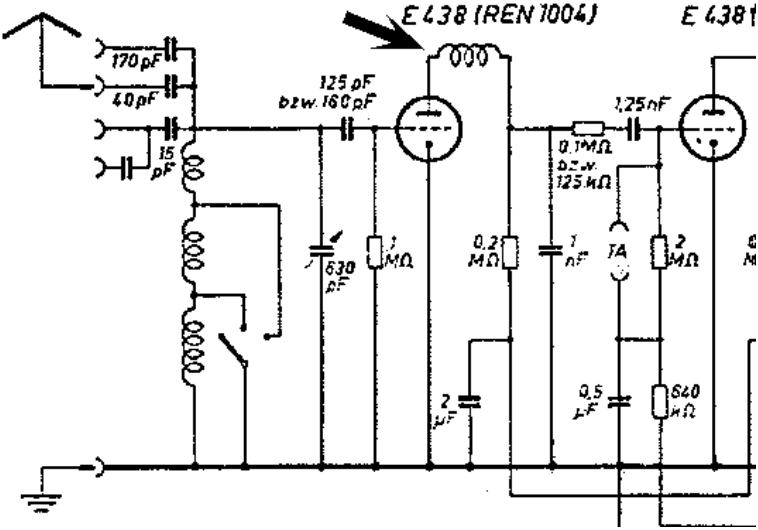


The Philips 932A with the resistive capacitive aerial input selection to the untuned first stage

A closer look at the Philips 930A schematic

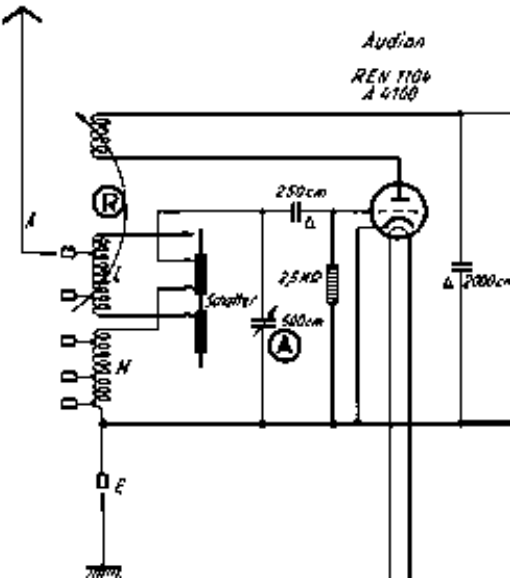
The “official Philips” schematic on right lacks an immediate indication of regenerative operation in the first stage (the regenerative feedback coil winding is indicated with an arrow).

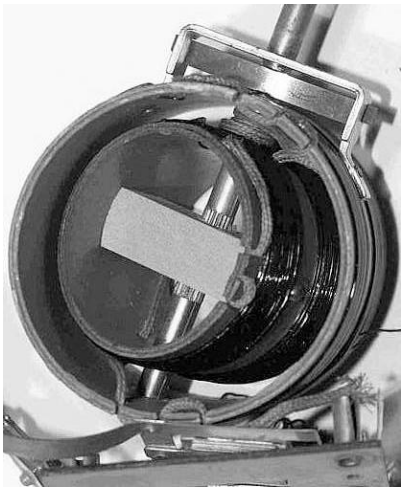
Similarly the operation of the variometer is not indicated well.



The general circuit on lower right (please ignore the component values) would seem to be a better explanation.

