Radio User
Standard Operating Procedures
Introduction

Radio communications in all its forms is vital to the efficiency and safety within SAR operations; this is particularly true during SAR incidents and training in harsh weather conditions.

It is a truism that good knowledge and use of communications are fundamental to SAR and as a valuable skill as any other needed by team members. Communications problems are often blamed on equipment or systems’ failure but more often than should be the case, the problem lies with the operator. Each team member must strive to become a proficient communicator who can get the best performance from the radio equipment and be able to manipulate and improvise where the situation demands – so that the message really can get through when it matters.

Operating a two way radio is an art in which personality plays an important part. Proper voice procedure training will provide radio operators with the basic knowledge of how to improve their skills in the use of two-way radio communication.

Even the best radio system can suffer from interference, because of this it is possible that others cannot hear anything that is said. Therefore it is of utmost importance that proper voice procedure is used to save time.

Radio Users Course
There are two Radio courses held within KSAR, These courses will provide users with the correct procedures and protocols to carry out Radio Communication Effectively and efficiently during KSAR operations

- Radio User – For all personnel operating radios within search teams
- Advanced Radio User - For all personnel operating radios within the Control Vehicle

Radio User
This course is designed to prepare Search Team radio users for communication to and from control on the network – it will include the following:

- Radio protocol
- License Conditions
- Radio License Regulations
- Call signs
- Radio Checks
- Radio Messages
- Code Words
- Radio Reports
- Operation of Radios
- Operation of GPS
Advanced Radio User

This course is designed to prepare SearchManagers and Controllers for communication to and from control on the KSAR network – it will include the following:

- Radio protocol
- License Conditions
- Radio License Regulations
- Call signs
- Radio Checks
- Radio Messages
- Code Words
- Radio Reports
- Operation of Radios
- Operation of Control Vehicle equipment
- Antennia and propagation
- Re Broadcasting
- Lost comms Procedure
- Joining other Networks

Protocol

All users are to follow the following protocols when communicating on the KSAR Network:

- Radio Messages and traffic should be kept short
- Do not interrupt other users – except for priority messages
- Always yield to more important messages
- Use the appropriate Code Words
- Speak Slowly and Clearly
- Use easily understood words
- Avoid ambiguity
REGULATIONS

Frequency bands - Band widths

<table>
<thead>
<tr>
<th>Long Wave</th>
<th>Medium Wave</th>
<th>Short Wave – High Frequency</th>
<th>Very High Frequency</th>
<th>Ultra High Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>200KHz</td>
<td>1000KHz</td>
<td>2-30MHz</td>
<td>30-300MHz</td>
<td>300MHz – 3GHz</td>
</tr>
</tbody>
</table>

Vhf band - (Very High Frequency)

- 87.5 MHz – 108 MHz Broadcast band (classic fm)
- 144mhz – 146mhz Amateur radio
- 156mhz – 156.725mhz Maritime mobile
- 156.175 MHz – 162.800 MHz **Alsar working channels**
- 173 MHz – 174 MHz Private business radio

**KSAR FREQUENCY 160.825MHz**

**GENERAL POINTS**

- Most vhf bands are channelised
- Frequency allocation is given in the licence
- Frequencies can be shared depending on the area
- Most VHF bands use frequency modulation (FM)
- Air band uses amplitude modulation (AM)
- Band plans are used to make the best use of band space and to avoid interference
## KSAR Radio Use

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- **Rev 1 Mar 2010**

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### Table: Channel Programming

<table>
<thead>
<tr>
<th>Channel Mode</th>
<th>Frequency</th>
<th>Channel</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUNK</td>
<td>90.1</td>
<td>01</td>
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<td>MDT</td>
<td>90.2</td>
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<td>90.4</td>
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<td>CTCSS</td>
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<td>05</td>
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<td>BWMN</td>
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<td>Freq</td>
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<td>Site</td>
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<td>09</td>
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<tr>
<td>Ch 1</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

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### Notes

- For reference only, the table above is not meant to be exhaustively complete. The exact channel selection may vary depending on the specific needs of the user.

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### Control Panel

- **For reference only, the table above is not meant to be exhaustively complete. The exact channel selection may vary depending on the specific needs of the user.**
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<table>
<thead>
<tr>
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<tbody>
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</tbody>
</table>

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**ALMAR Unit Data Sheet**

As of the 1st Jun 2005
Regulations - Licence conditions

All Radio licences are issued by the Radio Communications Agency – A license has been granted to ALSAR units under the following conditions:

- Radio equipment must be constructed and used in accordance with the licence provisions
- The licensee must ensure that the radio equipment is only used by persons authorised by the licensee and such persons are made aware of, and comply with, the terms of the licence
- The secretary of state may require the station to be closed down if:
  - A breach of licence conditions has occurred
  - The use of the equipment is causing undue interference to other authorised users
- The station can also be closed down in cases of national emergency
- The purpose of the licence is to allow the licensee to send and receive messages between base and mobile stations, and between mobile stations
- Messages must concern only the business of the licensee

Special conditions

- Used for voice transmission only
- Not to send misleading messages
- Not to transmit music, broadcast programmes, offensive or obscene language
- Not to be used as a public address system
- Call signs of calling and called stations must be announced at the beginning of all transmissions

General points

- Radio operators must abide by licence conditions
- It is good operating practice to sound professional at all times
- Be aware that others may be listening to your transmissions
- Keep messages short and to the point
HOW TO USE A RADIO

Receiving:
- Switch on radio with volume control
- Check radio is on correct channel.
- Listen for a transmission and adjust the volume to a comfortable listening level.

