REMOTE COMMUNICATIONS

Four wheel drive vehicles are capable of transporting people and equipment many hundreds of kilometers into remote locations for industrial, exploration and recreational pursuits. Equally these vehicle, being mechanical/electrical/electronic creations of man, are subject to breakdown, leaving the same people and equipment without transport or the means to exit the remote location.

Personal injury to participants in the activity may be beyond the capability of first aid or other remote medical resources to adequately treat, requiring additional resources to be delivered to the location or rescue facilities to evacuate the injured participant.

Any direct or relayed contact with support services is of little practical use unless an accurate incident location can be provided to rescue and recovery services, by way of direct satellite transmission, map co-ordinates from a GPS device, or at the very least by accurate scale measurement from an accurate topographical map, presuming landmarks in the vicinity of the incident can be related to the map features.

Regardless of the type of communication device it will be of limited use if no person present has the knowledge or skills to use it, or the only person with the skills is unable to do so. This is particularly pertinent for HF radio or satellite telephone devices. At least two people in the travelling group should be trained in operating the communication equipment.

An important consideration when travelling in remote locations are the facilities to be carried to enable communication between the travelling party and the home base or other settled areas during both the normal operating activities and in emergency situations.

Communication in normal circumstances is facilitated either by telephonic or radio based systems. In the broad view telephonic systems operate either through wired networks or mobile via terrestrial aerials or communication satellites to the wired networks, while mobile radios generate signals to other mobile or base radios.

Both systems have their place in normal and emergency communications and a well-equipped touring party will have access to a range of communication equipment.

Emergency Communication Numbers.

Triple Zero (000) is Australia's primary emergency service number and should be used if urgent emergency assistance is required from police, fire or ambulance services.

Australia also has two secondary emergency service numbers for use only in connection with particular technologies:

- 112 is the GSM international standard emergency number which can only be dialed on a digital mobile phone
- 106 is the text-based emergency number for people who are deaf, or who have a hearing or speech impairment. This service operates using a text phone (TTY) or a computer with modem

The Triple Zero (000) Emergency Call Service is an operator-assisted service that connects to the relevant emergency service organisation (police, fire or ambulance). Telstra is currently responsible for answering calls to the emergency service numbers triple Zero (000) and 112, and transferring them, with relevant associated information, to the requested emergency service organisation.

Triple Zero (000) should only be called when a situation is threatening to life or property, or time-critical. If a situation is not urgent but does need the attention of an emergency service organisation, obtain the number of your local police, fire or ambulance service from the phone book or by calling directory assistance.

When Triple Zero (000) is dialed the recorded message "You have dialed emergency Triple Zero. Your call is being connected" will be heard. The call is then answered by a Telstra operator who will ask whether police, fire or ambulance services are required. Depending on whether a mobile, fixed line, voice over internet protocol (VoIP)

service or a payphone is used to call Triple Zero (000), details of the state and town you are calling from may be requested. The operator will then connect to the emergency service organisation requested and will stay on the line until the call is answered.

If the location of a remote emergency is in the area of a community or mining operation communication by a mobile telephone should be attempted. In an emergency, dial Triple Zero (000) on a charged mobile phone.

If Triple Zero (000) does not work, dial 112.

The Communication Options

Mobile Telephones

Mobile Telephones operate through providers such as Telstra, Optus, & Vodafone, the maximum range within a cell is limited to 32km for GSM phones and approximately double for Next G units as vehicle mounted units only - the range is considerably reduced for hand held units.

While mobile telephones now cover around 95% of the Australian population they are primarily concentrated around metropolitan areas and regional centres. Major roads and highways are progressively being covered and quite remote Indigenous communities and mining installations are often covered for operating purposes. Only about 5% of the outback is covered with cells in and around some country towns.

Mobile telephone plans generally incur a monthly rental charge as well as timed call charges.

Emergency services can be dialed when you're in an area with network coverage - even if the phone is blocked, has no SIM card or is PIN protected. Emergency services can also be dialed when using international roaming on another service provider's network.

