



COMMUNICATIONS NOTES

Forward

A vital part of any event is communications, the event organisers must know how the event is running and what is happening around the event so they can plan and time activities. This is very important in a motoring event like ours. There are a lot of things going on that the organisers need to know about so they can inform outsiders about our progress eg we are running late for lunch, the town is expecting us at 12 midday now we wont be there until 1:30 in the afternoon.

To communicate over short distances we talk to one another, this is the most common form of communication; unfortunately this can only be achieved over very short distances. Technology has given us ways to improve the distances that we can communicate over. Initially there were things like smoke signals and that has improved to modern satellite communications. Smoke signals are not really useful in our situation and satellite communications are very expensive although we do have some satellite capabilities for use in emergencies.

Our main two forms of communications for our motoring events are mobile phones and two way radios. Mobile phones are a great invention but they have some limits. Firstly they have to be in a coverage area to work and a lot of outback Australia hasn't got coverage and we tend to travel in the outback a bit. Secondly if we need to send the message to fifteen people we have to make fifteen calls, this can be time consuming and expensive. The advantage is if we need to send private information, and both parties have coverage, no one else can hear our conversation. We do use mobile phones a lot during our events.

Two way radios; every entrant's car is required to have a working UHF CB radio installed. UHF CB stands for, Ultra High Frequency, Citizens Band, these radios are easily available for around the \$300 mark, they do not require any licensing and are free to use once installed. As they are Citizens Band this means any body can own and use one of these radios. There are forty channels available but some of these have set uses eg channel 5 is the designated emergency channel and is monitored in some areas, it is illegal to use this channel except in an emergency. Channels 1 – 8 and 31 – 38 are used for repeater operation, it is not illegal to use these channels but if you don't know what you're doing you may be interfering with a repeater and that is illegal. Channel 40 is the designated road channel; this is the channel most general road users listen to.

Why do we use UHF CB radios?

They are the most cost effective method of passing information between all entrants at one time, if you are in your car (and your radio is on and working) and within 2 – 5 km of the person transmitting, you and every one else listening will hear the message an example of

when this may be required, your route instructions tell you to turn left at the 3.2km point, there has been a typo error you should go straight on at 3.2km and then turn left at the 3.8km point. If we had to ring every entrant on a mobile phone it would take far too long and cost money, we pass the message on the radio and everybody should get the message at the same time, free of charge.

What information should be passed over the UHF CB radio?

Any information that you think could be useful to other entrants eg road conditions, tell the car behind you of that big pothole or the stock on the road. Call the car in front and let them know they have missed the turn off or check that you have the right Speedo reading. It is important on narrow roads or dirt roads to let the car behind you know there is an oncoming vehicle. This is probably the most important information that is passed on the UHF CB radio.

Other than road information you can expect to be given general updates on the days events from officials. UHF CB radio is the official's main form of contact with entrants other than morning and evening briefings.

If there is a special section that requires control of vehicles passing through it eg, creek crossing or hill climb or an accident scene or breakdown, you will be contacted on the UHF CB radio and advised of the situation and if required officials with hand held UHF CB radios may guide you through a section. In this situation you may be asked to change channel on your radio for a short time.

Channels used for this event will be discussed in another section of this manual.

It is the intent of the organisers that every Official Vehicle will be fitted with an HF radio. High Frequency radios are not citizen band radios; you need a licence to use one of these radios. In Just4Kids case the radios or more importantly the frequencies (channels) we use are licensed for use by our Communications Director, he allows Just4Kids to use these frequencies (channels).

HF radios are big and expensive \$1500+ each but they have the advantage of, if you know what you are doing you can talk to anywhere in the world with them, we only need to talk up to 300km, this is not always as easy as it sounds, HF radio takes some getting used to. The biggest problem with HF radio is the background static noise, you just have to get used to it. Our officials use these HF radios to keep in contact with each other over the entire length of the field of entrants. As the frequencies (channels) are private no one else should be listening to them and defiantly should not be transmitting on them, (it is not illegal to listen to a frequency but it is illegal to transmit on it without a licence). The official's pass on general information about the progress of the event, details the entrants don't need to worry about on their HF radios.

Using your UHF CB radio.

