

The Vintage Wireless and Gramophone Club of Western Australia Inc.

RADIO-GRAM

Issue 141

December 2023



News from the Vintage Wireless and Gramophone Club, Perth. WA.
This issue comprises the March 2023 to November 2023 Meetings.



At the April 2023 meeting Norbert Torney gave an informative Short Talk on the many applications of ohmmeters and did a Show n Tell on an attractive 1935 Philips radio



This ICOM HF transceiver model IC-740 was auctioned at the March meeting and drew some considerable attention.



Mitsubishi Vertical Music Centre X-10 displayed by Norbert at the August meeting



Jat the August meeting John Paskulich showed his partly-faked gramophone built from various parts.

VINTAGE WIRELESS AND GRAMAPHONE CLUB OF WESTERN AUSTRALIA Inc.

EXECUTIVE 2020-2021

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Treasurer: Barry Kinsella

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Committee: Rob Nunn, Barry Kinsella, Andrew Wakeman, Vince Taylor, Reg Gauci, Tony Bayliss, Tony Barbatano

Assistant Committee : Sydney Pateman (Auctions).
(Librarian-vacant).

Editor: Rob Nunn; Publicity/Website: Reg Gauci

Meetings are currently held on the fourth Monday of each month (with the exception of December) at 8pm in the Blue Gum Community Centre—Function Room. Visitors are always welcome!

Although the main interests of members are wireless receivers and gramophones (or phonographs) , many members are also interested in amplifiers, telephones, musical boxes, tape recorders, television receivers and other associated equipment and memorabilia.

Radio-Gram is currently published twice per year, in about February and September, but varies.

Send articles and advertisements to the editor :

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Phone : 0418 922 629

Please make sure your 'copy' is submitted by the meeting night prior to the issue month.

Advertisements are placed FREE of charge, but should be of a non-exploitive nature.

Subscriptions: \$35 (payable in June)
(Concession rate: \$30)

Editorial



Rob Nunn

Welcome to Edition No 141 of our Club magazine, "Radio-Gram"! This issue covers our club activities during the period from March to November 2023.

The magazine complements our Club Website, <http://vwgc.org.au> managed by our Vice-President Reg Gauci.

Members are reminded to refer to the website for all club activities.

Our magazine consists of 40 pages and we try to keep the number to 40 to keep costs down. During the period of this current issue we had more contributions from members than we could fit into the 40 pages. My apologies to those contributors whose stories did not make this edition, but rest assured they will be first in line in the next edition.

At our **March 2023** I was pleased to make a presentation on the history of the invention of bakelite, how it was made and its widespread uses. Andrew Wakeman followed up with an informative talk on bakelite radios and how to take care of them. The donated auction made \$530 for the club

At our **April meeting** there were short talks from Barry Kinsella on Stewart Warner radios, Dennis Grimwood on Bakelite in Radio Components, Norbert Torney on Ohm-meters and Rodney House on How Many Plays (gramophone needles)

A DVD made by Tim Gillett in 2009 on a presentation by the late David Hawks was played at the **May meeting**. A donated items auction made \$399 for the club.

The AGM and Members Auction was held on 26 June 2023. The Committee was re-elected after all positions were declared open to members. The Members Auction made \$518 for the members participating.

At the **July meeting**, Russell Nash gave an interesting talk on the history of 6WN-6WF, and a donated items auction made \$420.

At the **August meeting** Norbert Torney gave an interesting talk on the history of Vertical Record Players, with an excellent display of examples of these rare sets. A donated items auction made \$693—an excellent result.

Vince Taylor gave an informative talk on the history of Musgraves stores at the **September meeting**. A donated items auction made \$259.

Syd Pateman gave a talk on Coin Collecting at the **October meeting**. Thanks Syd.

The annual Christmas dinner was held on 27 November, and was very well received by members attending.

Best Wishes and Happy 2024.....Rob Nunn (Editor)

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CONTRIBUTORS TO ARTICLES IN THIS EDITION



John Paskulich



Vince Taylor



Norbert Torney



Richard Rennie



James Wemm



Rob Nunn
-Editor



Rod Edward



Fred Franklin



Rodney House

COMMITTEE MEMBERS 2023—2024



President and Editor
Rob Nunn



Webmaster and Vice-President
Reg Gauci



Secretary
Andrew Wakeman



Treasurer
Barry Kinsella



Minutes Secretary
Vince Taylor



Tony Barbatano
-Auctioneer



Committee
Tony Bayliss

ASSISTANT COMMITTEE 2023—2024



Assistant Auctioneer
Syd Pateman

Recent Events

22 May, 2023—DVD videotape recording of a presentation made by the late David Hawks on memories of his career as a broadcaster on radio and TV. (thanks to Tim Gillett)



Tim Gillett

26 June, 2023— AGM and Members Auction.

24 July, 2023— History of Radio stations 6WN and 6WF. (Russell Nash)



Russell Nash

28 August, 2023—Vertical Record Players (Norbert Torney)



Vince Taylor

25 September, 2023—The Story of Musgroves (Vince Taylor)

23 October, 2023—Coin Collecting—Syd Pateman



Syd Pateman

27 November 2023—End of Year Dinner (catered)

Coming Events

22 January 2024—Members Auction

26 February 2024— “In Memory of, and Commemoration of the work of Tony Smith” (Richard Rennie)



Richard Rennie

25 March 2024— “How to Test and Operate a Classic Crystal Radio” (Norbert Torney)



Norbert Torney

22 April 2024— Short-Talks by members

27 May 2024— Video TBA

24 June 2024— AGM and Members Auction

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at clubrooms Monday 27th March 2023. 27 members present.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn. Members are asked to sign the attendance book.

Keep in touch with the club activities via the website. The club is still looking for more speakers for the monthly meetings. We wish to continue the short talks. These need only be 10-15 minutes long and we can group three or four together as we have done successfully in the past.

Tonight Rob Nunn will present a slide show on a memorial to the late Tony Smith. He will also present "The Story of Bakelite" tracing the history of the invention, how it was made and its widespread uses. Andrew Wakeman will follow up with a discussion of bakelite radios and pointers on how to take care of bakelite radios.

Secretary's Report.

There was no incoming or outgoing correspondence. Andrew reminded members that there was no guarantee of quality or reliability for items purchased in our auctions. The secretary's report was moved as correct by Tony Bayliss and seconded by Ray Mahoney. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. Treasurer reported \$2006.84 in bank a/c and \$6906.24 in term deposit @ 3.7% pa. The report is available on request to any member who wishes to view it. Moved as correct by Richard Rennie and seconded by Dennis Grimwood. Passed unanimously.

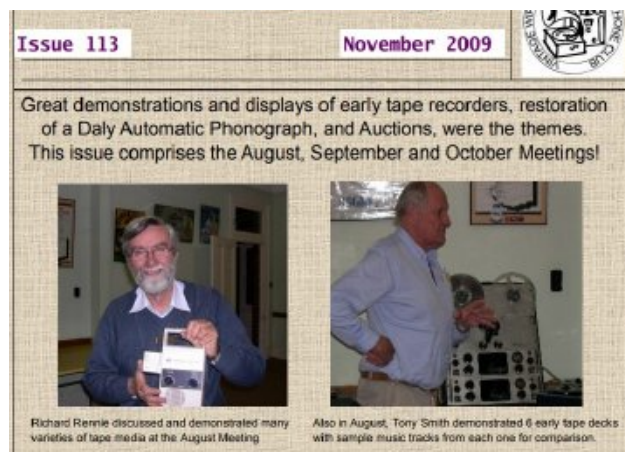
General Business.

Items of Interest.

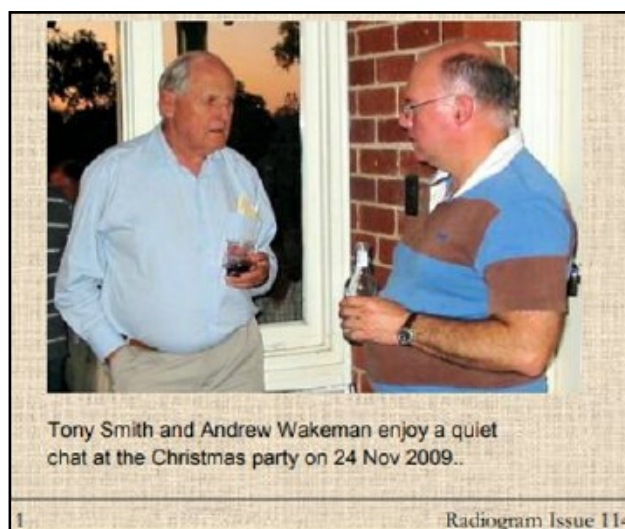
James Wemm showed a 1965 transistor bakelite, German record player made in 1965 purchased in an auction. Richard Rennie mentioned how he uses Platen Clean to soften rubber wheels and bearings in gramophones etc Other hints are chrome wheel cleaner for cleaning bakelite (Autosol from SuperCheap). Vaseline also useful. Dennis Grimwood mentioned some of his experiences with bakelite while working for AWA.

Meeting closed 8.10pm.

Right—Tony made many contributions to our club magazine, sharing his experiences in radio repairs etc



Rob gave a presentation on the late Tony Smith and his contributions to our club.



Tony Smith with Andrew Wakeman at our 2009 Christmas party.

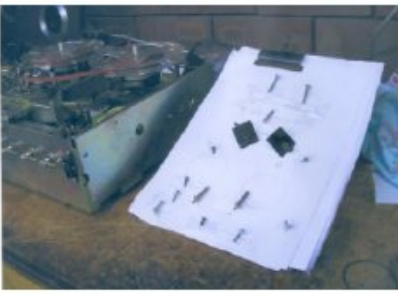
TECHNICAL TIPS

Tony Smith

Are you dismantling something new or complicated?
Here are some do's and don'ts.

DON'T trust to memory - note everything.

DON'T ever put nuts, bolts or screws on the bench, even if it is a simple operation. You may have to answer the phone or go to another job - One can easily forget where items go or, coming back one bump can mix things up.



Instead, always use small containers as you work

WARNING

AS WITH ANY SECOND-HAND ELECTRICAL APPLIANCE **OLD VALVE RADIOS** SHOULD BE INSPECTED, CHECKED FOR DAMAGE AND ELECTRICALLY TESTED BY A COMPETENT, QUALIFIED PERSON BEFORE BEING PLACED INTO SERVICE.

SOME COMPONENTS IN OLD VALVE RADIOS DETERIORATE WITH AGE AND CAN BECOME DANGEROUS. THE **POWER PLUG** SHOULD BE CHECKED TO ENSURE IT IS WIRED CORRECTLY AND THE CABLE INSULATION INSPECTED FOR DAMAGE.

THE FACTORY FITTED 2 WIRE POWER CABLE FITTED TO MOST OLD RADIOS DOES NOT MEET MODERN SAFETY STANDARDS AND SHOULD BE REPLACED WITH MODERN THREE WIRE CABLE THAT CONTAINS A PROPERLY TERMINATED EARTH WIRE.

HIGH VOLTAGE ELECTROLYTIC CAPACITORS USED IN THE RADIO CAN BECOME ELECTRICALLY LEAKY WITH AGE, MAY OVERHEAT AND CAN EXPLODE VIOLENTLY. SUCH LEAKAGE CAN ALSO CAUSE THE POWER TRANSFORMER TO OVERHEAT AND SET FIRE TO THE RADIO.

PAPER CAPACITORS USED IN THE RADIO ALSO ARE PRONE TO ELECTRICAL LEAKAGE, RESULTING IN OVERHEATING. HIGH VOLTAGES USED IN THE RADIO REPRESENT AN EXTREME SHOCK HAZARD AND CAN KILL.

27 March 2023 meeting—The Story of Bakelite

History of experimentation

1872 – Adolf von Baeyer – used phenols and formaldehydes to make a “black guck”, considered useless

1891 – Werner Kleeberg – “could not crystallise this mess”, nor purify it to constant composition.