Telstra, do not recommend relying on a mobile phone as the primary form of emergency communication in any situation.

UHF CB (Citizens Band) Radio

Operating with a maximum power output of 5 watts UHF CB signals are generally line of site giving a range of typically 30 to 40km maximum. By using repeater stations it is possible to greatly extend the range. The location of UHF repeater stations in each State and territory may be determined at www.vkham.com by taking the link to Aust. UHF CB Repeaters.

Since UHF CB uses FM (frequency modulation) on 477MHz, as compared with AM & SSB on 27MHz, the quality of the signals is improved and noise and interference is reduced. The use of high gain antennas also improves the performance of UHF CB.

The main application of UHF CB is inter-mobile, mobile to base and base to mobile over limited distances. The use of Selcall allows users to contact other suitably equipped users without the need to listen to other traffic on the channel.

UHF radios may have greater reach through repeaters in isolated areas but should never be considered as a primary emergency and rescue facility. Again, other radio operators in the area may be able to provide assistance with the emergency and communications but this should not be relied upon.

In 2011 the Australian Communication and media Authority (ACMA) restructured the UHF CB band into

80 individual 12.5 kHz wide channels. This has changed from the existing 40 individual 25 kHz wide channels.

This restructure made the following changes to channeling arrangements in the UHF citizen band:

- the UHF Citizen Band Radio Service has been extended upwards by 6.25 kHz to accommodate an additional 12.5 kHz channel
- all voice channels will transition to 12.5 kHz bandwidth

- existing repeater channels will transition to 12.5 kHz bandwidth, with new repeater channels created in the space between the existing channels.

A channel allocation table appears at the end of this section.

Existing 40 channel radio transceivers can still operate on the original 40 channels but cannot communicate with the additional 40 channels. All new UHF transceivers are 80 channel.

There are no individual User Licenses associated with operating either 27MHz or UHF CB radios.

High Frequency SSB Radio (HF)

High frequency (HF) radios can communicate over vast distances given the appropriate atmospheric conditions. Private HF radio networks, such as the national 4WD network VKS737 provide licenses to subscribers to operate on prescribed frequencies to communicate between vehicles and from vehicles to Network radio bases.

They benefit from multi-frequency capability, allowing changes to improve reception and the real possibility of contacting other subscribers in the vicinity who may be able to render physical assistance or be better located to communicate with support radio bases.

On receiving an emergency call the base operator follows a protocol that excludes other radio traffic, identifies the nature and location of the emergency and contacts any necessary emergency service. The VKS737 Network also includes police and fire services and remote roadhouses and stations and the Royal Flying Doctor Service.

The use of high frequency communications between mobile four wheel drivers, including members of four wheel drive clubs is based on frequencies allocated to the Royal Flying Doctor Service, the primary frequency in use being 5410kHz with other traffic on 5300 and 5360kHz etc.

Licensing regulations for these frequencies allowed mobiles to communicate with each other outside normal operating hours of the RFDS base stations providing the frequency was not required for RFDS use.

With the increase in the number of travelers owning HF radios the volume of traffic on the frequencies was becoming a concern to the RFDS who lodged concerns to the Department of Transport and Communications (now the ACMA) requesting that some means be found to stop the general chit-chat on their frequencies.

In 1992 the Department of Transportation and Communications (DOTC) in South Australia made approaches with a view to allocating a frequency for 4WD club members and, after lengthy negotiations, a license was issued to the South Australian Association of Four Wheel Drive Clubs Inc. for a single frequency of 5455kHz.

In 1994 the Network was transferred to the Australian National Four Wheel Drive Council Inc. and in

October 1996 the Australian National 4WD Radio Network was incorporated.

In December 1996 the Australian Taxation Office formally issued approval for the Australian National 4WD Radio Network Inc. to become a Public Benevolent Institution; this then allowed formal working agreements to be set up between the Network and organisations such as SA Police, Australian Customs Service and Emergency Service bodies in many states.

