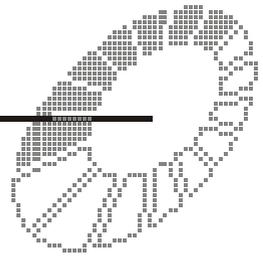
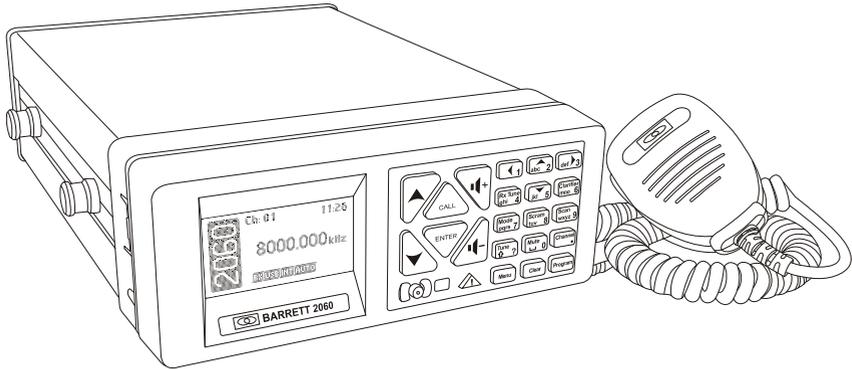




**BARRETT 2060**  
HF SSB TELEPHONE INTERCONNECT



# Operating and Installation Manual



BCM20600/11

© Barrett Communications

Head Office:

Barrett Communications Pty Ltd  
47 Discovery Drive, Bibra Lake, WA 6163 Australia  
Tel: +61 8 9434 1700 Fax: +61 8 9418 6757  
Email: [information@barrettcommunications.com.au](mailto:information@barrettcommunications.com.au)

[www.barrettcommunications.com.au](http://www.barrettcommunications.com.au)

<b>About this Operating and Installation Manual.....</b>	<b>6</b>
<b>Icons and Standards.....</b>	<b>6</b>
<b>Abbreviations and Acronyms .....</b>	<b>6</b>
<b>Introduction .....</b>	<b>8</b>
<b>System Overview .....</b>	<b>8</b>
<b>Operation .....</b>	<b>9</b>
<b>User Controls.....</b>	<b>9</b>
2060 Front panel.....	9
Key pad .....	9
2060 Control head rear view.....	12
Microphone socket .....	12
Interconnect cable .....	12
2060 Rear panel description.....	13
<b>Switching on the Interconnect.....</b>	<b>14</b>
Switching on the 2060 .....	14
Switching off the 2060 .....	14
<b>Display.....</b>	<b>14</b>
<b>Adjusting the Audio Volume .....</b>	<b>15</b>
<b>Selecting a Channel .....</b>	<b>16</b>
Using channel Up / Down keys.....	16
Direct channel number entry .....	17
<b>Using the Microphone.....</b>	<b>18</b>
<b>2060 Operating Modes.....</b>	<b>19</b>
<b>Automatic Mode Overview .....</b>	<b>19</b>
Facilities available to the telephone user.....	20
Selecting a channel .....	20
Sending a beacon request.....	20
Sending a Selcall.....	21
Sending a Telcall.....	22
Sending an ALE call .....	22
Sending a Secure Call.....	23
Sending a GPS request.....	23
Using the voice operated switch (VOX).....	24
Requesting current channel information.....	24
Turning off Call Timer .....	24
Frequency hopping mode.....	24
Entering the hopping prefix code.....	25
To enable hopping mode .....	25
To disable hopping mode .....	25
Requesting 2060 status.....	25
Completing a call - "hanging up" .....	25
Facilities available to the HF station .....	26
Sending a beacon request.....	26
Sending a Selcall - dialling a preset phone number .....	26
Sending a Telcall - dialling a telephone number .....	26
Terminating a call .....	26
Sending an ALE call .....	26
<b>Manual Mode Overview.....</b>	<b>27</b>
Receiving a preset telephone number Selcall from an HF station .....	28
Receiving a preset telephone number ALE call from an HF station .....	28

# BARRETT 2060 HF SSB TELEPHONE INTERCONNECT

To on-forward the call .....	28
Receiving a Telcall from an HF station .....	29
Receiving a telephone number ALE call from an HF station .....	30
To on-forward the call .....	30
Incoming phone calls .....	30
Completing the call - "hanging up" .....	31
Making a telephone call .....	32
Contacting another station - using selective call Selcall, Telcall or ALE Calls .....	33
International .....	33
OEM .....	33
CCIR .....	33
Selective call - Selcall .....	33
Selective call - Telcall .....	33
Station ID ranges .....	33
ALE Fed Std 188/Mil Std 188-141B .....	34
ALE system overview .....	34
ALE operation overview .....	34
Checking for the best channel to use between two stations - Beacon Call .....	35
Sending a Beacon Call .....	35
Receiving a Beacon Call .....	36
Sending a Selcall .....	37
Receiving a preset phone number Selcall .....	38
Direct dial telephone calls - Telcalls .....	40
Making ALE calls .....	42
Disconnecting ALE calls .....	43
<b>Scanning .....</b>	<b>44</b>
<b>Mute (squelch) Selection .....</b>	<b>45</b>
Front panel mute .....	45
Scan mute .....	45
<b>Mode Selection .....</b>	<b>46</b>
<b>Advanced Selective Call Functions .....</b>	<b>47</b>
Requesting a station's GPS position .....	47
<b>Menu Functions .....</b>	<b>49</b>
<b>Menus .....</b>	<b>49</b>
Navigating the menus .....	49
<b>Standard Menu .....</b>	<b>50</b>
Identification .....	50
Display options .....	51
Backlight level .....	51
Backlight timeout .....	52
<b>Protected Menu .....</b>	<b>53</b>
General .....	53
Setting the clock .....	53
Setting the date .....	54
Automatic VOX .....	55
VOX Timeout .....	56
VOX Hang Time .....	57
VOX Sensitivity .....	58
Charging Method .....	59
Hopping Prefix .....	60
ALE .....	61
Audio settings .....	62
RxTx configuration .....	62

Local line out level .....	63
Local line in level .....	64
Aux line out level .....	65
Noise reduction .....	66
Phone line set up procedure .....	67
Phone Level Out .....	67
Phone Level In .....	68
Selcall settings .....	70
Selcall ID – Setting 4 digit Selcall self ID .....	70
Setting Six Digit ID – Setting 6 digit Selcall self ID .....	70
Periodic beacon .....	71
Selcall before Vox .....	72
Telcall settings .....	73
Barred prefixes .....	73
Toll-free prefixes .....	73
STD prefixes .....	74
Phone settings .....	75
Dialling method .....	75
Dial tone wait .....	76
DTMF tone length .....	77
Wait for ring .....	78
Line reversal .....	79
Ring till answer .....	80
Ring till hang-up .....	81
Call length .....	82
Hang-up counts .....	83
PABX prefix .....	84
Telcall num length .....	85
STD num length .....	86
Preset numbers .....	87
<b>Cadence Settings .....</b>	<b>88</b>
Set country cadence .....	88
Manual set cadence .....	89
Learn cadence .....	91
Busy tone .....	91
Ring tone .....	93
<b>Scan Settings .....</b>	<b>95</b>
Scan dwell .....	95
Scan resume time .....	96
Scan on start-up .....	97
Scan mute .....	98
Scan entries .....	99
Adding channels to the scan table .....	99
Searching and editing entries in the scan table .....	100
Removing channels from the scan table .....	101
<b>Voice Messages .....</b>	<b>102</b>
Welcome message .....	102
No dial tone message .....	102
Access denied message .....	102
<b>Access .....</b>	<b>107</b>
Phone access .....	107
Txcvr access .....	109
View access .....	111
ALE Phone Access .....	112

<b>Secure Keys</b> .....	<b>114</b>
Program secure keys .....	114
Clearing secure call keys .....	115
View secure keys .....	116
<b>Factory</b> .....	<b>117</b>
Restore defaults .....	117
Erase access levels .....	118
Erase secure call keys .....	119
Erase channels .....	120
Erase preset numbers .....	121
View data log .....	122
<b>Programming Functions</b> .....	<b>123</b>
Programming using the Barrett 2060 supervisory software .....	123
Programming using the Barrett cable P/N BCA90023/BCA204020.....	123
Programming a channel from the front panel.....	124
Transmit and receive frequencies .....	124
Operating mode.....	125
Selcall format.....	125
Antenna socket selection.....	125
Deleting a channel from the front panel .....	127
<b>Installing the Barrett 2060 Interconnect</b> .....	<b>128</b>
<b>Connectors</b> .....	<b>130</b>
Power connector .....	130
RS232 connector .....	130
BUS connector.....	131
Transceiver connector .....	132
Auxiliary connector.....	133

## About this Operating and Installation Manual

This manual describes all aspects of the Barrett 2060 interconnects functions and should be viewed as a reference manual.

### Icons and Standards

This manual refers to Scroll keys, these keys are:-



to scroll Up



to scroll Left



to scroll Down



to scroll Right

### Abbreviations and Acronyms

<b>This term...</b>	<b>Means....</b>
Station ID	The ID of the station being called (the receiving station's self ID)
GPS	Global Positioning System
HF	High Frequency
LCD	Liquid Crystal Display
LSB	Lower Sideband
USB	Upper Sideband
PCB	Printed Circuit Board
PIN	Personal Identification Number
PSTN	Public Switched Telephone Network
PTT button	Press-to-talk button
RDD	Radio Direct Dial
Revertive signal	An acknowledgement signal automatically transmitted from a station receiving a Selcall
RF	Radio Frequency
Rx	Receive

Scan Table	A list of channels used when scanning for incoming calls
Selcall	Selective calls
Telcall	Telephone calls via the selective call protocol
Self ID	The programmed address identification number of your interconnect. (Used by other stations to call you).
SSB	Single Sideband (a transmission format)
Tx	Transmit
USB	Upper Sideband

**Warning:**                    **Equipment will be inoperable when mains power fails.**

**Battery Warning:**       **This equipment has a Lithium Ion battery, which although contains no toxic materials, can be a fire risk if the used internal battery is exposed to moisture.**

**Proper battery handling and disposal procedures must be observed at all times.**

## Introduction

The 2060 HF Telephone interconnect is designed to provide users on an HF network full interconnection with the international telephone network. It is designed to be operated as a completely automatic facility with no requirement for human operator supervision. A high level of security is incorporated to eliminate system abuse.