Late 1890's – Leo Baekeland produced a soluble phenol-formaldehyde called “Novolak” (no market, but used today)

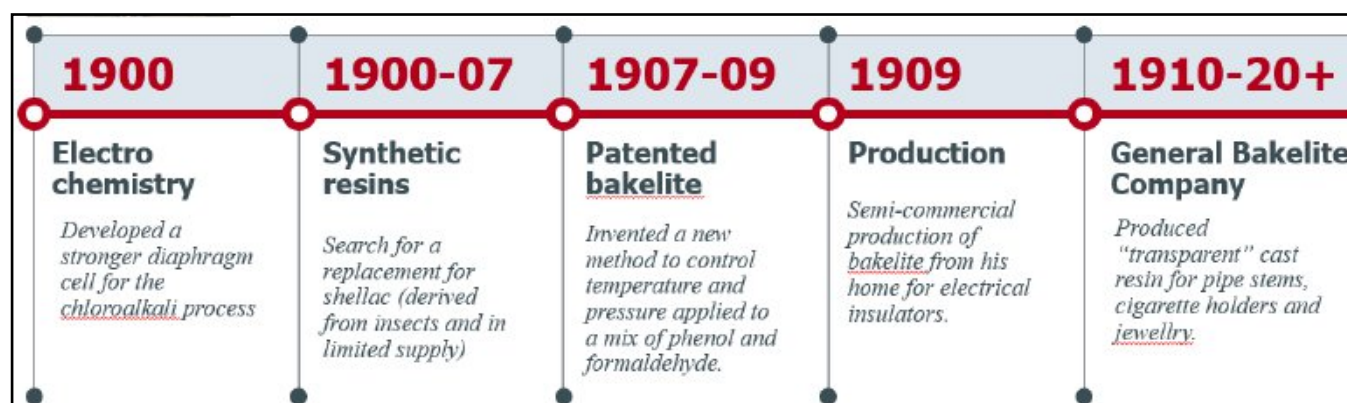
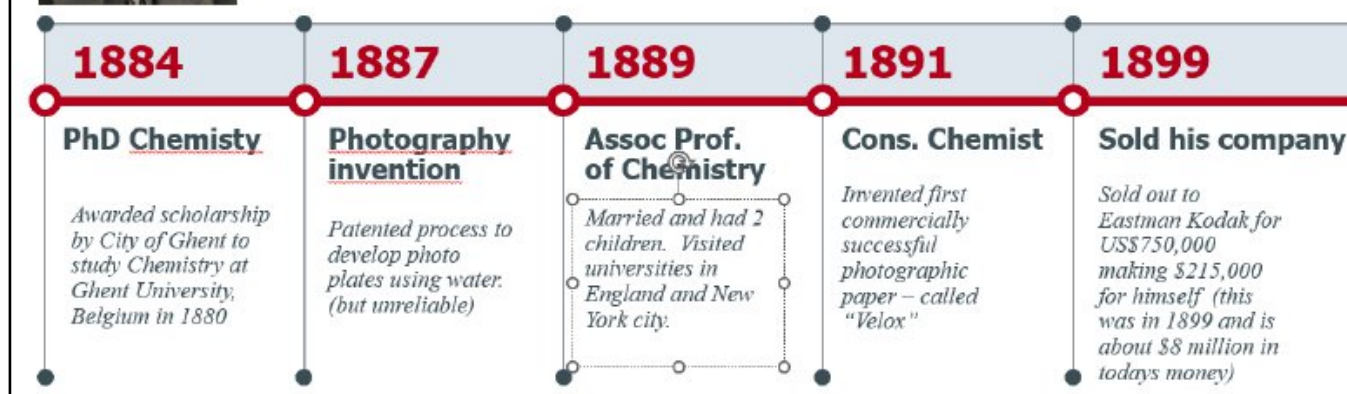
Early 1900's – Leo Baekeland learned how to control the phenol-formaldehyde condensation reaction to produce the first synthetic resin.

1909 – Leo Baekeland patented bakelite and started production



Leo Baekeland - background

Born in Belgium 1863. Son of a cobbler and housemaid.



27 March 2023 meeting—The Story of Bakelite

Examples of bakelite products – radios!



1940 HMV Deco



1941 Astor Mickey DL



1940's Astor Mickey DL



1942 Monarch Mickey DL



1940 Airzone Radio Star



c.1940's Tasma

At the 27 March 2023 meeting, some examples of bakelite mantle radios shown in "The Story of Bakelite" presentation. These models would be popular with most serious collectors



1938 Airzone 520 Radio Star



1949 Astor JN radio



1951 Monarch FJM radio



1950 Healing (blue) radio



19 Genalex 600-601 series



1949 Peter Pan (snail) radio

27 March 2023 meeting photos



Members examine the considerable number of items up for the March 2023 auction.



John Paskulich did a show n tell on the results of an experiment he did on bakelite



A display table of bakelite items complemented the presentations on bakelite.



At the March auction members had the opportunity to bid on this National Panasonic DR 48 Communications receiver, circa 1976 in very nice condition.

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at clubrooms Monday 24th April 2023. 25 members present.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn. We have apologies tonight from Reg Gauci, Ray Mahoney, John Pascolich, Richard Jefferies, Richard Yeates. Members are asked to sign the attendance book.

Thanks to all who have submitted items to Radiogram magazine and the latest issue is available for members to take tonight. Remember to cross your name off the list if you do so. Keep in touch with the club activities via the website.

The club is still looking for more speakers for the monthly meetings. We wish to continue the short talks. These need only be 10-15 minutes long and we can group three or four together as we have done successfully in the past.

Tonight's short talks are; Dennis Grimwood- Bakelite and examples used in restoration, Rodney House- How many plays from a gramophone needle, Barry Kinsella-Stewart-Warner Radios, Norbert Tourney- Ohm meters.

Secretary's Report.

There was no incoming or outgoing correspondence. We have registered for the club to exhibit at the Have A Go Day event Wednesday 15th November. This event continues to be a good opportunity for us to advertise to the wider community.

The secretary's report was moved as correct by Rodney House and seconded by Tony Barbatano. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. The report is available on request to any member who wishes to view it. Moved as correct by Sid Pateman and seconded by Bill Oxxwell. Passed unanimously.

General Business.

Richard Rennie- Wireless Hill Museum has a new exhibition opening next week on Transistor Radios. Solid State - A Revolution in Radios will run from 29th April – 8th Oct, Wed – Sun, 10am – 4pm.

Items of Interest.

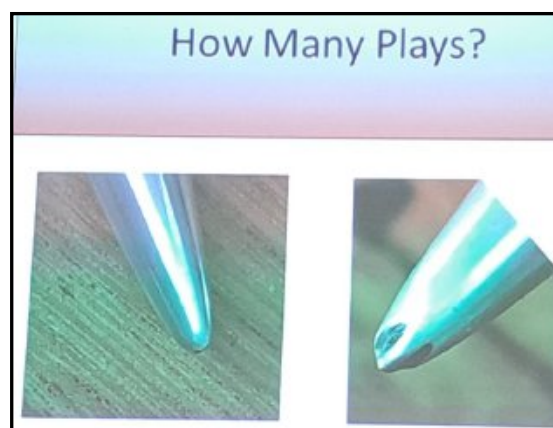
Norbert Tourney- Table Radio, wood case, Phillips Radio – 1935 wood case. Attractive Errers brand, possibly badge engineered.

Meeting closed 8.10pm.

Tonight's presentation is a series of short talks.



Rodney House gave an interesting Short Talk called "How Many Plays" in relation to the best way to use gramophone needles.



Barry Kinsella also gave an interesting Short Talk on Stewart-Warner radios

24 April 2023 meeting



Norbert gave a most informative Short Talk on the many uses of ohmmeters in radio applications.

There are three main types of ohmmeters: **series ohmmeters**, **shunt ohmmeters**, and **digital ohmmeters**

1 2 3

- **Series ohmmeters:** The simplest type of ohmmeter, consisting of a current source (such as a battery), a series resistor (also called a current-limiting resistor), and a moving-coil meter. To measure the resistance of a component, the component is connected in series with the ohmmeter, and the current passing through the component is measured. The current is then displayed on the moving-coil meter, which is calibrated in ohms.
- **Shunt ohmmeters:** A more accurate type of ohmmeter than a series ohmmeter. It uses a shunt resistor, which is a low-value resistor that is connected in parallel with the component being measured. The voltage drop across the shunt resistor is proportional to the current passing through the component, which allows the resistance of the component to be calculated using Ohm's Law. Shunt ohmmeters can be either analog or digital.
- **Digital ohmmeters:** Digital ohmmeters use a microprocessor to measure resistance. They can be either two-wire or four-wire instruments. Two-wire ohmmeters use the same leads for both the current source and the current measurement, which can lead to errors due to contact resistance between the instrument and the component being measured. Four-wire ohmmeters use separate leads for the current source and the current measurement, which eliminates errors due to contact resistance. Digital ohmmeters can also have additional features, such as autoranging, which automatically selects the best range for the resistance being measured, and data logging, which allows the user to record resistance measurements over time.

The choice of an appropriate type of ohmmeter depends on factors such as accuracy and precision required for an application, budget, and user experience level 1.



Above—some of the members at the April 2023 meeting.



Left—A look inside the cabinet of Barry Kinsellas Stewart-Warner radio which was the subject of his Short Talk at the April meeting.

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at clubrooms Monday 22nd May 2023. 29 members present.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn. Apologies from Reg Gauci, Richard Jeffery and Richard Yates.

The Club Magazine is in preparation and contributions from members are always welcome. Members are asked to keep in touch with upcoming events via the website. If anyone would like to present a short talk then please get in touch with a member of the executive.

Tonight we will be presenting a DVD of a lecture given to the club in 2009 by the late David Hawkes. Afterwards there will be an auction of donated goods.

Members are asked to check if they have any Club library books at home and return them as soon as possible. The next meeting on the 26th June will be the AGM and member's auction.

Secretary's Report.

Have a Go Day is on 15th November and the clubs application has been accepted. Incoming correspondence was a request from Mr Ryan Magee to use an image that had appeared on our website of a needle cutter. Request was approved on condition of source acknowledgement.

There was no outgoing correspondence. The secretary's report was moved as correct by Tony Bayliss and seconded by Paul Hansen. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. A copy is available for viewing by members. There was no income or expenditure in the last month. Moved as correct by John Pascolich and seconded by Merv Thompson. Passed unanimously.

General Business.

John Pascolich- Is there to be any change to fees this year? Answer is that the committee have not discussed the matter and at present there are no plans.

Paul Hansen- Has a 1980s Sansui sound system in a cabinet for sale. Tape drive and amp need work. Price \$200. See Paul for details.

Vince Taylor- Knows of a Pianola that is looking for a home. Very cheap, possibly free. See Vince for contact details.

Items of Interest.

Norbert Tourney- 1) 1927 Atwater Kent 35 FM receiver. Was an empty chassis that has been rebuilt as a 3 tube,

FM receiver. Running with an Atwater Kent speaker that tops out at 6Khz. 2) Transistor radio purchased at a recent club auction that is a work in progress.

John Pascolich- PRC 64 Us Army Radio set and operation manual. Vietnam War era. Designed for covert use.

Meeting closed 8.27pm.

Tonight's presentation will be a recorded talk from the archives by David Hawkes.



DAVID HAWKES

Tonight we are playing a DVD that was recorded during a presentation to our club in 2009 (14 years ago) by the late **David Hawkes** who died in 2021 at age of 83 yr

David, a veteran broadcaster worked for the ABC and commercial networks in New South Wales, Queensland and Western Australia.

He first joined the ABC in Brisbane in 1962 before moving to Perth, where he spent 33 years on air. He held a number of roles, including news-reading, hosting game show **Fair Go!**, co-hosted the cooking program **Two for the Pot**, and anchoring current affairs program **Statewide** and link for many election night Tally room specials.

From 1987 until his retirement in 2003, he was reading ABC news bulletins and presenting 6WF (720) Breakfast session.

Former colleague Peter Holland said, "David started when he was extraordinarily young.

