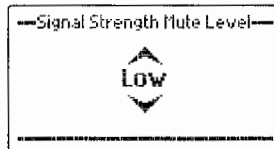
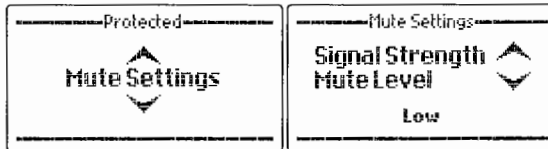


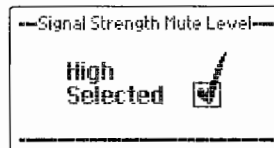
Signal Strength Mute Level

This section selects the level at which the Signal Strength Level (SSL) mute (squelch) opens. Levels available are low, medium and high. When set to low the mute will open on a relatively low level of received signal, when set to high the mute will open on a relatively high level of received signal.

Use the **Scroll keys** to select the setting required (example High):-



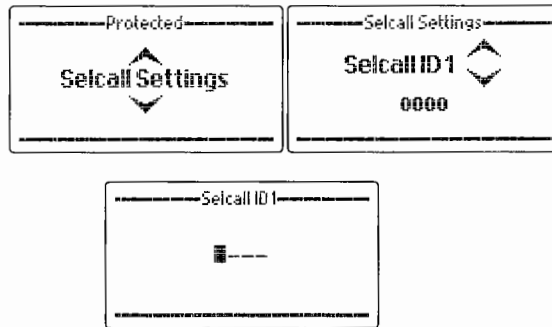
When the setting required is selected press the **ENTER** key



Selcall settings

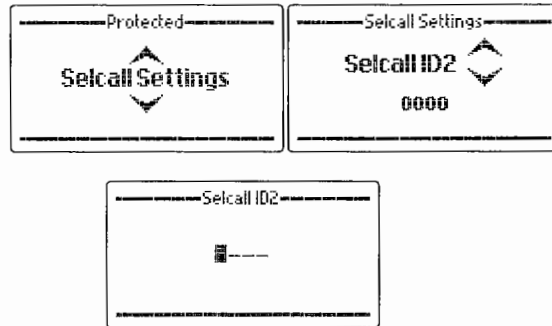
Three different selective call ID's can be set within the Barrett 2050 transceiver as follows:-

Selcall ID 1 – setting 4 digit selcall self ID



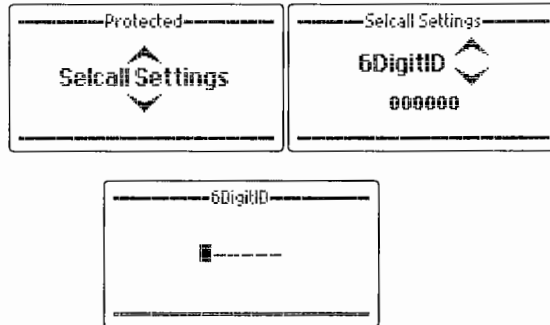
Selcall ID1 - a 4 digit ID that the transceiver will respond to on channels with **International** or **CCIR** (WA2 in Australia) format programmed.

Selcall ID 2 – setting 4 digit selcall self ID



Selcall ID2 – a 4 digit ID that the transceiver will respond to on channels programmed for use with **OEM 1**(Codan compatible) selcall format programmed.

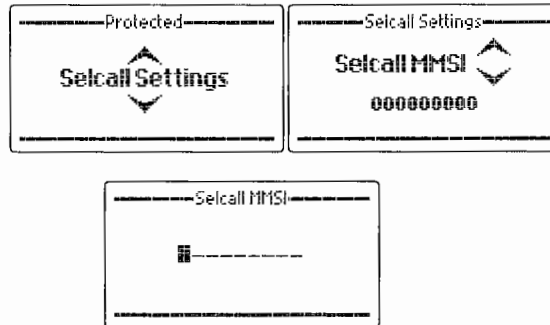
Setting Six Digit ID – setting 6 digit selcall self ID



Six digit ID – a 6 digit ID that the transceiver responds to on channels programmed for the **International** or the **OEM 1** format.

Note:- We recommend that the self ID should not be set to X000, XX00 or XXX0 as these are reserved selcall numbers for all call, group-call or sub-group-call use.

Setting Selcall MMSI – GMDSS selcall self ID (for future use)




Selcall alarm

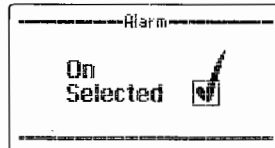


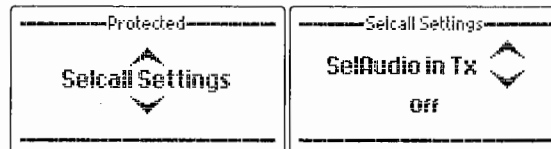
The selcall received audio annunciation can be turned on or off using this function; this is useful when the transceiver is used in covert operations. Reception of the selcall continues to be displayed visually on the display.