Since those early days the VKS-737 Radio Network has expanded and now operates nineteen base stations located strategically around Australia using seven primary frequencies installed in all base stations.

In October 2010 a partnership was formed between the VKS-737 Radio Network, RFDS Queensland Section and RFDS Western Operations; under this partnership the VKS-737 Radio Network handles Emergency HF radio communications for the RFDS in Queensland and Western Australia. In addition to the Network's seven primary frequencies it also monitors thirty RFDS frequencies at those base stations that are located at RFDS bases.

The VKS-737 base stations are operated by a team of dedicated volunteers who freely give up their time to look after

the welfare of those subscribers who are travelling, as well as providing assistance for members of the public who find themselves being “rescued” by VKS-737 subscribers. Other volunteers give up their time to promote the VKS-737 Network at shows and other events.

The Australian National 4WD Radio Network Inc. is a Public Benevolent Institution incorporated in South Australia, the VKS-737 Radio Network is a business (owned by the Australian National 4WD Radio Network Inc.) registered in South Australia that handles the operational and financial side of the VKS-737 Network’s activities, and is staffed by a team comprising the Administration Manager, the Finance Manager, the Administration/Clerical Assistant and Finance Assistant.

Using frequencies in the range of 2 to 25MHz, HF can offer reliable communications over thousands of kilometres.

HF offers communications between mobiles travelling anywhere in Australia as well as to base stations operated by the VKS-737 Radio Network. These base stations provide free information such as Weather Reports, Road Closures, Safety Logging, Message Handling and Telephone Calls.

Modern features such as Selcall allow subscribers to reliably make contact with other subscribers and bases around Australia, while some transceivers allow Direct Dial Radio-Telephone calls through VKS-737 base stations.

One use of HF radio is for making contact with the Royal Flying Doctor Service (RFDS) who can provide medical advice, treatment and emergency medical evacuation for travelers in the outback.

VKS-737 subscribers can make direct Selcall contact (via radio-telephone interconnect) with the RFDS via the VKS-737 bases at Adelaide (2 bases), Alice Springs (2 bases), Cairns (2 bases), Carnarvon, Charleville, Charters Towers (2 bases), Darwin, Derby, Meekatharra, Mount Isa, Newcastle, Perth, Port Hedland, St Mary’s & Swan Hill.

HF radio can also provide entertainment in the form of broadcasting stations such as Radio Australia, BBC World Service, Radio Netherlands, Radio New Zealand, Voice of America etc. as well as Weather Services, Time Signals etc.

There are currently four brands of new type-approved HF radio equipment sold in Australia, the typical cost of new equipment is around $3400 for a radio with an automatic tuning antenna.

Some manufacturers include a voucher for 12 months subscription to the VKS-737 Network in the price of a new radio package.

Second-hand prices are dependent upon the age of the radio, the availability of spare parts, the number of channels fitted, the type of antenna (i.e. tapped whip or automatic tuning type) and whether the radio is fitted with Selcall etc.

A subscription to the VKS-737 Radio Network includes the License Authority to use the VKS-737 frequencies.

Important Notes:

VKS-737 subscribers DO NOT need an Outpost Mobile License (RFDS license) to operate on the VKS-737 Network frequencies.

An Outpost Mobile License (RFDS license) DOES NOT permit general operation on the VKS-737 Network frequencies.

Communication System Comparison.

VKS-737 HF Radio Network versus Satellite Telephone in remote areas.

Satellite telephones do not provide the "community" based support to travelers that is provided to HF radio subscribers via the VKS-737 Radio Network.

