



Darling Downs Radio Club Inc.

Newsletter



Toowoomba October 2024

CLUB INFORMATION

Postal address: PO Box 3257

Toowoomba QLD 4350

Email address

secretary@ddrci.org.au

Web Site: www.ddrci.org.au

EXECUTIVE COMMITTEE:

President: David Toal VK4JPS

Vice President: David Curry VK4SP

Secretary: John Maizels VK4JPM

Treasurer: Cameron Scarvell
VK4CSS

STEERING COMMITTEE:

Sam Pascoe VK4SAM;

Rod Webb VK4ZJ

Robert Hosking VK4FRH;

Bruce Boardman VK4MQ.

REPEATER COMMITTEE:

Chairman: Bruce Boardman VK4MQ

Members: Paul Stevens VK4CPS;

Cameron Scarvell VK4CSS;

Rod Webb VK4ZJ

STATION MANAGER:

Theo Moller VK4ESK

2 Metre Net Convenor

Kevin Crandell VK4VKX

80 Metre Net Convenor

Theo Moller VK4ESK

CLUB MEETINGS:

2nd Monday of the month.

Start 7pm.

First half hour business matters, then
social meeting incl a lecture.

MEETING PLACE:

Community Venues, Level 3 City
Library

Victoria St. Toowoomba

CLUB NETS: using VK4WID

80m on 3.650MHz, Saturday 7.30pm

2m on 146.750MHz on VK4RDD

Toowoomba Repeater

Sunday 10am

OTHER REGULAR NETS:

Monday: UHF Net on 438.025MHz
7.30pm

Tuesday: The new Horizons Net
on 147.050 MHz 7.30pm

Thursday: Scrub Turkey Net on
147.050MHz 7.30pm.

Friday: VK4 Friendship Net on
3.587MHz at 7.00pm

Secretary Reporting



Hi, all. Time for a bit of news from the Darling Downs Radio Club. I've attached the flier for the next **Technical, Social and Management Committee meeting** to be held **at the Toowoomba Library on 14 October**. We're really looking forward to Steph Piper's intro to 3D printing - it's a fascinating and useful topic, and you never know when might be the time to print your own replacement for a broken transmitter part. Also at the meeting: your newly elected MC has been busy - we have quite a bit to report, but more importantly: lots of questions to ask. So if you want the MC to know what you really think: turn up and join the conversation. Saturday social lunch: on **12 October** don't forget about the bimonthly lunch at the Southern Hotel. For those of you who can't get to the library on a Monday, this would be a great opportunity to catch up with each other and the Management Committee. Dave and I checked out the food last week, and I can tell you that the ribs plate is to die for - hard to believe we were in a pub.

We're really keen to know what you'd like to see your club do over the next 12 months. Bring your suggestions (and maybe even offers of help!). Finally, **big congratulations to President Dave Toal VK4JPS**, who was advised today that he has been **appointed by the ACMA as a fully fledged and accredited Specialist Assessor**. That means Dave is now able to conduct assessments for amateur radio licences, and he's already reaching out to see if we can create some Foundation classes to get things moving. Registration details for the lunch, and agenda for the MC meeting will follow next week.

Oh, and we have cool topics lined up for the next two meetings, so lock in 11 November and 9 December. Everyone is welcome. John VK4JPM Secretary

Darling Downs Radio Club Inc.

Technical Talk & Management Meeting

When:

**7:00 pm Monday the 14th
of October 2024**

If you have any Matters to raise, please send these
through to the Management or Steering Committee

Where:

Community Meeting Rooms

Level 3 Toowoomba Library, Victoria St

Welcoming all Members

This Months Presentation
by:

The Maker Queen, Steph Piper
Introduction to 3D Printing

In this session we'll have a look at:

- What is a 3D Printer
- Some types of 3D Printers
- How to get started
- Resin vs Filament
- Types of filaments
- Extruders
- How to design your own prints,
or access freely available files.

(Maybe some free samples of ham-friendly prints)



The Pendograph was the first bug key built and used in Australia. They are “as scarce as hen’s teeth”.

