Omega Radio Club Inc
www.omegaradioclub.org
e News Letter
Vol. III Issue 5 - June 2017

Car Rally events:

Members have recently attended the Daryl Tunbridge rally around Talbot and only a week ago the Nissan Nightmoves rally at Heathcote. Again we have had very good results at both these events with good radio coverage at all control sites and around the course roads.

As usual members attending did an excellent job and event organisers were very happy with the service Omega provided. A follow-up email was received from the BLCC as below.

> *Mike,*
>
> *Please pass on our thanks to your team, as well as my apologies to Alex for not getting our Stage Commanders to rendezvous for early setup. That actually cost us setup grief for Section 1.*
> *As noted we should also have gone with your team at ALL start controls. Things got too hectic for our people at 2&6.*
> *However, you and your team were once again a delight to work with, and helped make the event run smoothly.*
>
> *Terry Brain*
> *BLCC Tunbridge Trial 2017*

On behalf of the committee, thankyou to all members who have assisted with these events.

It looks like we have a break for a while with the next rally being the Marysville stages on Saturday 16th September. Please note the date and if you are able to assist please let Len know so your name can be added to the list.

Melbourne repeater site:

Now the antenna work has been completed we have been able to focus on preparing our new equipment for the site. It is hoped by the time you read this that the new radio and power supply will have been installed at the site. See more information on this work later in this issue.

Member of the month:

The ***June*** award goes to Mike 220 for his work preparing the new equipment for our Melbourne repeater site.

Annual General Meeting:

The next club meeting will be our **AGM** on **Thursday 27th July** at our usual venue Carwatha College, Browns Road, Noble Park North. The meeting will commence at 8pm and food and refreshments will be available at the conclusion of the meeting. As always visitors are most welcome to come along.

Pull Up Banners:

At a recent meeting Alex had a Pull Up display banner on show which had been donated to the club. We now have three of these devices and are looking for suggestions and layout designs. It is hoped to have one of the banners promoting our work at rallies etc., another promoting membership and the third as a general display promoting the club. We currently have two layout suggestions for the displays and are seeking thoughts from members. If you have ideas or would like to make up a draft layout please send your suggestions in via email to *omeg.radio.club@gmail.com*.

Full credit will be given on the banner to members who submit designs that are used.

Contributions for eNews:

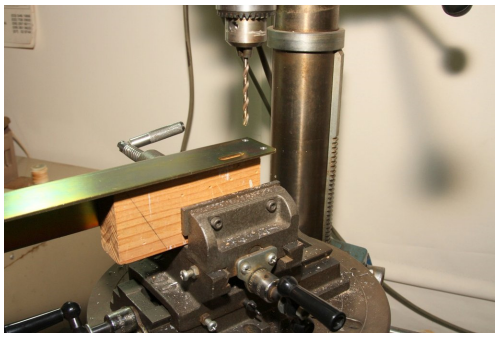
If you have anything you think would be of interest to members that could be included in eNews please send to us at *omega.radio.club@gmail.com* or contact Mike 220 or any committee member to make other arrangements.

A new repeater system for our Melbourne site:

By Mike VBU220

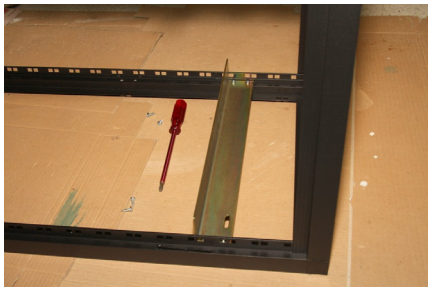
Several months ago our club was fortunate to receive the donation of a Motorola MTR2000 Base station / Repeater radio and later an Imark 5000 series power supply suitable to run it. The Motorola radio is higher powered than the unit that had been in use enabling us to transmit nearer the maximum permitted by our licence. At the time of the donations it was decided we would install the new equipment at the Melbourne site following the upgrade to our antenna. It was most appropriate to use the Motorola radio at the fixed site as the unit is extremely heavy, weighing in at a little over 18Kgs and the power supply at 22Kgs —not ideal for transporting to rally events.

