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**S.A. GROUP
NEWSLETTER**



AntIC

Historical Radio Society of Australia Inc. – S.A. Group

Web Site: www.hrsasa.asn.au

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Planned Forthcoming Meetings (some are tentative)

All meetings are at St Cyprian's Church Hall, 70 Melbourne Street, North Adelaide unless otherwise noted.

Sunday 31 st August	1300 Visit to Les Janes. The address was given in the <i>News Sheet</i> .
Sunday 28 th September	1300 or later Using an Oscilloscope and Signal Generator.
Sunday 26 th October	1300 or later Optimal Crystal Radios by Warwick Kemp
Sunday 30 th November	1300 or later Auction
Saturday 20 th December	1200 Christmas Luncheon at The Maid of Auckland.
Sunday 11 th March 2026	Auction
Sunday 8 th July 2026	AGM and Auction

Members's Luncheons

Luncheons are held for retirees and those that can escape work for the day on the second Wednesday of the odd month. An attendance of 8 attended the July luncheon. The Hampstead is at 143 North East Road, Collinswood, on the corner of Northeast and Hempstead Roads. It is again the turn of the Earl of Leicester Hotel to host the September meeting. The Earl is at 85 Leicester Street, Parkside. Meeting time is 1200 for a 1230 luncheon. All members, including those from interstate, are welcome. Forthcoming luncheons are:

Wednesday 10th 2025 September at the Earl of Leicester
Wednesday 12th 2025 November at the Hampstead

Wednesday 14th January 2026 at the Hampstead
Wednesday 11th March 2026 at the Earl of Leicester
Wednesday 13th May 2026 at the Hampstead
Wednesday 18th July 2026 at the Hampstead

Amateur Radio Call-Back Broadcasts

At the height of Covis, when we were not permitted to have face-to-face meetings, some of the licenced amateur radio operators started a vhf callback net on an Adelaide 2 metre repeater. We have recently been using the AHARS repeater at Crafers, which was scheduled to be shifted to Belair on the 23rd of August. That shift did not occur, however the shift is supposed to be undertaken in one day and hence is unlikely to affect our net. This is presently on 147.0 MHz receive with a -600 kHz shift. Should this repeater be unavailable, we will shift to the Houghton repeater on 146.850 MHz receive with a -600 kHz shift. To access the Houghton repeater a 91.5 Hz tone is also required. This net is open to all appropriately licenced amateurs, regardless of being a member of the HRSA.

Component Corner

Many new members are probably wondering where to obtain components and valves. The following is a list in order of preference;

HRSA-SA Group Shop (See the Directory above). We are working towards a publishable catalogue,

AZTRONICS, 170 Sturt Street, Adelaide. Houses the HRSA-SA Group valve bank and modern components,

HRSA Melbourne (see *Radio Waves*) Houses the HRSA valve bank and odd passive components and kits,

WES Components, Sydney. The catalogue is viewable on-line and orders through the Shop Keeper or Secretary, as the SA Group has an account.

Committee Meetings

The first committee meeting was held on the 7th of August. Through various reasons, not all of the committee was present to formalise vacant positions. The meetings will probably be held bi-monthly and once a schedule has been determined, the dates will be published. Dates for committee meetings are given, not for the purpose that members are expected to attend, but should members have anything that you wish to have discussed by the committee.

Front Cover

For the full story of the ant with an integrated circuit in its's mouth, see John Crawford's article, The TAA570 Integrated Circuit.



Editorial

Since the Editor is also the President at present, I will consolidate all of my comments into the President's Report.

President's Report

Here I am, back in the President's position after 31 years and hopefully, only temporarily back in the Editor's position after 4 years. For the benefit of the new members, I was the first President of the Group way back in 1991. We had plenty of members at the A.G.M. willing to go on committee but not willing or suitable to hold a portfolio. Without a committee, we will not have a Group. As it is, you may well find the size of the Newsletter shrink. This edition is boosted by John's article. Thankyou John.

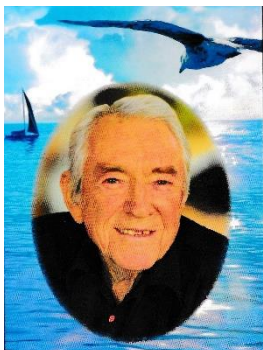
There is a proposal to revert to some of the pre-Covid traditions of having a short, but a little more formal meeting before the event of the day. The other is for members to bring afternoon tea. We legally had to provide afternoon tea in sealed packages during the height of Covid. Covid has now subsided. Remember, we are one of very few societies that do not have subscriptions, and our income is falling with lower proceeds from the auction. All of the fees that you pay annually to the HRSA goes to Melbourne and used on providing *Radiowaves*. We do not see any of this money. I have had comments made that 1.00 pm is too early for meetings. We will discuss this on Sunday.