It is a requirement that every entrant's vehicle be fitted with a working UHF CB radio. These radios are readily available from any good communications company. You don't need an expensive radio; there are many different options available if you want to spend more money but just a basic 40 channel UHF CB radio and UHF antenna. You should be able to get a basic radio for around the \$300.00 mark and an antenna with coax and base for around \$50.00.

To use your radio there are a few simple rules you should follow. Basically once you have turned the radio on, make sure you are on the correct channel that you wish to use. Make sure the squelch is set if your radio has a squelch knob, when you turn this knob (usually anti-clockwise) you will hear a sort of crackling static noise, turn the squelch knob (usually clockwise) until the noise stops and then turn it just a tiny bit further. If you don't do this either you will have to put up with the crackling or if you turn it too far you will not hear weaker signals. Next set the volume to a comfortable level, try about half way for a start.

Before you start talking think about what you want to say, when you are ready, listen and make sure no one else is talking. It is rude to talk over the top of someone else. I'll talk about emergencies later. When no one is talking, hold the microphone up to your mouth about 10 centimetres from your mouth; press the PTT (Push To Talk) button on the microphone, wait a second and then speak in a normal voice but a little slower into the microphone. When you have finished talking, release the PTT (Push To Talk) button and listen for a reply. When you push the PTT (Push To Talk) button you stop your radio from receiving so it is important to release the button when you have finished talking.

It is recommended that you start your message with the name or call sign of the car or person you are talking to and then your name or call sign. During the motoring event your call sign is your allocated car number. So if you are in car 16 and you want to talk to car 39 you would pick up the microphone, make sure no one else is talking, push the PTT button and say "Car 39, Car 39 this is Car 16 can you hear me?" then release the PTT button and wait for their reply.

You will hear a lot of people using allsorts of "Radio Jargon" if you know this and you want to use it, that's OK but it is not required and remember the person at the other end may not understand what you are saying. Just KEEP IT SIMPLE STUPID or KISS is the easiest thing.

A few of the terms you may hear are: -

Over	This means the person speaking has finished their sentence and is waiting for a reply.
Back	The same as over. Back to you to reply.
Rodger	The person has received and understood your message.
Ten Four	Old term means the same as Rodger.
Will Co	The person <u>Will Comply</u> with your request.
Breaker	Some one wants to break into your conversation, either you have been talking too long or they want to talk to you or the person you are talking too.
Go the Breaker	This acknowledges the person calling Breaker and allows them to talk. It also tells the person you are talking to that someone else wants to talk on the channel.
Stand by	The person you have called needs you to wait for a minute, either they are busy or are finding out the information you require.

EMERGENCIES and the UHF CB radio.

If you need to pass on information on an emergency this can be done over the UHF CB radio, before you panic there are a couple of things you have to know before you just call out. The most important thing is your location. What Kilometre reading are you at or near on your running sheet or daily instructions?

When it comes to using the radio try not to panic. Pick up the microphone and speak clearly and slowly. Push the PTT (Push To Talk) button and say “Emergency, Emergency, Emergency” Let go of the PTT (Push To Talk) button wait a couple of seconds, make sure the channel is clear and then repeat your call and this time give your call sign (car number), the problem, and your location. Eg “Emergency, Emergency, Emergency, This is car 16, Car 39 has just hit a cow at the 153.2 kilometre point.” Let go of the PTT (Push To Talk) button. Hopefully one of the officials will hear your message and reply, if not and you don’t get any reply keep calling until you get a reply. It is most important that the nearest officials are contacted as soon as possible. Remember that the officials may not be operating on the same channel as you are so you might have to change channel to call them. Use the same procedure. Always report your emergency on your channel first, most officials have two UHF CB radios and are listening to both channels.

Once you have made contact with an official or another car make sure someone stays near the radio at all times, you are now an important part of a communications network that may save a life. **MAKE SURE SOME ONE STAYS NEAR THE RADIO.**

If you hear someone call an Emergency, listen for an official to reply if there is no reply call the person giving the emergency call, get the details and then try and call an official yourself.

In the event of an emergency please try not to use the radios more than necessary, still pass on information about oncoming traffic and road conditions but hold back on the general chitchat. If you feel you can genuinely help at the emergency please offer your assistance to an official at the scene even if it is through the first car to call the emergency.