"I think he was 15 when he left school and became an announcer at a commercial station in New South Wales or Queensland.

"After he came to the ABC in Perth, he worked briefly with 6PR and then he went down to Bunbury to the television station GWN."

Hawkes had a big impact on broadcasting training in Western Australia. He the first coordinator of the WA Academy of Performing Arts broadcasting course, which he created with Dr. Geoff Gibbs.

.....Rob Nunn

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held Monday 26th June 2023. 34 members present. 1 visitor.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn. Apologies from Russel Nash, James Wemm, Ray Mahoney, Don Ripper. Visitor Louis Gilgorov. Attendees are asked to sign into the attendance book.

Edition 141 of the club magazine is in preparation. As always we are looking for contributions. Case histories, profiles etc. are all welcome. Everyone is reminded to wear their badges and be sure to leave them behind at the end of the meeting. If anyone has an idea for a talk for future meetings then pass it on to a member of the committee.

Tonight will be the AGM and member's auction. Next month on the 24th July our speaker will be Russel Nash on the history of the ABC and Radio National transmitter stations in Perth.

Secretary's Report.

It is the member's auction tonight. Please ensure you keep track of your purchases to avoid mix ups. Thanks to Reg Gauci the website has been working well for donated items and queries. There has been no incoming or outgoing correspondence. The secretary's report was moved as correct by Tony Bayliss and seconded by Dennis Grimwood. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. The club is doing OK financially. We seem to be quite close to break-even every year. The auctions of donated goods have been generating a reasonably good income for the club to cover running costs. Moved as correct by Richard Rennie and seconded by Tony Barbatano. Passed unanimously.

General Business.

No general business.

Items of Interest.

John Paskulich- Received a phone call from an op-shop to see a phone that was gifted for sale. At first sight appears to be a wall phone from the 1920s. Research determined it to be a reproduction phone made in Perth from vintage (circa 1910-50) Ericson and Bell parts. It appears that many were made and are circulating on the market for the unwary.

AGM

Rob Nunn wishes to thank the present committee and office bearers for their work over the past 12 months. The minutes of the last AGM were passed unanimously. At present all positions are open if anyone wishes to nomi-

nate from the floor. In the absence of any nominations from the floor the existing committee and office bearers were re-elected for the coming year. The committee stands as;

PresidentRob Nunn.
Vice PresidentReg Gauci.
TreasurerBarry Kinsella.
Secretary..... Andrew Wakeman.
Minutes Secretary..... Vince Taylor.
Librarian.....not appointed.
Auctioneers.....Tony Barbatano and Sid Pateman.
Webmaster.....Reg Gauci.
Magazine Editor.....Rob Nunn.
Committee.....Tony Bayliss.

Meeting closed 8.42pm.

Member's auction.



John Paskulich shows the reproduction Ericson and Bell telephone made in Perth from vintage c.1910-50 parts



OSI "Sing-A-Long" novelty plastic cassette player. C 1960's

26 June 2023 meeting



AWA Magictape tape recorder c.1953 was auctioned at the June meeting at brought \$10



Sanyo FM/AM radio cassette recorder, c.1960's up for auction fetched the princely sum of \$2!



Paton Electrical Pty Ltd valve and circuit tester. (Sydney, Aust) was auctioned for \$25.



Sanyo stereo 4-band radio cassette recorder, c.1960's up for auction fetched \$5!



Realistic Patrolman CB-60 AM/CB/VHF/UHF radio receiver. C.1960's was auctioned for \$20



Pye portable model RC201 AM/FM radio cassette recorder was auctioned for \$5.



Members review items up for auction. The June auction is for Members sales.

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at clubrooms Monday 24th July 2023. 32 members present, 1 visitor.

8.00pm. Meeting commenced.

The meeting was opened by Vice President Reg Gauci. A special welcome to visitor Stephen Mudge. Apologies from our President Rob Nunn who is away on holiday. Tonight's presentation will be by Russel Nash on the history of the ABC Radio transmitter stations in Perth.

Secretary's Report.

There was no incoming or outgoing correspondence. Tonight we have a large number of donated items for auction. These have come from Barry Jenkins. There are more items from this cache; about 5 consoles and 15 more radios. Pictures of the consoles will be circulated on line. The remaining smaller items will be auctioned at the August meeting.

The secretary's report was moved as correct by Kevin Chant, seconded by Sid Pateman. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. A copy is available for members to peruse. There are 40 paid up members. About 20 members are yet to renew their subscriptions. Moved as correct by Dennis Grimwood and seconded by John Pascolich. Passed unanimously.

General Business.

There was no general business.

Items of Interest.

Tony Bayliss- Edison Fireside cylinder player. Recently purchased an Edison Fireside and Edison Standard. Neither were working. The Fireside has been put into working order with help from Rodney House and Richard Rennie. Demonstrated.

Meeting closed 8.25pm.

Tonight's talk by Russel Nash on the history of the ABC Radio transmitter stations in Perth

Right—At the July meeting there were a large number of donated items mainly from Barry Jenkins. Many thanks to Barry for his generosity which provided needed funds to the club.

Radio National

Russell Nash



In 1938 Western Australia's second Radio Broadcasting Station (6WN) hit the airways. It was designated an A Class station as was 6WF. 6WF was initially installed on the Wesfarmers building in the Perth City in 1924...

The 6WN transmitter was installed on the 6th floor of the General Post Office in Perth in 1938 and just recently the GPO building was purchased and is now occupied by the Swedish fashion retailer H&M.

The GPO building at Forrest Place Perth was built in 1923.



Russell Nash gave a presentation on the history of Perth ABC radio stations. Russell has previously contributed articles on this subject, published in Radio-Gram 131 and 133. (clip shown above)



24 July 2023 meeting



Some of the many donated items at the July auction
(with thanks to Barry Jenkins for his generosity)



Ekco radio made only \$5 in the auction.
Made in UK by E.K Cole Ltd who started
making radios in 1927.



A large box of mini-valves up for auction made \$10,
a bargain for collectors.



Plenty of valve spare parts were available



Auctioned at the July meeting -
Front left : STC Emperor A5210 bakelite radio (\$20)
Front middle : Philips 101 bakelite radio (\$15)

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at clubrooms Blue gum Community Centre Monday August 28th 2023.

31 members present.

8.04pm. Meeting commenced.

The meeting was opened by President Rob Nunn and apologies noted for Reg Gauci, John Parker, Barry Kinsella, Richard Yeats and Tom Constant.

Tonight's presentation will be given by Norbert Tourney on vertical and linear tracking record players. An auction of donated items will follow. Next month's presentation will be by Vince Taylor on the history of Musgroves Ltd.

Club magazine Radiogram 141 is in preparation. Contributions are welcome. With the success of the short talks, we have decided to book more. See Rob or a committee member if you are interested in participating.

There has been an email from the City of Melville to advise that the building will be undergoing renovations and will be out of use for the first 6 months of 2024. The Bull Creek Community Centre may be an option.

Subs are due. If you are not financial, please pay up. Sad news that member Robert Cooper who with his wife contributed prizes to our end of year dinner has passed away. Commiserations from the club, he will be missed. Tom Constant has had surgery for Thyroid cancer and is doing well.

Secretary's Report.

The community grant of \$350 from the City of Melville has been acquitted and a letter received advising of such. Thanks to Rob Nunn for organising the grant application and the correspondence. Memberships are due. Please pay your subs as you need to be a financial member to bid in the auctions.

Many thanks are accorded to Barry Jenkins and Bruce Barker for items that have been donated to the club to raise funds at auction. There are still a number of console radios to be disposed of. Emails regarding them have been sent to members. Incoming correspondence consisted of issues #164 and #165 of the HRSA magazine Radiowaves. There was also a letter from City of Melville Community Grants Officer Fiona Smith. There was Outgoing correspondence.

The secretary's report was moved as correct by Tony Bayliss and seconded by Syd Pateman. Passed unanimously.

Treasurer's Report.

There is no report due to the absence of the treasurer. It will be tabled at the next meeting.

General Business.

John Paskulich- When will the club need to relocate?

Rob answered that the November meeting will probably be ok but nothing is firm as yet.

Norbert Tourney- has two 1937 Phillips chassis radios restored. Has one case (1937 Phillips Bakelite) and two chassis for same to get rid of.

Items of Interest.

John Paskulich- Indian reproduction gramophone (The Crapophone). How to spot a repro from the genuine article.

Meeting closed 8.27pm.

Tonight's presentation is by Norbert Tourney on vertical record players. An auction of donated items follows.



Some of our long-term members at the August meeting, from left Merv Thompson, Rodney House and Richard Rennie



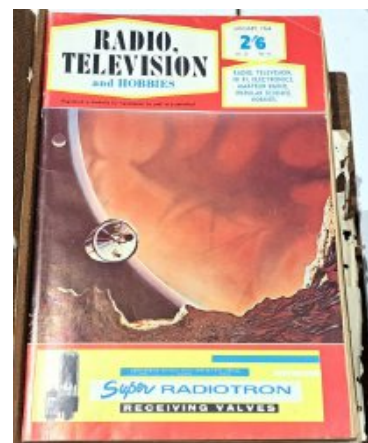
Astor bakelite table radiogram, with record player under the top lid (see below) c.1950's sold for a bargain price of \$17 at the auction.



28 August 2023 meeting



There was a good attendance at the August meeting to hear about vertical record players (Norbert Torney) and participate in a substantial donated items auction



A box of Radio, Television and Hobbies magazines

John Paskulich does a Show N Tell on a partly faked gramophone that he encountered.



A nice condition Astor Model GPM green radio was auctioned for \$25.



STC timber case mantle radio was auctioned

28 August 2023 meeting



Norbert Torney gave an excellent presentation on vertical record players with many display examples at the August meeting.



Mitsubishi Vertical Music Centre X-10



Sharpe Both Sides Play Stereo System VZ-2000, c.1970's, Vertical record player



Sharpe Both Sides Play Stereo System VZ-3000



David, Merv, Richard and Syd examine some of the numerous items up for auction.

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at Blue gum Community Centre September 25th 2023.

21 members present.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn and apologies given for Vice President Reg Gauci. Club magazine Radiogram 141 is in preparation. Contributions are welcome.

A committee meeting was held on the 13th September. Items for discussion were the upcoming program of speakers, the end of year dinner and the need of other premises during the proposed renovations of our present rooms.

Renovations are at present slated to start in the second half of 2024. Membership subs were due in June. If you have not already done so please pay up so you can enjoy the full benefits of being a financial member.

Tonight's presentation will be by Vince Taylor on the history of Musgroves Ltd. An auction of donated goods will be held after. Next month's presentation will be Syd Pateman on coin collecting.

The committee has been looking at other options for the November end of year dinner. The catering was disappointing last year and it is felt we can get better value for money. Andrew Wakeman has looked at the Rugby Club but it was quite expensive. Catered options are preferred but issues with expense and portion amounts are a problem. Monday nights are also problematic in that many venues are closed and there is an added expense regarding staff. Other options are where we do more of the catering ourselves. John Paskulich made a suggestion of platters.

Secretary's Report.

The current exhibition 'Solid State' at the Wireless Hill Museum finishes next month. Worth seeing if you have not already done so.

Have a Go Day is approaching. It will be held on Wednesday 15th November at Burswood Park. There is always lots to see and it is a good chance for the club to promote itself.

There was no Incoming or Outgoing correspondence. The secretary's report was moved as correct by Tony Bayliss and seconded by Tony Barbatano. Passed unanimously.

Treasurer's Report.

Apologies for the lack of attendance at the last meeting. Both reports were tabled as separate documents. Moved as correct by Rodney House and seconded by Dennis Grimwood. Passed unanimously.

General Business.

John Paskulich- Since tonight's talk is not strictly in keeping with the genre, is it ok to have talks that are not related to the core interests of the club. Rob Nunn replied that

the programme for the next 6 months is filled and looking good so the talks should be more on topic.

Items of Interest.

There were no items of interest.

Meeting closed 8.30pm.