Use the **Scroll keys** to select the setting required (example shows selection of alarm "On"):-



press the  key



Selcall transmit tones audio level

To confirm transmission of a selcall the selcall tones are normally output on the transceiver loudspeaker. In certain situations this is not required or the tone volume requires adjusted. This section allows the selcall audio to be disabled or set to two volume settings, Low or High.

Use the **Scroll keys** to select the setting required (example selcall volume "Low" :-



When the setting required is selected press the



key

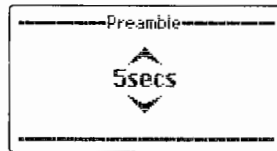


Selcall pre-able length setting



The selcall pre-able length can be set between 1 and 10 seconds depending on how many channels are used in the scan table being used. Allow 500mS for each selcall channel to be scanned plus one second, E.g. to scan 8 selcall channels:-
 $500\text{mS} \times 8 + 1 \text{ sec.} = 5 \text{ seconds.}$

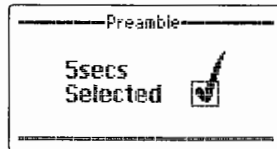
Use the **Scroll keys** to select the selcall pre-able length required (example "5 seconds") :-

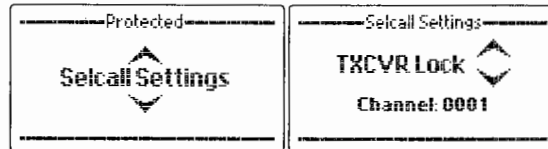


When the setting required is selected press the



key



TXCVR Lock

This section enables the network operator to send a special key (programmed into a transceiver during programming) by selcall to disable that transceiver. The transceiver remains locked until an unlock code is entered.


This function can be used if the transceiver has been stolen and it is being used illegally.

The lock call will be made on the channel selected before entering this function. The channel number is shown on the TXCVR display.

Before proceeding if the channel presently selected is not a selcall channel the following is displayed




Select a channel that you expect the transceiver you want to lock is on and that has selcall programmed

press the  key



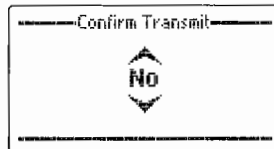
enter the selcall number of the transceiver you wish to disable (see entering selcall numbers in the selcall section)

press the  key

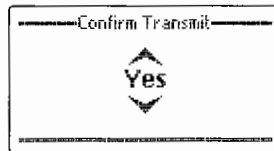


enter the 8 digit numeric lock code (this was loaded into the transceiver when initially programmed for the network)

press the  key

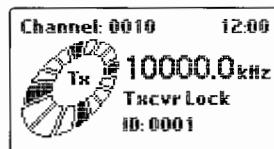


If you are **absolutely sure** you want to lock the transceiver with selcall ID entered use the Scroll keys to select "Yes"



press the  key

The transceiver will now send the lock call. A revertive call from the transceiver being locked will confirm the action.



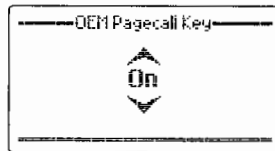
A transceiver that has been locked by this process can only be unlocked by using the Barrett programming software. See the programming software for details.


OEM Pagecall Key

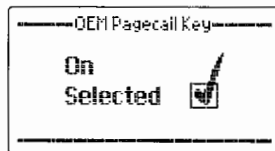


When using OEM 1 selcall protocol, Pagecalls can either be sent plain text or encrypted by using either the privacy key programmed by the programming software or if no privacy key is programmed the default value of 9999999. Selecting "On" and Pagecall is encrypted, selecting "Off" Pagecall is sent in plain text.

Use the **Scroll keys** to select the setting required (example shows selection OEM Pagecall key "On"):-

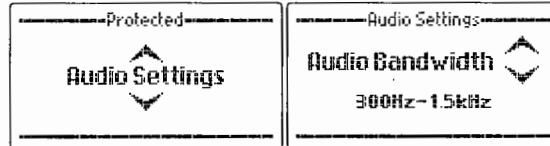


press the  key



Audio Settings

Audio bandwidth



This section allows the audio bandwidth to be tailored to an operator's comfort requirements. Settings available are full bandwidth - 300Hz – 1.5kHz, 300Hz – 2.0kHz, 300Hz – 2.5kHz , 300Hz – 3.0kHz.