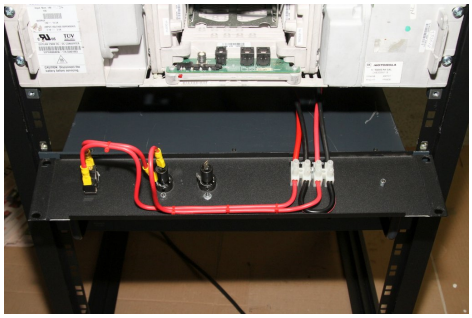
After a long wait our antenna work was finally completed early in May so I started work on preparing the new repeater radio. Barry and I went to the site to bring the current equipment back to my workshop so I could fit the new radio and power supply to the rack frame. I soon found neither the radio or power supply would fit in the current rack. While both were designed for a 19" rack the one we had was quite small and not deep enough to fit them. As the need to upgrade the rack unit was going to cause delay the existing equipment was returned to the site so a repeater would continue to be available for members to use.



Preparing side support rails for fitting to new rack unit.

A new (flat pack) 19" rack was purchased from Altronics and assembled for the job. Some time ago Alex 510 had acquired some side rails to support the weight of the radio and power supply. These needed to be modified and fitted to the rack. High current 12v wiring was needed to cope with the current demands of the radio (Motorola radios are not known for their efficiency). Some 8mm² wire came with the power supply and was used in conjunction with fuses, switch and some additional wire purchased from Altronics and Jaycar. This completed the power wiring to radio and backup battery. A rack panel blanking cover was used to mount the power switch for the radio along with supply fuse. A heavy duty in-line fuse was added for protection of the wiring to the backup battery. After completion of the wiring all the components were assembled into the new rack and the Cavity Diplexer was fitted to the rear of the rack.



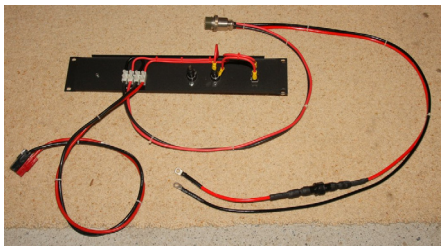


Above left: Fitting support rails to rack.

Above: New rack frame with side support rails fitted.

Above right: Rack frame lying on its back with radio and power supply in place.

Left: Fitting switch and fuse panel to rack.



Above right: Power harness completed with all plugs and other fittings . Fuses and switch mounted on panel for front of rack.

Right: Heavy duty inline fuse installed adjacent to battery. This holder takes a 5AG 30A fuse.

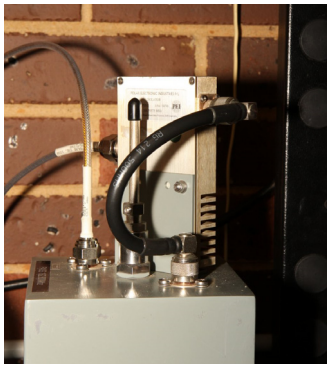
Front view of system with radio, power supply and switch panel fitted.

Now the system was complete it was possible to power up the radio ready for programming to our club's frequencies.
As I have not previously programmed Motorola radios it was necessary to make up a programming interface cable to connect the computer to the radio. Several web sites were found to have information on wiring for the cable however this turned out to be a source of considerable frustration as all were incorrect. Fortunately the correct information was found buried in the help files of the programming software.

The MTR2000 has some interesting functionality in its software. All the setup information for the radio i.e. Frequency, CTCSS signalling, band width, audio levels, TX deviation and other settings such as repeater tail length are created in a file Motorola call a Code Plug which is written from the computer to the radio. The software also enables real time monitoring of many functions of the radio as well as reading an error log file generated in the radio itself. It is possible to display voltages from various points in the radio along with temperature of the PA stage and even antenna VSWR on the connected computer.
Once I had completed these setups it was time to test the system before taking it to the site. I ran the repeater at home for a couple of weeks and with the assistance of Lynne (my ever helpful partner), Len 124, Charlie 341, and Dave 906 we tested the system around the east side of the Dandenongs finding it to work very well. The only task remaining was checking the tuning of the Pre-selector unit attached to the radio receiver. This was done for us by the site engineer from where our repeater is installed.
Finally everything was set to go and on Saturday 24th June Barry 671 and I transported the gear to the site and installed it in place. Initial testing and reports indicate we still have some on going interference from other services in the vicinity. However this is greatly reduced from what we had after the relocation of our antenna. Work will continue over the coming weeks in the hope that we can fully resolve this problem.