Tonight's presentation is by Vince Taylor on the history of Musgroves Music Warehouse. An auction of donated items follows.



A number of items were donated for the September auction which followed Vince Taylor's presentation on some history of Musgroves in Perth.



Radio manuals for auction \$5



A box of wax cylinders for an Edison style phonograph was auctioned for \$25



23 September 2023 meeting

At the September meeting Vince Taylor gave an interesting presentation on the history of Musgroves in Perth



Above and below : "His Masters Voice—The Gramophone Company Ltd Sydney, NSW"



Musgrove's Ltd. (Lyric); Perth, WA (AUS)
musgrove
Model types

Musgrove's Ltd.

93 William Street, Perth (1923-1924)
 Lyric House 223, Murray Street Perth (1924)

Brand: Lyric

Musgrove's Ltd. was formed in December 1923 by four well known men in the music trade in Perth: MD Musgrove, AT Grey, RD Scott and FC Kingston. The company traded in Pianos, Player-Pianos, Phonographs and other musical instruments.

In 1929 they acquired the West Australian agency for **Stromberg Carlson** radios. In 1932 they advertised the "Lyric" brand radio.

"Lyric" radios were only advertised in the early 1930's and it is unknown if they were manufactured or re-badged by Musgrove's. They sold Stromberg Carlson radios well in the 1950's.

At the time of writing, 2017, Musgrove's Ltd is still trading as a music store in Perth.

1923

On the 19th March 1930, the company opened the radio transmitting station 6ML. The transmitter was housed on the top floor of Lyric House in a screened room, with a long wire antenna strung from the top of Musgrove's Ltd. to the top of the Post office building. The transmitter was closed in 1943 due to the lack of technical staff due to WW2.

Minutes of Vintage Wireless and Gramophone Collectors Club meeting held at Bluegum Community Centre Monday 23rd October 2023.

25 members present.

8.00pm. Meeting commenced.

The meeting was opened by President Rob Nunn and apologies noted from Reg Gauci and Brian Levy. Club magazine Radiogram 141 is in preparation. Contributions are welcome.

At a recent committee meeting the programme for next year was discussed. At our February meeting Richard Rennie will be presenting a talk on the work and career of the late Tony Smith. In March, Norbert Tourney will be giving a presentation on crystal radios. The club is also intending to do another collection of short talks. Memberships were due for renewal in June. If you have not yet paid, please do so to enjoy the full benefits of club membership.

Our end of year dinner will be held next month. An agreeable quote was received from WA Spit Roasts. The menu is roast beef and pork, potato bake, fried rice and vegetables. Apple crumble and custard is desert. A \$10 contribution from those attending is required and can be paid to the secretary / treasurer tonight or by direct deposit to the club bank account. We will be setting up from 6pm and dinner will be served 7.30pm. Tonight's talk will be by Syd Pateman on coin collecting.

Secretary's Report.

Have a Go Day is approaching. It will be held on Wednesday 15th November at Burswood Park. The next meeting will be the end of year dinner. Payment can be made tonight during the break or later by EFT. Payments are required by the end of the month. Partners are welcome.

There is a small auction on tonight after the talk. It features a console radio that featured in Richard Rennie's Encyclopaedia and was made by John Wishall in Netherlands.

There was no Incoming or Outgoing correspondence. The secretary's report was moved as correct by Tony Bayliss and seconded by Syd Pateman. Passed unanimously.

Treasurer's Report.

Tabled as a separate document. A \$100 donation was made by Rodney House. This is money received for the hire of a gramophone that was used in a film production. Moved as correct by Tony Barbatano and seconded by Dennis Grimwood. Passed unanimously.

General Business.

John Paskulich- How much more favourable was the quote received for the dinner compared to last year? Andrew Wakeman replied that although he did not have the exact numbers handy, the quote was a few hundred dollars cheaper than last year for a better product.

David Tennant- has been watching a number of YouTube presentations lately. Was wondering if it would be an idea to film our presentations and upload them on a club account?

Syd Pateman- there will be a coin collecting fare held at Gloucester Park next month.

Items of Interest.

There were no items of interest.

Meeting closed 8.30pm.

Tonight's presentation is by Syd Pateman. An auction of donated items follows.

Coin Collecting

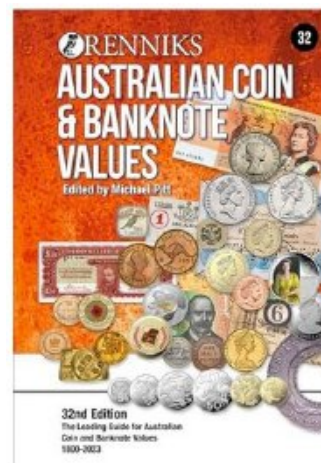
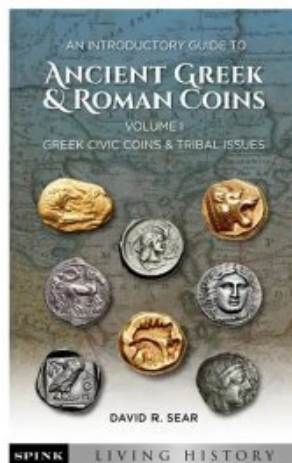
At the October meeting Syd Pateman gave a presentation on the history of the use of coins the world and collecting these coins. A big subject, but Syd made it interesting with many displays of ancient coins and modern coins in his Powerpoint displays.



in

Syd Pateman

There are many reference books and guides on this subject on the market and two are shown below by the Editor (Ed.)



Pat is at the airport with a sack over each shoulder and when he is stopped at customs they find that both sacks are full of mobile phones. When asked why Pat said, "Well, while I was on my travels in America, I got a phone call from my mate Mick and he told me that he is starting up a jazz band and could I bring him back two saxophones."



Members attending the October meeting were treated to an interesting presentation on Coin Collecting by Syd Pateman..



Above left and right : Triumph console radio was donated and sold at auction for only \$30. Rear view.

Triumph console radio.

Rare Western Australian radio
made by John Wishaw in 1936.

John Albert Wishaw played a significant role in the development of radio in Western Australia, from the 1920s until his death at the age of 71 in 1959.

In the 1930s, John Wishaw was working from his Nedlands home producing radio receivers with the brand 'Triumph' hand-penned on the dial. These he sold directly to the public or through Harris, Scarfe, & Sandovers as selling agents.

Wishaw worked on his own, making the chassis, etc. The cabinets for the radios were made by a local cabinet maker.

Thus, Triumph radios were wholly made in Western Australia.



National Panasonic 3 in 1 stereo
SG-155 sold for \$5

Crap-o-Phones

At a recent club meeting a Crap-o-Phone was displayed and demonstrated. They were often seen in Antique Shops priced at several hundred dollars.



Richard Rennie

But they were imported from India, where they were made using original motors and other parts. However the wooden cabinets, back bracket and the horns were manufactured.

But they were poor copies of an HMV horn gramophone. The easiest identification is the angle bend in the horn connector.



About 40 years ago they were imported into Western Australia in a very large shipment. Below are photos of an auction in Perth.



ONE VALVE MORSE CODE TRANSMITTER 1925



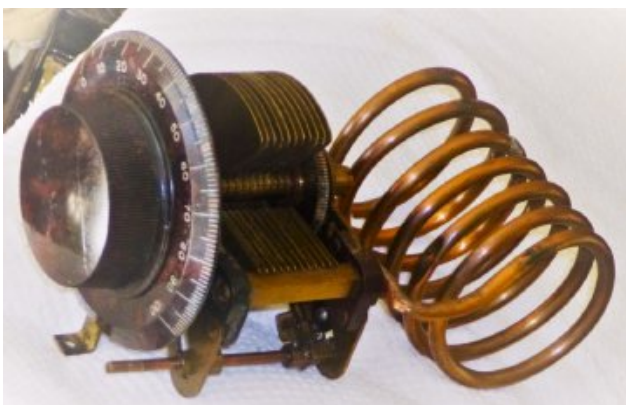
Fred Franklin

After collecting many circuits for one valve radio transmitters and noticing that they were all using a morse code key I set off to see what could be done with this one from the aviation museum in Darwin.

After tracing the circuit to see what it looked like and to what extent it had been "got at" I found that it was pretty true to the circuits. However, some confusion about what part went where was found and corrected. The major parts are mounted on a wooden, painted board. Some parts are installed under the board. These were the capacitors and resistors for the filament circuit and the morse code key.

I saw a meter in series with the anode circuit. It was not open circuit but had a very high resistance. It was a volt meter. That volt meter instead of an ampere meter would have seriously restricted the flow of electrons from the anode. I left it installed as was but connected it as a voltage meter. It would let the operator know how the high voltage anode voltage battery is going.

As usual I started dismantling screwed and bolted connections. First was the tank circuit that consisted of a 500pf tuning capacitor that had a fine tuning gear on it and a coil wound of seven turns of 0.25 inch copper tube. The output tank circuit has a coil wound of three turns of 0.25inch copper tube. Does some-one know why copper tube is used? There are instructions on how to do it in one of the manuals.

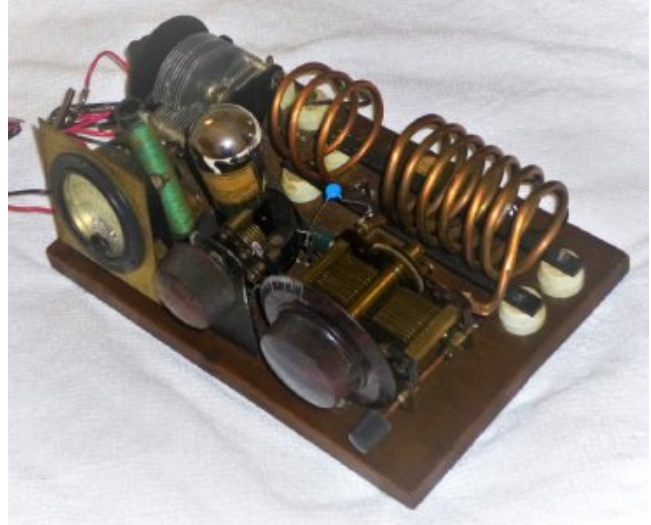


After cleaning and lubricating the moving parts of the

The tank circuit tuning capacitor and heavy gauge copper coil

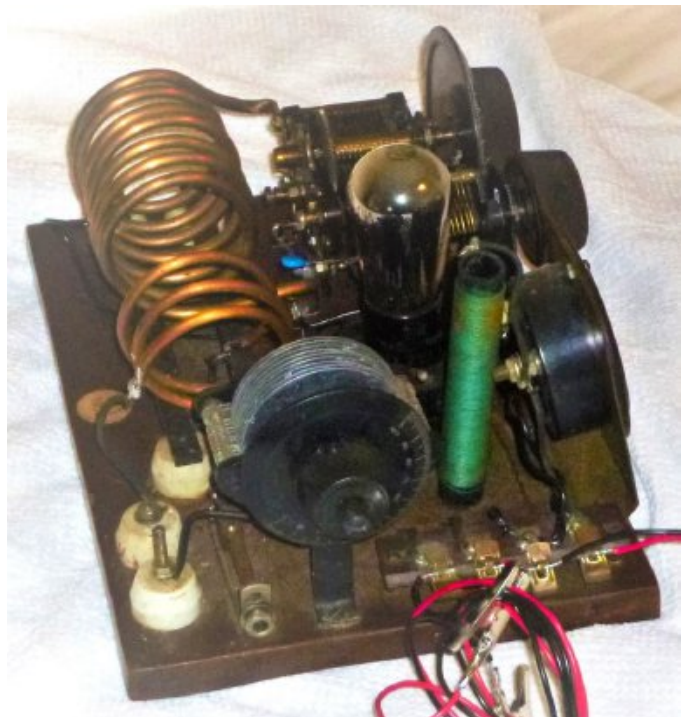
tuning capacitor, I tested it. There was zero Ohms resistance between the fixed and moving plates. An inspection showed that there was fluff in between the plates. Most was removed with a rag soaked in CRC contact cleaner but things were still not right. Some fluff was still there and was conductive.