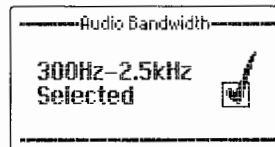
Use the **Scroll keys** to select the audio bandwidth required (example "300Hz to 2.5kHz"):-



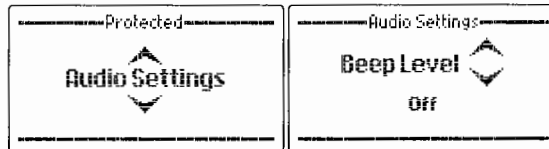
When the audio bandwidth required is displayed press the



key




"Beep" volume level

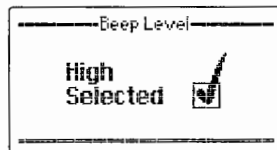


This section is used to set or disable the annunciation beep volume levels. These are the various tones associated with key presses. In covert operations these can be disabled, in other operations these are set for operator comfort. Settings are "Off", "Low" or "High" (example shown "beep" tones High):-

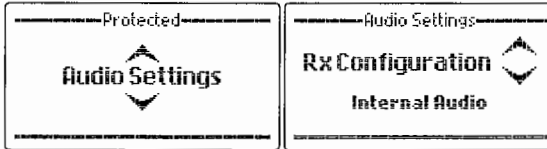
Use the **Scroll keys** to select the "beep" volume level required (example shown "beep" tones level "High"):-



When the "beep" level required is displayed press the  key



Receiver audio path configuration




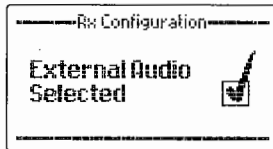
The section sets where the unprocessed receiver audio in the transceiver is sourced. Normally this is set to internal; in this case the transceiver's receiver provides the unprocessed audio.

When used with a remote receiver, in split site operations, it can be set to external, in this case unprocessed receive audio from the remote site can be input into the auxiliary sockets 600 ohm balanced audio port.

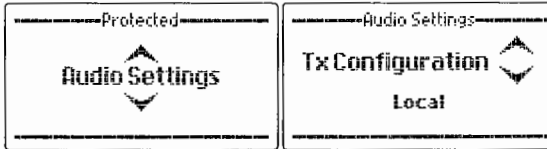
Use the **Scroll keys** to select setting required (example shows "External audio"):-



press the  key



Transmitter audio path configuration




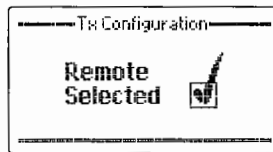
The section sets where the transmitter audio in the transceiver is sourced. Normally this is set to internal; in this case the transceiver's microphone provides the transmitter audio.

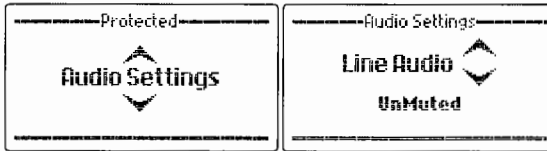
When used with a remote site operation, it can be set to "remote", in this case the transmit audio is input into the auxiliary sockets 600 ohm balanced audio port.

Use the **Scroll keys** to select setting required (example shows "Remote"):-



press the  key




Line Audio

This section sets the muting condition of the 600 ohms balanced audio line output on the rear auxiliary connector. The line output can be set to "Un-Muted" or "Follows Mute". When set to "Follows Mute" the line output is muted in the same manner as the speaker output and follows the mute condition currently in use. The line output is usually set to "Un-Muted" when using data modems.

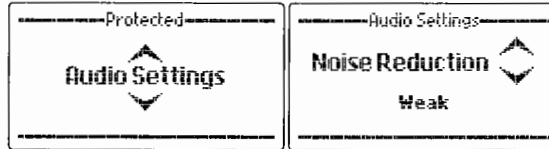
Use the **Scroll keys** to select the noise reduction "depth" required (example "Follows Mute"):-




press the  key



Noise Reduction




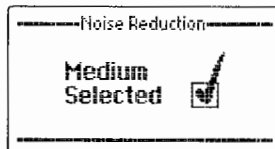
This section allows the DSP noise reduction “depth” to be adjusted to suit the operator’s comfort requirements. Settings available are Weak, Medium and Strong. It should be noted that as the “depth” is increased the processed human voice gets a more metallic quality.

press the  key

Use the **Scroll keys** to select the noise reduction “depth” required (example “Medium”):-

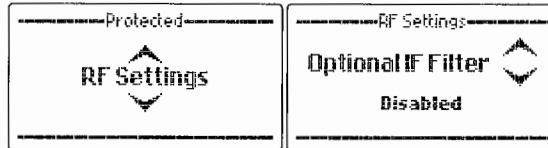


When the noise reduction required is displayed press the  key



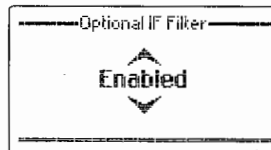
RF settings


Optional IF filter enable

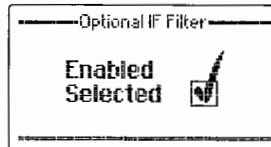


When enabled the optional IF filter (if physically fitted) is selected automatically when AFSK or CW mode is selected. This is useful when the transceiver is used in some data transmission applications.

Use the **Scroll keys** to select the setting required (example shown "Enabled"):-



press the  key



Note:- This setting is only available if the narrow filter setting is selected during programming from the programming software.