Transmitting:
- Wait for the channel to become clear to avoid interference.
- While pushing and holding (PTT), speak into the microphone 10 to 15cm from your mouth, clearly and at a normal voice level.
- Release (PTT) to return to receive.

Important:
- Make sure that your battery is charged.
Explanation

Antenna  helical, used to transmit and receive signals

On/off volume  self explanatory

Channel selector  self explanatory (KSAR = channel 6)

PTT switch  “push to talk”. Push when transmitting

Release to receive

Microphone/speaker  for transmitting and receiving - do not speak too close and try to shield from high wind

Battery pack  rechargeable, using a desk charger

Hand Set Basics

Battery Preservation

In order to prolong the battery life

- Turn down the volume to a comfortable level
- Adopt a set routine to ensure batteries are fully charged
- Check the terminals on the Battery and the Handset are clean before reconnecting
- Do not short circuit the battery terminals
- Do not drop the battery
- Only use the appropriate charger
- Place spare batteries in plastic bags to ensure that the terminals are insulated.
Security

Loose items will not work properly and can get lost – therefore check:

- The battery is correctly connected
- The aerial connection is secure
- The external loudspeaker – microphone is secure and serviceable

Carrying the Radio

The method of carrying must be – Efficient, Comfortable and offer Protection

A simple and effective means of carrying the radio is to tuck into the top of a rucksack with the aerial sticking vertically out of the top. This fulfils the requirement of height and keeps the radio as far from the body as possible.

It is important that radio is fairly accessible in case of need to carry out adjustments

The speaker mike lead should be slack under the arm, allowing body twisting and stretching movement without the lead becoming taut and allowing enough surplus to permit the optimum mouth to mike distance. When receiving the volume should be loud enough to easily cope with the prevailing noise and wind conditions.

Each person should find their own optimum mouth to mike distance and position. It is recommended that the mike be turned side on to the mouth, just to the side of the mouth so that the exhaled air does not create wind noise at a distance of 2-3 inches. Adjust for optimum from that starting position.

Finding and using this position is well worth doing as it can make all the difference between good and unreadable communications – In windy conditions shield the mike with the hand or jacket hood.
Introduction to Radio Equipment

Antennas

**Hand Held**
These are fitted with helical antennas so as to produce the correct length required for the frequency - but keeping the overhaul length short
They are covered in a plastic sleeve and fitted with a screw in plug

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact and not easily broken</td>
<td>Not good in low signal areas</td>
</tr>
</tbody>
</table>

**Car Mounts**
These are fitted to mobile vehicles and may be either a permanent mount or temporary mount which is fitted with a magnetic base plate

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better signal as it uses the car body for the earth plane</td>
<td>Requires a separate Co axial Feed</td>
</tr>
<tr>
<td>Fitted with a longer element – either 1/4, 3/8 or 5/8 wave, with or without a loading coil</td>
<td></td>
</tr>
</tbody>
</table>

**Control Mast**
By mounting the antenna (Similar to the car mount) on a mast the extra height will achieve a better signal
Doubling the height, quadruples the signal strength
Aerial Theory

It is important for Radio users to understand a little about how the Aerial works in order that you can avoid losses in signal strength:

- VHF Signal radiates from a vertical aerial in all directions
- The nearer the ground the antenna - the more signal is lost to the sky
- Under normal atmospheric conditions VHF signal are propagated in line of sight
- Under certain atmospheric conditions (Temperature Inversions, High Pressure etc) the signal can bounce off of the troposphere causing co channel interference
- VHF Signals can be shielded by people, trees, vehicles, buildings and hills

Aerial Polarisation

- It is advantageous for All aerials to be vertical
- Reflected signals can sometimes change polarisation.
- It may be worthwhile to bend forward or back to change the Aerial direction if the signal is weak – holding where the signal is the strongest

Aerial Height

- Within reason, the higher the aerial above the surrounding ground the greater the range.
- As well as being vertical the aerial should be as high as possible
- To minimise signal absorption keep the aerial as far from the body as possible
- Stand on rocks, mounds or any other structure to gain height
Using Radios in the Control Vehicle

All advanced Radio users should be trained for this demanding task. It is important that operators have had experience in the field and are familiar with the expectation of Search management as well as those teams on the ground.

Comprehensive written logs must be recorded during the search and maintained for 6 years after the incident.