Service / Feature	VKS-737	Satellite
Australia Wide coverage	Yes (conditions may vary at times)	Yes. May encounter "dead spots" or "poor/no signal areas"
Emergency Calls – Breakdown	Free	Charged
Emergency Calls – Family & Friends	Free	Charged
Emergency Calls – Medical	Free	Charged
General Information Calls	Free	Charged
General Telephone Calls	Charged (using HF-Tel)	Charged
Message Handling from Family & Friends	Free	Charged
Position Reporting / Safety Logging	Free	Charged
Road Condition & Closure Reports	Free	Charged
Vehicle to Base Station Communications	Free	Charged
Vehicle to Vehicle Communications	Free	Charged
Weather and Cyclone Reports	Free	Charged

VKS-737 Base Station Selcall List

Calls to VKS-737 Base Stations are made via a Radio-Telephone Interconnect using a four digit Selcall number comprising two sections;

- the first two digits (xx) indicate the particular Base Station
- the second two digits (yy) indicate the destination.

VKS-737 Base Station Selcall prefixes

Adelaide 1 (primary)	**06** yy	**Darwin**	**94** yy
Adelaide 2 (secondary)	**96** yy	**Derby #**	**92** yy
Alice Springs 1 (primary)	**08** yy	**Meekatharra #**	**75** yy
Alice Springs 2 (secondary)	**97** yy	**Mount Isa #**	**82** yy
Cairns 1 # (primary)	**77** yy	**Newcastle**	**68** yy
Cairns 2 (secondary)	**86** yy	**Perth**	**05** yy
Carnarvon #	**74** yy	**Port Hedland #**	**78** yy
Charleville #	**81** yy	**St Mary's**	**07** yy
Charters Towers 1 (primary)	**80** yy	**Swan Hill**	**89** yy
Charters Towers 2 (secondary)	**95** yy		

# indicates Base Station located at Royal Flying Doctor Service Base

The Phonetic Alphabet and VKS-737 Frequencies

THE PHONETIC ALPHABET		
A	Alpha	AL-fah
B	Bravo	BRAH-voh
C	Charlie	CHAR-lee
D	Delta	DELL-tah
E	Echo	ECK-oh
F	Foxtrot	FOKS-trot
G	Golf	GOLF
H	Hotel	Hoh-TEL
I	India	IN-dee-ah
J	Juliet	JEW-lee-ett
K	Kilo	KEY-loh
L	Lima	LEE-mah
M	Mike	MIKE
N	November	No-VEM-bah
O	Oscar	OSS-cah
P	Papa	Pah-PAH
Q	Quebec	Keh-BECK
R	Romeo	ROW-me-oh
S	Sierra	See-AIR-rah
T	Tango	TANG-oh
U	Uniform	YOU-nee-form
V	Victor	VIK-tah
W	Whisky	WISS-key
X	XRay	ECKS-RAY
Y	Yankee	YANG-kee
Z	Zulu	ZOO-loo

Channel	Frequency	Base		Callsign
1	5455kHz	All		VKS-737
2	8022kHz	All		VKS-737
3	11612kHz	All		VKS-737
4	14977kHz	All		VKS-737
5	3995kHz	All		VKS-737
6	6796kHz	All		VKS-737
7	10180kHz	All		VKS-737
20	2020kHz	Cairns 1 Charleville Mount Isa	QLD QLD QLD	VJN VJJ VJI
21	2260kHz	Cairns 1	QLD	VJN
22	2280kHz	Carnarvon Meekatharra Port Hedland	WA WA WA	VJT VKJ VKL
23	2656kHz	Carnarvon	WA	VJT
24	2792kHz	Derby	WA	VJB
25	4010kHz	Meekatharra	WA	VKJ
26	4030kHz	Port Hedland	WA	VKL
27	4045kHz	Carnarvon	WA	VJT
28	4980kHz	Charleville	QLD	VJJ
29	5110kHz	Mount Isa	QLD	VJI
30	5145kHz	Cairns 1	QLD	VJN
31	5300kHz	Derby Port Hedland	WA WA	VJB VKL
32	5360kHz	Carnarvon Meekatharra	WA WA	VJT VKJ
33	6825kHz	Meekatharra	WA	VKJ
34	6845kHz	Charleville	QLD	VJJ
35	6880kHz	Meekatharra	WA	VKJ
36	6890kHz	Carnarvon	WA	VJT
37	6945kHz	Derby	WA	VJB
38	6960kHz	Port Hedland	WA	VKL
39	6965kHz	Mount Isa	QLD	VJI
40	7465kHz	Cairns 1	QLD	VJN