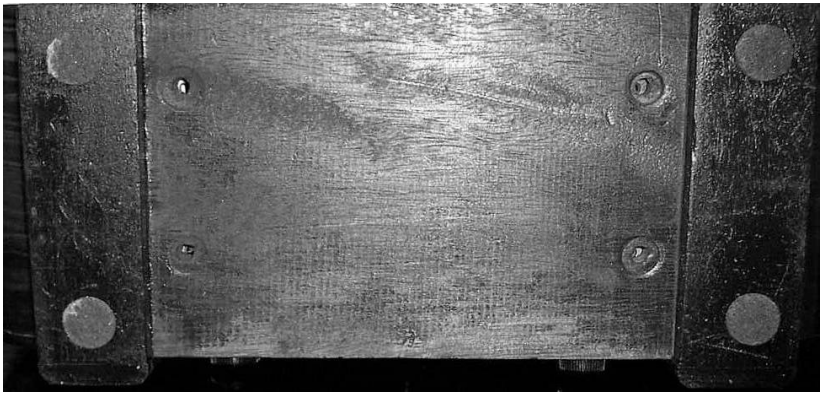
Comment has been made that the use of term “regeneration” in the circuit description of the 930A could fall under the category of a "trade secret" in circuit design. Hence there would be no need to change the classification of this radio from "TRF without reaction" to "TRF with reaction" - as Philips would probably have wanted it that way.

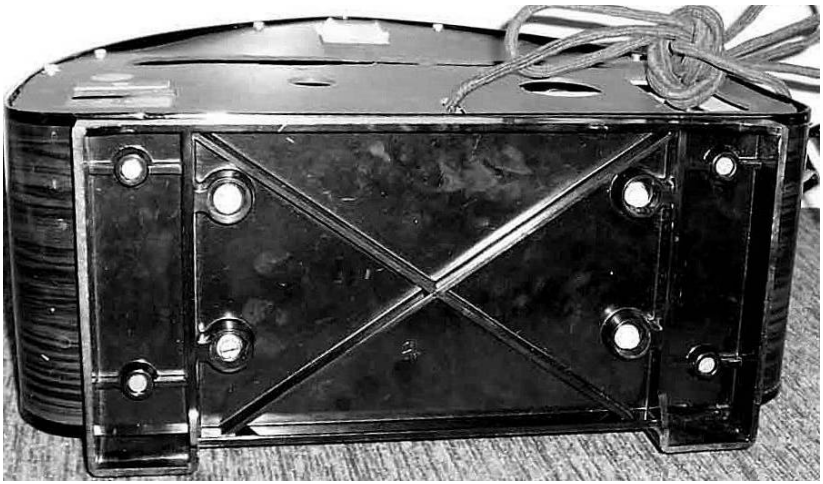


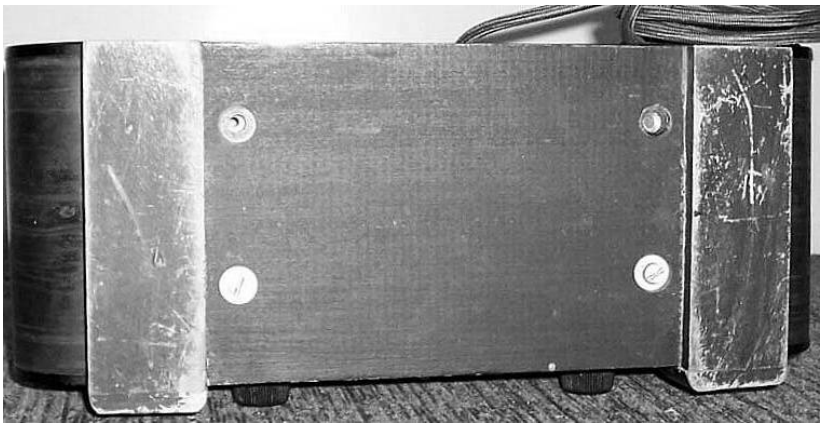


“Tickler control”
Variometer left, circuit above.