This manual gives a brief system overview and details the operation of the 2060 telephone interconnect assuming the 2060 has already been setup by a system supervisor.

## System Overview

The 2060 telephone interconnect allows HF network stations to become extensions of the international telephone network.

The 2060 telephone interconnect provides a fully automated interface between the international telephone network and an HF network. Stations in an HF network equipped with selective call systems based on CCIR 493 can call up to 98 preset telephone numbers that can be stored in the 2060 telephone interconnect. Stations fitted with a "Telcall" facility, based on selective call format CCIR 493, can direct dial any telephone number on the international telephone network. Telephone subscribers can dial into the 2060 telephone interconnect from anywhere on the international telephone network and call any station on the HF network.

The Barrett 2060 telephone interconnect provides full network management facilities including multiple telephone access levels for HF stations, call logging and remote supervision by dial up computer links.

# Operation

## User Controls

2060 Front panel



### Key pad

There are 23 keys on the keypad. A group of five keys in the centre access many major functions. Some keys have multiple functions assigned to them depending on when the key is pressed and for how long the key is pressed. Key functions are listed below followed by a detailed description of their functions.

Key	Key Primary function	Secondary function
	Power on/off	None
	Channel up	General scroll key
	Channel down	General scroll key
	Volume up	None
	Volume down	None

<b>Key</b>	<b>Key Primary function</b>	<b>Secondary function</b>
	<b>Make a call</b>	<b>None</b>
	<b>Enter</b>	<b>None</b>
	<b>Help</b>	<b>None</b>
	<b>Enter menus</b>	<b>None</b>
	<b>Manual / Auto Mode Select</b>	<b>Change case</b>
	<b>Numeric key "6"</b>	<b>Alpha "mno"</b>
	<b>Clear back one step</b>	<b>None</b>
	<b>Enter direct channel change mode</b>	<b>Decimal point</b>
	<b>Numeric key "4"</b>	<b>Alpha "ghi"</b>
	<b>Numeric key "8"</b>	<b>Online / Offline Switch Alpha "tuv"</b>
	<b>Enter program mode</b>	<b>None</b>
	<b>Mute (squelch ) selection</b>	<b>Alpha "space" Numeric key "0"</b>
	<b>Mode select USB, LSB, AM</b>	<b>Alpha "pqrs" Numeric key "7"</b>
	<b>Start scan, force next scan channel</b>	<b>Alpha "wxyz" Numeric key "9"</b>

Key	Key Primary function	Secondary function
	Scroll left	Numeric key "1"
	Numeric key "2"	Alpha "abc"
	Scroll right	Alpha "def" Numeric key "3"
	Numeric key "5"	Alpha "jkl"

**2060 Control head rear view****Microphone socket**

The microphone supplied with the Barrett 2060 is inserted here.

**Note:-** When the interconnect is supplied it is assembled in the one piece base station configuration and the microphone is already fitted.

**Interconnect cable**

The small interconnect cable supplied in the kit is plugged in here with the other end into the front of the main interconnect module.



- 1 Cable restraints for mic cable ( when not used a rubber seal is provided to blank this access)
- 2 2RJ-45 8 way microphone socket to suit Barrett hand microphone P/N BC200010
- 3 3RJ-45 8 way for remote head interface cable
- 4 Speaker Jack

**2060 Rear panel description**

- |                    |   |   |
|--------------------|---|---|
| <b>SPEAKER</b>     | - | Output for loudspeaker (Barrett P/N: BCA20015)  |
| <b>RS-232</b>      | - | Interface for connecting 2060 directly to a PC for programming and downloading of log information.  |
| <b>BUS</b>         | - | Future expansion port.  |
| <b>AUXILIARY</b>   | - | Used for connecting a second transceiver to the 2060 in a remote RX/TX configuration.   |
| <b>LINE</b>        | - | This RJ11C provides the telephone line connection. This is used by the 2060 when it goes "Online".  |
| <b>PHONE</b>       | - | This RJ11C jack allows the connection of a telephone set (telephone) to 2060. The telephone can be connected to the telephone line when the 2060 is in "Manual" mode, allowing the handset to be used as a standard telephone for receiving and making telephone calls. When the unit is switched to "Online" this jack is disconnected from both the line and the unit until the 2060 goes back to an "Offline" state. |
| <b>POWER</b>       | - | Power input and speaker output for use with the 2022 power supply.  |
| <b>TRANSCEIVER</b> | - | This is the connector for the interface between a transceiver and the 2060. It contains transmit and receive audio and key lines.   |

## Switching on the Interconnect

### Switching on the 2060

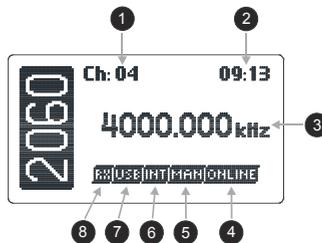
Press  for 1 second turns transceiver on.

### Switching off the 2060

Press  for 1 second turns transceiver off.

After switching on, the 2060 performs a series of internal checks and displays important system information on the front panel display.

## Display



The LCD display shows:-

- 1 Channel number
- 2 Time
- 3 Receive / Transmit frequency
- 4 Online / Offline
- 5 Auto / Manual mode
- 6 Selective call type
- 7 Mode
- 8 RX / TX Mode

## Adjusting the Audio Volume



To increase the audio volume in the loudspeaker



To decrease the audio volume in the loudspeaker

The display looks like this when adjusting the volume:-



## Selecting a Channel

### Using channel Up / Down keys

Pressing the channel up or down key will select respectively the next higher or lower programmed channel. Holding down either of the keys will cause the rate of the channel change to increase.

The channel up/down keys on the microphone have the same function as the channel up/down keys on the keypad.



Channel up



Channel down

**Direct channel number entry**

press the  key



Enter the channel number required using the numeric keys, channel range is from 1 to 9999 inclusive. **Note:- Channel zero cannot be selected.** (example selects channel 12)

press the  **1**  **2** keys



press the  key

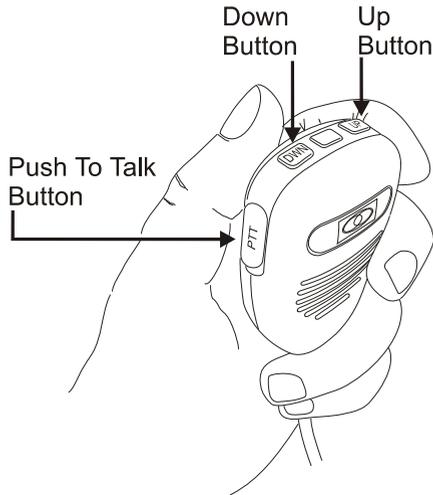


If the channel selected had not been previously programmed then the following is displayed:-



**Note:** Empty channels can only be accessed by direct channel selection and are not displayed when scrolling through channels.

## Using the Microphone



### When using the microphone:-

Press and hold down the PTT (transmit) button only while talking.

Hold the microphone close to your mouth.

Speak clearly.

Use the word 'over' to indicate you have finished speaking and release the PTT (transmit) button.

## 2060 Operating Modes

There are two operating modes available with the 2060 telephone interconnect, one is automatic mode and the other is manual mode. Overviews of both modes follow.

### Automatic Mode Overview

In automatic mode the 2060 can:-

- scan all channels programmed for scan looking for an incoming Selcall, Telcall or ALE call (if ALE is enabled) from an HF network station.
- on receipt of a Selcall, Telcall or ALE call, check that the station calling is registered in the database and has the required access privilege programmed by the system supervisor, if so it then initiates a telephone call and connects the telephone party with the HF station.
- return to scan when the call is complete.
- answer an incoming telephone call, prompt the telephone caller with recorded instructions on how to select a channel and how to send a call to connect to a user on the HF network.
- send periodic beacons. If selected, beacons will be sent on all channels to help the user determine if a particular channel is suitable for communication at the required time. A beacon signal can also be requested from the transceiver being called to check if a particular channel is suitable for use at the required time.

### **Facilities available to the telephone user**

A telephone subscriber using a DTMF telephone can access the following facilities provided by the 2060 telephone interconnect. These facilities are available after the 2060 has answered the call and played its recorded instruction messages. To make a call to a station on the HF network a channel must be selected and the Selcall number of the station required must be entered, after which the 2060 will send the call and if successful an audible reply will be heard from the station being called. If this audible reply (revertive call) is not heard another channel should be selected and the call repeated.

If ALE is enabled the telephone user need only enter the 2 digit ID of the ALE HF station to be called, the ALE system will automatically select the best channel for connection. Once an ALE connection is made a voice annunciation will be heard by the telephone user.

### **Selecting a channel**

The 2060 can store up to 50 channels. These are selected as follows:-

- press the two digits, representing the channel number required, on the DTMF key pad of the phone being used. Valid channel numbers are from 01 to 50. Once the second number is pressed, the request is processed and a stored voice will repeat back the channel number.

**Note:-** channel numbers must be two digits in length. e.g. Enter 03 instead of 3.

**Note:-** once channel entry commences HF receiver noise will disappear until the DTMF function being entered is complete. This lack of HF receiver noise identifies that you are still in the DTMF request sequence.

### **Sending a beacon request**

A beacon request is used to test to see if a channel is "open" to an HF station you may wish to call later with a Selcall. A beacon request does not alert the HF station being called. After the beacon request is sent a confirmation tone (revertive call) will be heard from the HF station, the strength of this confirmation tone (revertive call) indicates the quality of the channel for communication. If no confirmation tone (revertive call) is heard try another channel.

A beacon request can be sent to any HF station that has an access level that allows it to receive Selcalls (access levels are set in the 2060 by the system supervisor and are described in the setup section within this manual).

To send a beacon request, press the '\*'(star) key on the telephone key pad.

If the '\*' key is recognised the receiver noise will disappear. Some DTMF telephones do not send the '\*' and '#' tones. This should be tested before the system is first used.

Then enter the 4 or 6 digit Selcall ID of the transceiver you wish to contact using the telephone key pad. Press the '\*'(star) then the '#' (hash) buttons to send the beacon request. The tones of the beacon request Selcall being sent will now be heard.

To re-send the last sent beacon request, press **\*\*\*** (star twice) on the telephone key pad.