The committee is somewhat concerned regarding the reduced attendance at meetings and luncheons. Some of the reduction can be attributed to an aging membership. Auctions have been determined and will be hopefully 'set in stone'. The Idea is to have three auctions or sales per year equally spaced in July, November and March. We have a full programme to the end of the year as determine by the previous committee We will hold off setting a programme for the first half of next year until consultation with the membership. Does the membership want moor country day trips, more technical days, more home visits which require members to volunteer their homes or try and find external speakers, as we have in October.

Finally, I do not intend holding the position for four years, as the previous two presidents have done. I am hoping for a Vice President to 'groom' to take over the position next year or at the most, after two years. Similarly, I would like a volunteer to take the Editor's position, with me helping on the first couple of Newsletters. When I think back, the first Newsletters in 1991 were prepared on an electric typewriter in a four A4 sheet format, photocopied and reduced to a double sided A4 sheet folded in two to produce a two double sided page A5 format. Any illustrations were hand drawn. This format was easy to post, no common email back then.

Tony Bell
(President)

Obituary



It is with a heavy heart that I report the passing of member Colin Edward Windsor. Colin passed away on 13th of August at the age of 87. He will be missed within the Group and those wishing to read about his most interesting career are referred to the S.A. Group Newsletters Volume 32 No. 4 of February 2023 and No. 5 of April 2023. The Group extends its sincerest sympathies to his family. He is survived by his wife of 62 years, Pam, four children and eight grand- children. Five Group members attended his funeral on Thursday, the 21st of August.

Vale Colin. **Ed.**

Wanted

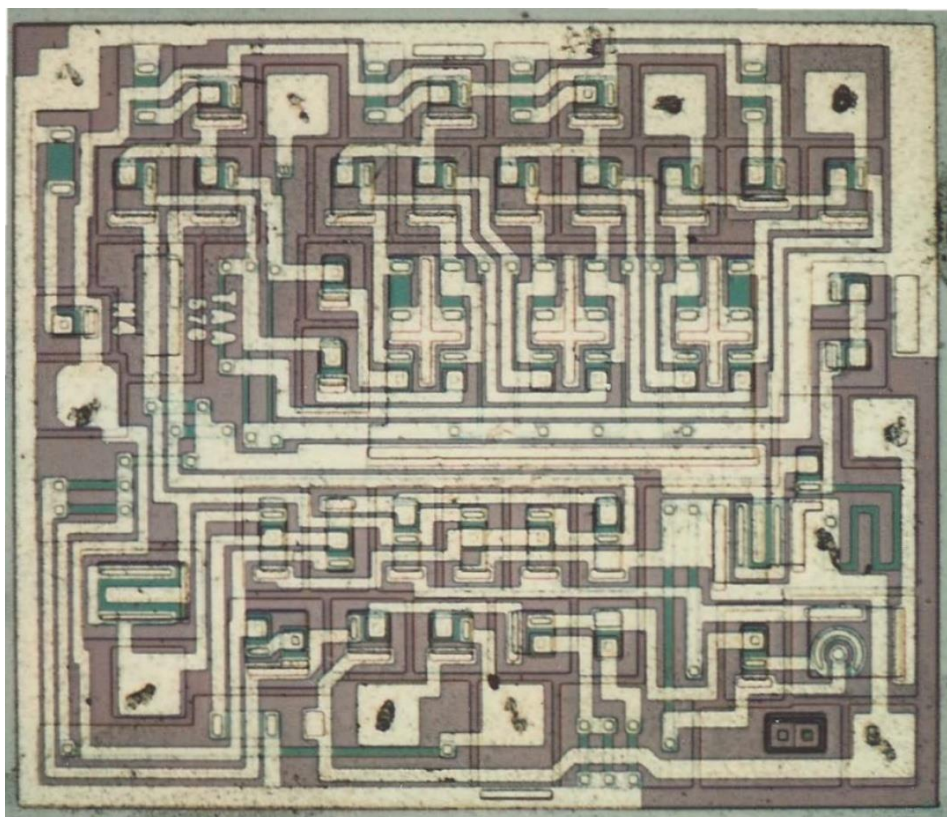
Peter Howard is looking for a set of knobs for his Astor Baby Grand which is made of Queensland Maple. He is also looking for the circuit for the Baby Grand. Peter's contact details are in the committee directory.

