

Omega Radio Club Inc

e News Letter

Vol. II Issue 5 May 2016

Annual General Meeting:

Notice of the 2016 Annual General Meeting was included with the April issue of eNews along with nomination forms for the committee election. It's not too late to submit a nomination form however it must be received at the club's PO box no later than Monday 16th May 2016. Remember any financial member of the club is eligible to nominate for the committee.

Membership Renewal:

Membership renewals were due on 31st March. At the time of writing only 2 or 3 members remain unfinancial. If you are one of those we would appreciate if you would complete your renewal as soon as possible. Don't forget, if you want to vote in the committee election you must be a fully financial member.

Dinner at Nga's:

Our night out at Nga's Kitchen was a great success. 22 members and partners all enjoyed sumptuous food and good company. Thanks to Nga and her team for making the night out an enjoyable one for all who attended.

Car Rally Communications:

Our last rally was the Daryl Tunbridge for the Ballarat Light Car Club. Nine members attended and all contributed to another very successful job. Radio coverage was excellent throughout the event area with both VHF and UHF repeaters working very well. Len 124 obtained some new batteries for repeater use and they were used for the first time at this event powering the UHF repeater. They performed very well recording an end voltage of 12.79v after 24hours of operation. Special thanks go to Christopher 338 and Russell 545 for doing the tower work for Mike who has been recovering from a recent operation. Chris could not attend on the night of the event due to a family commitment at Longwood, however to help us over a difficult situation travelled to Mt Lonarch, set up the antennas and repeaters then went to Longwood. He returned to Mt Lonarch on Sunday morning to take the system down and transport the equipment home. This added many hundred kilometres and over 6 hours of driving. It was a mammoth effort and is much appreciated.

The next rally event on our calendar is Nissan Nightmoves on Saturday 18th June at Heathcote. Len 124 is currently seeking members to attend this rally. If you are able to attend we would appreciate hearing from you as soon as possible.

Magnetic Door signs & Club Stickers:

Stickers and magnetic door signs are available from the Treasurer Alex 510 at general meetings. If you are not able to attend a meeting and would like some of these items please contact Alex 510 or Bill 478 by email to: omega.radio.club@gmail.com to arrange.

Omega "Person of the Month" award:

Member of the month award for this month goes to Christopher 338 for his outstanding contribution at the Tunbridge Rally. Congratulations Christopher.

Don't forget: Any club member can nominate another for "Member of the Month" if they would like to see that member receive recognition for a significant contribution to the club. Nominations need to be received by the committee on or before the first Tuesday of each month.

Membership Address records:

If you need to update your address records please let us know as soon as possible. We need to have all members address information correctly recorded in time for voting ahead of the coming AGM. To update your records contact: The Secretary via omega.radio.club@gmail.com or PO Box 10 The Patch 3792.

PRM80 Radios:

Bill 367 advised at the last meeting that Simoco Australasia (formally ComGroup) may not be repairing PRM80 radios any longer due to their age. We understand an exception may be made for us so if you need repairs to PRM80s please contact the secretary to make arrangements. We currently have a couple of club owned sets needing repair and will be arranging this soon.



Members receive awards from Ford Four Car Club:

At the last general meeting Omega member John Roberts 194 delivered awards from the Ford Four Car Club for Omega members. These awards recognise the contribution of our members in providing communications for FFCC rally events over many years.

Unfortunately John was not able to stay to present the awards himself and asked Bill 478 to make the presentations on his behalf.

Arrangements are being made to get the awards to members who were not present at the meeting.



Events Calendar—Club Diary

26 th May	General Meeting Night		
18th June 23 rd June	Nightmoves <u>Annual General Meeting Night</u>	Rushworth	Confirmed
28 th July	General Meeting Night		
25 th August 28th August	General Meeting Night George Derrick	Avoca	To be confirmed
17th September 22 nd September	Spring 200 General Meeting Night	Marysville	<u>Confirmed</u>
16th October (Sunday) 27th October	Akademios Rally General Meeting Night	Alexandra (Blue Range)	Confirmed

Daryl Tunbridge Rally 2016 in pictures.



Perfect weather (so far). Chris 338 and Russell 545 setting up antennas for our repeaters on Saturday morning.

How quickly things can change. Packing up on Sunday was very different with thick fog and rain.



Like to see your pictures in eNews?

If you have taken pictures at club events why not send some to us for inclusion. All it needs is the picture as a jpg file and a brief description. If space is available they will be include for all members to see.

All eNews contributions should be sent to;
omega.radio.club@gmail.com



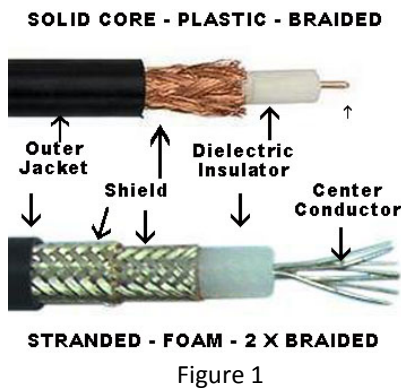
RADIO TIPS 2

COAX and CONNECTORS

Coax or Coaxial Cable is, as the name implies, one conductor surrounded by another conductor which forms a shield. They are separated by an insulator or dielectric and usually protected by an outer jacket. Coax is used to transmit an AC signal, like audio and radio, with the centre conductor carrying the signal and the shield grounded to minimise interference.

The centre conductor can be a single copper wire, for large cables it may be hollow, but most commonly it is multi-stranded. The multi-stranded cable is preferred because of its flexibility and the phenomenon that Radio Frequencies travel on the surface of wire.