### **Sending a Selcall**

A Selcall is used to call an HF station and alert the operator that you wish to commence communication with that station. After the Selcall is sent a confirmation tone (revertive call) will be heard from the HF station indicating the station has received the call. If no confirmation tone (revertive call) is heard try another channel.

A Selcall can be sent to any HF station that has an access level that allows it to receive Selcalls (access levels are set in the 2060 by the system supervisor and are described in the setup section within this manual).

To send a Selcall, press the **\*\*** key on the telephone key pad.

If the **\*\*** key is recognised the receiver noise will disappear. Some DTMF telephones do not send the **\*\*** and **#** tones. This should be tested before the system is first used.

Then enter the 4 or 6 digit Selcall of the transceiver you wish to contact followed by two **#** key presses (only one **#** press is necessary on Level 1 Interconnects). The tones of the Selcall being sent will now be heard. Note: IDs 9900 to 9999 are reserved for ALE calls. See "Sending an ALE call".

If the entered ID does not have the access level to receive Selcalls then the 'Access Denied' pre-recorded message will be played and the Selcall not sent.

After the Selcall has been sent, if the transceiver with that Selcall ID is on channel, a confirmation tone (revertive tone) will be heard. The telephone user should then wait for the transceiver operator to make voice contact. If no voice contact is made, a telephone number to call back on can be sent to the HF station using the 'Sending a Telcall' procedure.

If no audible acknowledgement tones are heard, the transceiver may be on another channel, or switched off. To try to make contact on another channel, follow the 'Selecting a Channel' procedure, then repeat the 'Making a Selcall' procedure.

If you wish to send the same Selcall number again, press **\*\*\***.

### **Sending a Telcall**

In the event that a transceiver responds to a Selcall, but no voice contact is established, indicating the operator is not available, a ring back telephone number can be sent to the HF station transceiver and stored in its memory. On the HF station operators return he can return the call.

A Telcall can only be made to an HF station that has an access level required for direct dialling on the PSTN.

To send a Telcall:-

- press '\*' followed by the 4 or 6 digit Selcall number, then press '#'.
- enter the desired telephone number (up to 16 digits long) and then press '#' again.
- the Telcall will then be sent and the telephone number will be stored in the HF station transceivers "Selcall history".
- an audible acknowledgement will be heard if the call was successful.

If the HF station does not have the access level required for this operation the 'Access Denied' pre-recorded message will be heard and no action will be taken.

### **Sending an ALE call**

If the optional ALE is fitted, then an ALE call can be made to a transceiver also fitted with ALE.

To send an ALE call using the default Self ID (the default Self ID is the first Self ID in the ALE address list):-

- press '\*' followed by the 2 digit destination ID
- press '#' twice to initiate the ALE call

To send an ALE call using a selected Self ID:-

- press '\*' followed by the 2 digit destination ID
- press '#' followed by the 2 digit ALE self ID
- press '#' again to initiate the ALE call

ALE address lists are stored in the 2050 transceiver that is connected to the 2060 telephone interconnect.

### **Sending a Secure Call**

The telephone user can request a secure voice connection to another HF station via a secure call.

A Secure Call can only be made to an HF station that has at least the Selcall access level enabled.

To send a Secure Call:-

- press '\*' followed by the 4 or 6 digit Selcall number, then press '###' (3 hashes).
- the Secure Call will then be sent to the destination station.
- if the call is successful then a revertive response from the destination station will be heard by the phone user.

To exit Secure Mode:-

- Press '\*\*' (2 stars). This will take the 2060 out of secure mode.

For the Secure Call to work correctly the destination ID must have the correct "Secure" key code assigned to it. Please see "Program Secure Sections" of the manual.

If the HF station does not have the access level required for this operation the 'Access Denied' pre-recorded message will be heard and no action will be taken.

### **Sending a GPS request**

The telephone user can request an HF stations location via a GPS request call.

A GPS request can only be made to an HF station that has at least the Selcall access level enabled.

To send a GPS Request:-

- press '\*' followed by the 4 or 6 digit Selcall number, then press '\*\*' (2 stars).
- the GPS request will then be sent to the destination station.
- if the call is successful the response from the destination station will be announced to the phone user.

If the HF station does not have the access level required for this operation the 'Access Denied' pre-recorded message will be heard and no action will be taken.

### **Using the voice operated switch (VOX)**

The transceiver being operated by the Barrett 2060 telephone interconnect is usually switched between transmit and receive using the telephone subscribers voice to derive the switching signal. This is achieved using a specialised VOX (voice operated switch). If however the telephone is of bad quality then a manual method to switch between transmit and receive is available. To switch to the manual method press "88" on the telephone key pad. The internal synthesised voice will announce "OFF" indicating automatic VOX is off and you are now in a "manual VOX mode". In the manual mode to key the transceiver into transmit press the "#" key on the telephone keypad. When you finish talking again press the "#" key, the transceiver will now be in receive mode. i.e. using the "#" key on the telephone keypad is the similar to the microphone Press To Talk (PTT) button, except it only has to be pressed momentarily to switch between transmit and receive and vice versa.

To return to "automatic VOX mode" press "88" again on the telephone keypad, the internal synthesised voice will announce "ON" indicating automatic VOX is on again.

### **Requesting current channel information**

The telephone subscriber can request the 2060 to announce the current channel's number and frequency information using its internal synthesised voice by entering 77 on their telephone keypad.

### **Turning off Call Timer**

To turn off the call timer enter 66 on the telephone keypad. This will stop the call from timing out. The "Turn Call Timer Off" option needs to be enabled in the 2060 programming software. The 2060 will announce "Call Timer off" when 66 is entered and the option is enabled otherwise "Not Available" will be announced. The call timer is reinstated after the current call has ended.

### **Frequency hopping mode**

The Barrett 2060 interconnect can use the 2050 transceiver's frequency hopping ability to create secure links between the telephone user and the HF station. (Please refer to the 2050 transceiver user manual for more information on frequency hopping).

Before going into hopping mode it is recommended that a call to an HF station is made first. Otherwise once the 2060 is in hopping mode it will not be able to contact another station unless that station is in hopping mode already.

**Entering the hopping prefix code**

The 2060 needs to have a hopping code prefix set. For hopping prefix code entry refer to the "General" section of the Protected Menu.

**To enable hopping mode**

Enter 00 on the telephone keypad.

If the 2050 connected to the 2060 does not have a frequency hopping option fitted the "Not Available" message will be annunciated to the telephone user.

**To disable hopping mode**

Enter 00 on the telephone keypad.

**Requesting 2060 status**

The telephone subscriber can request the 2060 to annunciate the 2060's status information by entering 98 on their telephone keypad.

**Completing a call - "hanging up"**

There are two methods to complete a call or "Hang up":-.

- the fastest and most efficient method is to enter "99" on the telephone keypad. This causes the 2060 interconnect to instantly hang up. The telephone user then replaces the handset on his telephone. The 2060 interconnect is now immediately ready for the next caller. A busy tone is transmitted out to the radio operator as well to show that a hang up from the phone has been received.
- the second method is to simply hang up the telephone handset. (See "Cadence Settings - Set Country Cadence" section to set correct busy cadence setting). On some occasions the 2060 may not detect the telephone subscriber has "hung up" due to poor quality telephone line signals in some countries. The 2060 in this case will either respond to a "BUSY" signal from the telephone system and then hang up or will time out due to lack of activity. Which ever is the case whilst the 2060 is waiting to hang up, the system is not available for use and the last caller will be charged extra time on his call. Thus the first method is always preferable.

**Facilities available to the HF station**

For more detailed information on how to call the interconnect using Barrett 500 series, 900 series or 2000 series transceivers refer to the relevant transceiver operation manuals.

**Sending a beacon request**

To receive a beacon revertive from the 2060 interconnect, send a Selcall to the ID xx99, where xx is the self ID of the interconnect (for 6 digit calls us xxxx99 where the ID of the interconnect is xxxx). For example, Selcall 4599 will receive a beacon revertive from the interconnect with self ID of 45.

**Sending a Selcall - dialling a preset phone number**

To dial one of the interconnect preset phone numbers (0-98), send a Selcall to the interconnect with the preset number to dial. For example, Selcall 4501 will dial preset number 1, Selcall 4587 will dial preset number 87 etc, on a 2060 interconnect with Self ID of 45. In a 6 digit call the pre-dialled numbers are still the last 2 digits (ie: 123404 will dial pre-dial number 04).

The HF station sending the Selcall must have a relevant access level assigned to their Selcall number to permit dialling to a preset phone number.

**Sending a Telcall - dialling a telephone number**

To make a telephone call, enter the self ID of the 2060 to be used via the numeric key pad.

Refer to the relevant transceiver manual on sending Telcalls from the transceiver. All of the information needed by the 2060 to connect the transceiver to the required telephone number is sent to the 2060 along with the Selcall information.

**Terminating a call**

When a call has been completed, the caller must hang up by sending a "hang up" code to the 2060. Or, by the phone user entering "99" from the telephone keypad.

**Sending an ALE call**

ALE calls may be sent to Interconnects fitted with the ALE option. The transceiver must also be fitted with an ALE option.

Please refer to the Barrett transceiver user manual for information on ALE calling.

## Manual Mode Overview

In manual mode the 2060 interconnect will act as an HF base station and:-

- enable the operator to send Selcalls and ALE calls to stations on the HF network.
- enable the operator to send Telcalls to stations on the HF network.
- receive incoming Selcalls from the HF network and manually forward the call to the preset telephone number within the 2060 that is associated with Selcall number received.
- receive incoming Telcalls from the HF network and forward these manually to the telephone network.
- receive incoming telephone calls and connect the telephone user to the HF network.

To operate the 2060 in manual mode, press the  button for 2 seconds until the "MAN" icon is shown on the display status line.

**NOTE:-** If ALE is enabled then Selcalls and Telcalls can only be made from the front panel of the 2060 when the 2060 is **not** in scan.

**Receiving a preset telephone number Selcall from an HF station**

On receipt of a Selcall directed to your 2060, it will be displayed on the front panel and an alarm will sound.

**Receiving a preset telephone number ALE call from an HF station**

On receipt of a preset ALE call directed to your 2060, it will be displayed on the front panel and an alarm will sound.

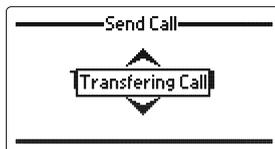
**To on-forward the call**

To on-forward the call to the preset telephone, stored in your 2060 and associated

with the received preset number, press the  key. The 2060 will display the transfer call window.



press the  key or the  key. The 2060 will now attempt to go online and dial the requested phone number.