Receiver Pre-amplifier

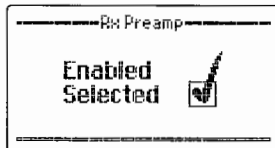


Enables or disables RF preamplifier, this preamplifier provides an additional receiver gain of 5dB. Generally the RF pre-amplifier is switched off when an automatic mobile antenna is in use as these antennas have an inbuilt RF pre-amp.

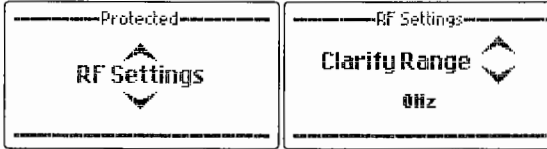
Use the **Scroll keys** to select the setting required (example shown "Enabled"):-



press the  key




Clarifier range



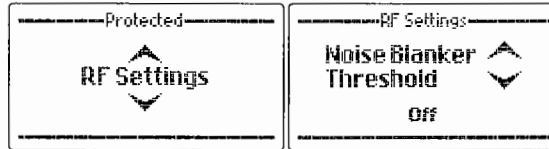
This menu item allows the user to set the clarifier range or disable the clarifier, the range can be set to +/-50Hz, +/-150Hz or +/-1kHz.

Use the **Scroll keys** to select the clarifier range required (example shown +/-1kHz):-



When the clarifier limit required is displayed press the  key




Noise blanker threshold

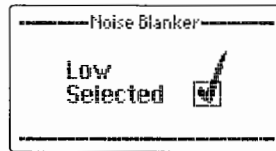
This menu item allows the predictive noise blanker to be switched on or off and allows the selection of three threshold levels. The noise blanker is useful to reduce the interference caused within vehicles with petrol engines.

Note:- The noise blanker will not be effective in situations where external power line noise etc is blanketing the receiver.

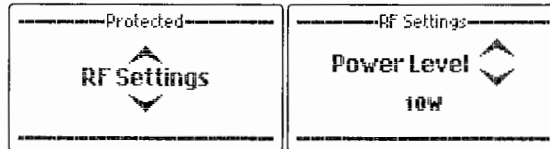
Use the **Scroll keys** to select the setting required (example shown "Threshold Low"):-



press the  key

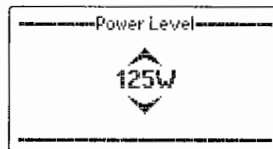


Note:- In certain situations noise blankers can cause Intermodulation in receivers, in these cases the noise blanker should be disabled.

RF power level

This section sets RF power output of the transceiver globally. RF power can be set to 10W, 30W, or 125W.

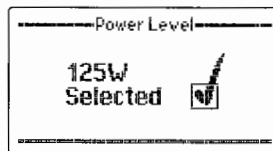
Use the **Scroll keys** to select the RF power level required (example shown 125W):-



When the RF output power required is displayed press the



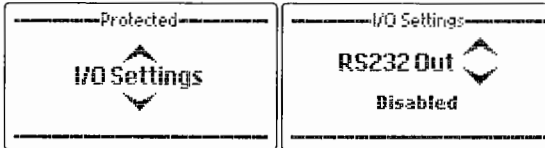
key



Note:- When the 2050 is deployed in the 2040 manpack adaptor the power is automatically reduced to 10W and 30W. These power settings corresponding to the channels programmed power setting - Low Power (LP) representing 10W and Medium Power (MP) and High Power (HP) representing 30W.

I/O Settings

RS-232 Out



This section enables or disables RS-232 selcall information output from the transceiver via the 25 pin auxiliary connector.

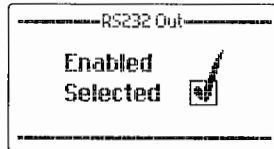
Use the **Scroll keys** to select the setting required (example shown "Enabled"):-



When the setting required is displayed press the

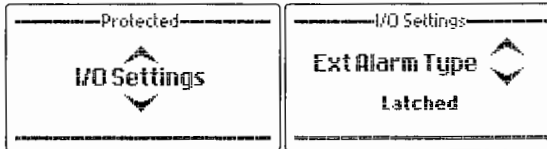


key



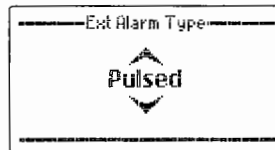
Note:- This command does not allow RS-232 control of the transceiver as enabled when the RS-232 option is fitted. It is used to control the output of selcall information used by some external programs such as vehicle tracking.


External alarm

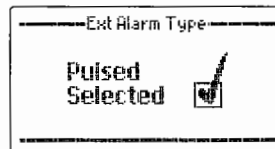


This section sets the action of the external alarm output, on pin 17 of the 25 pin D auxiliary connector, activated when a selcall is received by the transceiver. It can be set to either a pulse output (for use with a horn) where the output is activated 15 seconds on, 15 seconds off; or a constant output (for use with a rotating beacon). Both are reset by pressing the clear key or action of the PTT button.