It is essential that there is one radio per channel, use the minimum transmit power consistent with adequate communication. The radio should be connected to an elevated aerial with appropriate vertical separation to minimise interference.

Simplex, Half Duplex and Duplex Channels

Simplex channels: These are single channels, rather like a single track road, they can only handle traffic in one direction.

Half Duplex Channels: These are two channels which like dual carriageway roads, send on one channel and receive on another. However the radios (and the users?) can only handle one transmission at a time, and effectively this reduces it to the same throughput as a simplex.

Duplex or Full Duplex: Provides true simultaneous, two-way communications. Although repeaters are capable of this, the terminals and their users are not. Telephones and Mobile Telephones provide a full duplex link.
Radio Procedures

Transmitting Techniques

The necessity for clear speech on two-way radio cannot be over emphasised. Therefore the RSVPC mnemonic provides a simple guide for communications and should be used to enhance better voice procedure and technique.

<table>
<thead>
<tr>
<th>R</th>
<th>RHYTHM</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>SPEED</td>
</tr>
<tr>
<td>V</td>
<td>VOLUME</td>
</tr>
<tr>
<td>P</td>
<td>PITCH</td>
</tr>
<tr>
<td>C</td>
<td>CONTENT</td>
</tr>
</tbody>
</table>

Rhythm

Maintain the natural rhythm used in conversation to help make the message intelligible, Avoid saying ‘er’ or ‘um’

Speed

Speak steadily and at medium speed so as to avoid an unintelligible jumble of words from speaking too quickly or losing rhythm when too slow

When it is known that the recipient will write down an element of the message, leave much larger spaces between short phases. To get an idea how long is required try writing down your own message

Experienced operators will often transmit phases twice when the receiving operator is writing

Volume

Speak at an ordinary conversational level to avoid distortion with the mike-to-mouth distance kept constant. Without sacrificing rhythm, every word should be clearly spoken and the voice must not fade away on the last part of the phase.

Pitch

Use a pitch that is a little higher than usual to aid reception, especially in poor conditions. Maintain an even pitch, being especially conscious of the last syllable of words where the natural tendency is to lower the pitch

Content

Think about what is going to be said and how it can be said before pressing the transmit button.

A good maxim is ‘Select brain before engaging mouth’ The radio is for communicating but, particularly during busy incidents, consider whether the message is really necessary; un important messages can wait until later.

Never the less during exercises and at other times Radio Voice procedure practise is essential and operators should be at ease when using the Radio.
There are two basic considerations when talking on the air.

- **WHAT TO SAY** - Voice procedure
- **HOW TO SAY IT** - Voice Technique

**WHAT IS VOICE PROCEDURE?**

Voice procedure is a set of rules designed to provide **SECURITY, ACCURACY** and **DISCIPLINE** when speaking on the radio.

**SECURITY**

- Think before you speak.
- Use correct procedure.
- Be brief.

**ACCURACY**

The necessity for clear speech on two-way radio cannot be over emphasised. Therefore it is important that the correct RSVP system. The use of Standard Reports and Code words enhance the accuracy of information.

**DISCIPLINE**

Radio discipline is the responsibility of every operator, and should adhere to the following:

- Listen before you speak.
- Use correct voice procedure.
- Maintain constant radio watch.
- Answer all calls promptly.
- Keep the airways free of unnecessary talk.
- Be brief and to the point.
### PROWORDS

Pro words are used to indicate specific meaning that replaces abbreviated sentences or phrases.