Call is being prepared for dialling



2060 is checking for dial tone



Dial tone is available so the 2060 will now attempt to dial the preset telephone number



Once the number is dialed and answered the 2060 shows the call length in the bottom right hand section of the screen. This means that the HF transceiver and the telephone user are now able to communicate to each other.

### Receiving a Telcall from an HF station

On receipt of a Telcall directed to your 2060, it will be displayed on the front panel and an alarm will sound.



### Receiving a telephone number ALE call from an HF station

On receipt of a telephone number ALE call directed to your 2060, it will be displayed on the front panel and an alarm will sound.



### To on-forward the call

To on-forward the call to the PSTN, press the  key, then follow the same steps as the "Receiving a preset telephone number Selcall from an HF station" section to connect the HF user and the telephone user.

### Incoming phone calls

When the 2060 is in 'Manual' mode, all incoming telephone calls are ignored. They are recognised but not answered. A standard telephone should be connected to the "Phone" socket on the back of the 2060, the call can then be manually answered by the operator. The operator can then Selcall the required HF station using the manual operator's control menu. Once contact is established, the telephone caller is connected to the HF station by placing the 2060 "On Line". To do

this press the  key for 2 seconds.

**Completing the call - "hanging up"**

- The HF user can send a "Hang-up Request" (see the transceiver operation manual for details). When received by the 2060 an alarm will sound and a confirmation screen will be displayed.



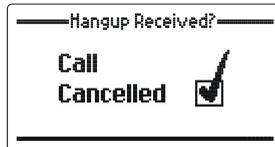
Use the **Scroll keys** to select "Yes" or press the



key to allow the call to continue.



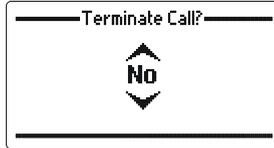
Press the key to cancel the call



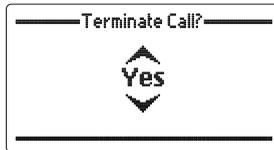
- from the telephone:-
  - the telephone user can request a "Hang-up" by entering '99' on their DTMF telephone handsets. This will cause immediate call completion.
  - the telephone user can simply replace the phone to complete the call, the subsequent service tones from the telephone network will result in call completion. **Note:-** the service tones do not commence immediately the telephone receiver is replaced so extra time will be logged against the call using this method.

- the 2060 operator can terminate the call by doing the following:

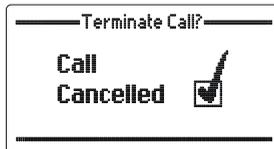
Press the  key to bring up the terminate call screen



Use the **Scroll keys** to select "Yes"



Press the  key to cancel the call



### **Making a telephone call**

A standard telephone should be connected to the "PHONE" socket on the back of the 2060. This can now be used like a standard telephone to make and receive telephone calls.

**Contacting another station - using selective call Selcall, Telcall or ALE Calls**

The calling systems available for the Barrett 2060 telephone interconnect are listed below:-

**International**

A four and six digit selective call system, fully interoperable with the UN format published in September 2004 and fully backwards compatible with all previous Barrett 4 digit Selcall protocols. Includes Selcall, Beacon Call, Pagecall (SMS) call and GPS request calls.

**OEM**

A four and six digit selective call system compatible with other major HF manufacturers including those using encryption. Includes Selcall, Telcall, Beacon Call and GPS request calls.

**CCIR**

A four digit selective call system as specified by CCIR-493. Includes Selcall, Telcall, Beacon Call and GPS request calls.

**Selective call - Selcall**

Selcall is a digital signalling system based on standard CCIR-493 for use on HF networks. Each station in an HF network is assigned an individual four or six digit ID (identification) and can be called using this ID.

**Selective call - Telcall**

Telcall uses this digital selective call system to transport a telephone number from the telephone interconnect unit to a station on the HF network to store a telephone number for the HF station to call back later.

**Station ID ranges****4 and six digit networks are all accommodated in the 2050 standard Selcall system**

Station ID range from 000000 to 999999 inclusive (the destination ID **must** be either 4 or 6 digits long)

**ALE Fed Std 188/Mil Std 188-141B**

The Barrett 2000 series ALE option provides complete inter-operability as required by FED-STD-1045 and U.S. MIL-STD-188-141B standards.

This is only available if the transceiver connected to the 2060 Interconnect has the ALE option fitted.

**ALE system overview**

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

Barrett 2060 Telephone Interconnects equipped with an ALE option can automatically scan a pre-selected set of channels, listening for ALE calls. If sounding is selected the 2060 will at periodic intervals send out "sounding calls" for other stations to receive. The 2060 will also receive "Soundings" from other ALE equipped 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 2060 ALE setup is controlled by the transceiver that is connected to it. The transceiver's ALE controller memory stores up to 10,000 sets of LQA information, 100 channel configurations, up to 20 self-address configurations and up to 100 other address configurations.

**ALE operation overview**

The ALE network parameters are determined by a network supervisor, this person programs the transceiver connected to the 2060 with the required addressing and channel information using the ALE fill program within the Barrett 2000 Series Transceiver Programming software. This is a PC based program used to transfer pre-determined network information into each transceiver. 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 an ALE call sequence.

The 2060 can only enable and disable ALE, it cannot change ALE system parameters. If ALE is enabled an icon will be shown on the display:



**Checking for the best channel to use between two stations - Beacon Call**

Before using many of the Selcall and Telcall functions in this section it is useful to know how to use the "Beacon Call" function.

When is fitted Beacon Calls are not required as the ALE system uses automatic "Soundings" to update channel signal quality information. This allows the ALE to automatically select the best channel for establishing a link on. When the 2060 is doing a sounding a message will appear on the display.



"Beacon Call" allows the operator to determine the signal quality between their interconnect and a station on a particular channel and vice versa.

When a Beacon Call is sent to another station, if the channel being used is "open", the remote station sends back a distinctive 4 tone reverberate signal. The operator can judge the quality of the channel for communications purposes by the strength and clarity of this distinctive tone. Using Beacon Calls on several available channels will determine which channel is best to use subsequent Selcalls or Telcalls

(Note:- both stations must be programmed for Selcall or Telcall operation)

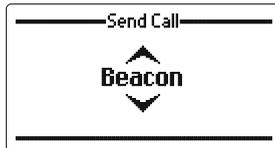
**Sending a Beacon Call**

select the channel you think will be best to use (Refer to section Overview of HF operation)

listen for traffic on that channel, if no traffic is heard then continue

then press the  key

select "Beacon Call" with the scroll keys



then press the  or the  key

enter the station ID of the station you wish to Beacon Call

then press the  or the  key

the display will look as follows:



wait for the Beacon Call to be sent.

listen for the distinctive 4 tone reverive signal from the station you have called.

If no reverive call is heard or it was difficult to hear try another channel and repeat the process until the best channel is found.

### **Receiving a Beacon Call**

When an interconnect receives a beacon request call, it responds by transmitting the Beacon Call reverive tones.

### **Sending a Selcall**

select the channel you want to send the Selcall on ("Beacon Call" can be used to select the best channel)

listen for traffic on that channel, if no traffic is heard then continue

then press the  key

select "Selcall" with the scroll keys



then press the  key or the  key

enter the station ID of the station you wish to call

then press the  key or the  key

the display will show as follows



wait for the selective call to be sent.

listen for revertive tone from the called station that indicates the call was successful.

If no revertive tone is heard or it was difficult to hear try another channel and repeat the process until a good channel is found.

If a revertive tone is heard but you receive no verbal response from the station it may be because the operator is unavailable at the time.

### Receiving a preset phone number Selcall

When the 2060 receives a Selcall (with a valid preset number as the destination ID), the interconnect transmits a revertive tone (to alert the calling station that its call was received) and the display shows the call as follows:-

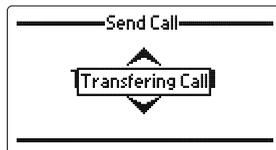


The audible alarm will sound for thirty seconds and then time out. To cancel the alarm before the time out period press PTT or any key other than the  key.

To dial the preset number press the  key to show the "Send Call" menu. The transfer call option will now be shown:



Press the  key or the  key to begin the dial process:



The 2060 will look for dial tone; if no dial tone is seen then an error will appear:



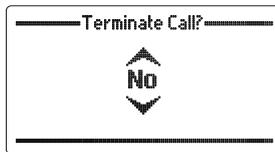
If the 2060 does see dial tone it will attempt to dial the assigned telephone number:



Once the number is dialled and answered the 2060 will be online:



To end the phone call press the  key. This will bring up the terminate call menu:



Selecting "Yes" will force the 2060 to disconnect the telephone user.

**Direct dial telephone calls - Telcalls**

Transceivers equipped with the Telcall option can direct dial telephone numbers and receive calls from telephone users through the 2060 telephone interconnect.

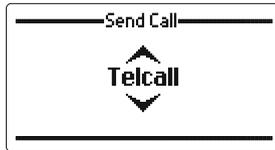
**Making a direct dial telephone call - sending a Telcall**

select the channel you want to send the Telcall on ("Beacon Call" can be used to select the best channel)

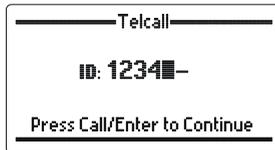
listen for traffic on that channel, if no traffic is heard then continue.

press the  key

select "Telcall" with the **Scroll keys**



then press the  key or the  key



enter the Selcall ID of the destination station

then press the  key or the  key



enter the telephone number you want to call

then press the  key or the  key twice

wait for the Telcall to be sent

the display will show as follows



listen for revertive tone from the called station that indicates the call was successful

If no revertive call is heard try another channel and repeat the process

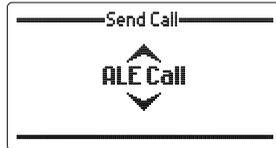
When the call is successful wait for telephone connection to be made and proceed with call

**Making ALE calls**

If the ALE option is available for the 2060 then the operator can establish ALE links from the front panel of the 2060.

press the  key

select "ALE Call" with the **Scroll keys**



then press the  key or the  key



use the scroll keys to select the destination station

then press the  key or the  key



use the scroll keys to select the 2060 self ID station to use

then press the  key or the  key to start the ALE link attempt.



Once an ALE link is established any invalid key presses will make a message appear on the 2060 display.