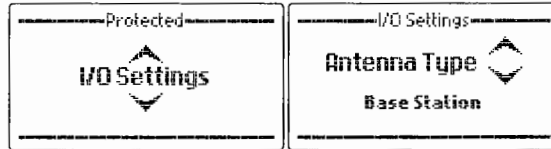
Use the **Scroll keys** to select the setting required (example shown "Pulsed"):-



press the  key



Antenna type



This section sets antenna type or if a linear amplifier is to be used with the 2050 transceiver.

Selections available:-

“Base Station”

Select when base station antennas such as the Barrett 2012 series are used. No tuning signals are emitted on channel change. This selection should also be used when operating with a Barrett 2014 manual tapped whip.

“910 Mobile antenna”

Select when using a Barrett 910 automatic tuning mobile antenna.

“911 Automatic Tuner”

Select when using a Barrett 911 automatic tuner.

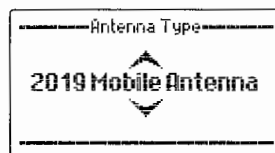
“Linear amplifier”

Select when using the 2050 with a Barrett 975 series linear amplifier.

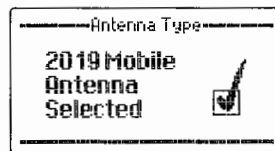
“2019 Mobile antenna”

Select when using a Barrett 2019 automatic tuning antenna.

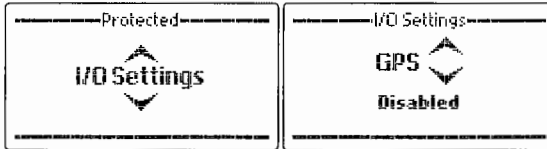
Use the **Scroll keys** to select the type of antenna or a linear amplifier (example shown “2019 Mobile antenna):-



When the setting required is displayed press the **ENTER** key




GPS receiver enable

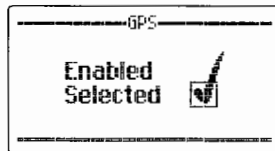


This section enables or disables the external GPS receiver input (example "disabled"):-

Use the **Scroll keys** to select the setting required (example shown –"Enabled"):-

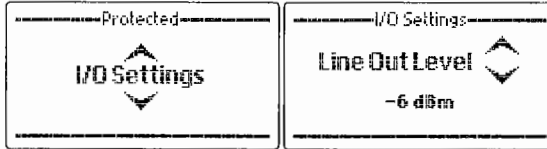


press the  key



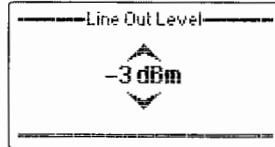
Note:- An external GPS receiver is required for GPS functions. If this option is enabled and a GPS is not connected to the 2050 a **warning message will appear on the display "GPS Unavailable"**

Line output level adjust



This section adjusts the output level of the auxiliary 600Ohm balanced audio output port. The level can be set to -6dBm,-3dBm, -0dBm, +3dBm, +6dbm and +9dBm.

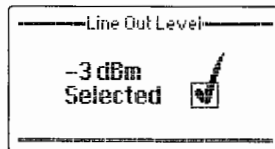
Use the **Scroll keys** to select the level required (example shown - 3dBm):-



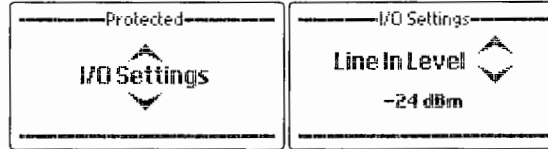
When the level required is displayed press the



key




Line input level adjust

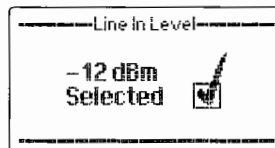


This section adjusts the input level sensitivity of the auxiliary 600Ohm balanced audio input. Sensitivity can be adjusted to -24dBm,-18dBm, -12dBm, -6dBm and 0dBm.

Use the **Scroll keys** to select the level required (example shown -12dBm):-



When the level required is displayed press the  key



Frequency hopping (option - export permit required)

The Barrett 2050 employs a unique frequency hopping system that uses an external ESU...Encryption Synchronisation Unit.

Note:- The external ESU must be connected and providing valid data for the frequency hopping system to operate

Selecting the hop band

Select the channel used for normal/clear transmissions based on the normal procedures used when using an HF system, this channel frequency and mode is used by the Barrett 2050 to determine the hop band. .

Note:- The reference frequency is NOT a centre frequency for the hop band. It simply determines which of the preset hop bands are selected.

Entering the security code

For hopping PIN code entry refer to the "General" section of the Protected Menu, in the subsection "Hopping PIN", select the security PIN code based on the information below.