<table>
<thead>
<tr>
<th>Pro Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGE</td>
<td>Respond now indicating that you have received and understood a message.</td>
</tr>
<tr>
<td>AFFIRMATIVE</td>
<td>This means YES normally used when a question is asked and the reply is YES.</td>
</tr>
<tr>
<td>ALL AFTER</td>
<td>Used with “Say again” Meaning to repeat parts of message after a specific word e.g. say all after boy.</td>
</tr>
<tr>
<td>ALL BEFORE</td>
<td>Used with “Say again” To repeat parts of a message before a specific word e.g. say all before Wood</td>
</tr>
<tr>
<td>ALL BETWEEN</td>
<td>Used with “Say again” to define the part of the message to be repeated – do not use unless it is related to a written message</td>
</tr>
<tr>
<td>ALL STATIONS</td>
<td>Call sign for all stations on the radio net</td>
</tr>
<tr>
<td>BE ADVISED</td>
<td>Universal pro word for imparting information either directly or from third parties – less formal than message</td>
</tr>
<tr>
<td>COPIED</td>
<td>I intercepted that message for me that was sent to you this is not the same as roger</td>
</tr>
<tr>
<td>CORRECTION</td>
<td>An error was made in my message so here is the correct version - Note include the text phase before and after the incorrect part</td>
</tr>
<tr>
<td>DISREGARD THIS</td>
<td>Ignore what I have just said - this should not be used for a message that has been completely transmitted</td>
</tr>
<tr>
<td>EMERGENCY, EMERGENCY, EMERGENCY,</td>
<td>I have a message of <strong>Life threatening</strong> Importance – by implication unnecessary transmissions must cease</td>
</tr>
<tr>
<td>EXEMPT</td>
<td>The following message does not apply to the station named</td>
</tr>
<tr>
<td>EXERCISE, EXERCISE, EXERCISE,</td>
<td>Used to indicate that the following message is exercise play no a real situation</td>
</tr>
<tr>
<td>FIGURES</td>
<td>Figures follow – used if there is a chance of ambiguity – but if a Grid reference is to follow use the Pro word GRID</td>
</tr>
<tr>
<td>FROM</td>
<td>The originator of the message</td>
</tr>
<tr>
<td>GRID</td>
<td>A Grid reference to follow</td>
</tr>
<tr>
<td>IN CONTACT WITH</td>
<td>I am in contact with call sign – and can relay for you</td>
</tr>
<tr>
<td>I READ BACK</td>
<td>Repeating all or the specified part of this message exactly as received so that you can check I have received it correctly</td>
</tr>
<tr>
<td>I SAY AGAIN</td>
<td>I repeat all or specified part of a message to clarify or emphasise.</td>
</tr>
<tr>
<td>I SPELL</td>
<td>I will spell the next word or group of words phonetically. (See Phonetic Alphabet)</td>
</tr>
<tr>
<td>LONG MESSAGE</td>
<td>What follows is a long message – are you ready to write it down</td>
</tr>
<tr>
<td>OVER</td>
<td>MESSAGE</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>You may have to write down details from this transmission. This should not normally be needed when speaking to control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MESSAGE PASSED</th>
<th>MINIMISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have passed your message - used when relaying an informational message</td>
<td>Reduce transmission – to essential messages only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEGATIVE</th>
<th>NO DUFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>This means NO and is normally used when a question is asked and the reply is NO, or Incorrect or permission not granted or unable to comply</td>
<td>Used during training to indicate what follows is not part of the training and not exercise play – but is a real situation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTHING HEARD</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be used when no reply has been heard from a called station – used after two failed attempts to make contact</td>
<td>I have completed my transmission and no reply is required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUT TO YOU</th>
<th>OVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have completed my transmission with you but about to transmit straightaway to another call sign</td>
<td>I have completed my transmission and you can now reply</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PASS YOUR MESSAGE</th>
<th>PRIORITY, PRIORITY, PRIORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass your message – note replaces send and go ahead</td>
<td>I need to interrupt as I have a message of importance – by implication unnecessary transmissions must cease</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>READ BACK</th>
<th>RELAY THROUGH ME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat all, or the specified part of this message back to me exactly as received so that I can check you have received it correctly</td>
<td>Relay your message through me – this is an offer to relay a message</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELAY TO</th>
<th>ROGER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay this message to all addressees</td>
<td>Your message is received and understood.</td>
</tr>
</tbody>
</table>

This pro word can be used with either OVER or OUT) e.g. “Roger Over” or “Roger Out” Depending on which is applicable

<table>
<thead>
<tr>
<th>SAY AGAIN</th>
<th>STAND BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning repeat your last transmission.</td>
<td>Wait for a short period and I will get back to you.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIS IS</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>The call sign of the transmitting station follows.</td>
<td>A time follows</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNKNOWN</th>
<th>UNKNOWN CALLSIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>A simple request to a query</td>
<td>The identity of the station that has contacted me is unknown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VERIFY</th>
<th>WAIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check back with the originator of the message to confirm the whole or specific parts of the message.</td>
<td>Wait a moment while I deal with something else or find the answer to your request – an amounts of minutes can be added e.g. “Wait 2”</td>
</tr>
</tbody>
</table>
BASIC RADIO TELEPHONY (R/T) PROCEDURE

The following has been formulated from best practise and is intended to promote standardised R/T within KSAR

Call Signs

Team Call Signs

We use standard call signs for each search team:

Control Vehicle

Control

Foot Search Teams

XR1 – Search Team 1
XR2 – Search Team 2...... etc

Mobile Search Teams

Mobile 1 – Mobile Search Team 1
Mobile 2 – Mobile Search Team 2 ....etc

Mountain Bike Teams

MB1 – Mountain Bike Search Team 1
MB2 – Mountain Bike Search Team 2...... etc

Water Search Teams

WS1 – Water Search Team 1
WS2 – Water Search Team 2...... etc
**Team Position Call Signs**

It may be necessary from time to time to refer to a team member by their role – these can also be used if the team has to split

XR1 A  Team Leader of Search Team 1  
XR1 B  Radio Operator of Search Team 1  
XR1 C  Team Medic of Search Team 1  
XR1 D, E…..Additional Team members of Search Team 1

**Identification of Specific Stations**

General call sign for all teams is “**All Stations**” - Call signs **should respond** in order

- **“Hello All stations this is Control ....... over”**

- **“XR1 OK, over”, “XR2 OK, over”** - If a call sign did not respond the first time – Control would call them again

- **“Unknown Station”** – should be used when it is not known who has been heard or who is calling

**Establishing Contact**

An initial call should be made and received in the following manner – with the station being called repeated

- **“XR1 this is Control, over”**

- **“This is”** should be used for every transmission – It is worthwhile justifying the reasons for this:
  - It takes ½ second to say
  - Much clearer than “From”
  - International Standard

Because it is expected in every transmission, it is instantly recognisable even in poor reception conditions. It opens the radio’s squelch and the receiving ear has synchronised by the time the call sign following it, is spoken. “This is” gives the brain the moment it needs to compose the rest of the message
After the initial call the called station is omitted but the calling station continues to give its call sign. This means that even when another call sign comes into range, it can be certain who is calling at any stage of the exchange.