**Disconnecting ALE calls**

press the  key.



use the scroll keys to select "Terminate All Links"



then press the  key or the  key



## Scanning

Scanning allows the telephone interconnect to monitor several channels for incoming calls. It is particularly useful as the nature of HF signal propagation means that not all channels are available for communications at one time. For instance, a station calling an interconnect that is scanning can send a "Beacon Call" on any channel knowing the interconnect it is calling is monitoring all its available channels. A response from the scanning interconnect will only occur on channels that are "open" for communication.

Scanning is also essential for systems that are using ALE. ALE requires continuous frequency quality analysis for the network to operate at its optimum. This is done by using "Sounding" calls at set intervals on each ALE channel as set up in the transceiver.

### Selcall Scanning

When a Selcall signal is detected, no matter which mute type is selected the transceiver will stop scanning and decode the Selcall. The interconnect will only stop scanning when a Selcall is detected.

### ALE / Selcall Scanning

When an ALE signal is detected, no matter which mute type is selected the transceiver will stop scanning and attempt to decode the ALE call. In this mode the interconnect will also stop when Selcall signals are detected.

**Note:** For Selcall tones to be decoded successfully when ALE is enabled the ALE needs to be set up to scan at a rate of 2 channels per second not 5 channels per second. (Refer to programming transceiver guide)

### Initiating scan

Press the  key.

Alternatively scan may be programmed as a default condition so when the 2060 interconnect is switched on, scan is automatically initiated, or after a period of inactivity, i.e. no key presses, it will return to scan.

When in scan mode the 2060 display will show the scan icon.



Scan with no ALE



Scan with ALE

## Mute (squelch) Selection

The 2060 can be muted during scan only or can be muted in scan and while monitoring a single channel.

### Front panel mute

The 2060 can be muted and un-muted via the front panel  key.

### Scanning – Auto Mode

The 2060 stays muted until a call is received. Once the call is completed the 2060 goes back into mute and starts scanning again.

### Scanning – Manual Mode

The 2060 stays muted until a call is received. After the call has been completed the 2060 will stay un-muted and will not go back into scan.

### Single Channel Monitoring – Auto Mode

The 2060 stays muted until a call is received at which point the 2060 will un-mute. It will go back into mute after the call is completed.

### Single Channel Monitoring – Manual Mode

The 2060 stays muted until a call is received at which point the 2060 will un-mute. It will not go back into mute after the call is completed.

### Scan mute

Scan mute is enabled and disabled through the protected menu. See “Scan Settings - Scan Mute” section of the manual.

### Scanning – Auto Mode

The 2060 stays muted until a call is received. Once the call is completed the 2060 goes back into mute and starts scanning again.

### Scanning – Manual Mode

The 2060 stays muted until a call is received. After the call has been completed the 2060 will stay un-muted and will not go back into scan.

### Single Channel Monitoring – Auto Mode

Scan mute has no effect in single channel monitoring.

### Single Channel Monitoring – Manual Mode

Scan mute has no effect in single channel monitoring.

## Mode Selection

The mode key changes the mode of operation - LSB, USB or AM of the selected channel. The mode key will only temporarily set the mode for a selected channel, the mode reverting to that channel's programmed mode after the channel is changed, or the interconnect is turned off.

Press the  key repeatedly to select the required mode:-



## Advanced Selective Call Functions

### Requesting a station's GPS position

select the channel you want to send the GPS request call on ("Beacon Call" can be used to select the best channel)

listen for traffic on that channel, if no traffic is heard then press the



select "GPS Request" with the **Scroll keys**



then press the  key or the  key



enter the identification of the station you want to request the GPS position from.

then press the  key or the  key twice



Wait for the station you called to send back its position data after which the following will be displayed:-

The remote transceiver GPS position:-

—GPS Information—  
**Lat: 32°05.727S**  
**Long: 115°48.044E**

or the following error messages:-

—GPS Information—  
**GPS Unresponsive**  
**at Remote Station**

The GPS unit is not providing data to the remote transceiver

—GPS Information—  
**GPS Not Fitted**  
**at Remote Station**

There is no GPS unit fitted to the remote transceiver

—GPS Information—  
**No Response from**  
**Remote Station**

There was no response from the remote station

# Menu Functions

## Menus

The menu is divided into two sections, the “Standard Menu” and the “Protected Menu”. Both sections are used to set or display transceiver parameters. The “Standard Menu” is available directly to operators as no critical operation parameters can be changed in this section.

The “Protected Menu” has some critical parameters and needs the operator to press the menu key for two seconds to enter it.

**Note:-** Menu items in both menus can be barred from use, if operationally required, by using Barrett 2060 PC based supervisory software.

### Navigating the menus

All sections of the Menus are operated using the similar key press sequences. In this section when describing the functions available in the Menu system it is assumed the operator is familiar with the following:-

press the  key to enter the “Standard Menu” section

press the  key **for more than 2 seconds** to enter the “Protected Menu” section

use the **Scroll keys** to select the menu item you require.

then press the  key

Once in the menu item, again use the **Scroll keys** to select a parameter or enter a value using the numeric or alpha key.

When you have the parameter or value required press the

 key

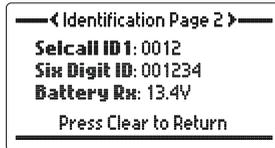
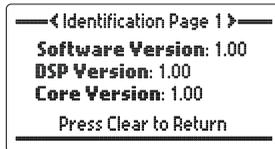
**Note:-** Due to network operation requirements access to items in the Standard Menu or Protected Menu may be barred by network administrators during programming.

## Standard Menu

### Identification



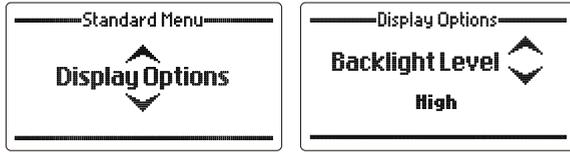
Use the  and  keys to scroll back and forth through the identification pages:-



Displays the telephone interconnects software version, DSP version, core version, the interconnects Selcall IDs, and the battery voltage in receive.

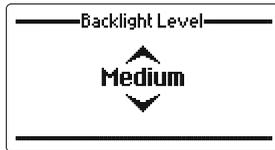
**Display options**

**Backlight level**



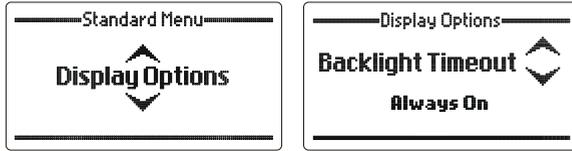
Allows the backlight level on the LCD display to be adjusted to one of three viewing levels:-High, Medium or Low.

Use the **Scroll keys** to select the level required (example Medium):-



when the level required is displayed press the key



**Backlight timeout**

Allows the backlight timeout time to be set so the backlight stays on for a short time from the last key press, for a long time from the last key press or so that the backlight is permanently on or off.

Use the **Scroll keys** to select the required setting (example "Always on"):-



When the setting required is displayed press the key



## Protected Menu

To enter the protected menu press and hold the  for approx. 2 seconds.

### General

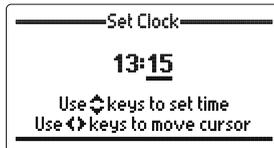
#### Setting the clock



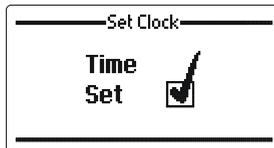
press the  key



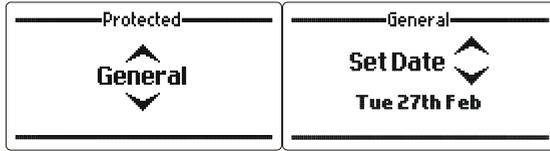
Use the **Scroll keys** to set the current time, for example 13:15 (1:15 PM):-



When time is set press the  key.



Setting the date



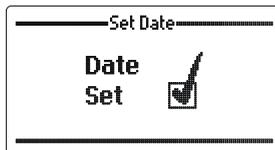
press the  key

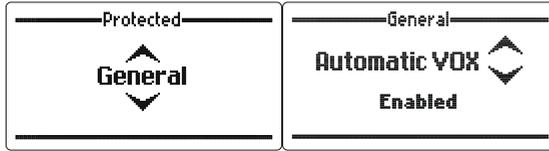


Use the **Scroll keys** and as shown on the screen to set the current date for example 13 March 2007:-

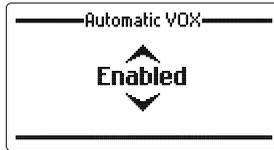


When date is entered press the  key

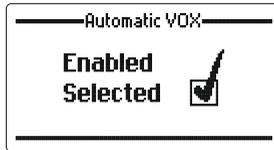


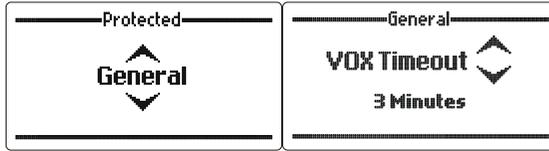
**Automatic VOX**

This section allows the automatic VOX to be enabled or disabled-

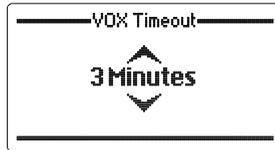


Use the **Scroll keys** to select the required setting. When the required setting is displayed press the  key



**VOX Timeout**

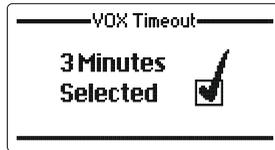
This section allows the VOX timeout to be set. The VOX timeout will stop the VOX from continuously transmitting if the VOX sensitivity has been set too high -

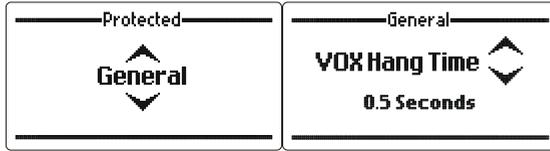


When the VOX timeout value is displayed press the



key



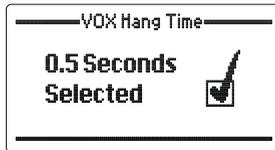
**VOX Hang Time**

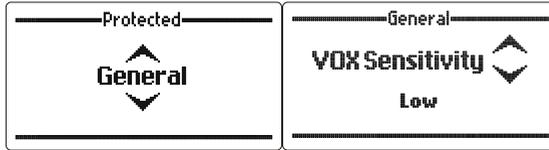
This section allows the VOX hang time to be set. The VOX hang time sets the length of time the VOX will stay on after a voice signal is finished, this will help with voice continuity in environments where voice signal burst are very short -



When the VOX timeout value is displayed press the

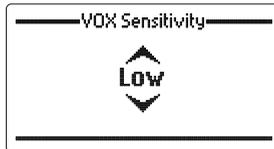
key



**VOX Sensitivity**

This section allows the VOX sensitivity to be set. The VOX sensitivity setting can help the VOX transmit voice signals in very noisy or weak RF environments. Settings available are :-

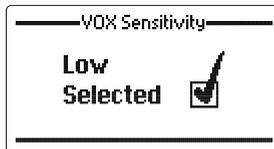
- Low - This makes the VOX less sensitive. Used where voice signals are high and noise levels are very low.
- Medium - This is the standard VOX setting, used where voice levels are stronger than noise levels.
- High - This makes the VOX more sensitive. Used where voice signals are low and noise levels are high.