THE TAA570 INTEGRATED CIRCUIT (AND AN ANT)

Not really about the IC, but this is a radio newsletter, and a story about ants seems barely appropriate.

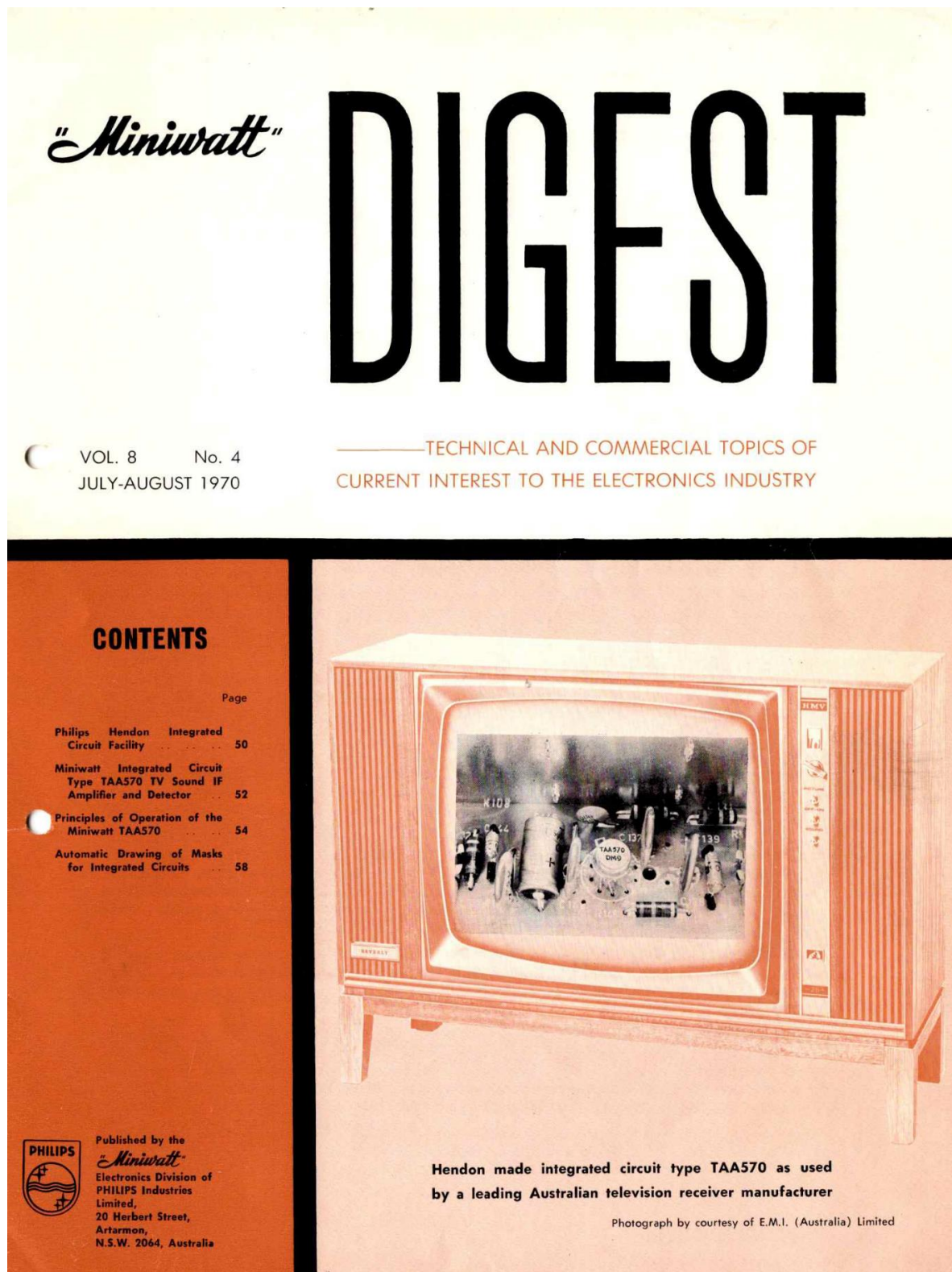
I started work on germanium transistors (OC71 and OC75) and diodes as a raw young graduate with very little understanding of semiconductors. Philips opened the new semiconductor building at Hendon in late 1959, and I joined them in early 1960. By 1964 we began assembling silicon planar transistors (BC107 family). When integrated circuits arrived later in the 1960s we already had the necessary assembly equipment for ICs. The TO5 metal transistor envelope came with multipin versions for IC chips, and the only thing we lacked were dedicated testers.