Right angled models and early ‘in line’ models carried a rectangular shaped label, whilst later ‘in line’ models had a round label.

Pendographs did not carry serial numbers but could carry a PMG number. The Pendograph was designed by an Adelaide telegraphist, Albert MacDonald, who applied for a patent for ‘an improved telegraphic transmitter’ on 28th April 1908. Patent No. 11389/08 was subsequently granted. His invention related more particularly to mechanical transmitters in which vibrating devices are used for automatically producing the ‘dots’ of the telegraphic code, as for example, the Morse Code’. Up to that time semi-automatic keys consisted of a horizontal weighted vibrator, whereas MacDonald proposed a vertical pendant or upright vibrator for automatically providing dots controlled by a horizontal lever, the electrical contact being direct on to the vibrator spring thereby dispensing with the secondary spring previously in use. Three models of Pendograph were produced. Model 1 and 2 were right-angle bugs with a square nameplate. The 3rd model was an in-line bug. The early 3rd model in-line bug had a square nameplate and the later 3rd model in-line bug had a round nameplate. There are the two individual levers for dots and dashes and the secondary spring. The vibrator is anchored to the base with the weight (or weights) at the top. Pendographs were used by operators on long distance circuits, such as the overland telegraph line Adelaide to Darwin and Adelaide to Sydney. Also between Sydney and Melbourne. A Mr G D Hall, a Sydney operator who has been working the Pendograph on the line between Sydney and Melbourne has some very excellent performances to his credit. One performance of 1657 words in 38 minutes probably constitutes a record, the message being taken on a typewriter. In my calculations that is 43.6 wpm. COLOUR OF BASE CAN BE: Grey, black as well as nickel-plated.

Sunspots are regions of the sun's surface where surges of electromagnetic radiation break through the star's magnetic field, creating relatively cool patches that appear black to us thanks to an optical illusion.

Along with the size and frequency of solar flares and coronal mass ejections, sunspot numbers indicate the progress of the sun's roughly 11- year solar cycle.

During the sun's least active phase, or solar minimum, there are very few or occasionally no sunspots. For example, in late 2019, shortly before the start of the current solar cycle (Solar Cycle 25), there were 40 consecutive days with no visible sunspots. But as the sun's magnetic field gets entangled with itself and weakens, sunspot numbers quickly climb before peaking during solar maximum.

During this active phase, the sun's magnetic field eventually snaps and completely flips, which triggers a falling-off period of solar activity and a decrease in sunspots until the whole cycle restarts.

Automorse: a rare Australian gem

Herman Willemssen VK2IXV
RAOTC member No 1384

The Automorse, invented and designed by Adelaide telegraphist Norman Percy Thomas, and manufactured by Hitchcox Bros in Adelaide, is not a semi-automatic, but a fully-automatic Morse key.

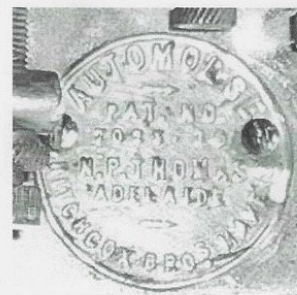
In 1918, N P Thomas applied for a patent with the Commonwealth of Australia's Department of Patents for “an automatic dot and dash making telegraph instrument”, and was granted patent number 7023/18.

The rounded nameplate on the key reads: “AUTOMORSE PAT. NO. 7023.18 N.P.THOMAS ADELAIDE HITCHCOX BROS. MAKERS”. No serial numbers were ever given to these machines.

The Automorse, a ‘double-decker’ triple-lever key, was made in both right- and left-hand models, but only one left-handed model is known to exist. The top ‘deck’ operates like a Double Lever bug¹, with its left-hand lever being a Vibroplex-style tension-creating² repeating dot lever (auto-dots) and its separate right-hand lever a manual-dash maker.

The lower ‘deck’ houses the auto-dash pendulum, which has one large parallel weight and one slightly smaller cross weight which acts as a sort of hammer.