When the VOX required sensitivity level is displayed press the

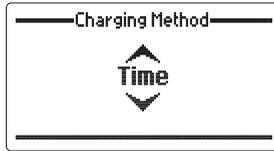


key

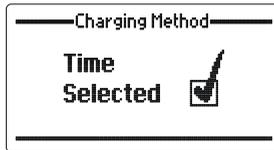


**Charging Method**

This section allows the call charging method to be set. This is used to calculate charges for phone calls. Done either by a time connected method or using the different types of PSTN charging pulses that are generated on the phone line by some telephone exchanges. -



When the VOX timeout value is displayed press the key



### Hopping Prefix



This section allows the interconnects hopping prefix to be set. This is used during secure calls between HF stations and telephone subscribers -

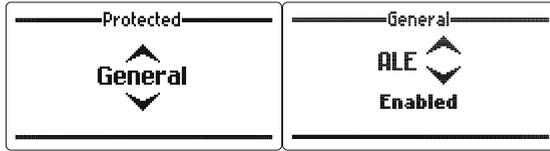


When the hopping prefix has been entered press the

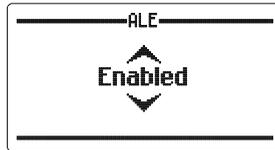


key



**ALE**

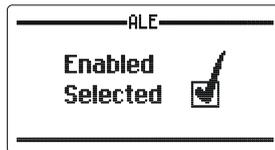
This section allows the operator to enable and disable the ALE functionality of the 2060. This menu is only available if the transceiver connected to the 2060 has got the ALE option fitted.



When required ALE state has been entered press the



key



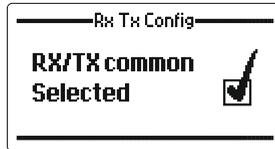
**Audio settings****RxTx configuration**

This setting tells the 2060 if the installation is for use in a local transceiver configuration or a local receiver remote transceiver configuration. Normally this is set to "RX/TX common".

Use the **Scroll keys** to select setting required (example shows "RX/TX Common"):-



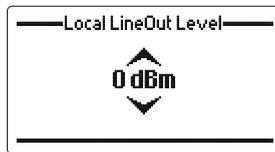
press the  key



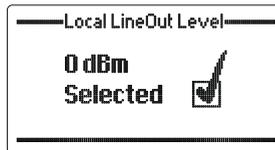
**Local line out level**

This section sets the transmit audio level to the local transceiver, 0dB is the default.

Use the **Scroll keys** to select setting required (example shows "0 dBm"):-



press the  key

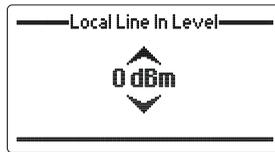


Local line in level

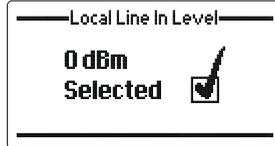


Sets the receive audio level from the local transceiver, the lower the level the higher the line amplifier gain.

Use the **Scroll keys** to select the Line in level required (example "0 dBm"):-



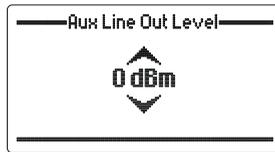
press the  key



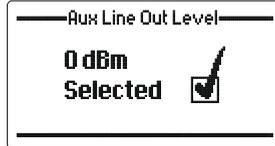
**Aux line out level**

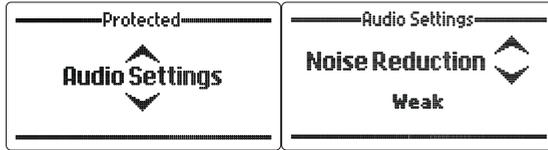
This section sets the transmit audio level to the auxiliary connector, 0dB is the default.

Use the **Scroll keys** to select the level required (example "0 dBm"):-



press the  key

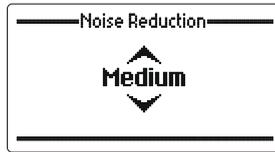


**Noise reduction**

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.

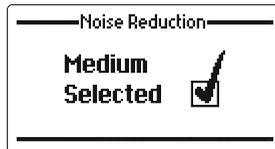
press the  key

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



When the noise reduction required is displayed press the

 key



### Phone line set up procedure

The 2060 has two inbuilt digipots which allow the operator to calibrate the phone line levels during initial installation.

At this point it is important to note that incorrect set up of the line level in and out will potentially cause the VOX and DTMF to incorrectly operate whilst also compromising the performance of the cadence detector.

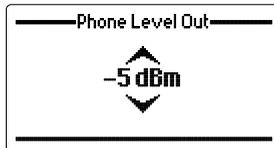
### Phone Level Out



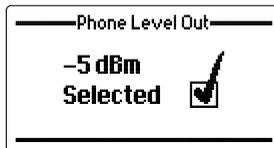
The audio level to line is set up in this menu. This level can be increased up to 0dBm for phone lines with loss. Typically, this level can be set to -5dBm for most lines.

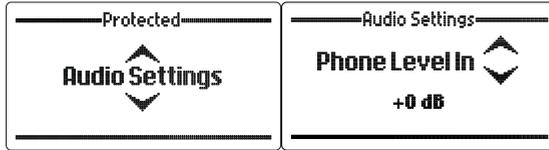
press the  key

Use the **Scroll keys** to select the level required (example “-5dBm”):-



When the level required is displayed press the  key

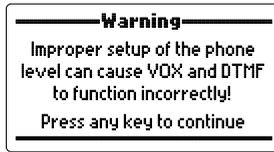


**Phone Level In**

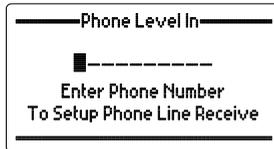
This allows adjustment of the phone line level in. This can only be done with nominal audio levels being received whilst the 2060 is on line. It is thus recommended that the operator ring the same number the 2060 is connected to and utilise the busy cadences to correctly adjust the level.

press the  key

The "Phone Level In" warning screen will be displayed.



press any key to continue



enter the telephone number you want to call (usually the same number that the 2060 is connected to) then press the

 key



The 2060 will show an error screen if No dial tone is detected.



Otherwise the number entered will be dialed, after the number is dialed the "phone level in – Rx Level" setup screen will be shown.



Adjust the receive gain by using the left and right arrow keys, level should be set within the "Ideal" area. Once the correct level has been



set press the key.

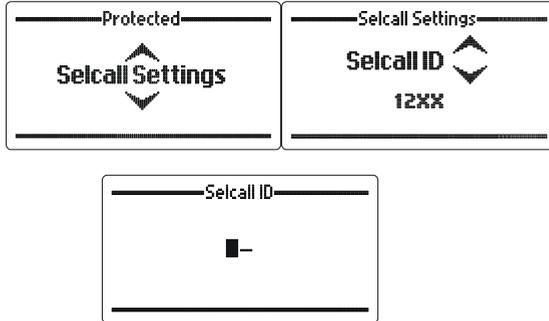
This will save the level.



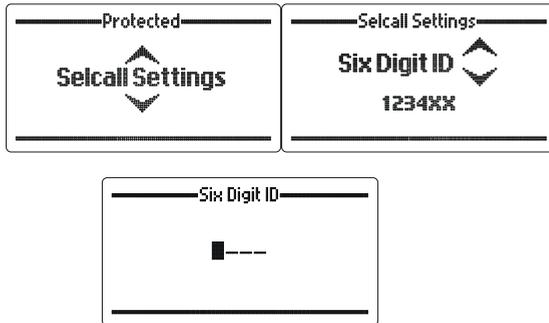
**Selcall settings**

Two different selective call IDs can be set within the Barrett 2060 telephone interconnect as follows:-

**Selcall ID – Setting 4 digit Selcall self ID**



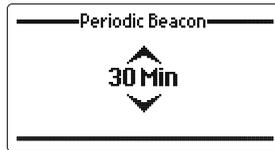
**Setting Six Digit ID – Setting 6 digit Selcall self ID**



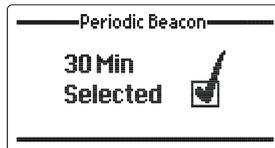
**Periodic beacon**

The periodic beacon feature of the 2060 telephone interconnect allows beacon tones to be transmitted by the interconnect at a set period of time on each programmed channel. This gives HF station operators the ability to know if an interconnect is available and also signal quality. The period can be set from 1 to 60 minutes at intervals of 1 minute, or the beacon can be disabled.

Use the **Scroll keys** to select the setting required (example shows selection of periodic beacon every 30 minutes):-



press the  key

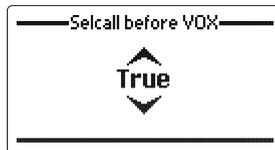


**Selcall before Vox**

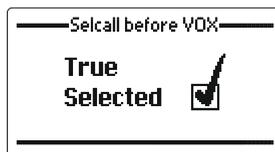
The Selcall before vox feature of the 2060 telephone interconnect allows the telephone operator to begin voice communications with the HF network immediately without having to send a Selcall first. There are 2 settings available:

- True - This requires a Selcall to be sent before the telephone operator can transmit into the HF network,
- False - The telephone operator can transmit into the HF network as soon as the 2060 answers an incoming phone call.