Television designers were looking at the anticipated introduction of solid state, and the first integrated circuit likely to find a place in a TV set was the TAA570, an audio four -stage limiter-amplifier in a TO-74 10 pin metal envelope, with fm detector and remote-control stage. In the photograph of the TAA570 chip below, pin 1 is at the centre of the left-hand side, and you can read the type number just above that bond pad. The bond pads are 100 microns square and in this photograph, you can see the scratch marks in each pad caused by the metal pretest probes when the chip was pretested. Reject chips were marked with red ink dots, and discarded when the slice was assembled into the TO-74 package.



TAA570 TV sound integrated circuit.

In 1967 the Australian Government asked for submissions to create an integrated circuit diffusion facility in Australia. Philips and AWA both submitted tenders. AWA was the successful recipient of the government grant, and through their association with RCA, proceeded to create a facility based on a US approach and process. Philips TV receiver designs used European based technology, so Philips invested in their own diffusion and design facility at Hendon here in South Australia.



Here is an image of the cover page of Miniwatt Digest Vol 8 No 4, JULY-AUGUST 1970, in which the TAA570 is shown being used as the sound system of an EMI television.

Setting up to diffuse integrated circuits, and before local diffusion was available, made the lack of an IC tester a problem. I set out to design and build a tester using commercially available HP power supplies which could have their output voltage and current limit values set with external known resistor values. Ten turn potentiometers allowed manual setting up. The measuring output was a Philips GM6020 VTVM microvoltmeter. The key part needing local design was a reed relay matrix by which each IC pin could be connected to a voltage/current setting or a measuring point.

Some 30 years later I happened to see “my” tester sitting on the foot path outside a second-hand shop on Prospect Road with a label saying “\$100”. As the new price of each of the two HP power supplies was in the thousands, it was worth buying just for them. The rest of it is under a bench in my back shed. However, the power supplies have since been quite useful (100V 750mA, and 320V 0.1A).

Setting up the diffusion facility involved not only a lot of investment for capital equipment, but also significant training in the Netherlands for the technical staff to do the diffusion, as well as for IC design. I was disappointed to get the short straw, remaining at home to help to keep things going. Although in 1968 I had a quick 3 month visit to update on new transistor developments, as well as a good sticky beak into general integrated circuit issues.

NOW FOR THE ANT

When we first installed diffusion in 1969, Alan Johnston, the Miniwatt Manager at Hendon, asked me for some ideas about what we might do to publicise this very large investment at Hendon. I mentioned the possibility of an ant with an IC chip in its mouth. Alan said "Good, go and do it."

A number of other suggestions were not nearly as appealing. For example a chip on a match head was an easy photo which featured a couple of years later in the Canberra Times alongside the picture of my ant.

My first thing was to grab some IC chips from the assembly line. Although in the years since I have generally used the photograph of the ant to end my occasional talks about anything electronic, I found I had totally forgotten the type number of the IC that I had placed in the ant's nippers. A few weeks ago I looked at the picture of the chip in the ant photo, and traced the pattern to check that it was the TAA570. It was.

John Ward, our semiconductor factory manager and I, walked around the block each lunch time. In those days, we could walk around the Philips soccer field which is now occupied by the Reception Centre, Squash Courts, and the Brush Company warehouse. On the way back, we captured a couple of ants from a bull ant nest under the tree at the front door of the reception centre.

We tried a chip dipped in honey. When one finds ants inside at home, honey is one of the first things they find; although honey ants are too small. A bull-ant would be about the right

size, and we hoped a captive ant would behave itself with a honeyed chip for long enough to get a good photo.

While they were most photogenic and seemed ideal for the required publicity shot, they had shown absolutely no interest in honey, sugary water, or even sugar crystals. This was not surprising after the ants had faced a couple of terrifying hours sitting in my empty lunch box. And they had even less interest in the silicon chip. Seeing the ants were terribly lively models and kept trying to run away, we were ready to give up. Look away for a second and you could not tell where they had gone, or who or what they might be going to try to bite next.

We tried to explain this to Alan Johnston and the more we said it was impossible, the more he insisted that it must be able to be achieved somehow or other.

Anyway, under a microscope you can see the big pincers at the front end and that these have more to do with biting and holding the food they take home to the nest than for eating. This was not their mouth. Taken away from their nest they were simply not interested. We never found out where the mouth was.

So, in the interests of having a happy boss and an ongoing career with Philips, we decided that an ant or two would need to be sacrificed to get any photo. A dead ant should be easier to manipulate. First we tried alcohol. It certainly fixed and probably pickled the ant in no time. The poor little ant just curled up into a tough little ball, smaller than a match head. It was probably my feeling that pure alcohol might be a tolerable way to drown, but it did not give us an ant ready for the camera.

