

Official Bulletin



MHz to GHz

The West Australian VHF Group Bulletin

NOVEMBER 2017

THE WEST AUSTRALIAN VHF GROUP (INC)

PO BOX 189 APPLECROSS 6953

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1. Editor's Comments

Yes, I know this addition should have been out & about in November, but it wasn't to be. Another four months have passed again since the August issue. One would think that it would be cinch to generate another issue along the same lines. Well it isn't, especially if this is a year that uses up most of your spare time that precludes desired interests like AR, fishing & photography & travel. I know I've said all this before, but please forward any article of which may be of interest to members. All offers considered. Luckily I have had two submissions already one from Wally VK6KZ and another From LeighVK6WA. Wally's article is within this edition and Leighs will be in the April edition 2018.

READ ON

2. From the President's desk Terry VK6ZLT

Members, who are able to do so, are encouraged to visit on the first and or the third Saturdays of each month from 12PM to 5PM. These times are flexible depending upon requirements (competition, visiting amateurs) Refreshments are always available and visitors too are welcome, so if you know of a fellow Amateur who is unsure what our Group is and does, invite or bring them along.

3. Report by Denis VK6AKR Vice President WA VHF GROUP.



JOTA 2107 Brief summary of the day and to acknowledge the contributions of the Group members who made this happen :-). I dare say we'll have a debriefing session to discuss lessons learned but speaking for myself, I found it very enjoyable and relatively stress free due to the work done

during the lead up and setup. A last-minute radio failure saw Peter returning home to pick up a replacement radio!



From Wireless Hill's viewpoint there were 39 individual contacts, the majority on the 2 metre band (shared through repeaters, Worldwide) and others on high frequency bands and using DMR. There may well be a couple of others that were not recorded

by me due to events happening with Scout movements, etc.



Bryan VK6FFRA who manned the Leighton Battery has a lot of contacts too but his figures are not available just now. Regardless, all Scouts (Cubs, etc.) and Scout Leaders seemed to be happy with the proceedings. We may even get some new Amateurs joining us, based on comments received.

DMR: Thanks to Allan VK6MST for programming and for the loan of a DMR radio which worked well and provided contacts into Denmark, UK, USA as well as VK3 and VK7. Also Steve VK6VHZ for a desktop DMR setup and Peter for bringing no less than six DMR handhelds!! We had radios to burn; for me it is a great feeling to be part of a team such as this who are committed to supporting JOTA and our other Group events.

4. Submission By "VK6KZ PORTABLE"

HINTS FOR VHF/UHF PORTABLE OPERATION

Wally VK6KZ

This article was originally written in July 2000. The suggestions are based on many years of portable operation and, apart from updating the campervan and some radio equipment since then, they remain very relevant.

Don't Leave Anything Home

Make sure you leave no part of your gear at home. For example, it is very difficult to operate without a microphone, a connecting power cable or the coax! Integrate your equipment into one unit. For example my portable gear of three transceivers, together with keyer and audio distribution, is built into a small rack so that to operate it from the field requires a minimum of external connections - to the power source (12 volts), internal and outside loudspeakers and the antennas. There is a minimum of setting up required and the equipment is operated in the home station situation as well as out in the field. The equipment is actually the home station although there are linears between the rack and the antennas. Hopefully any faults that develop will arise at home rather than in the field! This arrangement also saves money!



Think Of Safety

For many years, I operated from a car. More recently I am able to operate from a campervan. The following comments apply to the car but the general principle is the same!

For reasons of safety and security, carry the portable equipment in the boot of the car. This has a disadvantage in terms of operating comfort as one is in the open air, but this is not a major problem until it rains. Have warm clothing for night operation particularly if on the south coast of Western Australia where the winds are usually strong from the ocean! Equipment that is out of sight is safer and more secure than where it is to be visible to the casual passer-by. Mounting the gear in the boot also provides that added comfort of knowing that, if a vehicle accident were to occur, there are no pieces of equipment to act as missiles within the car itself. In the campervan, the equipment remains in its steel frame and this is placed inside one of the cupboards and then bolted down.

If you have a second battery, bolt it firmly to the vehicle so that in case of accident it will not be a heavy missile and shower battery acid over everything (including people if the battery is inside the passenger compartment).

Mount Antennas On The Vehicle

Support for masts for antennas is needed. The car is a great start. A roof-rack can have sockets - made from about 25 mm water pipe and appropriate aluminium tubing placed in these to act as the mast for the antennas. Thread a bolt through the socket so that the tubing can be prevented from turning.

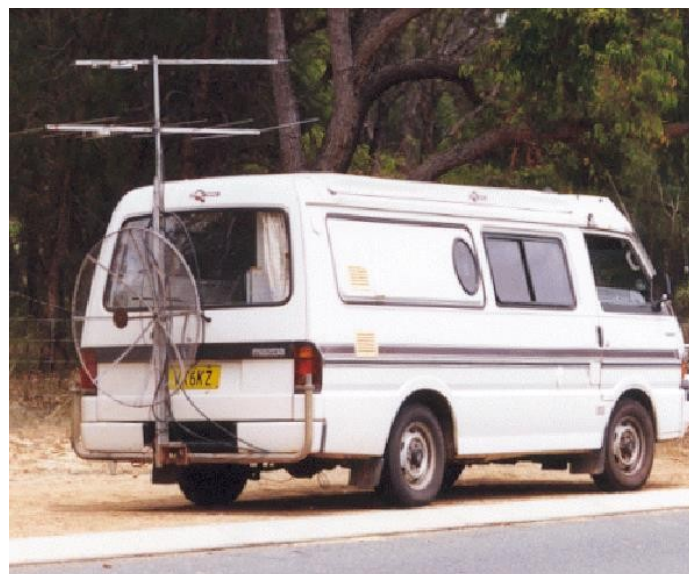


On the campervan appropriate sockets can be mounted on the roof bar, on the tow bar and the rear-end U protection pipe on both the left and right hand ends. As a result a number of masts can be used simultaneously without the antennas fouling each other especially if at different heights.