930A Wooden and Bakelite bases:

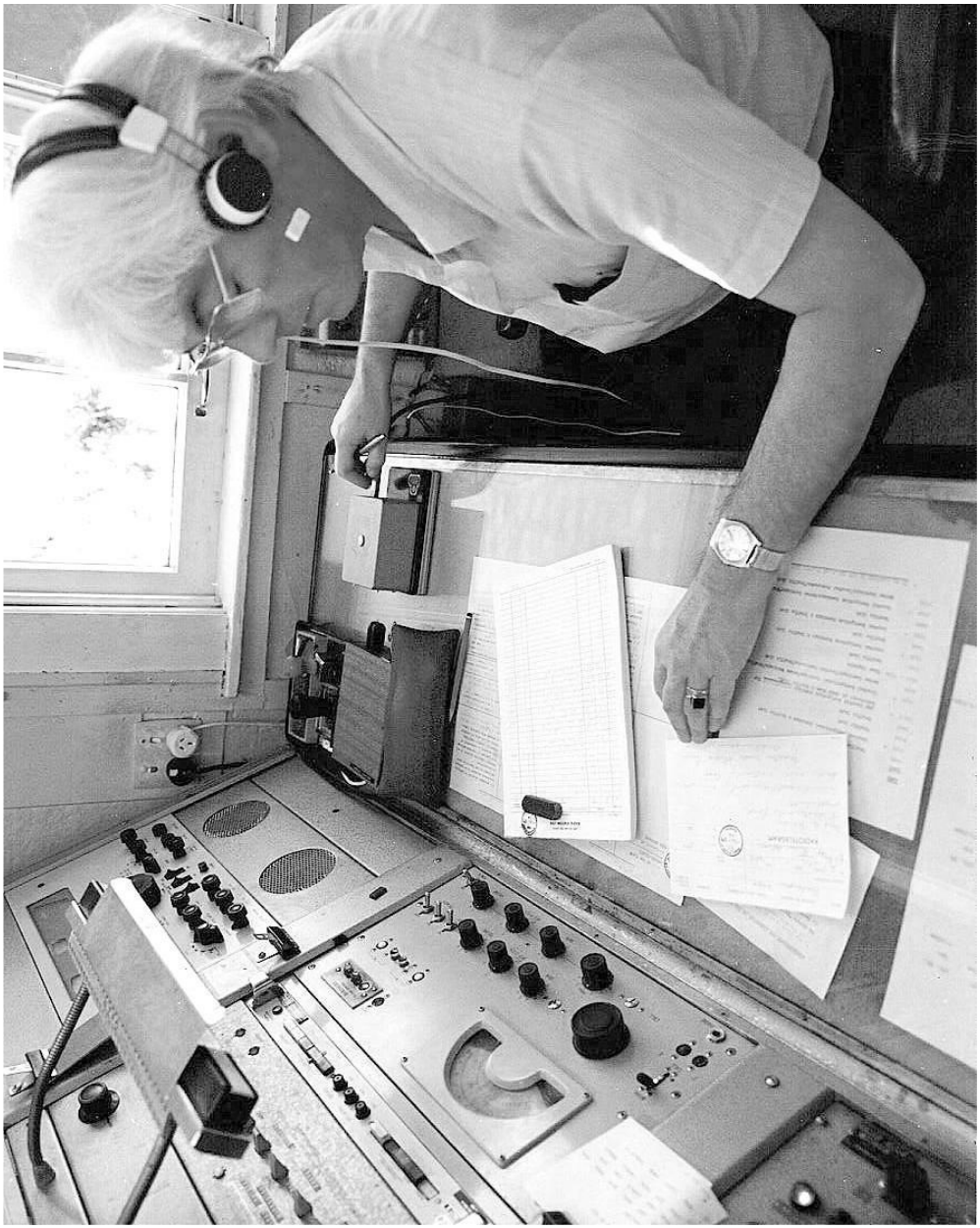






Picture Information wanted: "ZLW Radio Operator"

This picture (original in colour) has surfaced and any further information (verification or otherwise) would be appreciated by the editor.