The shield is usually twisted or braided copper wire, an aluminium foil is also common, and copper pipe (often corrugated for flexibility) is used in large cables. The quality of the cable increase with the quality of the shield, twisted shield is generally not used in RF cable and higher quality cable will have multiple shields, most commonly, braid over foil.



The dielectric's job is to keep the conductor centred and is usually a solid or foam plastic, in better cables air is the dielectric with thin spacers to keep things centred. (Ref Fig 1)

When you have two conductors separated by an insulator you have a capacitor which reacts to AC signals and this applies to coax. One of the specifications of coax is its impedance, this is its AC resistance and should match the application for which it's used. RG59 TV coax is 75ohms, whereas communications coax is usually 50ohms. Impedance is a complicated formula involving the dimensions of both conductors and the dielectric constant, if you like math look it up.

The other main specification of coax is loss, which is how much signal is lost by the time it reaches the end of the cable. Loss is measured in Decibels (dB) and 3dB means you've lost half your power. Loss varies with length and frequency, as each goes up so does the loss. Of course different coax will have different loss characteristics and a general rule of thumb is the thicker the better. The RG58 we use in our cars is pretty poor, you wouldn't want to run 20M of it to a base antenna, RG8 is twice as thick and much better, while RG213 is a bit thicker again and is better at the higher frequencies we use.

There are variations within each type of coax, as an example RG58/CU is better than RG58 because of the stranded centre conductor. The problem is there are variations with manufacturers who do not label their coax the same way, RG8 and RG213 are almost the same and with some manufacturers they are the same. It pays to go to a reputable supplier.

Coax has to be terminated with a suitable connector, not only does it have to match the radio or antenna but the type of coax being used, and again these can vary with quality, loss, weatherproofing, etc. While there are an almost infinite number of connectors there are only a few you are likely to use.



PL259 (male) & SO239 (female) is the simplest radio connector and is used on most CB and Ham radios. It has a large centre pin and outer screw, which is the same as the ground independent mobile antennas we use. (Ref Fig 2)

The N family has a small centre connector with a flange around it to provide a superior shield connection. The outer screw is there only to secure the connector and this is where the variations arise. The N is about the same size as the PL259 and has the same basic screw, you'll find it on base antenna. The TNC has the same centre and shield connections but a smaller screw, you probably won't see this, but the BNC which is the same size has a spring loaded bayonet screw which locks into two pins around the female, you will see this on most of your radios. The N range of connectors is one of the best to use as they are designed to closely match the velocity factor of the coax. (Ref Fig 3)



N connector



BNC connector (crimp type)

With the popularity of WIFI and mobile phones the SMA connector is becoming more popular. It looks like a very small PL259 and you will rarely see it on a cable as the largest cable it'll fit is RG58, you will see it screwing your antenna on your hand held radio. Again there are variations with these and they are nasty, reverse gender connections, so if you need to get one check which part has the male pin in it.

Note that the centre and shield connections are the same

As mentioned earlier each connector can have variations and the most significant variation is the way it attaches to the coax. While minor variations will occur with different types and manufactures there are two main ways of attaching connectors, solder or crimp. Some connectors like SMA are suited better for crimping, while others like large weatherproof connectors are soldered. The BNC in your car can go either way. Crimping is easier but does require a crimping tool and it really needs to be a good ratcheting type to get the correct pressure. Soldering requires a soldering iron and a bit of skill but in my opinion provides a better connection and can easily be redone when it fails from over use. (Ref Fig 4)

With so many different connector types I can't tell you how they all go together but there are a few common tricks. When crimping put some heatshrink tubing over the crimp sleeve, this will help stop it falling apart and keep weather out. The centre pin which I solder even on the crimp connectors may be too small to go over the centre conductor, so you may need to file or cut away some of the strands, the important thing is to keep as centred as possible. Be careful where you run the solder if it goes past the lower flange of the pin it won't sit in the connector properly so you will need to cut it away with a sharp knife. The better connectors have a flange and/or washer that sits on the edge of the outer jacket around the screen which is then folded over the flange and the excess cut off, I then solder the screen itself not the flange, it's just to stop the screen getting damaged when you screw the connector together and thus prevents the coax from being pulled out of the connector. Lastly, the outer jacket must be cut square in all cases and watch for stray strand of wire. (Ref Fig 5)

Figure 4



A build up of solder here will stop the pin fitting

Caring for your coax and connectors is important, connectors get dirty, water can get in and the coax can get kinked in a way that can change the spacing of the conductors. In permanent installations use weatherproof connectors, tape up the connections (self amalgamating tape is best) and put a strain loop in the coax so the weight of the cable is not on the connector. Try to avoid hard bends in the coax, in car installations coax with solid dielectric is best as it's least likely to be damaged. With temporary installations the connectors can easily get dirty and be damaged. You may want to put keepers on the connectors to protect them, the BNCs are very easily bent if stood on. Take care in rolling up your coax, even the thin cable shouldn't be wrapped around your arm. You should keep twists out of the cable, there are a few ways to roll coax neatly, but for long thick coax it's best to roll it up like a drum, the trick is to tape the end to the cable so it doesn't flop around when rolling. If your coax doesn't want to behave leave it in the sun for a while, this is handy if you've packed up badly on the cold, wet night before. Don't roll it up too tight, for thick coax rolls of about 18 inches in diameter is good, but if you have more than 20M go larger as the bundle will be too fat to hold in one hand. Periodically check the connectors as they may get loose and check the position of the centre pin, expansion and contraction in the coax may cause the pin to move in or out of the connector.

Figure 5

I hope you have fun with your coax.

Alex 510



RG214 STRANDED CENTRE - FOAM DIELECTRIC - BRAIDED SHIELD

The flange sits square on the outer jacket shield is folded over and cut flush with the flange shield only is soldered so it remains intact when the connector is assembled