VKS-737 Base Station Frequencies

Channels 20 to 40 are operated under Outpost Assigned licenses issued to the RFDS (WA and Qld) and are NOT for general use by VKS-737 subscribers.

Under Section 49 of the Radio communications Act No. 174 of 1992 all the listed frequencies may be used to contact the RFDS in cases of a genuine emergency.

HF-Tel Services

The VKS-737 Radio Network has facilities to provide either free of charge, or at a charge, message and radio-telephone interconnect services for subscribers.

- the VKS-737 Radio Network can offer VKS-737 subscribers two forms of HF Radio-Telephone service:
- basic radio-telephone service to a single pre-allocated telephone number anywhere within Australia works with any selcall equipped HF radio. This service is subject to numbers being available on VKS-737 radio-telephone interconnects.
- Direct-Dial radio-telephone service to any telephone number within Australia. This service only works with Telcall equipped radios. For security of telephone call access, HF-Tel will issue an "unlisted" radio "self ID" selcall number to subscribers with suitably equipped radios.
- For improved security, subscribers using Barrett 950 radios will be issued with a 4 digit "unlisted self ID" number while Barrett 2050, Codan 9323, Codan NGT and Icom F7000 radios will be issued with a 6 digit "unlisted self ID" number.

Royal Flying Doctor Service

How to contact the RFDS via HF Radio in the case of an emergency

To contact the RFDS by HF radio your HF transceiver will need to be fitted with either VKS-737 frequencies or RFDS frequencies for the area of operations (i.e. Cairns, Derby etc.).

An Emergency Call is when you may need medical assistance from an RFDS Doctor

The RFDS Emergency Call facility (the "Red Button") is not available at Carnarvon, Derby, Meekatharra and Port Hedland in Western Australia and Cairns, Charleville and Mount Isa in Queensland. Calls to these bases are handled via VKS-737 Base Stations installed at the RFDS Bases through a partnership between the VKS-737 Radio Network and RFDS Western Operations and RFDS Queensland Section.
Calls to the RFDS can be made via ANY VKS-737 Base Station using VKS-737 frequencies or the relevant RFDS frequencies where VKS-737 Base Stations are located at RFDS sites – refer to Page C8 for details

How to Contact the RFDS via HF Radio using Selcall

- select the most suitable frequency for the base you are trying to contact (this is dependent upon distance & time of day). A list of frequencies appears on Page C8
- if using a tapped whip antenna ensure that the antenna tap matches the frequency selected on the radio. If using an automatic tuning antenna, press the "tune" button on the radio before proceeding
- send a Selcall to the Beacon Test of the relevant base
- if you receive a poor Beacon Revertive (musical tones), or no revertive, try another frequency or another base
- if your receive a good Beacon Revertive send a Selcall to the number listed on Page C8 for the RFDS

base you wish to contact
- if your selcall is successful you will hear 6 short beeps, telephone dial tone, and then the ringing tone of the base being called

An operator will respond and ask you your call sign and the nature of your emergency.

How to Contact the RFDS via HF Radio Emergency Call Button Facility

Broken Hill and Port Augusta Bases Only

- select the most suitable frequency for the base you are trying to contact (dependent upon distance & time of day). If using a tapped whip antenna ensure that the antenna tap matches the frequency selected on the radio. If using an automatic tuning antenna, press the “tune” button on the radio before pressing the emergency call button
- press the “Emergency Call” button on your radio for a minimum of 20 seconds. Newer model radios have a timer that allows you to press the button for a few seconds and then let go and the timer will activate for a period of time
- within 2 minutes of pressing the alarm, the base will respond with a tone for 10 seconds
- if you do not receive a reply try again, if this is also unsuccessful then try another frequency, alternatively try contacting another base
- once you get a response there is no need for further activation of the emergency Call Button
- an operator will respond and ask you your call sign and the nature of your emergency.