Some “Murphy's Laws” as applied to Radio Servicing

1. Any faulty valve in the set will either be
   a. not in your stock
   b. unobtainable
   c. horrendously expensive
   or d. all of the above
2. Any component above suspicion will prove to be faulty. Also, any components unique to the set will be faulty and will also be faulty in all other sets of the same type you attempt to salvage.
3. The most inaccessible components will always develop faults or be already faulty.
4. Your test equipment will only mislead you when you believe it 100%.
5. Intermittent faults will only manifest themselves when the chassis is in the cabinet. When the chassis is out on the bench the fault will not show.
6. The circuitry in your set will differ from your service data, especially in the area of the fault. Any creases, smudges, joins or staple holes in your diagram will always obscure the area/component you are interested in. Any unreadable values on a component will also be unreadable on the circuit diagram.
7. Only when you have cleared a simple fault will you realise it has a complex cause.
8. A complex fault will have a simple cause.
9. Only after removing twenty screws and unsoldering ten terminations to access a part, will you discover that the part could have easily been accessed by simply removing two screws.
10. The most difficult screw to access will always be the tightest.
11. The rarity, and replacement cost of a component will be directly proportional to its likelihood of being faulty. The difficulty of access to the component will be the square.
12. Sets with the most awkward and most complex tuning drive arrangements will require re-stringing.
13. When the design engineer is present the item works fine; when he's not there it doesn't.
14. The cost to repair an antique radio always far exceeds the fair market price of a fully functional radio of the same model.
15. When checking a series heater string, the faulty valve will always be the last one you check.
16. After spending days fixing a problem and having taken the radio apart 10 times, when you put it back together for the final time, you will inevitably break something you can not replace or repair.

MARKETPLACE

Advertisements for the next bulletin should reach the editor by the 15th of the prior month. These must be neatly hand printed, typed or printed on a separate page, posted to the NZVRS (for details see page 2) or emailed to *nzvrs@pl.net* Please - no verbal or telephoned adverts, also don't forget to include some contact details; eg postal, telephone & email if applicable. There is no charge for members' adverts but please remember that the NZVRS is not responsible for any transactions between members.

AVAILABLE

Valve Cartons – plain white flat packs
- Small & GT size $12 per 100
- Medium size $15 per 100
- Large size $25 per 100

Plus post and package per order.
Contact: Paul Burt, 44 Hastings St West, Christchurch 8023.
Tel: 03 - 960 7158, Mob: 021 0245 0084
Email: **dawn.lloyd@clear.net.nz**

NZVRS CAPACITORS for sale to members only please order via Gerry Billman, 30A Rowan Rd. Epsom, Auckland 1023.
Email: **billman@ihug.co.nz**
Tel: 09 - 625 6568
Metal polyester film, axial leads, (µF):

0.01	630 Volts	50 cents each
0.022	630 Volts	50 cents each
0.033	630 Volts	50 cents each
0.05	630 Volts	50 cents each
0.1	630 Volts	50 cents each
0.22	630 Volts	50 cents each
0.33	630 Volts	50 cents each
1uF	400 Volts	$1.00 each

Electrolytic capacitors, polarized, axial

10µF	450 Volts	$**1.50** each
20µF	450 Volts	$**2.00** each
40µF	450 Volts	$3.00 each
47uF	450 Volts	$3.50 each
100µF	450 Volts	$5.00 each

Lamps 6.3 volts 150 mA (low wattage)
MES & Bayonet 50c each
Please add $3.50 per order for post & package or contact Gerry direct for a postage quote. All cheques to be made out to the 'NZVRS' (and crossed "Not Transferable") please.

For Sale

1 x **Pye mantel all wave PZ92**, 6 valve radio. Price $70. no viewing except by previous phone appointment or shipping.
1 x **Pye Bakelite** all wave bands 5 valve **Cambridge model**, these models are excellent for shortwave reception, bandwidth. Price $75.
Contact: Mike Edwards 47 Martyn St. Waiuku 2123.