Final installation of Omega equipment.
Note: Diplexer and cavity filters on right side are part of other systems at the site.

Now the repeater is on air it is available for all members to use. Whenever you are out and about in your car or if you have a radio at home switch to Channel 2 or 7 and give it a go. Quite a few members are on air from home so I'm sure one of us will answer a call.
Finally, thanks must go to those who have contributed to this outcome. Special thanks to Len 124's nephew John for arranging the MTR2000 radio and Derek 742 who first alerted Alex to the availability of a considerable amount of equipment through his wife's work; in this case the Imark 5000 series power supply and 100Ah battery for our back-up power. Also thanks must go to Peter, the repeater site engineer, for assistance not only with the improvement in our antenna system and assistance with the alignment of the radio but also allowing us ongoing access to what is probably one of Melbourne's best radio sites. A site which would normally cost many hundreds, if not thousands of dollars per year to a commercial user.



RF circulator connected to transmitter. For more information on the function of this, ref. ***eNews Vol.2 Issue 9 Sept 2016****.*

Cavity filters fitted to receiver (left & Transmitter (right) with circulator shown on top.

News from the ACMA:

Stay tuned: digital radio expanding to all capital cities

Digital radio services are expanding across Australia with current trial services in Canberra and Darwin to be made permanent. The Australian Communications and Media Authority has also completed regulatory arrangements for digital radio to be made available in Hobart.

The ACMA has now finalised digital radio channel plans for the future development of DAB+ digital radio in all of Australia's capital cities. This follows the release of a package of planning papers last December.

Details of the timing of the start of permanent digital radio services will be determined once the broadcasters have finalised the arrangements to deploy their new digital radio infrastructure.

'Finalising digital radio channel plans is an important step in completing the capital city roll-out of digital radio,' said acting ACMA Chairman, Richard Bean.

'The plans make frequencies available to broadcasters wishing to provide ongoing digital radio services in Canberra, Darwin and Hobart. The ACMA will now commence discussions with the broadcasters about starting the transmitter licence allocation process.'

The Government has also asked the ACMA to facilitate the rollout of digital radio in regional areas where licensees make the commercial decision that they wish to offer the service. As a result the ACMA is working with industry to identify which regional markets wish to commence services and prioritise planning accordingly.

'The completion of the capital city roll-out is just the beginning. The commercial radio industry has indicated there are many regional radio broadcasters keen to offer digital radio services, so for Australians living in regional areas, stay tuned,' Richard Bean added.

Digital radio services, using DAB+ technology in VHF Band III spectrum, have been running on a permanent basis in the metropolitan areas of Adelaide, Brisbane, Melbourne, Perth and Sydney since July 2009. DAB+ digital radio uses 'multiplex' transmitters. Unlike analog broadcasting, where each broadcaster has its own transmitter, in DAB+ digital, individual broadcasters aggregate or multiplex their content onto one or more multiplex transmitters, using digital compression technology.

Digital radio services are licensed, planned and operated under the provisions of the *Broadcasting Services Act 1992* and the *Radiocommunications Act 1992*. The legislation sets the statutory basis for spectrum planning for digital radio, the allocation of digital radio multiplex transmitter licences and the access regime for multiplex transmitter capacity.

Events Calendar—Club Diary

2017

July		
Tuesday 11th	Committee meeting	Mike 220's home
Thursday 27th	**Annual General Meeting**	**At the School**
August		
Thursday 24th	General Meeting	At the School
September		
Saturday 19th	Marysville Stages / Spring 200	Marysville
Thursday 28th	General Meeting	At the School

Sad news yesterday, the chap who invented predictive text has pissed away. His funfair is next monkey.

Current VHF radio channel layout:

The table below shows the current channel layout used in club radios. It shows the channels as they appear in the radios most commonly used by members.