Use the **Scroll keys** to select the setting required (example – “True” - make the telephone operator send a Selcall before allowing transmit):-



press the  key

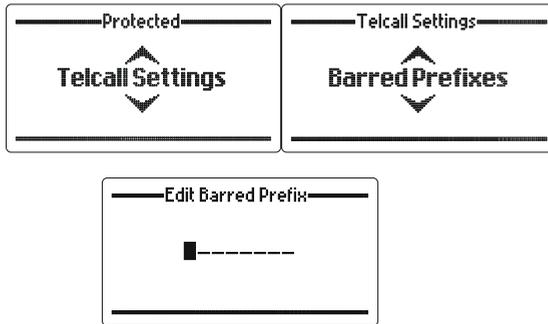


### Telcall settings

Three different Telcall settings can be set within the Barrett 2060 telephone interconnect as follows:-

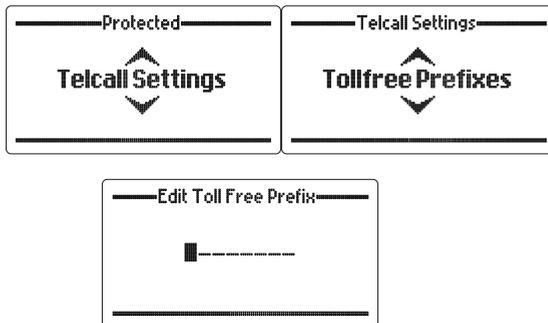
#### Barred prefixes

Barred prefixes are used to disable HF stations from making telephone calls to phone numbers beginning with the barred prefix. Up to 10 different prefixes can be specified with each having up to 8 digits.



#### Toll-free prefixes

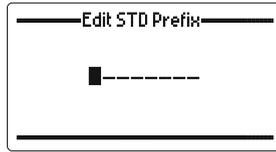
Toll-free prefixes allow phone numbers with the specified prefix to be treated as a toll free number for charging purposes.



**STD prefixes**



STD prefixes define which phone numbers are treated as STD numbers based on the selected prefix.



Phone settings

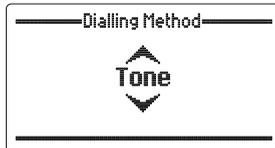
Dialling method



Dialling method selects whether the telephone exchange uses pulse or tone dialling.

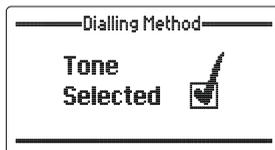
press the  key

Use the **Scroll keys** to select the dialling method to be used required (example "Tone"):-



When the dialling method required is displayed press the

 key



**NOTE:** Pulse dialling is not available when Australian ring and busy cadences are selected.

Dial tone wait



This is the period to wait for before determining if a dial tone is present. The time is measured in seconds. Dial tone checking can also be disabled.

press the  key

Use the **Scroll keys** to select the time to wait for dial tone to be seen (example "4 seconds"):-



When the dial tone wait time required is displayed press the

 key



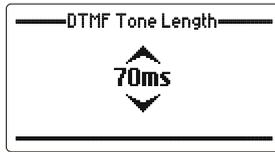
DTMF tone length



This is the length of one DTMF tone. This is only effective when tone dialling is selected. The time is measured in milliseconds.

press the  key

Use the **Scroll keys** to select the DTMF pulse length to be seen (example "70 milliseconds"):-



When the DTMF pulse length required is displayed press the

 key



**Wait for ring**



This sets the amount of time to wait for the first ring, when dialling out, before deciding the call is valid. Time is in 10 second intervals.



press the key

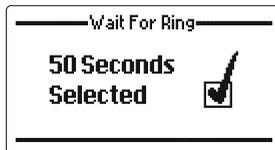
Use the **Scroll keys** to select the time to wait for a ring detect to be seen (example "50 seconds");-

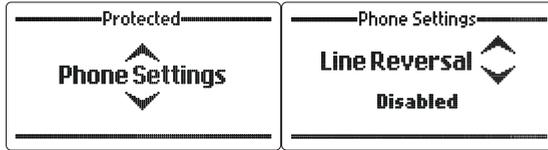


When the wait for ring time required is displayed press the



key

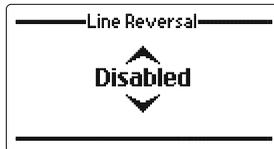


**Line reversal**

Line reversal detection is a means of detecting when the phone is answered or engaged when an outgoing phone call from the 2060 is made instead of using the line cadences. To use "line reversal detection" the phone line the 2060 is connected to must have this facility fitted. You should request this facility from your local supplier.

press the  key

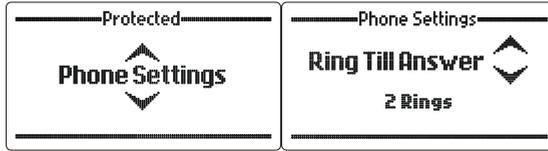
Use the **Scroll keys** to select line reversal detection (example "Disabled"):-



When the correct line reversal setting is displayed press the

 key



**Ring till answer**

This option sets the number of rings before the 2060 will answer. This is used in Auto mode.

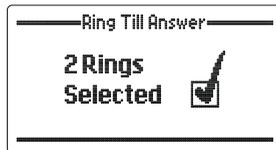
press the  key

Use the **Scroll keys** to select number of rings before answering the incoming call (example "2 rings"):-

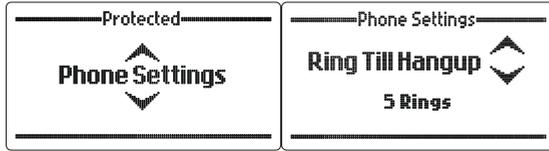


When the correct number of rings is displayed press the

 key



Ring till hang-up



This option sets the number of rings the 2060 will wait for before determining the number dialed is not going to answer.

press the  key

Use the **Scroll keys** to select number of rings before hanging up (example "5 rings");-



When the correct number of rings is displayed press the

 key



Call length



The interconnect can restrict the length of phone calls so as to allow other people the use of the interconnect. Call length is set in minutes from 1 to 60 or unlimited.

press the  key

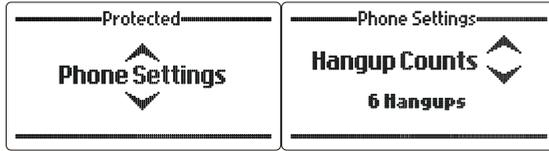
Use the **Scroll keys** to select maximum allowed call length (example "30 minutes"):-



When the required call length is displayed press the  key



Hang-up counts



This option will set the number of busy cadences that need to be received before the interconnect hangs up.

press the  key

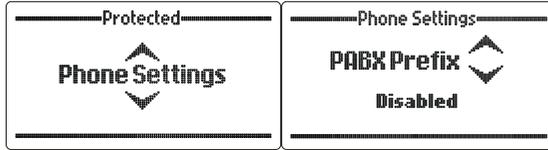
Use the **Scroll keys** to select number of busy tones required before hanging up the call (example "4 hang-ups"):-



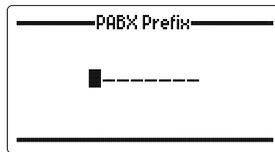
When the correct number of hang-ups is displayed press the

 key

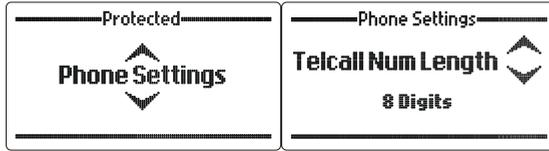


**PABX prefix**

This option dials a prefix before dialling an out-going phone number. This is used by some PABX systems to obtain an external line. Up to eight digits can be entered. Entering no digits disables the PABX prefix.



Telcall num length

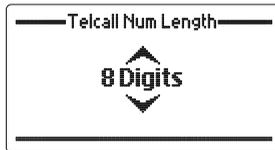


This option will set the number of phone digits that designates a local call (non STD). Six to ten digits can be selected.



press the key

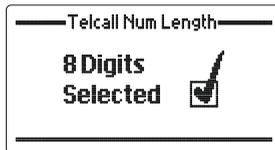
Use the **Scroll keys** to select local telephone number length (example "8 digits"):-



When the required local telephone number length is displayed



press the key



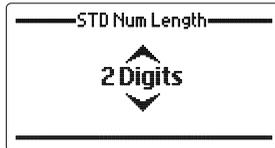
STD num length



This option will set the number of prefix digits required to calculate if the telephone number dialled is in fact a STD number. One to four digits can be selected.

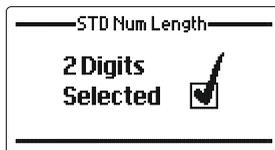
press the  key

Use the **Scroll keys** to select the STD prefix length (example "2 digits"):-

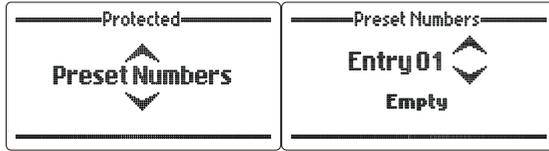


When the required STD telephone number prefix length is

displayed press the  key



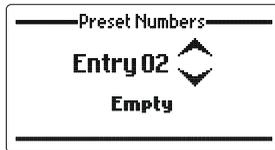
Preset numbers



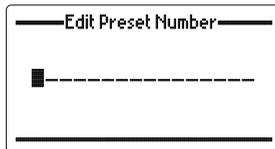
This option allows the operator to setup the preset phone numbers used. Up to 98 preset telephone numbers can be assigned. Each entry in the preset numbers menu corresponds to the last 2 digits of the 2060's Selcall ID. Each preset number can be up to 16 digits long.

press the  key

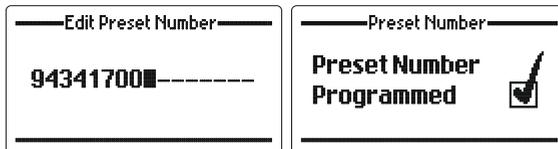
Use the **Scroll keys** to select the preset number address to edit (example "Entry 02"):-



When the required STD telephone number prefix length is displayed press the  key



Enter the required preset telephone number then press the  key.