I noticed that there was a form of corrosion on the plates that was thin and stringy. To fix this I dismantled the variable capacitor and ran a piece of sand paper between each plate of the fixed plates and the same for the moving plates. That cleaned it all out.



Complete one valve morse code transmitter mounted on a board with capacitors and resistors below

Great care must be taken not to bend the plates out of alignment during handling as they will contact each other when the capacitor s re-assembled. The other variable capacitors were inspected and found to be good so the just needed cleaning and lubricated.



Side view showing components mounted on the board.

1925 Hartley one valve morse transmitter (continued)

After rebuilding the transmitter according to a Hartley oscillator type, I cleaned it up generally. All four capacitors were replaced as they were breaking down during use at only ninety volts.

I used a number thirty valve and a ninety volt supply and a two volt filament voltage.

On the oscilloscope screen I was greeted by a magnificent sine wave at the aerial and earth terminals. All that is left is to get the proper number ten valve and a morse code key.

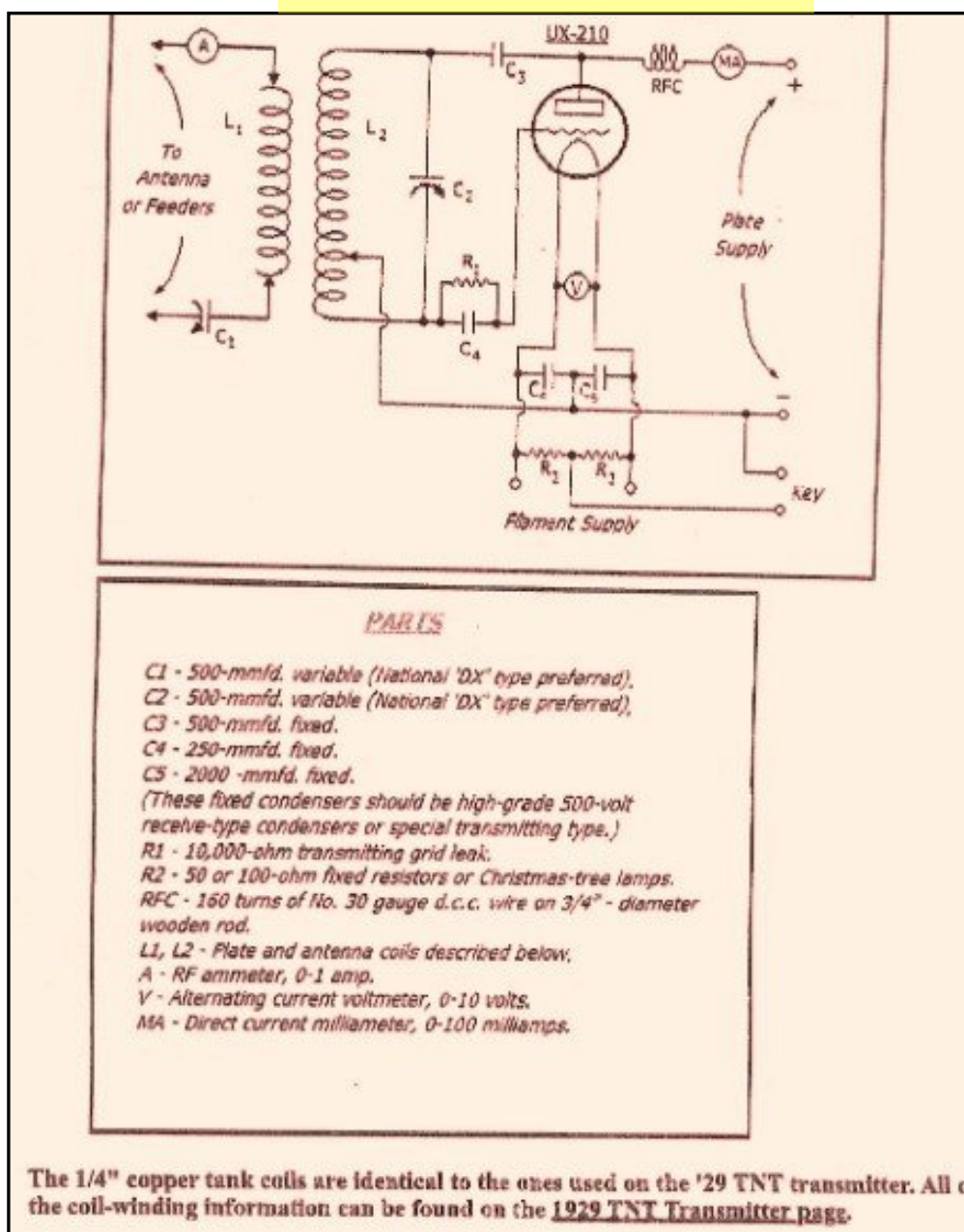
It is always a thrill to get something of this vintage running.



The complete unit front view.

Happy collecting and restoring,
Fred

1925 Hartley one valve morse transmitter circuit diagram



Items of Interest in Outback Queensland

By Rodney House



Just returned from a bus tour which included some of outback Queensland. We did manage to get back of Bourke, and even beyond the black stump.

Rodney House



Historic House Museum, Charleville had several gramophones

Many of you will know, but I didn't, that the black stump actually has some significance. Apparently surveyors used the black stump to set up their transit (I didn't know what that was either).

I was very pleasantly surprised by a couple of towns we visited namely Charleville and Longreach. I had thought that because they are somewhat remote, they would be smaller than they turned out and each of them was quite vibrant and boasted several attractions well worth visiting.



Gramophones in the Historic House Museum,

Charleville had the Historic House Museum with the usual exhibits, quite well presented and maintained, and included several gramophones. The attendant was keen to demonstrate an Edison Diamond Disc (L35) which

played well. He was knowledgeable of its operation and maintenance.



At Longreach The Powerhouse Museum was equally interesting. Several gramophones were on display and while the attendant was not experienced in their operation she was very keen to learn and even conned me into a short video. If you ever go there be sure to avoid it.

Blaupunkt Radiogram

In the V & A Museum
London



Richard Rennie

The Victoria and Albert Museum in London is the world's largest Museum of applied arts and decorative arts. It houses a permanent collection of over 2.27 million objects.

It has on display ceramics, glass, textiles, costumes, silver, ironwork, jewelry, furniture, sculpture, prints, drawings and photographs.

However it also has a radiogram.



Repairing Plastic Telephone Parts

(John Paskulich)



Review

Plastics are polymers - large molecules made up of long chains of smaller molecules called monomers. Polymers can exist naturally (e.g. gutta percha) or be created synthetically (e.g. Nylon).

There are two main families of plastics: **Thermoplastic** - once moulded into shape they will soften or melt with the application of heat before burning e.g. ABS plastic. **Thermosetting** - once moulded into shape they will not soften or melt with the application of heat before burning e.g. Bakelite.

History - typical plastics

19th Century plastics

Cellulose nitrate (Celluloid), Gutta percha, Latex rubber, Hard rubber (Ebonite).

Early 20th C (up to about 1930)

Casein plastic, Phenol-formaldehyde (Bakelite, Catalin etc.), Urea-formaldehyde.

Mid 20th C (prior to WW2 on):

Acrylics, ABS (Acrylonitrile-butadiene-styrene), Alkyds, Cellulose acetate (Tenite etc.), Melamine formaldehyde, Nylon (a Polyamide), Polycarbonate, Polystyrene, Polyvinyl Chloride (PVC).

Later 20th C:

Polyolefins: High-Density Polyethylene (**HDPE**) - examples of applications are "polythene" pipes and plastic building materials. Low-Density Polyethylene (**LDPE**) - examples include plastic bags, soft bottles etc. Polypropylene (**PP**) usually white in colour and used for packaging, labelling etc.

Others: Polyethylene terephthalate (**PETE or PET**) - broad uses - clothing fibres through bottles to engineering resins. Polylactides (**bioplastic**) - wide range of uses from medical implants through to 3D printer filament.

Identifying plastics

It is difficult to identify many plastics in the field. A few tricks: Polyolefins float - most others sink. If you burn a sample of an unknown plastic (**SAFELY**) its unique flame characteristics and odour may help identify it. Modern plastic items carry a recycling code (inside a small triangle) describing the type as well. One example of a typical website with this information, and also some repair advice, is; <https://www.polyvance.com/identify.php>.

Researching an item's history may also offer some clues.

Item known to be made in 19th C or very early 20th C (pre-WW1):

Black/brown colour - Most likely hard rubber (Ebonite). Coloured could be "Celluloid" (cellulose nitrate) or a casein plastic. Although very early items (from mid 19th C) could be gutta percha (may range from very dark brown through to coloured). There are numerous articles on the internet on these early plastics.

Item known to be of mid 20th C manufacture (post-WW1 to about 1950):

Black/brown colour - most likely Bakelite. Bakelite is usually considered to be phenol-formaldehyde containing dark fillers/reinforcing (and sometimes asbestos) Although cellulose acetate (e.g. "Tenite") was popular in the USA and it could be coloured black as well. Coloured items could be "Catalin" (phenol formaldehyde - related to Bakelite but without dark fillers), urea formaldehyde, cellulose acetate, acrylics and even nylon.

Bakelite and Catalin - The Baking Soda Test:

Dip a moist cotton swab into baking soda and rub it into an inconspicuous (and clean) test spot on the item. If the cotton swab shows a yellowish mark, it is a positive test of phenol formaldehydes.

From the 2nd half of the 20th C

Numerous new plastics were developed from the second half of the 20th C. Go to sources like <https://www.polyvance.com/identify.php> for more information.

Glues

"Glue", "adhesive" and "cement" are synonymous here. Adhesives theory is complex but, simplistically, the two common forms of bonding are mechanical or chemical.

In mechanical bonding, the liquid glue molecules "flow" into microscopic crevices in the surfaces and when hardened "hook in and hang on". An analogy is stitches holding fabric together. Examples of glues using this principle include Cyanoacrylate (e.g. "Superglue") and epoxy resins (e.g. "Araldite").

Chemical bonding means the glue molecules change the surface material to create a new melded bond at the surfaces. Solvent cements are generally in this category. They often contain acetone or a related chemical, Methyl Ethyl Ketone (MEK).

When repairing hard, thermosetting plastic like Bakelite, the best glues are generally Cyanoacrylate (CA) and epoxy resins. Solvent cements, which facilitate a chemical bond are ideal for many thermoplastics like acrylics, ABS, polystyrenes etc. A good description can be found at: https://en.wikipedia.org/wiki/Solvent_bonding

NOTE: Avoid using these common adhesives with PVC pipe or the **Polyolefins** (i.e. polyethylene or polypropylene plastics). These plastics generally use specialised

Repairing Plastic Telephone Parts —continued from previous page

solvent glues and may include an additional primer stage.

Hard plastic repair (Bakelite/Ebonite etc) Cyanoacrylate (CA)

Liquid CA glue is made of monomers of Cyanoacrylate – ions made of carbon, oxygen, hydrogen, and nitrogen. Exposure to negatively charged ions (anions) initiates a chain reaction where the separated Cyanoacrylate monomer ions link together into long chains called polymers.

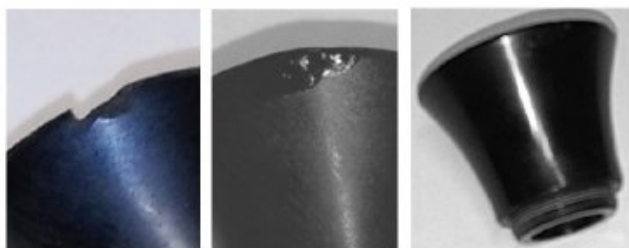
The CA glue can solidify rapidly when exposed to negatively charged hydroxyl ions (OH-) found in water. CA glue accelerators containing chemicals that speed up the anionic polymerisation process are also available. CA glues can also be temporarily “debonded” with acetones.

As described, CA glue e.g. “Superglue”, relies on the presence of hydroxyl ions found in water to cure, so this is why it bonds moist human skin almost immediately. In dry conditions, it may be necessary to dampen a surface to start the reaction. Spray-on accelerators can also be used to speed up the cure time.