The aluminium tubing should be cut in short lengths (approx. 1 metre) with a "V" filed in each end, and 150 mm lengths of slightly larger diameter tubing with two self-tapping screws used as joining pieces for successive lengths. The screws fit into the "V" slot and all lengths then rotate together when pointing the antennas.

If possible have short lengths of coax within the vehicle to link the gear with connectors outside so that the coax from the antennas does not have to pass through partly closed doors or windows.

Mount the antennas in one of the sockets at a height just above the roof line of the vehicle (in what I call the fox-hunting position) and drive with them in that position from the home QTH to the portable location.



Connect the coax from the antennas to the external sockets (and hence the gear) so that it is possible to stop, quickly add a length of masting (if necessary) and listen or transmit from the side of the road. (In the early days I carried a spare length of aluminium tubing from which I could cut a new element for the beam if vibrations caused an element to break. This has turned out as unnecessary with my 5 element 144 MHz beam having now travelled well over 10 000 Km at speeds up to 110 Km/hour in that position without damage.)

One of the drawbacks of using the vehicle as the supporting mount is that it is magnetic and its presence will disturb compass readings. Mostly this is not a problem but when setting up the microwave tripod, the car is left at a distance and once the bearings are set, the vehicle is moved closer to the operating position.



Have an external speaker to allow monitoring of the receiver as the antenna is peaked or if operating the microwave gear away from the liaison gear.

Don't Forget Tools and Spares

Carry a number of relevant tools and either back-up components or alternatively design some redundancy into the components that are being used. For example, coaxial cables to the antennae can be interchangeable so that if one cable fails on one band then operation can continue by changing the second cable from one antenna to another. (Had it not been for a 12 volt soldering iron which could be plugged into the cigarette lighter socket of the car, the world record for 1296 MHz between VK6KZ portable at Walpole and VK5MC at Hatherleigh in 1979 would not have been possible.)

Study Maps (*Nowadays the Internet and Google maps have superseded these!!*)

Before travelling, study contour maps to help identify possible sites and bearings to likely contacts. Apart from finding good spots, no matter what the cost of the maps, you can save that cost in reducing distances driven.

Obviously a GPS is a great asset in finding/determining locations and with a good data base a quick calculator for bearings and distances.

Search for good operating sites in daylight hours rather than at night. It is very frustrating to find a high point with trees obscuring the take-off or high voltage power lines with noisy insulators which are not shown on the map. Daylight gives you a chance of searching out an alternative spot or the least troublesome position on the high point.

Lighting and the logbook

The best long haul contacts between the south-west of Western Australia and South Australia and Victoria usually occur between the hours of about 1600 hours local WA time and 1000 hours the following morning. Lighting is needed for operating the equipment and for making entries in the station log. Tie a pen or pencil to the logbook or rig to ensure you can record those wonderful contacts (or make notes when signals are not there!).

Be Self Sufficient

A portable operator cannot always judge when the openings will either occur or when they will cease. Be as self-contained as possible with food and water so that it is not necessary to leave the site for a meal break. Have a rubbish container so that you can leave a site clean. Have the car fuel tank topped up to retain mobility outside of the normal opening hours of service stations. A second 12 volt battery is highly recommended so that a car does not have to be abandoned because the battery is flat. The most favourable locations for portable operation tend to be isolated and it is not likely that another traveller will visit the spot to assist one to jump-start an automatic transmission car. Monitor the battery voltage and be able to switch between batteries.

Have power outlet sockets fixed to the car and to the second battery. These are convenient and reduce the chances of connecting the gear with reverse polarity. I use RCA sockets (normally used for audio purposes) as a cheap but highly satisfactory low voltage outlet for lower currents and automotive 2 pin sockets and plugs for currents around the 15-20 amp level.

Practice

Finally, practice portable operation. It is only by experience that you will

- Find out faults in the configuration of the equipment
- Develop smooth operating habits
- Find convenience and comfort in this mode of operation.
- Enjoy!! November 2017

5. Data corner –

SDR info <https://www.rtl-sdr.com/big-list-rtl-sdr-supported-software/>

6. **Microprocessor corner** this side of amateur radio has been on the back burner of late a number. Check out the following
http://www.hamstack.com/hs_projects/k6bez_antenna_analyzer.pdf
<http://www.rtl-sdr.com/raspberry-pi-rtl-sdr-scanner/>
<https://programmingelectronics.com/an-easy-way-to-make-noise-with-arduino-using-tone/>

7 Microwave Techniques

Microwave basic details of transmitters & receivers

Download the e-book from the following site.

http://pages.mwrf.com/focus-on-transmitters-receivers?code=UM_NX7UMB2

<https://www.youtube.com/watch?v=3FR72wHHCeM> 10 Gigahertz Demo

http://www.arrl.org/files/file/QEX_Next_Issue/2015/May-Jun_2015/Wadsworth.pdf 10GHz signal generator

http://www.ham-radio.com/sbms/presentations/Walt_Clark/DROplexer.pdf

8, Satellite Corner

<https://www.youtube.com/watch?v=astteV2umOg> AO91 Sat explanation

<https://amsat-uk.org/2017/11/04/getting-ready-for-radfxsat-fox-1b/>

9. Contact index

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