Security codes and bandwidths


Security codes 00000000 to 19999999 are used for hopping +/- 2KHz
Security codes 20000000 to 49999999 are used for hopping +/- 16KHz
Security codes 50000000 to 99999999 are used for hopping +/- 128KHz

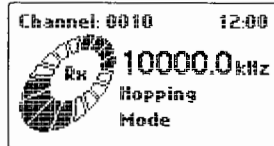
Note:- Hopping up to +/- 2 KHz is useful for narrow band antennas such as when using antenna tuners in manpack operation.

Note:- Hopping a +/- 128KHz can be used with wideband antennas such as base station broadband antennas.

Note:- Once entered the security code for security reasons can never be retrieved or viewed.


To enable hopping mode

Press the  key for more than two seconds



As soon as this display is shown you can start communicating with other stations using the same channel frequency and having the same hopping code entered.

To disable hopping mode

Press the  key for more than two seconds

Note:- The external ESU must be connected and providing valid data for the frequency hopping system to operate.

Security code management**Changing the hop code**

It is advisable to change the 8-digit hop code (for the entire hop network) on a regular basis.

The frequency of code change with a network is entirely dependant on the situation that exists at the time.

Code distribution

Code distribution will be the same as for any other direct entry crypto devices - i.e. this is a logistics issue for the person/organisation administering the hop network.

Network planning and Contingencies

As the Barrett 2000 series frequency hopping system has a GPS based synchronisation system that requires no master station allocation, operating the system requires the minimum of communications strategies.

The network users have only to be briefed on the channel and security codes to use the system.

Automatic Link Establishment (ALE) (option)

ALE system overview

The Barrett Automatic Link Establishment (ALE) controller option simplifies the operation of HF networks, the ALE option automating many of the procedures necessary to establish and maintain an HF link.

The Barrett 2050 ALE controller option provides complete inter-operability as required by FED-STD-1045 and U.S. MIL-STD-188-141B standards.

HF network stations equipped with ALE controllers automatically scan a pre-selected set of channels, listening for ALE calls. If sounding is selected stations at periodic intervals send out "sounding calls" to other stations. These signals are analysed for link quality and stored in the "sounded" stations. All stations gradually build up a table of parameters which determines best channels to use to link between specific stations. These tables are used by the ALE controller to determine the best channel to connect on when commanded by its operator to communicate with another station.

The Barrett 2050 ALE controller's powerful memory stores up to 10,000 sets of LQA information, 100 channel configurations, 20 self-address configurations and 100 other address configurations.


Operation overview

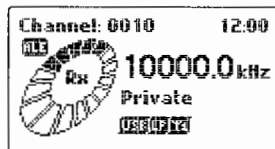
The ALE network parameters are determined by a network supervisor, this person programs all the transceivers in the network with the required addressing and channel information using the ALE fill program. This is a PC based program used to transfer pre-determined network information into each transceiver. A separate manual is provided as a guide to ALE network setup and for the operation of ALE fill program. As ALE's prime purpose is to automate many of the procedures necessary to establish and maintain an HF link, it is only necessary for the operator to enter the station he wishes to call and activate ALE call sequence as described in the following section.

Within the protected menu ALE section various operational parameters can be changed as required by the operator. The section titled "ALE menus" describes these functions.

To commence scanning

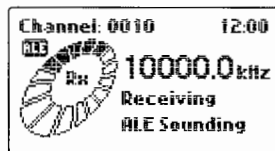
Note:- You should have selected the required scan list before you commence scanning, refer to the section "ALE scan list select" in the ALE protected menu.

Press the  key

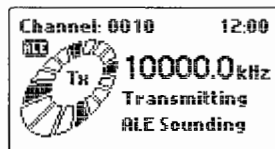


the 2050 transceiver will now be ALE scanning and ready to accept ALE calls, receive "Soundings" and transmit "Soundings" (If "Sounding" is enabled on your transceiver)

During ALE scanning the following messages may be displayed:-




This occurs when your station receives an ALE sounding from another station in the network.




This is displayed when your station transmits a "sounding"
Note:- Your station would have to have "Sounding" enabled.

Linking to another station in an ALE network

press the  key

select "ALE Call" with the scroll keys




then press the  key



select the station ID of the station you wish to call (the "To" ID)
(see the section below "Selecting ALE Station ID's")




then press the  key

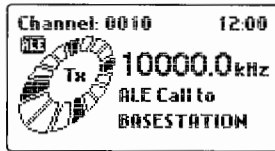


select the station ID you are calling from (your self ID can be varied, (the "From" ID)) (see the section below "Selecting ALE station ID's")

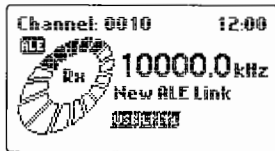


then press the  key

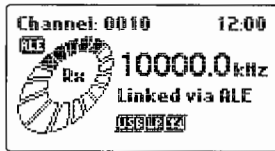
the ALE call sequence will now commence:-