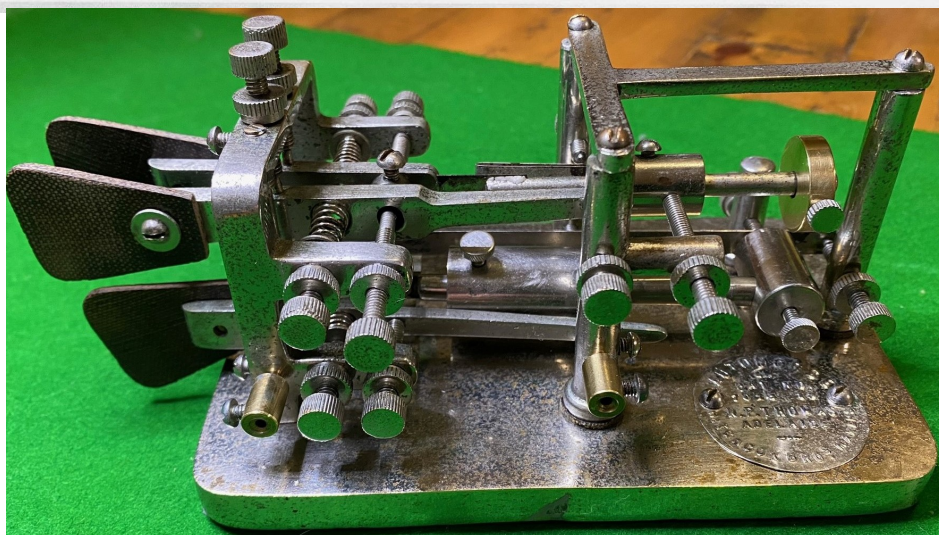
This pendulum is a Mecograph-style tension-releasing³ repeating dash lever (auto-dashes). All three finger-pieces are made of a fibrous material and all metal parts are nickel-plated brass.



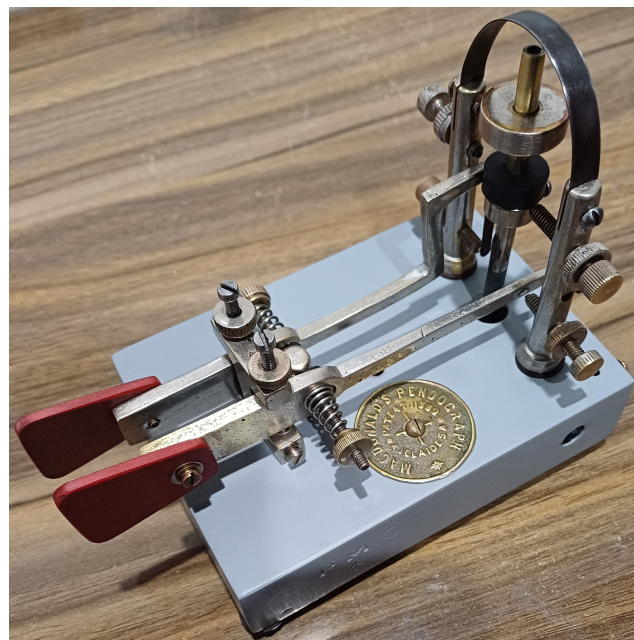
The rounded nameplate on the Automorse key.

The T-frame, fixed to the base and extending above the pendulums, safeguards the instrument against damage and makes carrying easier.

It puzzles me why, when this instrument was being built, its design changed to something different from the specifications and drawings of the Patent's Complete Specifications. This difference is quite noticeable as you can see from my drawings of the Automorse as it is in real life (see next page).



Automorse key



Pendograph

STATIC CHARGE:

By Seth Price

Static charge is more than a slight nuisance and a brief, surprising shock. It can cause damage to sensitive electronic components, raise the electromagnetic interference (EMI) or radio frequency interference (RFI) noise floor, and, in extreme cases, lead to fires and explosions. Static charge buildup is unavoidable. If two objects slide past each other, electrons will be stripped from one object, as some of them are attracted to the atoms on the other object. There is no way to prevent static charge from occurring. The best plan is to find ways to bleed off the charge and prevent current from flowing at the wrong time and to the wrong place.

Static is a major threat and can cause problems in virtually any industrial operation.

What can be done about electrostatic discharge (ESD)?