Just4Kids has a group of professionals that deal with road accidents and medical emergencies on an every day basis, but your help may be appreciated, please if you feel you can genuinely help say so. If you have particular skills it would be an advantage to let the officials know about these in advance.

Using your HF radio (the big noisy one)

It is the intent of the organisers that every Official Vehicle will be fitted with an HF radio. High Frequency radios are not citizen band radios; you need a licence to use one of these radios. In Just4Kids case the radios or more importantly the frequencies (channels) we use are licensed for use by our Communications Director, he allows Just4Kids to use these frequencies (channels).

Using your HF radio is not quite as easy as using your UHF CB radio. These radios are capable of transmitting from anywhere in the world to anywhere in the world over distances of thousands of kilometres. Sometimes shorter distances are harder to achieve.

Your vehicle has been or will be fitted with an HF radio for use on this event, these radios are worth in excess of \$1500 each and require licensing to use. You will be shown the basics of how to use your radio when it is fitted into your vehicle, but we will go over some general information here. The big antenna on the front of your vehicle is worth around \$600 so please be careful when you drive under low clearance, once broken they can't be fixed.

Firstly HF radios do not have a squelch control, you have to listen to that static noise all the time. Things like vehicle ignition, high voltage power lines and weather like thunderstorms affect HF radios. They also drain your battery quickly if left on overnight.

When you stop your vehicle at a checkpoint or anywhere you may need to use your HF radio, it is a good idea where possible to stay away from power lines and don't park under trees or metal roofs, if you have to, make sure the antenna is not touching anything.

Before you transmit, listen carefully to that static, is there someone talking faintly in all that noise or can you hear selcall being sent (you will be given a demo of selcall), if so don't talk over the top of them, please wait your turn.

The HF radio network is what is called a controlled network; legally you can only talk to the control station, in this case we will be using the call sign COMMS or RADIO BASE. If you wish to talk to another official you must first get permission from the control station (Comms or Radio Base).

Legally you are required to give your call sign at the beginning and end of your conversation and you are meant to use the word "Over" at the end of each transmission. Don't worry too much about it, you won't get in any trouble but it is the archaic rules. Radio Base will cover up any minor mistakes.

Ready to talk?

Listen carefully, no one is talking. Press the PTT (Push To Talk) button on the microphone, speak clearly into the mike, "Comms, Comms this is OV3, over." Release the PTT (Push To Talk) button. Wait for a reply. If no reply try again.

If Comms hears you they will reply "OV3, OV3, this is Comms, go ahead, over." you can then send your message, "Comms, this is OV3, we are currently at our checkpoint at 127.6, over." Comms will reply, "OV3, Comms has you at your checkpoint at 127.6 at 1553 over" (1553 is the time in 24hour format, 1553 is 3:53pm). If that is all your message you would reply "Comms, OV3 standing by." If you have a further message you would give your message, "Comms, OV3, and your message. Over."

Remember to listen carefully for others talking and for Comms reply, it may be very faint. You may have to stop your vehicle and turn it off to hear a reply.

If you can't hear Comms, you can put out a general call to any other official. "All Stations, All Stations, This is OV3. I am trying to contact Comms, can anyone assist, Over." Wait for a reply. If you don't get a reply check that you are on the right channel and try again.

If you hear someone call, “All Stations” you should reply to them even if you don’t have contact with Comms. You should reply, “OV3, OV3, this is OV2, stand by, I will attempt to contact Comms for you.” Then you try to communicate with Comms as per the steps above.

To help with communications through the static noise so you don’t have to listen all the time to it, there is a thing called Selcall, which is short for Selective Calling. Comms can send a tone to your radio and make it ring a bit like a phone. If you hear your radio ringing like a phone, it means that Comms is trying to contact you. If you can’t hear them, stop your vehicle, switch off the ignition, turn your radio up so you can hear the static and call Comms as described above.

You will be shown how to send a Selcall from your radio to Comms when the radio is fitted to your vehicle. Basically you push the CALL button on your radio (its under the screen) then you type in the number of the radio you want to call, using the numbered buttons on the keyboard (Comms number is 1809) then you push the SEND button, its next to the Call button. The radio will go quiet for several seconds and you will hear a sort of squealing like a fax machine then the static will come back. If your call was successful you will hear six beeps come from the radio you called. The Comms radio should now be ringing like a phone. Wait for them to reply.