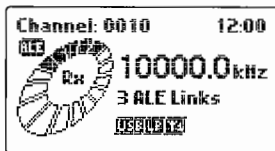
linking in progress:-



the link is established, an audible alarm will sound after which you can start communication with the station you called:-

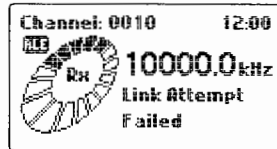


Or if you already had two links established:-

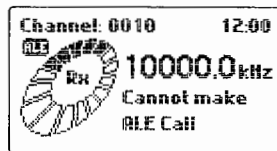


The following error messages may be displayed:-

For various reasons the link attempt failed i.e. no response from the called station or the link was rejected by the called station:-




You attempted to make a call but for various reasons the system cannot make the call i.e. incorrect self address, no presets available, no valid LQA's available:-




Making a Netcall

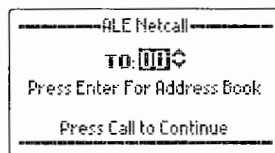
A maximum of 20 networks, programmed with the ALE fill software can be called using the Netcall facility. Each network can consist of up to 15 ALE stations.

press the  key

select "ALE Call" with the scroll keys




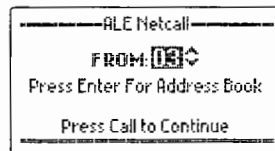
then press the  key



select the network you wish to call (the "To" ID)
(see the section below "Selecting ALE Station ID's")




then press the  key

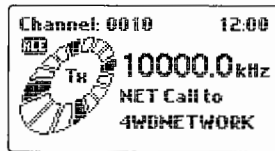


select the station ID you are calling from (your self ID can be varied, (the "From" ID)) (see the section below "Selecting ALE station ID's")



then press the  key

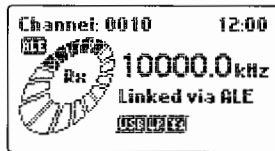
the ALE call sequence will now commence:-



linking in progress:-



the link is established, an audible alarm will sound after which you can start communication with the station you called:-



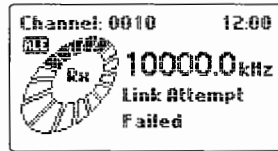
Or if you already had two links established:-



The following error messages may be displayed:-

BARRETT 2050 HF SSB TRANSCEIVER


For various reasons the link attempt failed i.e. no response from the called station or the link was rejected by the called station:-



You attempted to make a call but for various reasons the system cannot make the call i.e. incorrect self address, no presets available, no valid LQA's available:-




Sending an ALE text message to another station in an ALE network

press the  key

select "ALE Message" with the scroll keys;-




then press the  key



select the station ID of the station you wish to call (the "To" ID)
(see the section below "Selecting ALE Station ID's")




then press the  key



select the station ID you are calling from (your self ID can be varied, (the "From" ID)) (see the section below "Selecting ALE station ID's")



then press the  key

use the **Scroll** keys to select **either**:-




Or



If you selected "**New Message**":-



then press the  key




Enter the message using the alpha/numeric key pad

-----New Message-----
CALL ME AS SOON AS
POSSIBLE■

If you selected "**Preset Message**":-

-----ALE Message-----
Preset Message
▲
▼

press the  key

-----Preset Message 1-----
ALL STATIONS PLEASE CALL
IN ON REGULAR SCHEDULE
AT 1100HRS ZULU OPS
▼


Use the **Scroll keys** to view the rest of the message:-

-----Preset Message 1-----
▲
IN ON REGULAR SCHEDULE
AT 1100HRS ZULU OPS
PLAN 132

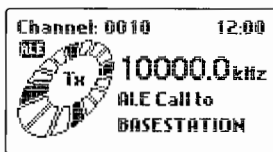
Or use the  **1** or  **3** keys to select other preset messages:-

-----Preset Message 2-----
ALL STATIONS NOTE
NETWORK OPERATIONS TO
CHANGE TO OPS PLAN 432

When the "Preset Message" is selected or the "New Message" is

entered, press the  key

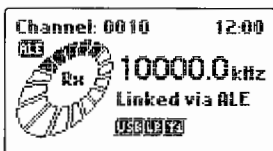
the ALE call sequence will now commence:-



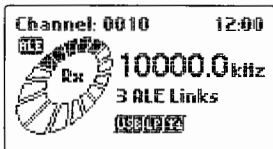
linking in progress:-



the link is established, an audible alarm will sound after which you can start communication with the station you called:-

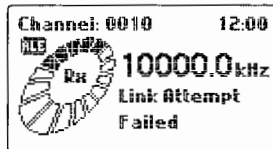


or if you already had two links established:-

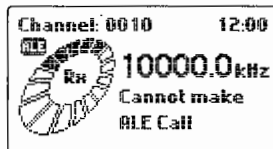


The following error messages may be displayed:-


For various reasons the link attempt failed i.e. no response from the called station or the link was rejected by the called station:-