Most static mitigation techniques are done through engineering controls. For some operations, ensuring metal-to-metal contact between all components ensures that the components are grounded, and thus kept at the same potential. When this occurs, there is no way for a charge to build up, reducing the chance that static will try to jump across an air gap to equalize the charge between components.

Grounding straps on plant personnel:

For dealing with sensitive electronics, especially when technicians are handling material, they can reduce the static charge buildup on their bodies through the use of grounding straps. Grounding straps are wrapped around the wrist and connected to ground with a metal clip. The “ground” could be a special grounding rod near the workbench, a metal table, or any number of large, metal objects. The grounding strap is attached at the wrist so the technician can work freely, without too much interference in their range of motion, but also attached as close to work pieces as possible to bleed off any charge that may develop.

Besides grounding straps on the wrist, there are also grounding “cleats” that can be attached to a shoe or work boot. A small strap wraps around the ankle, or simply attaches to the back of the shoe. From there, a conductive strap lies over the back of the shoe to a metal or conductive nodule that rests under the heel of the shoe. This helps ground the technician as they walk through the facility.

Electronic static protection:

There are numerous electrical designs that can minimize static damage in electronics and filter out static pops due to EMI/RFI. Capacitors placed between devices and ground can shunt static charges to ground. Because a static charge can act like an impulse signal, which can be thought of as a short duration, high frequency signal, the charge is shunted through the capacitor instead of through the device. Series-connected inductors can filter out a static discharge as well (as inductors block high frequency signals), but often the added inductance can cause other problems.

Zener diodes and transient voltage spike (TVS) diodes can be used to limit voltage differences, thus reducing the chances of ESD.

Some combination of diodes, capacitors and inductors are used to protect the pins of many dual-inline package chips that are routinely handled by technicians. Without these mechanisms, the technician could cause damage without even feeling the spark.

Printed circuit boards (PCBs) can be designed to minimize static as well. Traces can be placed without sharp corners, where charges tend to collect. Large, conductive areas, such as thin sections of copper, can be placed on the PCB to serve as a place to drain charges.

Static dissipative materials:

There are some circumstances where grounding is not desirable. Consider a large production facility with metal flooring and workers who are equipped with grounding straps. Suddenly, a forklift in the next room snags a wire and breaks it. The wire now puts a potential on the floor, which was supposed to act like a ground. Not only can this generate an electrical spark, it may electrocute the worker who is now at the same potential as the floor.

To mitigate this effect, there are static dissipative materials. Shoe soles, cart wheels, paints and other components are electrically resistive, but not totally resistive. These moderately conductive composites will prevent electrocution, but will allow for the slow bleed-off of static charge.

Static dissipative materials are like balloons. A balloon holds helium for a while, but over time, the helium escapes through the mouth and permeates through the balloon itself. The same is true with static dissipative materials; they can be charged, but the more conductive path, or the preferred flow of electrons is still through the material to ground instead of jumping across an air gap and sparking. They are a way to bleed off a charge without having a direct conductor tied to the ground.

Gloves, floor mats, benchtops and other commonly touched surfaces can be made from these static dissipative materials. Typically, they are a composite made from a polymeric material and the addition of a conductive phase, such as carbon black in relatively low volumetric percentage.

There are other conductive polymers, and conductive polymer research is a hot topic in the materials engineering world.

Final thoughts:

Static charge happens, and there is nothing that can be done to prevent it from occurring entirely. Instead, the best approach is to find ways to mitigate the accidental discharge into sensitive objects or through flammable vapours. Through the use of grounding systems and static dissipative materials, the danger and the quality threat of static electricity can be greatly reduced.

CLUB REPEATERS:

Both VHF and UHF repeaters are co-sited and have the same call identifier: VK4RDD 146.750 MHz, negative offset, no access tone required; VK4RDD 439.275 MHz, negative offset, 91.5 Hz, access tone required. VK4WID is the club's call sign for all nets on HF, VHF and UHF, as well as all contests. Please note that during contests which conflict with our regular net times, the contest has priority over the net in so far as the club call sign is concerned. The nets will then be conducted under the convener's call sign instead of VK4WI

ASSISTANCE

Assistance to those in need. This radio club offers assistance to those in need of physical work involved in the maintenance of their antennas etc. If you require assistance, please contact the club secretary via email on secretary@drcl.org.au and we will organise your assistance.