Thanks to Frank 483 for provision of this table.

OMEGA Radio Club VHF Channel Layout Updated April 2017

Version 2.1 - Revised 27/06/2017 (Channel numbers to suit Simoco PRM80 & Kenwood TK7180 - TK7360 - TK7160 radios)

OFFICALS - Radios				MEMBERS - Radios				
CENTRAL TK7160	Readout CH Display	Course Cars	Readout CH Display	PRM80	TK7180 TK7360	Readout CH Display	DESCRIPTION	Power
01	CH 0	01	CH 0	0	100	ORC CH-00 H	152Mhz Simplex	HI (25W)
02	CH 1	02	CH 1	1	001	ORC CH-01 H	Repeater - Prim CTCSS (#1)	HI (25W)
03	CH 2	03	CH 2	2	002	ORC CH-02 H	Repeater - Sec CTCSS (#2)	HI (25W)
04	CH 3	04	CH 3	3	003	ORC CH-03 H	Local (simplex) Sec CTCSS	HI (25W)
05	CH 5	05	CH 5	5	005	ORC CH-05 QH	152Mhz Simplex - Quiet (RX CTCSS)	HI (25W)
06	CH 6	06	CH 6	6	006	ORC CH-06 QH	Repeater - Prim CTCSS (#1) - Quiet (RX CTCSS)	HI (25W)
07	CH 7	07	CH 7	7	007	ORC CH-07 QH	Repeater - Sec CTCSS (#2) - Quiet (RX CTCSS)	HI (25W)
					008	ORC CH-08 QH	Local (simplex) Sec CTCSS - Quiet (RX CTCSS)	HI (25W)
				8	NO LONGER IN USE - Frequency reallocated by ACMA			
				9	NO LONGER IN USE - Frequency reallocated by ACMA			
10	CH 10			10	010	ORC CH-10 L	152Mhz Simplex	Lo (5W)
11	CH 11			11	011	ORC CH-11 L	Repeater - Prim CTCSS (#1)	Lo (5W)
12	CH 12			12	012	ORC CH-12 L	Repeater - Sec CTCSS (#2)	Lo (5W)
13	CH 13			13	013	ORC CH-13 L	Local (simplex) Sec CTCSS	Lo (5W)
14	CH 15			15	015	ORC CH-15 QL	152Mhz Simplex - Quiet (RX CTCSS)	Lo (5W)
15	CH 16			16	016	ORC CH-16 QL	Repeater - Prim CTCSS (#1) - Quiet (RX CTCSS)	Lo (5W)
16	CH 17			17	017	ORC CH-17 QL	Repeater - Sec CTCSS (#2) - Quiet (RX CTCSS)	Lo (5W)
					018	ORC CH-18 QL	Local (simplex) Sec CTCSS - Quiet (RX CTCSS)	Lo (5W)
				18	NO LONGER IN USE - Frequency reallocated by ACMA			
				19	NO LONGER IN USE - Frequency reallocated by ACMA			
19	RV OPEN			21	021	ORC REV-RPT	Repeater Rev TX/RX - Prim CTCSS (#1) Open	HI (25W)
20	RV xxx_x						Repeater Rev TX/RX - Prim CTCSS (#1) Quiet	HI (25W)
21	RV xxx_x						Repeater Rev TX/RX - Prim CTCSS (#1) Quiet	HI (25W)
22	RV xxx_x						Repeater Rev TX/RX - Prim CTCSS (#1) Quiet	HI (25W)
				28	NO LONGER IN USE - Frequency reallocated by ACMA			

Notes: Channels 10 to 17 are the same as channels 0 to 7 except they are low power.

Channel 03 is working on the repeater output frequency. Using this in range of the repeater may cause interferance.

All repeater outputs use the same CTCSS code it is only the input CTCSS code that changes between #1 & #2.

Only members & Central radios have low powered channels 10 - 19 enabled for use.

Only Kenwood model radios TK7160 - TK7180 - TK7360 are capable or transmitting & receiving Fleetsync ID's for use by Central.

Only Simoco model radios have SelCall services enabled.