Sodium bicarbonate (baking soda), combined with CA glue, not only accelerates the cure but results in a cement that both bonds and fills voids and can be sanded etc. It cures almost immediately, requiring a technique of repeatedly dusting the bicarbonate powder over droplets of the glue to build up a void. It is white and may require painting.

CA glue, coloured with carbon dust (scrapings of pencil “lead”, activated charcoal powder etc.), can hide minor chips on black Bakelite. Place a suitable amount of fine carbon dust in a small disposable container, apply some drops of CA glue, mix quickly with a small stick and daub the resulting paste onto the work piece until filled.

The mixture has a very short work time – may harden within seconds in a humid environment. Soon after setting, the surface can be sanded with various grades of abrasive paper and ultimately 0000 steel wool. The filler is quite hard, retains its “blackness” and takes a polish. Application can be repeated to fix any blemishes. A similar process for a white finish can be achieved using talcum powder.



Chipped Bakelite mouth cone repaired with CA glue and carbon dust

CA glue reacts immediately with eyes and skin so protective glasses and latex gloves are imperative, as is workplace ventilation. Beware that some heat is given off by reactions.

CA glue is suitable for minor repairs where minimal stresses exist on the item in service. Epoxy resin glues, fillers, or extra support will be required for larger jobs, or where the item is under some mechanical stress.

Epoxies

Epoxies are a class of polymers formed by combining two substances – resin and hardener. When combined, the epoxide monomers in the resin interlink with the molecules of the hardener – resulting in a very strong bond.

Two-part, mouldable, epoxy putty is a useful repair product. It comprises resin and hardener each mixed with a filler such as talc. Particularly suitable for filling holes in hard plastics such as Bakelite, it can be drilled sanded etc.

One local product is Selleys “Knead-it” but it only comes in a light colour so may need painting. Another product called “Milliput” is available online. It is similar to “Knead-it” but is available in black and several other colours. From experience, the finished black is a bit dull but touching up with a black spirit pen often works wonders.

Two-part, epoxy casting resins and glues are translucent. Commercial pigments are available to colour them but artists’ acrylic paints also work well. Only a very small amount is needed for a strong colour and too much may weaken the adhesion. Around 5% by volume is a typical recommendation. For black, the abovementioned carbon dust also works well.

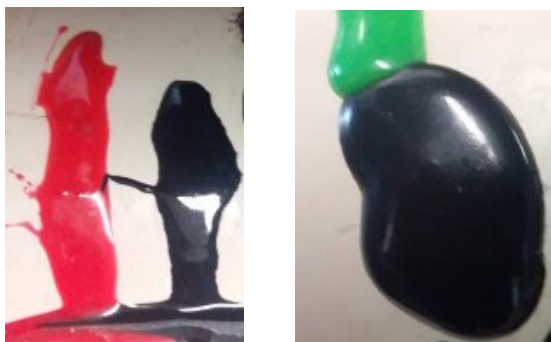
By their nature, epoxy resins are “runny”, so will need to be contained until cured. Depending on the required outcome, the containment can be as simple as a dam of children’s “plasticine” or more sophisticated barriers, only limited by imagination. When cured, any rough epoxy surfaces can be sanded and polished similarly to CA glue.

To overcome “runniness”, epoxy resins/glues can be thickened into a paste with additives. The recommended material is “fumed silica” powder e.g. “Cab-O-sil”. BEWARE - silica dust is implicated in lung disease so ensure good ventilation and use proper breathing protection. Talcum powder also works quite well as a thickener.

Right—
Example
epoxy glue
and acrylic
paint



Repairing Plastic Telephone Parts—continued



L-R: 1.. “runny”, coloured epoxy. 2.. epoxy coloured black and then thickened with talcum powder (held its shape - no runs)

Always consider using mechanical support for the glue. A simple, glued, butt joint is inherently weak. Add extra supports such as metal pins or stitches across joints (or epoxy/fibreglass reinforcing behind a joint). Analogous to woodworking where dowels or biscuits are used for the same reason.

The metal pins are epoxy glued into matching holes drilled in the edges and, similarly, the stitches glued in grooves cut with a rotary tool and later disguised with coloured resin. The metal should be corrosion-resistant such as stainless steel or copper wire. The item edge must be thick enough to use pins or stitches, if not, resort to epoxy/fiberglass reinforcing behind the joint.



Two Bakelite cradle halves epoxy glued and stitched underneath

Cleaning Bakelite

Bakelite surfaces, that are grubby but in good condition, can be cleaned with methylated spirits and a rag and then followed up with a suitable polish like “Polishing Paste No. 5”. Other abrasive polishes like “Brasso” and

automotive cutting compounds have also been successful.

With dry, grey, degraded Bakelite surfaces, this writer has had some success spraying the surface with RP7 or equiv. and briskly polishing with 0000 steel wool. This removes grime and some of the degradation and, if it is not too bad, a reasonable finish achieved. On a really badly degraded surface, application and rubbing in of black shoe polish may improve appearance but, once the surface is worn down to the filler, it cannot be properly restored. Sometimes painting may be the only option.



L-R: 1. Degraded Bakelite surface. 2. Left half RP7 and steel wool only, right half finished with polishing paste and buffed

ABS plastic repair

ABS plastic glue

The solvent acetone dissolves ABS plastic (and related styrenes). It is an effective ABS solvent cement that chemically bonds the surfaces.

Liberal apply acetone with a cotton bud or similar to both edges to be joined and then push and hold them together until set. Leave the joint alone (at least overnight) to allow the acetone to evaporate fully and harden properly. Later, any raised “glue” lines can be sanded out and polished to give an unobtrusive result.

A “slurry” of ABS glue/filler can be made with scraps of ABS (e.g. Lego blocks?) dissolved in acetone in a sealed **glass** jar with a **metal** lid. It is slow to dissolve fully but will remain liquid if kept sealed and, occasionally, refreshed with acetone. Paint the slurry over the inside of a repaired surface to build up strengthening layers.

Repairing Plastic Telephone Parts—continued

Similarly, it can be used as a filler. Since the acetone partly melds the dissolved ABS into the surface before it evaporates (i.e. chemical bond), the joint is ultimately very strong.

Discoloured ABS plastic

Collectable ABS artefacts like telephones from the 1960s, computer cases etc. are prone to unsightly "browning" of the surface through prolonged UV light exposure (sunlight etc.) possibly due to chemical changes in both the flame retardant bromine additives and the ABS molecules.

Several methods of reversing this damage arose over the years. These included aggressive sanding of the surface to get down to unblemished plastic and a similar process but using a solution of acetone and methylated spirit with steel wool or rags to wipe away the degraded surface. This is generally followed up with a mildly abrasive plastic polish.

In recent years, another process has arisen. Called "Retrobrite", it uses a hydrogen peroxide solution plus UV light to bleach away the discolouration. A brief description appears at:

<https://en.wikipedia.org/wiki/Retrobrite>.

Variations of this process have popped up since and these have all been enthusiastically adopted by "restorers". All are well documented on-line.

Some words of warning. There is anecdotal evidence that these peroxide processes are not suitable for coloured items. In one case known to this writer, it not only removed the "sunburn" but also the colour! There are also suggestions that the surface is weakened by the process and it is only a temporary fix and the "browning" will eventually reappear.

The best advice this writer can offer is, where possible, obtain ABS collectables that are undamaged in the first place and store them away from damaging UV.

Final recommendation on repairing your valued artefacts: ALWAYS PRACTICE ON VALUELESS ITEMS FIRST.

.....John Paskulich

Paddy's in the bathroom and Murphy shouts to him "Did you find the shampoo?"

Paddy says, "yes but it's for dry hair and I've just wet mine."

PROBLEM WITH MY TRENCH PORTABLE GRAMOPHONE



Richard Rennie

I was about to demonstrate my Trench Portable to the Swan Guildford Historical Society when there was a "bang" and the motor stopped. I could not get it to go.



At home I pulled the motor out and found that there was a needle jammed in a cog wheel. It turned out there was a number of needles that had got below the motor board.

When it was carried one of the needles got into the motor. It was a delicate operation to get it out of the cogs. But now it works well.

A hint to members is to NOT let needles get under the motor board on any portable gramophone.

Tench Portable Gramophone

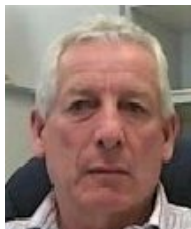
Richard Rennie



"Sorry Arthur, your answer was actually correct, but Paul shouted his opinion louder so he gets the point. And an extra bonus point also goes to Sue as she was offended by your answer".

Repairing transistor radios

James Wemm



The reason for writing this article James Wemm was a recent purchase of a pocket transistor radio at one of the auctions of donated goods. Put my hand up when the auction wasn't progressing so now, I am now the owner of this little Sanyo radio. Brought it home and put some batteries in but alas, no sound was forthcoming. Can't be that hard to fix after all we put a man on the moon in 1969! As with all transistor radios there are four basic tests that can be carried out to determine where the fault may lie.

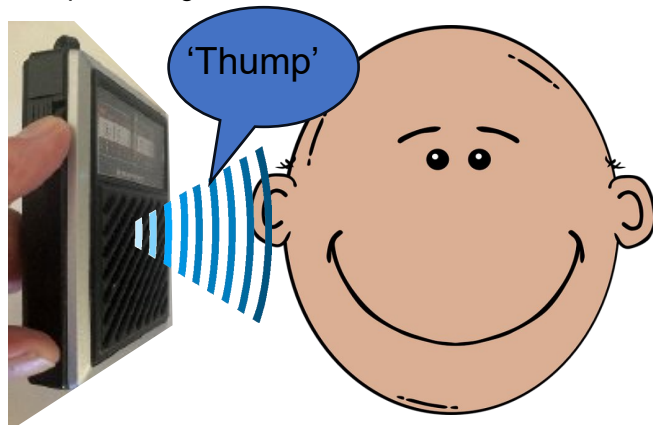
1. Power test.
2. Basic audio stage test
3. Basic RF stage test
4. Local oscillator test.

The power test is pretty basic and just involves putting the radio up to your ear and switching it on. You should hear a 'thump' in the loudspeaker caused by the inrush of current assuming the battery is good. Now you will have to listen very carefully as our hearing is probably not as good as it used to be. However, don't stress, it is not our fault. God in his infinite wisdom designed men to go deaf before women but for the life of me, I cannot remember the reasoning behind it.

Now this test may also indicate that the output stage may be okay as the current needs to pass through the

transistors before heading into the loudspeaker. Works for both transformer coupled sets and complementary symmetry output stages.

So, with this set I obtained a 'thump' in the loudspeaker, so power is good.



Next, we look at the audio stage and if you have a signal injector it is even more convincing. With the back off the set, turn the volume control to maximum and either touch the wiper of the control with a small screwdriver or put a signal injector on the point.

Noise should be heard in the loudspeaker if the audio section is functioning. Bit like the old days when you touched the grid of the preamp in a valve set. This test is not as convincing as it was with a valve set due mainly to the low impedances of the transistor circuitry.

However, you should hear some interference when touching the volume control wiper point. An excellent test if you do not possess a signal injector is to use the line out or the headphone out of another set or a portable CD player etc.

Connect the earth of the device to the negative (or positive) of the battery connection and put the live side of the signal on the top of the volume control. Turn down the volume control to about a quarter as it might be a bit loud. If there is nothing there in a sense of audio out of the loudspeaker, then this stage may be at fault. If the audio out is healthy as it was on the set being tested, then we move on to the next test.



Testing the RF/IF section. What we are looking for here is to see if we can get a bit of interference picked up by the RF/IF section. Well, where can we get a bit of interference from? A good source for this is from either your mobile phone or from a laptop computer. They emit lots of the stuff so we simply hold the radio close to either unit and an interference signal should be heard in the radio under test.

With the mobile phone, move the radio up and down and the level of interference will vary quite a bit and is at its loudest when both antennas are close to each other. A picture is worth a thousand words.