If you are asked to change channels on your radio you will also have to change the wire on your antenna. You will be shown how to do this when the radio is fitted into your vehicle. This is very important; if you change channels on your radio you must also change the wire on your antenna to the correct tapings. Your radio will not work properly if you don’t.

Which Channels do you use?

No matter which channels we choose to use on the UHF CB, inevitably there will be someone else using the same channel at some time during our travels. UHF CB is Citizens Band; it can be used by anybody. Unfortunately some people think that the channel they are using is just for their use and some people become quite protective of “their” channel. Sorry folks, we have just as much right to use any channel between 9 and 30 that we want. Channels 1 to 8 and 31 to 38 are designated as repeater use and we don’t want to use these for general chitchat.

If someone complains about you using “their” channel, before you verbally abuse them, remember that during this event you are representing **Just4Kids** and the event organisers don’t want to get a bad name. Politely explain to the other person that you are passing through their area on a fund raising event and that we will only be in the area for a few hours. Apologise for any inconvenience you are causing them and suggest that they listen to the fun.

PLEASE GIVE THE LOCAL RADIO USERS PRIORITY, LET THEM TALK

If you have any problems please speak to the Communications Director or an Official. Please don’t argue with other users of the channel and please don’t talk over the top of them, give them a chance to conduct their business too.

During the Just4Kids Motor Trail, we use two main channels on the UHF CB, one for entrants and one for officials. This not that we want to have secrets but rather that the officials

sometimes want to talk to one another without interfering with the general road usage of the entrants channel. Most officials will be listening to both channels and if you wish to do this you are welcome. But please remember to listen to your designated channel primarily, this where you will hear about dangers and changes.

Entrants will be using **UHF CB** channel **25**

Officials will be using **UHF CB** channel **22**

If you wish to talk to an official, they should be on UHF CB channel 22, try calling them on channel 22 first. If you don't have any luck they may be on UHF CB 25 listening to the road conditions. If you contact them on 25 and you need to pass information not about road conditions, please ask them to go to channel 22.

HF Radio Channels.

Just4Kids Communications director, Peter Carnsew, has several private HF frequencies (channels) licensed for his use and he allows Just4Kids to use several of these frequencies.

HF radio is a complex system that takes years to master but if you know what you are doing you can talk to anywhere in the world, from submarines on the ocean floor to hikers on Mt Everest. Unfortunately to do this you have to know the distance between the two radios and the time of day because as these things change, to guarantee communications you have to change frequency (channel).

We are really pushing the limits of HF radio by trying to talk to and from moving vehicles over relatively short distances, 0 to 300 kilometres. HF radios are meant to talk over distances from 200 kilometres up and from a fixed base station to either a fixed or mobile radio. We can do what we are trying to do but it is not easy. HF radio is noisy and trying to talk over short distances we can lose the signals in the noise.

As the time of day is important to HF radios, we have to change frequencies (channels) during different times of the day, in our case daylight and dark. To change channel on the radio is easy, you just push the channel up or down buttons. The other and harder part is you have to re-tune your antenna. To do this you have to change the wire on the antenna on your vehicle. Hopefully we will not require you to change channels and most of you will not need to even have a wire on your antenna. You will be shown how to change the antenna when it is installed on your vehicle.

We will be using **Motor Trail 1** with a frequency of **4438.5mhz**

Mark this a script of the sort of thing I use when people in particular businesses start to complain about us using "their" channel. It is not what I want everyone to use especially with my call sign AXQ326. but it is what I use.

All stations, all stations, this A X Q 3 2 6 a control station for the Just4Kids Motor Trail. We are currently passing through

your area on a fundraising motoring event to raise money for needy children. We apologise for the inconvenience we may be causing to you by using this CB channel. We are passing through your area heading to XXXXX tonight. Tomorrow we head to XXXXX for lunch and then to XXXXX tomorrow night. Hopefully we will not cause you too much inconvenience during this time. Our entrants and officials have been asked to give local CB radio users priority and I hope they do this. Again I apologise for the inconvenience. This A X Q 3 2 6 a control station for Just4Kids Motor Trail standing by.