Radio communications and Road Safety. (Reprinted courtesy of VicRoads)

Use of two way radio equipment while mobile

The use of two way radios and mobile telephones is covered under the Australian Road Rules and while some Australian States also have specific regulations, the use of mobile telephones while driving is banned in all State, the use of 2-way equipment is still allowable under certain circumstances in some States but is highly discouraged for safety reasons.

Mounting of Radio Equipment

Australian Design Rules for motor vehicles have always been mindful of occupant protection in the vehicles especially in the area of the dashboard. Therefore the area around the dashboard and up to and including the sun visor must remain free of hazardous projections likely to cause injury in the event of an accident.

Any additional equipment mounted to the dashboard, or in the case of overhead consoles above the sun visor, must not introduce hazardous projections likely to cause injury in the event of an accident.

A user had his vehicle defected in SA for mounting the Remote Head of his Barrett radio on top of the dashboard of his Defender as it partially obscured his view of the road.

Securing radio equipment in vehicles requires careful consideration as whilst they may be installed in areas not likely to be impacted in an accident they should be able to withstand a force equal to twenty times their own mass and remain secure. Failure to meet this requirement could result in serious injury or death where a radio weighing 5kg becomes a 100kg projectile in an accident.

Mounting Antennas on Bullbars

Vicroads officers are often asked about the legality of mounting of Automatic Tuning Antennas on the front of vehicles; this is an interesting subject since the regulations vary from state to state. In some states the practice is illegal, in other states it is up to the individual police officer to assess the situation to see if the antenna is causing an obstruction to driver’s vision, other states have indicated that they are planning to bring in specific legislation.

Victoria has specific legislation controlling the mounting of antennas, whereas a letter from the Road Transport Authority in NSW stated “Paragraph 75 of Schedule F of the Motor Traffic Regulations specifies that no part and/or fitting is likely to render unsafe the use of the vehicle. The Regulations also specify that there is to be no obstruction in the driver’s primary vision area, which could be affected by the mounting of an antenna on the front of a vehicle”. Previously received letters from the transport departments in SA & NT gave similar views.

Most replies indicated that antenna mounting would eventually be covered under the Australian Road Rules however this has not happened at this present time. Since Victoria has specific antenna legislation we are reprinting the relevant parts of their Information.

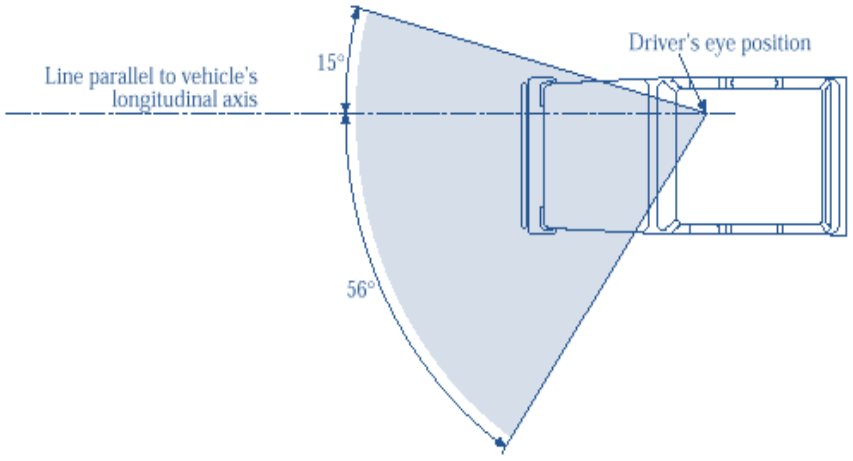
Bulletin 29 (January 2000) for the benefit of subscribers