A typical exchange would be:

“XR1 this is Control over”
“Control this is XR1 over”
“This is Control wait for XR2 at GRID TQ12345 67890 over”
“This is XR1, roger, out”

Often when traffic between call signs is light and the path known to be satisfactory, there is no need to carry out the initial transmission as described above. Use the call sign and then pass your message.

The ends of message words are

“Over” used when a response is expected, or
“Out” used when a response is neither expected nor required

They should never be used together to conclude a message as they contradict each other.

If following the repetition of an initial transmission to establish contact no reply is received finish by using:

“XR1 this is control nothing heard out”

In this case this would probably be followed by

“Hello All Stations this is Control is anyone in contact with XR1 over”
Radio Checks

Test transmissions should be carried out before leaving or a short distance from Control. This checks the serviceability of the set and confirms to control which call signs have deployed.

The International Telecommunication Union (ITU) dictates the standard of reporting signal readability strength and tone. This system for HF operation has three scales, 1 – 5 for readability and 1 – 9 for strength and tone. The tone report does not apply in the case of voice transmissions; this is used only in Morse.

Whenever an initial radio check call is made the receiving station needs to inform the other station making the request how the receiving signal is being heard. To do this the following scale should be used:

Readability

1  Unreadable.
2  Barely readable some words now & then.
3  Readable with considerable difficulty.
4  Readable with practically no difficulty
5  Perfectly readable (Loud & Clear)

Signal strength

1  Faint signals
2  Very weak signals
3  Weak signals
4  Fair signals
5  Fairly good signals
6  Good signals
7  Moderately strong signals
8  Strong signals
9  Extremely strong signals

An example of a radio check

"Control this is XR1 radio check over"

"XR1 this is control 5 – 6 over"

"This is XR1 4-5 out"

Should it be anything inferior to 3-4 then it is up to the operator to carry out a comprehensive serviceability check and the carry out a further radio check
Station temporarily unable to deal with a message

If an operator is unable to deal with a message immediately then “Wait” may be used. An example of this:

“XR1 this is Control message over”

“Control this is XR1 wait out”

The sender must wait a short time (seconds) until the operator is ready.
If the delay is very brief (less than up to 5 Seconds) then you can just say “wait” and then continue.

“Control this is XR1 wait”…….. “XR1 send over”

If the delay is to be longer than about 30 Seconds then the “wait” should be appended with the number of minute’s e.g.

“Control this is XR1 wait 5 out”

Operators should avoid the overuse of this pro word.

Repetition

Use the Pro word “Say Again” to request repetition of all or part of the transmission.
This may be made more specific by using the following pro words

“All After”

“All before”

“All between”

“Word After”

“Word Before”

Examples of this are:

“XR1 this is Control change of plan, go to area 1 via the green route and rendezvous with XR2 over”

“Control this is XR1 Say again over” or ......

“Control this is XR1 Say again All after green route over” or ....

“Control this is XR1 Say again All before green route over” or ....

“Control this is XR1 Say again All between plan and XR2 over” or ....

“Control this is XR1 Say again Word after via the .. over” or ....

“Control this is XR1 Say again Word before route over”
Verification

Use the Pro word “Verify” to request verification and “Read Back” to make sure that the message has been received correctly.

An example of this is:

“Control this is XR1 my current location is Grid 12345 67890 over”

“XR1 this is Control verify Grid 12345 67890 over”

“Control this is XR1 correct over” ..... 

If the Grid had been wrong:

“Control this is XR1 my current location is Grid 12345 67890 over”

“XR1 this is Control verify Grid 13345 67890 over”

“Control this is XR1 negative.. I Say again Grid 12345 67890 over”

If there is still doubt then:

“Control this is XR1 my current location is Grid 12345 67890 over”

“XR1 this is Control verify Grid 13345 67890 over”

“Control this is XR1 negative.. I Say again Grid 12345 67890 Read back Grid 12345 over”

“XR1 this is Control I Read back Grid 12345 over”

“Control this is XR1 correct out”

Using a Relay

If communications between two stations is difficult or unworkable, it may be possible to use another station to act as a relay.

Use “Relay to”, “Through me”, “From” and “Out to you”.

An example of this is:

“XR1 this is Control report your position over”

Wait 5 Seconds
“XR1 this is Control report your position over”

Wait 5 Seconds – then request a relay through a call sign that is known to be in contact with XR1

“XR2 this is Control Relay to XR1 report your position over”

* “Control this is XR2, roger, out to you” ......