If interference is present, then that would indicate that the RF/IF and detector are most likely okay. So, what now if the set doesn't receive any stations as this set didn't, then we need to check if the Local Oscillator is working.

So how do we check the Local Oscillator? Well, this is a very simple test and we do not need any fancy equipment like an oscilloscope etc.

Now all radios these days operate using the superheterodyne principle and as such transmit a signal unlike the TRF receivers that they replaced many years ago. TRF receivers were known as 'Quiet' receivers because they did not emit any unwanted signals. TRF receivers are still in use today for doctor paging systems etc where very sensitive patient monitoring systems are in use and cannot have any outside interference. They are of course fixed tuning which eliminates the problems associated with traditional TRF receivers.

Now, speaking of the 'superheterodyne principle', it should be noted that it is just the 'heterodyne principle' that is really on display here. So, when and why was the 'Super' added! Well, there are at least three theories put forward.

1/. The signal produced when two signals are 'heterodyned' together to produce the desired IF signal is way above the sonic frequencies. In fact, they are 'Supersonic' hence the term Superheterodyne. This goes way back to the morse code era when a Beat Frequency Oscillator (BFO) was used to produce an audible 'Beat' signal when dots and dashes were transmitted and received.

2/. The second theory put forward is that the local oscillator signal is above the incoming signal by a factor of the intermediate frequency and hence 'Superior' in a sense that it is higher. Bit wishy washy I think but

you never know what they were thinking back then in the 1920s.

3/. Probably the most logical reasoning was that the term 'Super' was picked up by the advertising people of the day and as it sounded more exciting than a mere Heterodyne receiver, it became the must have of the day. Outlets would advertise that they had the latest in Superheterodyne receivers now in stock ready for purchase.

Okay, time to check if the local oscillator is working and on frequency! We will need another working AM receiver and tune it to say 61X (1066KHz) and turn the volume up. On the suspect receiver tune in to 455KHz below the good RX that is around 611KHz and while holding close to the good RX move the tuning slightly up and down.

If the LO is working, a beat signal or whistle should be heard in the good RX. Note that the pitch of the whistle will vary in frequency as the dodgy RX's tuning is moved to and fro. This test tells us two things, 1. That the LO is working and 2. That it is on frequency. It should be noted that the RX under test is transmitting a signal at 1066KHz in this case.



The whistle in the good RX will vary in pitch as you swing around 611KHz on the RX under test. Sadly, the Receiver that I was repairing had no oscillator signal so obviously the LO was kaput!

Time to get the tools out. Measured the voltages around the mixer and all seemed to be in order with the all-important 0.5 volts between the base and emitter. No, not 0.6 as the mixer must operate in the non-linear region. So having obtained the approximate correct voltages it would indicate to me that the transistor should be okay!

Repairing Transistor Radios—continued

Maybe the secondary of the LO coil is open, so checked that and all is good. What is going on here? Time to remove the mixer transistor and it turned out not to be a simple matter as transistors don't fail under normal operating conditions and probably wasn't intended to be removed.

Anyway, removed it after a bit of flash desoldering and did the usual diode check on it. All good! The usual 0.6v between B to E and B to C with all other measurements open circuit. What the heck, I'll put in a new BC548 anyway and see what happens. BC548s are a pretty universal transistor and can be used just about anywhere. Bingo, the tranny now works albeit a bit low on sensitivity.

So what is going on here, transistors don't wear out unlike their valve counterparts. It's solid state, nowhere for the electrons to get lost and they don't go AWOL. One electron in one electron out!

So did a Hfe or current amplification test on the multi-meter and lo and behold, the suspect transistor only had a Hfe of 5, yes 5 so no wonder it wouldn't produce an oscillator signal. I seem to remember from somewhere that the minimum gain to get a device to oscillate is 29. Not sure if that is correct or not but with a gain of only 5, this device was never going to oscillate.

Stuck in a BC548 in the multi-meter and it had a Hfe of over 400 which I would have expected. Although the set was now working it didn't have a lot of sensitivity and I had to turn up the volume to almost maximum to get a sound out. Have the IF transformers been twiddled with? A quick check and all seemed good however adjusting the final IF transformer hardly made any difference at all.

Removed the 2nd IF transistor and did the usual diode checks and then the Hfe check. Only came up with a 10, bit better than the last one but nowhere where it should be. Stuck in a BC548 and bingo, she works like a ripper.

Looked up the specs on a 2SC9011 which were the transistors

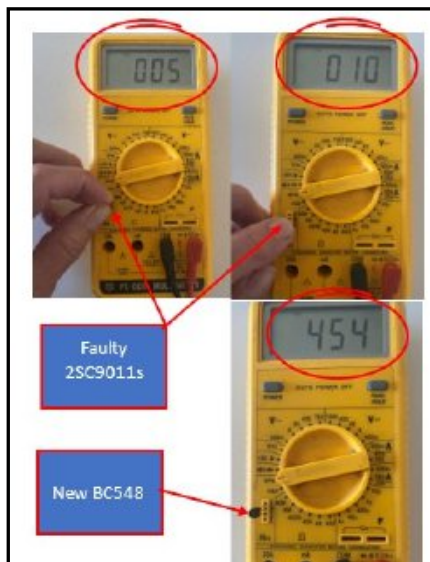
used in the dodgy set and their Hfe was stated at around 80 to 100. So, they are definitely faulty.

So, what is going on here? Transistors don't wear out, or so I am led to believe. They are either a go- or no-go device and if the transistors haven't been subject to operating outside their normal designed parameters, then they should be okay.

In all my years of servicing and in fact teaching electronics I have not come across this phenomenon. Has the set been subject to nuclear radiation or some such thing.

Would love to hear from fellow members if they have come across this in their many years of servicing etc. In my experience transistors either become shorted, open circuit or leaky or though the latter was mainly confined to the Germanium types. Maybe I've been living under a rock for too long.

Cheers James Wemm



Gramophone and Photo Shop
Records are urgently required for the war effort, and until further notice are rationed for essential private use.
Records will be supplied without holes to patrons not eligible for the ration. In the meantime, you are requested to re-use holes from any records being returned for salvage.
We hope that you can do your bit to aid the war effort and that normal supply is resumed soonest.
Signed - Joseph Kerr (Proprietor) 1st April 1940



Rodney House

Rare Peter Pan Gramophone



Richard Rennie

Peter Pan Gramophones were being sold in Perth by Foy and Gibsons, Boans, Nicholsons and probably others in c1924 - 1925



The Peter Pan Gramophone Company Ltd operated from addresses in London's West End. Some parts were made in Switzerland. The box camera shape gramophone was patented in 1922.

The box camera shape is typical of several models made in 1923 and 1924. However the shape of the horn in this model is unusual. The curved tone arm is used as the horn. There is no place for an extension to this horn.



Telstra to deliver teleport services for ONEWEB in Australia



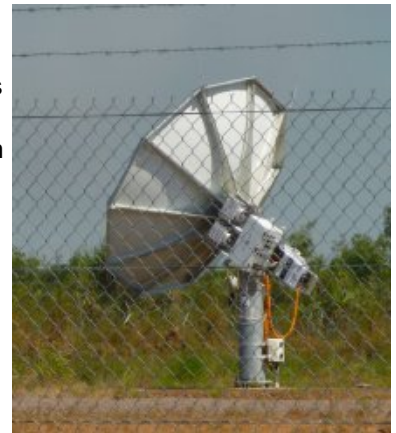
Fred Franklin

For a while now, I watched with curiosity as a large yard in a new industrial area in Tivendale had many satellite dishes and small buildings installed. It was Telstra's OneWeb installation in Darwin.



There are two other installations in Australia. They are Charlton in Toowoomba and Wangara in Perth. The Sky Muster communications system is nearing its old age and is to be replaced by OneWeb. Sky Muster satellites cost \$500M each

Sky Muster has a capacity of 25mbps to 50mbps and OneWeb has a capacity between 100mbps and 200mbps. There will be 648 satellites hovering in a low earth orbit 1,200Km above the earth.



This will reduce the lag time between when you send a message and the recipient receives it. NBN Co have developed new technology to handle the new OneWeb communication technology. The system uses low earth orbit satellites. This system will compete with Elon Musk's Starlink system.

Happy communicating

Fred

How to get music out of a crystal detector radio?

I own a number of so called crystal radios of various description, home-made and factory made ones. The tedious efforts necessary to get a little beep out of any of those has always annoyed me.



Norbert Torney

First of all I am profoundly deaf and those high impedance magnetic headphones are a nuisance, additionally I live in Mandurah, a town without a local AM radio station. My first question is, do these radios actually work? So how can I find out? How can I actually test the actual detector?



A variety of crystal radios

I am aware that these so-called Galena (a lead oxide) crystal detectors are an early form of semiconductor diodes, more or less an accidental discovery by F. Braun a scientist at the University of Strasbourg. Their forerunner the Coherer was invented by E. Branly in Paris some years before and relied on a loose contact contraption which could detect radio waves.

It was found by Braun and others that on certain conductive crystals Galena, Copper Pyrite and others, a sharp pointed thin metal wire would allow current to flow only in one direction but not in the opposite one – the world's first semiconductor. Early scientist didn't understand the real reason why it is the way it is and concluded some rather airy fairy explanations.

Correct theories have been established since, after the transistor was invented. Knowing the basic theory the function of a crystal detector maybe determined with an ohmmeter. If the detector works it should read very high resistance in one direction and low in the opposite, just like any diode – it should be known that detection of radio waves is actually rectifying same.

High frequency is actually alternating current, just like the stuff coming out of your power point; rectifying any AC turns same into pulsating DC and only filtering produces DC. Rectifying modulated Radio Waves produces sound waves with remanent RF which is filtered out.



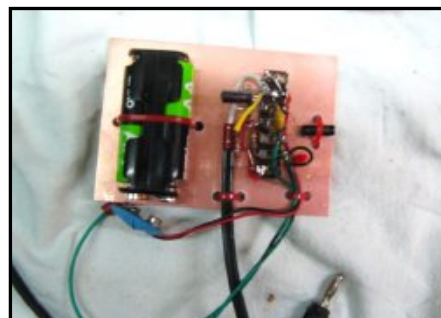
A carborundum crystal detector

Experimenting with the crystal detector of my Luxor radio I found that by carefully manipulating the wire on the crystal I managed a forward resistance of approximately 30 Ohm and a reverse resistance of 30 000 Ohm – a lot less good then a point contact diode, but with the very low voltage picked up by the tuning coil it works well.

During the 1940s knowledge gained with experiences of the crystal detector was applied to the design of the early point contact diodes, they were faster than junction diodes and therefore made great detectors without the nuisance method of fiddling for ever with the cat-whisker wire commonly used in early detectors.

Germanium point contact diodes function without any mechanical manipulation and are therefore a very good replacement for cat-whisker type or carborundum detectors. The only way to improve any crystal radio is by means of amplification of the audio supplied by the detector; for practical reasons the audio amplifier needs to be portable, small and battery operated.

My choice for the prototype was a single transistor text book design, using a very early glass type Germanium transistor operating from two 1.5 Volt batteries. The volume increase was about 20 times and enabled me to hear some music,



Preamp with single transistor

Extra Lo Fi quality of course. The 4000 Ohm headphones seem to fit the transistor collector impedance very well. So far so good, but what happened to my long practised philosophy "if it can be done with tubes-valves do it with tubes", - is it possible? The big draw-back is the plate battery 45 – 90 Volt, an item no longer available.



I am aware that tubes maybe operated from voltages as low as 6 Volt, as long as no power is required. The cardinal question now was which tube? I've got heaps of 1T4 battery tubes, but they are variable mu ones, unsuitable for audio amplification, 1S5 is suitable if you ignore the built in diode! My final decision was a 958A acorn tube which took little room and works well on low plate voltage.

Because I had a few 12 Volt alarm batteries left I decided on 24 Volt plate voltage. Two of these batteries in series are slightly longer than a triple A battery, but are the same diameter. I cut a triple "A" battery holder in half and mounted same with a 5 mm gap in the centre. The 958A is designed with a 1.2 Volt filament to operate from a NICAD battery.