Ex army **Mk II ZC1**. Has been used as a receiver only for short wave reception. Please contact Des Davey by letter for further details.
Des Davey, 16 View Road, Te Kuiti 3910.

WANTED

I was wondering if I could place an advert on behalf of the Ferrymead Aircraft museum restoration group? Sure!
The Ferrymead Aircraft Museum restoration group need both a **Bendix TA-2J** and Marconi **T1154 transmitters** for their aircraft which I am happy to restore if these can be found, Unfortunately, I do not have a spare T1154 for them myself - mine is already spoken for - so I would like to obtain each of these in re-storable condition if possible.
Thank you. Best regards, Ian Thompson (Christchurch) <ian.thompson@taitradio.com>

Wanted to buy a **ground plane CB antenna** in good working order for my CB set. Contact Des Davey, 16 View Road, Te Kuiti 3910

Wanting an **ARC-5 239 kHz 3rd IF Transformer** (7269). Also, a **T-17 microphone** as used with 48 transmitters, or a **PL-68 plug** as used with these microphones.
Contact: Bill Cousins, 20 Buick Street, Blenheim 7201 Tel: 03-579 3121
Email: b.cousins@xtra.co.nz

Wanted, a **Hallicrafters SX-28 receiver**.
Contact Jeff King Tel: 03-332 5446 (evenings), or email: jeff.king@tait.co.nz

I'm trying to find the following bits to finish off a couple of projects:

- 2 x **6CY7** for a "Rock-Ola" chassis, proving hard to find as they were usually only used in the U.S.
- 1 x **ECC803S** Twin Triode.
- An **EL37** tube to replace a failed one and make a pair for a PP output stage.
- An output transformer for a **Leak TL12** plus, or a chassis, mine is arcing and I don't know anyone that re-winds these now.

Any help appreciated, Regards, Dave Kemp.
Tel: 09- 376 2475 or Mob: 027 724 7244
1/26 Aliford Ave, One Tree Hill, Auckland
Email: me@kempy.com

Wanted: chassis and speaker for COMPANION, JOHNS LTD, MODEL 55BC, BY WELLMAYDE. Contact Al Watson, 30 Newman Ave, Brightwater, Nelson, ph 03- 542 3733, email: alandmarg@xtra.co.nz

Wanted: Brass Escutcheon for Philco 70
F4 Speaker for Atwater Kent model 60
Gareth Cawood Phone 09- 626 6587
"Gareth Cawood"
<garethcawood@gmail.com>

Past Sales or Auctions

The Society wishes to thank Steve Kenyon for a recent generous donation of books and components to the Society. These belonged to Ward Kenyon, Steve's late Father who worked for the railways and lived in Huntly. Ward had an interest in electronics and enjoyed, studying course notes and building little battery powered projects as a hobby. His projects were well constructed and often cleverly housed in recycled cases and boxes. Over the years he had accumulated many tools and components to aid with his hobby.
At the last NZVRS meeting the books and components were included in the donated items for the members' auction. The sum of $94 was raised for the club, and the gear now has keen new owners.

Also at the last auction night the sum of $127 was raised from goods donated by John Pettit and Basil Padgett

The Radar Man

If you should meet upon the street,
a man equipped with dipole feet
with a family of curves trailing behind,
he's a Radar Man with a micro mind.

His eyes take on a neon gleam.
His ears extend to a Yagi beam.
His mouth becomes another pulse gate,
His heart pumps blood at a video rate.

With micro-seconds and micro-waves,
and micro-volts he spends his days,
and therefore in the course of time,
He eventually develops a micro-mind.

This Radar Man, with the passing years
attains infinite impedance between his ears,
and finally succumbs to a heavy jolt,
from what he thought was a micro-volt.

The doc looked up from his microscope,
turned to his colleagues, and softly spoke
"No trace of a brain can I find,
He's a Radar Man with a micro-mind."

(Courtesy of the South Dorset Radio Society)
See www.alphalpha.org/radar/poem/story.html