“XR1 this is XR2 from Control report your position over”

“XR2 this is XR1 my location is Grid 12345 67890 over”

* “XR1 this is XR2 your location is Grid 12345 67890, out to you”

“Control this is XR2 from XR1 location is Grid 12345 67890 over”

“XR2 this is Control Roger out”

* When communications are good these acknowledgements could be left out. If it is a message not requiring an answer then the relay should contact the originator and state “Message passed”

Offering to Relay

A call sign may offer to pass a message by using “In contact with “

An example of this is:

“XR1 this is Control report your position over”

Wait 5 Seconds

“XR1 this is Control report your position over”

Wait 5 Seconds – then request a relay through a call sign that is known to be in contact with XR1

“Control this is XR2 I am In contact with XR1, relay through me over”

“XR2 this is Control relay to XR1 send position over”

Etc......
**Priority and radio Silence**

From time to time messages have to be passed that are off a higher priority than routine calls. In these cases the following pro words should be used to break in transmissions. Stations that are not in the interchange must remain silent until the message has been passed.

The pro words “Priority, Priority, Priority” or “Emergency, Emergency, Emergency” (for life threatening situations). By implication unnecessary transmissions must cease.

An example of this:

“Priority, Priority, Priority, Control this is XR1 Code Red over”

**Radio Silence** can exceptionally be imposed by any station with an emergency, although it would normally be Control.

An example of this:

“All stations except XR1 this is control, Silence, Silence, Silence out”

If there is a need to restrict the radio traffic to essential transmissions then the pro word “Minimise” should be used.

To lift the Radio Silence:

“All stations this is control, Silence lifted, Silence lifted out”

**Long Messages**

From time to time messages or reports are fairly long and will require a break to ensure that the sent part has been received correctly, instead of getting to the end of the message and having to use repetitions. The pro word to be used is “So far”

Examples of this are:

Message requiring sending

“XR1 this is Control change of plan, go to Area 1 via the green route and rendezvous with XR2 and combine with them to make one team and carry out a search of Area 1

Send as:

“XR1 this is Control change of plan, go to Area 1 via the green route So Far”
To confirm that the have received and understood the sent part of the message XR 1 should confirm by using the pro word “So Far” if not use the repetition pro words mentioned earlier

“XR1 So Far”

Continue the message:

“Rendezvous with XR2 and combine with them to make one team So Far”

“So Far”

“Carry out a search of Area 1 over”

“XR1 Roger out”

Transmission of Letters and Numbers

Letters

The words in the table below are used when individual letters have to be transmitted or words spelt. For spelling you should use the pro word “I Spell”

<table>
<thead>
<tr>
<th>A</th>
<th>ALPha</th>
<th>B</th>
<th>BRAvo</th>
<th>C</th>
<th>CHARlie</th>
<th>D</th>
<th>DELta</th>
<th>E</th>
<th>ECHo</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>FOXtrot</td>
<td>G</td>
<td>GOLF</td>
<td>H</td>
<td>hoTEL</td>
<td>I</td>
<td>INDia</td>
<td>J</td>
<td>juliET</td>
</tr>
<tr>
<td>K</td>
<td>KILo</td>
<td>L</td>
<td>Lima</td>
<td>M</td>
<td>Mike</td>
<td>N</td>
<td>noVEMber</td>
<td>O</td>
<td>OSCar</td>
</tr>
<tr>
<td>P</td>
<td>paPA</td>
<td>Q</td>
<td>queBEC</td>
<td>R</td>
<td>ROMeo</td>
<td>S</td>
<td>siERRa</td>
<td>T</td>
<td>TANgo</td>
</tr>
<tr>
<td>U</td>
<td>UNiform</td>
<td>V</td>
<td>VICtor</td>
<td>W</td>
<td>WHISkey</td>
<td>X</td>
<td>X-Ray</td>
<td>Y</td>
<td>YANKee</td>
</tr>
<tr>
<td>Z</td>
<td>ZUlu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When pronouncing these words the syllables should be emphasised as shown above.
Numbers

All numbers must be transmitted by pronouncing each digit separately as shown in the table below.

Grid references are given as individual digits and preceded by either **Figures** or **Grid**.

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Zero</td>
<td>1</td>
<td>Wun</td>
<td>2</td>
<td>Too</td>
<td>3</td>
<td>Tree</td>
</tr>
<tr>
<td>5</td>
<td>Fife</td>
<td>6</td>
<td>Six</td>
<td>7</td>
<td>Seven</td>
<td>8</td>
<td>Ate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Note: surprisingly “two” and “three” are often confused with each other. Emphasise them and be particularly careful with their pronunciation.