EDUCATION

If you would like to register for a Foundation License Course,
or contest any of the exam levels available,
please contact Steven Dudley who may be contacted:
steve@vk4fi.net.au
Mob 0403 910 087,
or you may also contact Philip Webb from the Border Ranges Club
via email philip01@scisat.com

Garden City Award.

The DDRC i also has an award worthy of adorning the walls of your shack. This is the Garden City Award. Please check the web page for details.

The disclaimer is: Reservations are made for typographical errors, spelling mistakes, typing errors, grammatical errors, comma errors, missing sunspots, poor conditions on the bands, atmospheric disturbances and/or all other forms of errors, as well as whatever else might be in small print. In short, the editor cannot be held responsible for anything at all. (Joke?)

A bit of History.

It's hard to imagine a time when unlicensed radio frequency bands were not the norm, but early in the history of radio, strict spectrum control was necessary in order to prevent unintentional radiation from crappy equipment from interfering with services. Remember that even in the mid 1940s, many, if not most, casual users were cobbling together their own transmitters and receivers from scratch. Transmitter powers were easily high enough to interfere with nearby and distant receivers, but even improperly shielded receiver oscillator ("exciters") could cause interference with a neighbour's nightly Lone Ranger broadcast.

Around 1945, the FCC began entertaining the idea of allocating bandwidth for the use of the newfangled "walkie-talkies" that were developed for field communications during World War II. This 460 to 470 MHz band was the first of the Citizens' Bands that eventually opened up in the 27 MHz realm, which was widely adopted by the trucking industry in the 1970s. Cellphones are the latest step in the evolution of license-free radio devices, occupying bands in the 800, 900, 1800, 1900, and 2100 MHz bands.

HAMFEST 13TH OCTOBER 2024 (SUNDAY)

<https://gcars.com.au/2021/07/21/hamfest-2022/>

Standard / by treasurer@gcars.com.au / July 21, 2021 / No Comments



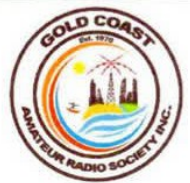
If you want to be a part of it, email hamfest@gcars.com.au

Table holder Application form now on line. \$15.00 per table.

Gold Coast Amateur Radio Society HAMFEST 2024

Sunday 13th October 2024

Venue: Country Paradise Parklands
231 Beaudesert Nerang Rd, Nerang QLD 4211



- Doors open to the public at 08:30 (Table holders can set up from 07:00).
- Everything is under cover.
- On-site parking.
- Entry only \$5:00 per person.
- Further info <http://www.gcars.com.au>
- Table bookings ect please email - hamfest@gcars.com.au

See you there!

Oceania DX Contest

Folks, it is time once more to warm up your linears and tune your antennas as the weekend 5/6 Oct. marks the 79th running of the Oceania DX Phone Contest. The contest, which starts at 0600Hrs UTC on October 5th, is open to all amateurs on 160, 80, 40, 20, 15 and 10m, and is a great opportunity to put Oceania on the world stage. There are many awards and trophies on offer, with something for everyone, be it QRP or QRO, YLs or Newcomers. To take part, first head on over to the Contest website - www.oceaniadxcontest.com and have a read of the rules. Then, load up your favourite logging program setup and away you go. Not to be outdone, for the CW aficionados out there, the following weekend will see the CW leg of the contest run too, with the same bands and categories, starting 0600 on October 12th.



What is Jamboree-On-The-Air (JOTA)?

<https://www.jotajoti.info/radio-activities>

JOTA is an annual event in which Scouts all over the world connect with each other by means of amateur radio. Short-wave radio signals carry their voices to virtually any corner of the world.

Jamboree on the Air/ Jamboree on the Internet will be held on **October 18-21**
VK calling frequencies: 3.650, 7.090, 14.190, 21.190, 28.590, 52.160 MHz