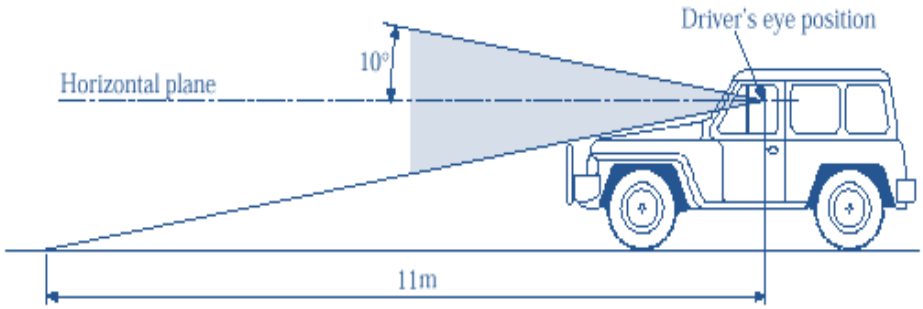
The driver of a vehicle must have a full and uninterrupted view of the road and any traffic ahead and to each side of the vehicle and, by use of rear vision mirrors a clear reflected view of any following or overtaking vehicle.

Aerials other than normal radio aerials are often fitted on a vehicle for the purposes of two way communication. In many cases these aerials are mounted on the front bumper or bull bar or other part of the vehicle.

If an aerial more than 30mm in diameter is mounted on the front of the vehicle forward of the A pillar the following guidelines apply:

- the aerial should be mounted as close as practicable to the left side of the vehicle
- the aerial and mounting should be free of any sharp edges or protrusions which could or be likely to cause injury to any person
- the surface of the aerial or any fittings more than 30mm in diameter should be non-reflective, matt black is preferred
- no part of the aerial which is more than 30mm in diameter should encroach into the driver's field of view as illustrated below
- the aerial or mounting should not obscure or otherwise adversely affect the performance or visibility of headlamps, parking lamps, turn signal lamps or any other mandatory lamp or reflector.





If these requirements cannot be met then the aerial should either be mounted on the roof or alternatively on the rear

of the vehicle, particularly if the vehicle has a boot or sloping rear area providing adequate clearance for the aerial to operate efficiently.

Owners of emergency or special purpose vehicles required to be fitted with these aerials and who cannot meet these guidelines may apply for conditional registration. If conditional registration is granted strict in use conditions including the requirement that the aerial can be easily folded down or removed when not in use will apply.

As a guide, the driver's field of view, shown as the shaded area above is measured from the driver's eye position or a point 760mm above the driver's seating position measured vertically from the centre of the rearmost point of the seat cushion with the seat located in the centre of its travel.

Electronic Distress Beacons.

The following information is taken, by kind permission of the Australian Marine Safety Authority, (AMSA), from the brochure "DISTRESS BEACONS, FREQUENTLY ASKED QUESTIONS". For the complete brochure and other information related to Distress Beacons see http://beacons.amsa.gov.au

A distress beacon is an electronic device that, when activated in a life-threatening situation, assists rescue authorities in their search to locate those in distress.

Do I need a distress beacon?

If you are working or travelling in remote or particularly hazardous areas, you should strongly consider purchasing a PLB. Carriage of a registered 406 MHz EPIRB in vessels sailing more than two nautical miles offshore is mandatory and many responsible mariners encourage the use of PLBs as well. Increasing numbers of aviators carry PLBs as well as have ELTs fitted to their aircraft.

There are three types of electronic distress beacons:

- Emergency Position Indicating Radio Beacons (EPIRB) used in ships and boats;
- Emergency Locator Transmitters (ELT) used in aircraft; and
- Personal Locator Beacons (PLB) for personal use by bushwalkers, four-wheel drivers, other adventurers on land, employees working in remote areas, crew in boats and aircrew.