The following are specific forms for certain types of numbers

Round hundreds and thousands – use **“hun dred”** and **“thousand”** respectively

A number such as 5.7 say **“Five, dayseemal seven”**

Times should be given in the twenty-four hour clock form

“Time zero seven hun dred” = 0700 hrs or
“Time wun niner tree zero” = 1930 hrs

Code words

KSAR uses standard Codeword to inform other stations of sensitive information

**CODE ORANGE** - Clue or Evidence found
**CODE RED** - Person/Body found
**CODE RED PLUS** - Missing Person found
**CODE PURPLE** - Suspected Dead
**CODE PURPLE PLUS** - Confirmed Dead

**KILO ALPHA** - Ambulance Service
**KILO DELTA** - Doctor
**KILO FOXTROT** - Fire and Rescue Service
**KILO PAPA** - Police
Transmission of Reports

KSAR uses standard report formats in order to ensure:

- That the necessary information is sent
- The format is the same for the operator and receiver
- The standard report forms can be used in Control to record the information

The following Reports are currently used:

- **CASREP** – A report on causalities
- **CLUEREP** – A report on clues or evidence found
- **CONTREP** – A report used to give the description of a person
- **LOCSAT** – A report that is used to give details of the teams current location
- **PODREP** – A report that is used to give control details to calculate the POD
- **SITREP** – A report that is used to give the teams current situation details
- **TASKREP** – A report to give the details of a teams progress of a task

Offering a Report

A report should be offered if the recipient is expected to write it down – Normally report are offered by teams or requested by control

KSAR uses standard report formats in order to ensure:

- That the necessary information is sent
- The format prompts for the required information
- It prevents the need to write down information before sending
- The receiver knows the format of the information being sent
- It provides a form for control to record the data

An example of this:

"Control this is XR1 CASREP over"

"XR1 this is Control send CASREP over"

"XR1 CASREP Alpha 1, Bravo Grid TQ12345 67890 .................over"

Or if control was not ready they could send the following:

"XR1 this is Control wait 1 out"
Example of a CASREP

A report on causalities - This report may be proceeded by the Code Word if this is applicable:

**Code Red** - PERSON OR BODY FOUND

"Control this is XR1 CODE RED wait out"

If there is heavy traffic it may be necessary to break in transmissions. Stations that are not in the interchange must remain silent until the message has been passed.

<table>
<thead>
<tr>
<th>CASREP</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>A</td>
<td>No of Casualties</td>
</tr>
<tr>
<td>B</td>
<td>Casualty Location</td>
</tr>
<tr>
<td>C</td>
<td>Description and Condition of Causality (if more than one prefix with the No i.e. 1..... 2....)</td>
</tr>
<tr>
<td>D</td>
<td>Treatment of Causality (if more than one prefix with the No i.e. 1..... 2....) Include if the Ambulance have been called</td>
</tr>
<tr>
<td>E</td>
<td>Resources Required</td>
</tr>
<tr>
<td>F</td>
<td>RV for Resources</td>
</tr>
<tr>
<td>G</td>
<td>Any other relevant info</td>
</tr>
</tbody>
</table>
Example of a CLUEREP

A report on clues or evidence found, This report may be proceed by the Code Word:

**Code Orange** - **CLUE OR EVIDENCE FOUND**

"Control this is XR1 CODE ORANGE wait out"

If there is heavy traffic is heavy it may be necessary to used to **break in** transmissions? Stations that are not in the interchange must remain silent until the message has been passed.

<table>
<thead>
<tr>
<th>CLUEREP</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>A</td>
<td>Clue Location Grid</td>
</tr>
<tr>
<td>B</td>
<td>Description of Clue</td>
</tr>
<tr>
<td>C</td>
<td>Any other relevant Info</td>
</tr>
</tbody>
</table>

Send the above to Control and Await further Instructions

| D | How clue is marked | Red and White Mine tap |
| E | RV for KP | N/A |
| F | Evidence Bag ID No | A1234567 |
| G | Any other relevant Info | Evidence Seized by KSAR No 114 |
Example of a CONTREP
A report used to give the description of a person

<table>
<thead>
<tr>
<th>CONTREP</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>Date/Time:</td>
<td></td>
</tr>
<tr>
<td>A Age</td>
<td>60</td>
</tr>
<tr>
<td>(Give 5 year brackets e.g. 30-35)</td>
<td></td>
</tr>
<tr>
<td>B Build</td>
<td>Slim</td>
</tr>
<tr>
<td>(Slim, Medium, Heavy etc.)</td>
<td></td>
</tr>
<tr>
<td>C Clothing</td>
<td>Blue Rain Jacket, Red Sweatshirt, Blue Jeans, White Trainers</td>
</tr>
<tr>
<td>D Distinguishing Features</td>
<td>Nil</td>
</tr>
<tr>
<td>E Elevation</td>
<td>6’</td>
</tr>
<tr>
<td>(Height. Give in ft and inches e.g.6’4”)</td>
<td></td>
</tr>
<tr>
<td>F Face</td>
<td>Round</td>
</tr>
<tr>
<td>(Round, Long Chubby etc)</td>
<td></td>
</tr>
<tr>
<td>G Gate</td>
<td>Shuffling</td>
</tr>
<tr>
<td>(Posture, Hurried, Calm, Nervous etc)</td>
<td></td>
</tr>
<tr>
<td>H Hair</td>
<td>White Medium Length, Straight</td>
</tr>
<tr>
<td>(Including facial hair)</td>
<td></td>
</tr>
<tr>
<td>I Information</td>
<td>Car Reg W345 NOT Red Renault Clio</td>
</tr>
<tr>
<td></td>
<td>Any Other</td>
</tr>
</tbody>
</table>
Example of a LOCSTAT
A report that is used to give details of the team’s current location