I had several from defunct garden lights. To my surprise the tube design produced a much higher gain as the transistor design and with nearly flat batteries the volume increased by approximately 30 times. In hindsight it probably would work well on 9 Volt. Only disadvantage with the tube design is the filament current.

On the positive side it looks more exotic and more technical. Both designs turn a mostly useless crystal radio into a usable contraption, even though I didn't throw my trusted regular battery radio in the bin.

It would also be possible to use an un-tuned RF preamp this would greatly improve RF sensitivity and allow weaker stations to be heard. I might try that sometime in the future.

All initial testing was carried out with my trusted AM bench signal generator, modulated with 1000 Hz initially and finally modulated with music generated with a CD player. The Atrium racing radio station could be received with a 15 meter long wire antenna. Now I am wondering whether a FM crystal detector radio could be constructed by using microwave diodes of the type used in UHF TV tuners and 2-way radios. Push – Pull detection or slope detection might work?Norbert

Brass Horn Gramophones

Although many gramophones had painted horns, there were some beautiful brass horn models.



Richard Rennie

Above: Victor "III" from 1906. It was an HMV Gramophone but was called Victor in the USA.



Above: Columbia "BI" of 1905.



Above: Pathephone c1910

Back to Basics

Rod's Crystal Set Corner

-Part 2



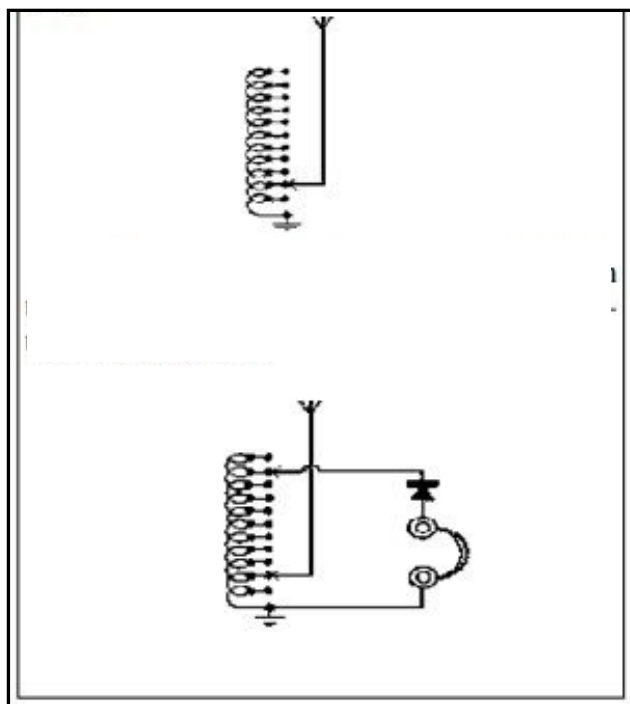
Rod Edward

Last issue we took a look at some of the early detector minerals. In this issue we'll have look at the basic crystal set and how to get started on one, if you are interested, and have never made one before.

AM broadcast frequencies are from about 535kHz to 1600kHz (560 - 187 m wavelength). All AM broadcast stations use a vertical antenna which radiates vertically polarised ground waves. In theory, and under ideal conditions, these waves would be best picked up also with a vertical antenna, but at these frequencies it doesn't really matter about the polarisation.

A crystal set has no amplification, and needs all the signal it can get, so the antenna should be as high as possible. To be resonant, a vertical antenna is a quarter of a wavelength long. Obviously, we can't achieve that, so we need a compromise. Any antenna shorter than resonant length behaves like a capacitor, and this can be compensated for by adding inductance (a coil of wire). (capacitors and inductors react 180° out of phase with each other).

Early crystal sets used a tapped inductor to resonate the antenna - called "loading the antenna". By varying the number of coil



turns, the antenna can be made to resonate at different frequencies - hence, tuned to different stations.

The energy in the resonant circuit is then tapped by a second circuit which includes a detector. The tap from the detector is adjusted so that it is possible to hear the required station while rejecting others close to it in frequency.

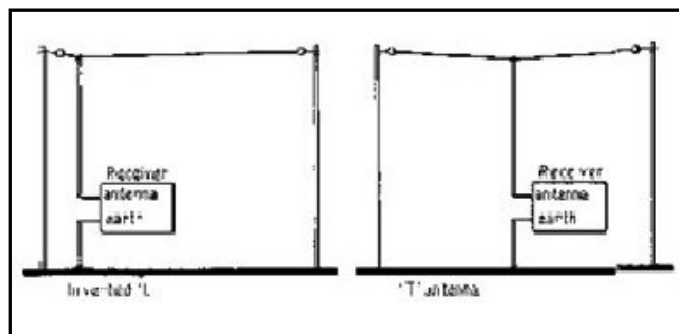
A crystal set is a compromise between *sensitivity* (strength of station) and *selectivity* (ability to separate stations). The aerial tap affects the sensitivity mostly and the detector tap the selectivity. They will interact, both taps may need to be moved while tuning.

A practical starting point:

Wind 135 to 150 turns of 26 gauge copper wire (0.4mm) on a 200mm (5") length of 50mm (2") PVC pipe or similar insulated tubing. The size of the tubing or number of turns is not critical - start by experimenting. Tap the coil every 10 turns from one end and every 5 turns from the other. (A tap can simply be a few twists of wire with the insulation scraped off). This will allow coarse and fine adjustments.

Another idea is to wind the coil on a cone rather than a cylinder, or use sliding contacts to do the tapping on a continuous basis. The detector should be a sensitive germanium diode such as the 1N34 or similar. The headphones should be high impedance (2000 ohms or greater). If you use a crystal earpiece, the impedance is too high, so place a 100KΩ resistor across its terminals to allow current flow.

The performance of the crystal set will depend on every part of the set. The most critical are the aerial and the earth. Together,



they determine the energy fed to the rest of the circuit. The higher vertically the antenna, the stronger the stations, but there is a limit to how high you can put an antenna. It is possible to make an antenna behave as if it were higher than it actually is!

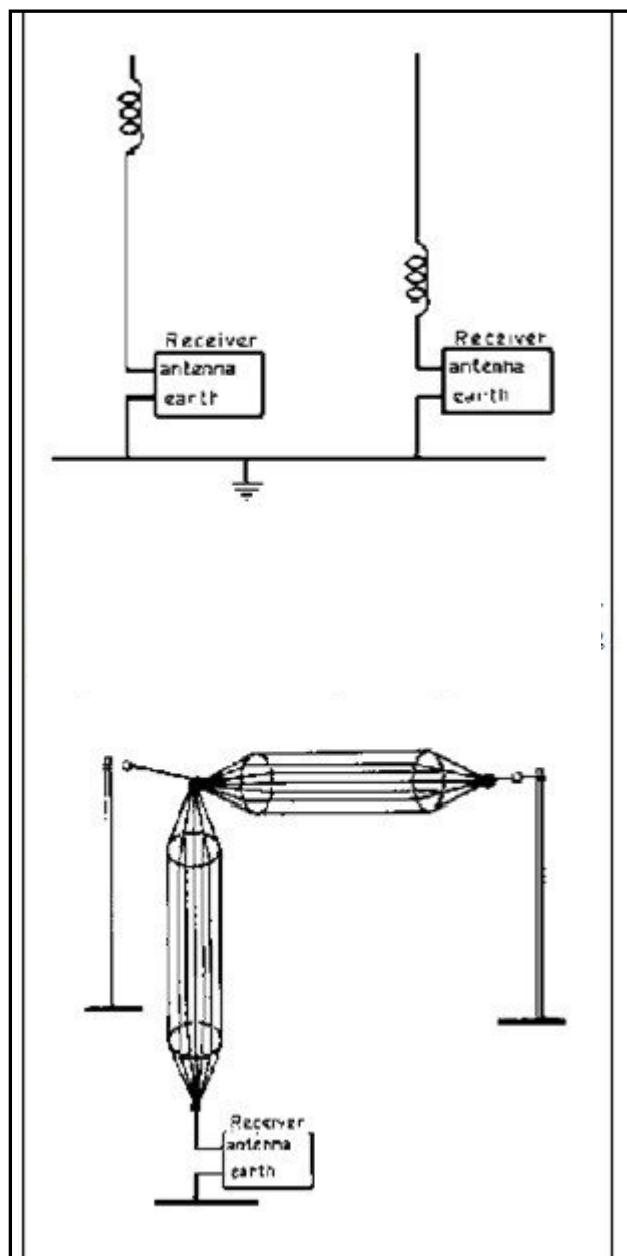
A horizontal section can be added to the vertical antenna as shown above as a "Top Hat" capacitor, in an inverted L or T connection. The aerial can also be loaded as shown below, with a loading coil. This can be either bottom loading (right) or top loading (left). Although this is the best position electrically, it's harder to tune to different frequencies.

Also, the bandwidth of the antenna can be increased, by making the elements fatter, by having a cage of wires instead of just

a single strand. Now let's improve on the crystal set design: A tuning capacitor across the coil will make tuning much easier. For most broadcast tuning circuits, a 400pF to 500pF variable capacitor will be fine. Most are around the 415pF range.

The aerial is "bottom" loaded by means of the variable aerial tap until the aerial circuit resonates at the station required. To give high sensitivity and some degree of selectivity, the circuit formed by the coil, tapped at about 80 turns and a single gang 415pF capacitor is tuned to the required station.

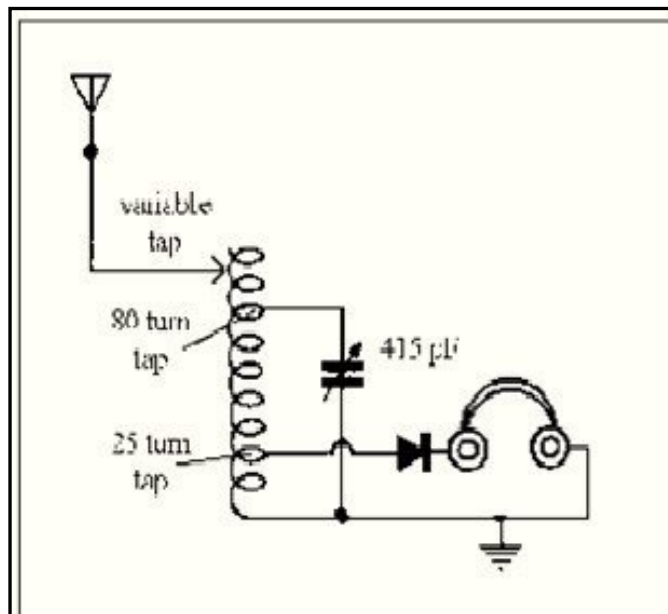
To improve the selectivity, the aerial circuit and capacitor controlled circuit are now what is known as two "close-coupled" circuits tuned to the same frequency. The detector circuit (germanium diode and the earphones) is tapped at about 25 turns. The detector is now said to be "matched" to the tuned circuit. (ie the impedances of both circuits are about the same). Selectivity should now be at maximum for this simple circuit.



The best earth connection would be a water pipe around the house as this is usually well "earthed" itself. A good earth is just as important as the aerial.

Avoid the mains earth unless you know exactly what you are doing!!!

If you are surrounded by dry sandy soil, you can improve the earth connection by driving three spikes (copper or copper clad steel) into the ground, one metre apart arranged in a triangle, connected together and to the set.



You could also add salt (or better still ammonium chloride) around the spikes. In the absence of a good earth, a "counterpoise" can be used. This could be a mat of wire placed on the ground or buried just below the surface, near the antenna. It should not be buried too deep; it becomes ineffective.

In the next issue, we will take a look at "Loose Coupling".

Pat is at the airport with a sack over each shoulder and when he is stopped at customs they find that both sacks are full of mobile phones. When asked why Pat said, "Well, while I was on my travels in America, I got a phone call from my mate Mick and he told me that he is starting up a jazz band and could I bring him back two saxophones."

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