You attempted to make a call but for various reasons the system cannot make the call i.e. incorrect self address, no presets available, no valid LQA's available:-




Making a telephone call via ALE stations with telephone interconnect facilities

press the  key

select "ALE Phone" with the scroll keys




then press the  key



select the station ID of the station you wish to call (the "To" ID)
(see the section below "Selecting ALE Station ID's")




then press the  key



select the station ID you are calling from (your self ID can be varied, (the "From" ID)) (see the section below "Selecting ALE station ID's")

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
then press the  key

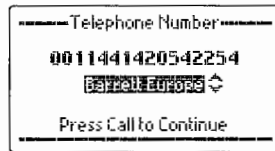
Either enter the telephone number using the numeric keypad (a number up to 16 digits)




Or if you think that telephone number is in the phone book use the **Scroll keys** to find the name and number you want to call:-

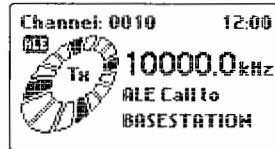


Or if you know the name associated with the telephone number in the phone book press the  key and either enter the first letter of the name you want to call using the alpha keypad and use the **Scroll keys** or use the **Scroll keys** to find the name you want to call:-

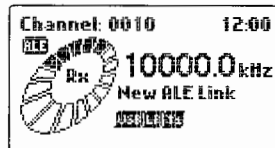


Or press the  key and the phone number previously called will be called again.

the ALE call sequence will now commence:-



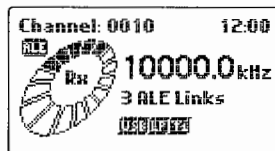
linking in progress:-



the link is established, an audible alarm will sound after which you can start communication with the station you called:-

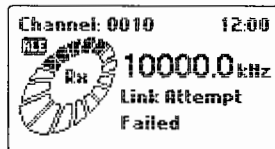


Or if you already had two links established:-



The following error messages may be displayed:-

For various reasons the link attempt failed i.e. no response from the called station or the link was rejected by the called station:-



BARRETT 2050 HF SSB TRANSCEIVER

You attempted to make a call but for various reasons the system cannot make the call i.e. incorrect self address, no presets available, no valid LQA's available:-



Selecting ALE Station ID's


Unlike Selcall ID's which you can enter yourself into the transceivers Address books, ALE network station ID's are pre-programmed into your transceiver. This is usually performed by your network administrator prior to deployment using the Barrett ALE fill program via the RS-232 port on the Auxiliary socket or via the IR link from a PC or Laptop

Note:- the same method is used to select the "To" and "From" ID, the "To" ID is shown below:-


Either enter the station ID using the numeric keys (the number of the station you wish to call, see "Station ID ranges")

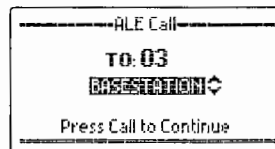


Or all the stations are in the address book, use the **scroll keys** to find the station you want to call, then

press the  key



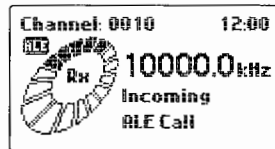
Or if you know the name of the station press the  key and either enter the first letter of the name you want to call using the alpha keypad then use the **Scroll keys** or use the **Scroll keys** to find the name of the station you want to call (example "b" entered):-



Receiving an ALE call

Various types of ALE call can be received as described below. When an ALE call to your station commences the following is displayed on your transceiver:-

A station in the ALE net is attempting to establish a link to your station:-



Your station is now linked, an audible alarm sounds:-



This is a normal call and conversation can now commence.

Or



An address has matched an incoming **Wildcard** address. **Wildcard** addresses have special characters (question marks) in them that do not require an exact match with the local address to link E.g. "FIELD?" will link with any station that has a self address starting with FIELD and ending in a single additional character (for example, FIELD1 or FIELDA). A station that linked using a Wildcard call may not be the only station in the link.

Stations respond to a **Wildcard** call in random slots.

Or

```
-----Call Received-----
ALE Anycall
FIELDBASE
```

An address has matched an incoming **Anycall**. An **Anycall** is a special call type that may link with any station(s) listening.

Stations respond to **Anycalls** in random slots.

Or

```
-----Call Received-----
ALE Allcall
FIELDBASE
```



An address has matched an incoming **Allcall**. An **Allcall** is a special call type that may link with any station listening.

Stations do not respond to **Allcalls**. Since the station which initiated the call does not receive any link acknowledgements it cannot determine which station(s) have accepted the link.


With all the above calls an alarm will sound for 60secs. After pressing a key, the following pages appear. If the 60sec alarm times out the system blips periodically (~5sec intervals).

Shows the address called i.e. one of your addresses:-

```
-----< ALE Call Page 2 >-----
To
BASESTATION
```

Pressing the  or  scrolls between the two pages of call data. The following page shows the address of the station that called you:-



Pressing the  key displays the link status:-



Or if more than one link is in progress (example 3 links):-