<table>
<thead>
<tr>
<th>LOCSTAT</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>Date/Time:</td>
<td></td>
</tr>
<tr>
<td>A Grid</td>
<td>TQ 12345 67890</td>
</tr>
<tr>
<td>B Description</td>
<td>Track</td>
</tr>
<tr>
<td>C Direction of Travel</td>
<td>East</td>
</tr>
<tr>
<td>D Any Other Info</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Example of a PODREP
A report that is used to give control details to calculate the POD of a search area

<table>
<thead>
<tr>
<th>CLUEREPT</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>Date/Time:</td>
<td></td>
</tr>
<tr>
<td>A Search Route/Area</td>
<td>Area 1</td>
</tr>
<tr>
<td>B No of Searchers</td>
<td>4</td>
</tr>
<tr>
<td>C Track Line Length in Metres</td>
<td>6000</td>
</tr>
<tr>
<td>D Sweep Width in Metres</td>
<td>10</td>
</tr>
<tr>
<td>E Significant difficulties during Search of Route/Area</td>
<td>Fast flowing stream running East to West through the area</td>
</tr>
<tr>
<td>F Local Hazards</td>
<td>Steep banks by Railway on Western edge</td>
</tr>
</tbody>
</table>
**Example of a SITREP**

A report that is used to give the teams current situation details. It should tell the story of events and its main goal is to give control a comprehensive picture of how the situation is progressing and your intended outcome.

<table>
<thead>
<tr>
<th>SITREP</th>
<th>Serial No :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
</tr>
<tr>
<td>A</td>
<td>Search Area/Grid Ref (where)</td>
</tr>
<tr>
<td>B</td>
<td>Description of situation (what)</td>
</tr>
<tr>
<td>C</td>
<td>What actions have been taken (what you are doing)</td>
</tr>
<tr>
<td>D</td>
<td>What actions need to be taken (what you need to do)</td>
</tr>
<tr>
<td>E</td>
<td>What resources or help required (what you need)</td>
</tr>
<tr>
<td>F</td>
<td>Any other relevant info</td>
</tr>
</tbody>
</table>
### Example of a TASKREP

A report that is used to give the team’s current progress on a task

<table>
<thead>
<tr>
<th>TASKREP</th>
<th>Serial No :</th>
<th>Date/Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Sign :</td>
<td>XR1</td>
<td></td>
</tr>
<tr>
<td>A Search Area/Route Name</td>
<td>Area 1</td>
<td></td>
</tr>
<tr>
<td>B % Task Complete</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>C Estimated Time to Completion of Task in minutes</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>D Any other relevant info</td>
<td>Progress slow due to thick undergrowth – Team beginning to tire</td>
<td></td>
</tr>
</tbody>
</table>
## Common Radio Equipment Faults

<table>
<thead>
<tr>
<th>EQUIPMENT FAILURE</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem</strong></td>
<td><strong>Remedial Action</strong></td>
</tr>
<tr>
<td>Unable to hear any transmissions</td>
<td>Radio not Switched on – Turn Handset on</td>
</tr>
<tr>
<td>Unable to hear any transmissions</td>
<td>Wrong Frequency set – Change Frequency</td>
</tr>
</tbody>
</table>

## POOR RECEPTION

<table>
<thead>
<tr>
<th>Causes</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielded by People, Cars, Buildings, Hills and Mountains</td>
<td>Move location</td>
</tr>
<tr>
<td>Distance between Stations</td>
<td>Move Location or use the Relay procedure</td>
</tr>
<tr>
<td>Damage or loose Antenna</td>
<td>Repair or replace the Antenna and then check that it is tight</td>
</tr>
<tr>
<td>Mouth too close/too far away</td>
<td>Move the Mike away from the mouth – Approx 1 -1½” from Mouth - 45º angle – Speak slowly and clearly</td>
</tr>
<tr>
<td>Talking too loud/too soft</td>
<td>Speak in a firm monotone voice</td>
</tr>
</tbody>
</table>

### Interference

<table>
<thead>
<tr>
<th>Causes</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many users talking at once</td>
<td>Wait until the Channel is clear before transmitting – If you have a priority or an emergency – use the correct <strong>Break In</strong> procedure –Always yield to more urgent or emergency channels</td>
</tr>
<tr>
<td>Background Wind/Noise</td>
<td>Move away from the noise and turn your back to the wind.</td>
</tr>
</tbody>
</table>