Carriage of a registered 406 MHz EPIRB in vessels sailing more than two nautical miles offshore is mandatory and many responsible mariners encourage the use of PLBs as well. Increasing numbers of aviators carry PLBs as well as have ELTs fitted to their aircraft.

Personal Locator Beacons are designed for personal use in the aviation, land and marine environments and are becoming increasingly popular in a number of fields, both in industry and recreationally. PLBs are required to operate for a minimum of 24 hours once activated.

Beacons on the 406 MHz frequency come in two basic types: those that provide an encoded (GPS) location and those that do not. The satellite system can calculate a beacon's location, but locating a distress site is usually much faster if the beacon signal provides a GPS location.

How does a distress beacon work?

When a distress beacon is activated, it transmits a signal that is detectable by satellites. As the satellites orbit the Earth, they "listen" for any active beacons and report their position to rescue authorities.

Beacons developed for the Cospas-Sarsat satellite system operate on 406 MHz and use digital technology that allows the beacon to transmit a unique code (Hex ID or UIN) to identify the beacon. These beacons also transmit on the analogue 121.5 MHz frequency to allow final stage homing. Satellite processing of 121.5 MHz signals ceased on 1 February 2009 and any old 121.5 MHz beacons should be disposed of responsibly.

When should a distress beacon be used?

Distress beacons should only be used when there is a threat of grave and imminent danger. In the event of an

emergency, communication should first be attempted with others close by using radios, phones and other signaling devices. Mobile phones can be used but should not be relied upon as they can be out of range, batteries run low or become water-damaged.

What About Other Tracking and Distress Devices?

Commercial Distress and Tracking Devices.

There are an increasing number of devices advertised as tracking beacons with an auxiliary distress function and are marketed as being similar to a PLB. Care should be taken to ensure that any distress alerting device purchased is Cospas-Sarsat compatible as many of the tracking devices available operate on mobile or satellite phone networks and are subject to the same limitations. These devices are not manufactured to the same standards as a Cospas-Sarsat device and do not meet the requirements of a registered EPIRB or ELT-ing without a registered 406 MHz beacon can expose you to serious risk in a distress situation.

80 CHANNEL UHF LIST

CHANNEL	FREQUENCY	USE
Channels 1 to 4	476.4250 to 476.5000	Duplex – Repeater Output
Channel 5	476.5250	Duplex – Repeater Output (Emergency Use Only)
Channels 6 to 8	476.5500 to 476.6000	Duplex – Repeater Output
Channel 9	476.6250	Simplex – General use
Channel10	476.6500	4WD Convoy, Clubs, National
Channel 11	476.6750	Simplex Call Channel
Channels 12 to 17	476.7000 t0 476. 8250	Simplex – General use
Channel 18	476.8500	Simplex Caravan & Campers
Channels 19 to 21	476.8750 to 476.9250	Simplex – General use
Channel 22	476.9500	Data Only (No Voice, No
Channel 23	476.9750	Data Only (No Voice, No
Channels 24 t0 28	477.000 to 477.1000	Simplex – General use
Channel 29	477.1250	Simplex Pacific Hwy (NSW) & Bruce Hwy
Channel 30	477.1500	Simplex UHF CB Broadcasts
Channels 31 to 34	477.1750 to 477.2500	Repeater Input
Channel 35	477.2750	Repeater Input (Emergency Use
Channels 36 to 38	477.3000 to 477. 3500	Repeater Input
Channel 39	477.3750	Simplex – General use
Channel 40	477.4000	Simplex Highway Channel
Channels 41 to 48	476.4375 to 476.6125	Duplex – Repeater Output
Channels 49 to 60	476.6375 to 476.9125	Simplex – General use
Channels 61 t0 63		Reserved for Future
Channels 64 to 70	477.0125 to 477.1625	Simplex – General use
Channels 71 to 78	477.1875 to 477.3625	Repeater Input
Channels 79 to 80	477.3875 to 477.4125	Simplex – General use