Finally, we found the easiest and quickest way to kill an ant was to drop it into liquid nitrogen. This time the dead ant was a floppy black ball that could be manipulated to get it to 'pick up' the chip and sort its legs out for the camera. Under the microscope, using fine pins and needles on a cork block, each leg and then the head and tail were folded out and held in place. We opened the jaws and slipped the chip in, with a tiny spot of super glue behind to hold it in place.

As a butterfly collector when I was a teenager, I used to set insects for display, but the ant presented special challenges. Using the cork block made from an old dining coaster, and under a microscope, a pin could be used to stretch out each curled-up leg, getting it into a 'lifelike' position, and then using a pair of crossed pins to hold it in place. Then the next leg and so on, all the time trying not to move those already in position.

After a day or two, when the ant had dried out and the pins could be gently removed, it was ready to be photographed. First we put it on a suitable surface (coloured glass). Now, as the model would not move, a studio camera and lighting were used to get a series of poses. This was photographed by Pat Ball, assisted by Christine Pavlovich, the Philips Hendon Works photographic team with a full studio set-up on the ground floor of the old Research Lab building. Once I had managed to get the first ant set up, I could make a few more so we could choose the best for the photograph, the best one had a slightly damaged tail where I

had tried to super glue it down to stop it blowing away, only to need to free it later to get a better background pose.

In 1972 over two thousand employees were working at Hendon, and a special art exhibition celebrating 25 years at Hendon was held for employees at the annual Christmas celebration with Father Christmas. Pat entered his photograph in the exhibition and was the winner of the photographic section with this photo “AntIC”. It is now somewhat faded.

We also cast a few other ants in plastic to use as gifts for important visitors. But of them all, the photographed ant was the best. It was by far the most interesting of all the publicity photos we took and was used in newspapers all around Australia to publicise the electronics industry.

It was also a good lesson for the future. Keep your mouth shut when the boss asks for clever suggestions!

John Crawford August 2025

ARTS&P Labels

It is some time since this list has been published, most useful for dating ones’ radio.

ARTS&P

The ARTS&P system was a licensing system that was used in Australia and New Zealand between 1934 and the 1960s. The system was introduced to verify that radio manufacturers paid royalties for the items they were using that were covered by Patents. Some radio makers avoided this by selling parts, rather than complete radios, even though the parts could be easily assembled into a radio. Each licensed radio was fitted with a small sticker attached to the back of the chassis.

The colour of the sticker is a useful way of determining the age of manufacture.

1934	White, serial number prefixed by the letter A
1935-1936	Pale blue, serial number prefixed by the letter B
1936	Pale blue, serial number prefixed by the letter C
1937	Pale blue, serial number prefixed by the letter D
1938	Pale blue, serial number prefixed by the letter E
1939-1940	Pale blue, serial number prefixed by the letter F
1940-1941	Pale blue, serial number prefixed by the letter G
1942-1946	Pale blue, serial number prefixed by the letter H
1946-1952	Dark Green with red letters, serial number prefixed by the letter T
1952-1955	Orange with dark green letters, serial number prefixed by the letter T
1955-1960s	Small pale blue, with dark blue letters, no prefix to the serial number.

References

Ray Robinson “How Old is Your Radio” HRSA Newsletter, October 1987, p. 20

Photo Gallery



Above: The Retirees Luncheon group at the July luncheon, looking north



Above: The Retirees Luncheon group at the July luncheon. looking south



Released in October 1954, the Regency TR-1 is regarded as the first transistor radio on the market at a cost of \$US49.95. The four transistor radio was manufactured by a small U.S. firm I.D.E.A., who redeveloped the original Texas Instruments design.

Beating the BOYS

Girl jockey's
winning streak

AUSTRALASIAN

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SQUIZZY TAYLOR MOVIE

**Portrait
of a
PIMP!**

PICTURES

**MARVELS OF
MICRO-SURGERY**

★ COVER GIRL: Melbourne student Karen Massoud, 17, was this year's "Miss Rye (V.) Beach Girl" and she has ambitions to be a model and actress. With Kevin Poulter's photograph, Karen becomes an entrant in the POST-Jetset Tours Cover Girl of the Year Contest.

over
a million
people read
POST
every week

Most HRSA members are familiar with Kevin Poulter's excellent photographs of radios, but his experience obviously goes back a long way. You will need a Lupe or good magnifying glass to read the credits in the bottom left-hand corner. Thanks to Peter Field for a most interesting contribution.