## Cadence Settings

### Set country cadence



This feature automatically sets the ring and busy cadences in the 2060 based on the country selected.

press the  key

Use the **Scroll keys** to select the required country (example "United States"):-



When the required country is displayed press the  key

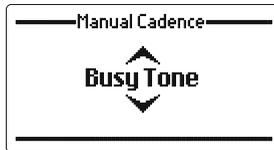


**Manual set cadence**

This feature allows the operator to manually enter the busy and ring cadences on non-country specific telephone networks. All tones can be set from 0 to 9999 milliseconds. Busy tones let the operator set the busy on and off times, ring tone allows the operator to set 2 on tone lengths and 2 off tone lengths. The example below will set up a busy on tone length.

press the  key

Use the **Scroll keys** to select either the busy tone or the ring tone (example "Busy Tone"):-



When the tone to be set is displayed press the  key.

Use the **Scroll keys** to select either the busy on tone or the busy off tone (example "Busy On"):-



Press the  key



Enter the required busy on time in milliseconds then press the  key.

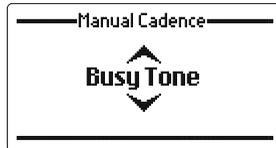


**Learn cadence**

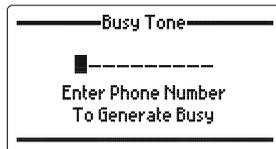


This feature allows the 2060 interconnect to learn busy and ring cadences on non-country specific telephone networks by sampling on line signals. The 2060 allows the operator to enter telephone numbers to dial so that ring and busy signals can be sampled. For the 2060 to operate at optimal level the busy and ring tones generated from the dialled numbers must be correct.

**Busy tone**



Press the key to enter the learn busy tone option.



Enter the phone number to dial.

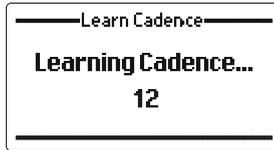


Press the key.

The 2060 will now look for dial tone.



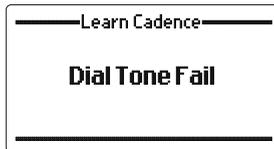
Once dial tone is detected the 2060 will dial the telephone number entered and begin learning the busy tone.



The learning phase takes 15 seconds then the cadence values are stored.



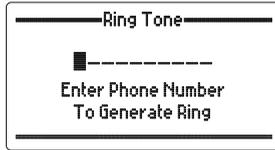
If dial tone is not detected an error will be shown.



Ring tone



Press the key to enter the learn ring tone option.

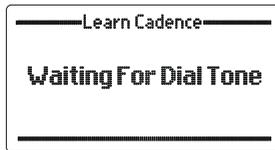


Enter the phone number to dial.

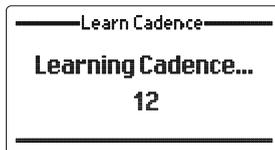


Press the key.

The 2060 will now look for dial tone.



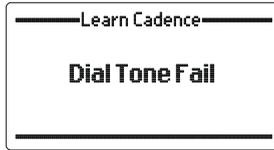
Once dial tone is detected the 2060 will dial the telephone number entered and begin learning the ring tone.



The learning phase takes 15 seconds then the cadence values are stored.



If dial tone is not detected an error will be shown.



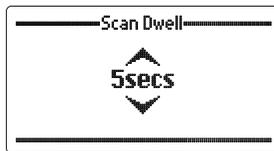
## Scan Settings

### Scan dwell

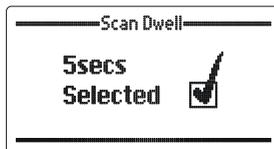


Selects the length of time the 2060 dwells (waits) on a channel after scan has been stopped after a Selcall signal has been detected. The dwell time can be set from 1 to 10 seconds.

Use the **Scroll keys** to select the scan dwell time required (example 5 seconds):-



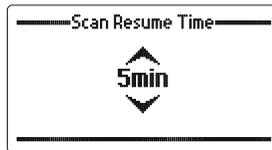
When the setting required is selected press the **ENTER** key



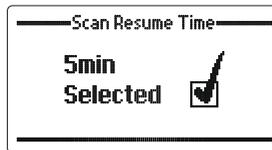
**Scan resume time**

This section sets the time period after which the 2060 will automatically resume scanning from the last operation i.e. key press or PTT. The scan resume time period can be set between 1 and 30 minutes or it can be disabled.

Use the **Scroll keys** to select the scan resume time required (example 5 minutes):-



When the setting required is selected press the  key

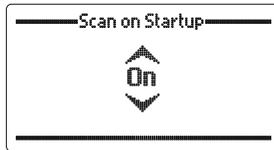


Scan on start-up



This option sets whether or not the 2060 will resume scanning after a power down.

Use the **Scroll keys** to select the scan on start-up (example "On")



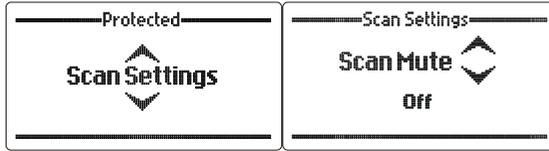
When the setting required is selected press the



key

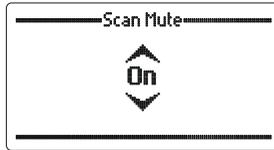


Scan mute



This option sets whether or not the 2060 will be muted during scan.

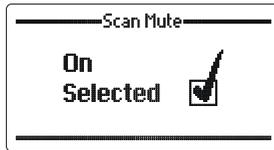
Use the **Scroll keys** to select the scan mute setting (example "On")



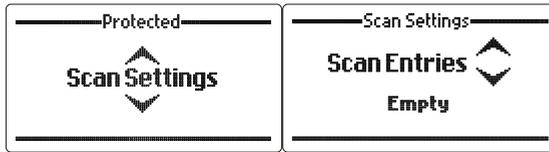
When the setting required is selected press the



key



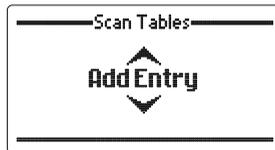
Scan entries



This option will add, remove and search channels in the scan table

Adding channels to the scan table

Use the **Scroll keys** to select the “Add Entry” option. The “Add Entry” option will only be displayed if unassigned channels are available:



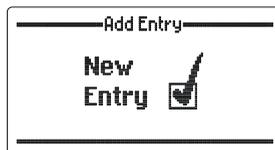
Press the key

The Add Entry screen will now be displayed, use the **Scroll keys** to select the channel to be added to the scan table:



Press the key

The channel will be added to the scan table.



### Searching and editing entries in the scan table

Use the **Scroll keys** to select the “Search Entries” option:



Press the key

The Search Entry screen will now be displayed, use the **Scroll keys** to scroll through the scan table entries:



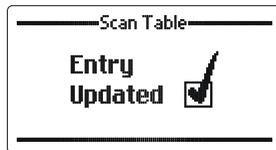
Press the key when the scan entry to be modified is reached



The channel list will now be highlighted, use the **Scroll keys** to scroll through the available channels:



Press the key when the required channel is reached



### Removing channels from the scan table

Use the **Scroll keys** to select the “Search Entries” option:



Press the key

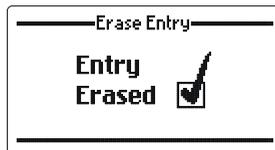
The Search Entry screen will now be displayed, use the **Scroll keys** to select the scan entry to be deleted from the scan table:



Press and hold the key for 2 seconds. The Erase Entry confirmation screen will now be shown.



Use the **Scroll keys** to select “Yes”, then press the confirm deletion:



## Voice Messages

The voice messages menu allows the operator to set the on announced messages sent from the 2060.

### Welcome message



The "Welcome Message" is played to the phone user when the 2060 answers an incoming telephone call.

### No dial tone message



The "No Dial Tone Message" is played on air to the HF network when the 2060 tries to go online but doesn't see dial tone.

### Access denied message



The "Access Denied" is played on air to the HF network or online to the telephone user when a Selcall ID without the correct level of security is accessed. (Selcall, Telcall etc....).

Each message can be recorded, played or restored to a default message. The default message used in the restore option is factory set and cannot be changed.

To record a message (for example “Welcome Message”)

Use the **Scroll keys** to select the “Welcome Message” option:

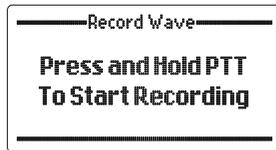


Press the key

Use the **Scroll keys** to select the “Record Message” option:



Press the key



Press the microphone PTT button to begin recording. The message can be up to 60 seconds long.



Once the message is completed release the PTT button. Press the  before pressing the PTT to abort the recording process



To play a message (for example “Welcome Message”)

Use the **Scroll keys** to select the “Welcome Message” option:



Press the key

Use the **Scroll keys** to select the “Play Message” option:



Press the key



To restore a message (for example “Welcome Message”)

Use the **Scroll keys** to select the “Welcome Message” option:

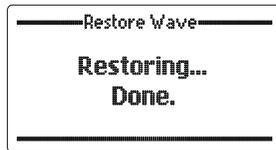


Press the key

Use the **Scroll keys** to select the “Restore Message” option:



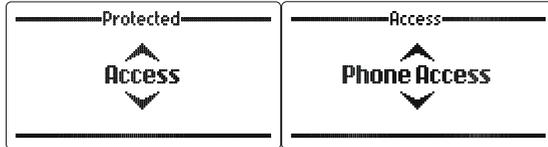
Press the key



## Access

Sets transceiver and phone access security levels

### Phone access



Determines what type of phone calls can be made by a particular Selcall ID or group of Selcall IDs. The different phone access levels are as follows:

- Barred - this means that the selected Selcall IDs do not have any phone access available.
- Preset - this means that the selected IDs can only access the telephone system through preset telephone numbers using Selcall.
- Preset/Local - this means that the selected IDs can access the telephone system through preset telephone numbers using Selcall and local telephone numbers using Telcall.
- Preset/Local/STD - this means that the selected IDs can access the telephone system through preset telephone numbers using Selcall, local and STD telephone numbers using Telcall.
- All - this means that the selected IDs can access the telephone system through preset telephone numbers using Selcall plus local, STD and international telephone numbers using Telcall.



Press the  key (example shown "Setting ID 1234 to have all types of phone access"):-



Enter the starting Selcall ID. This can be either a 4 digit or 6 digit ID.



Press the **ENTER** key. Then enter the ending Selcall ID. For setting phone access levels for a single Selcall ID enter the same ID as the starting ID.



Press the **ENTER** key. Then use the **Scroll keys** to select "All".



Press the **ENTER** key. The selected IDs will now be programmed



**Txcvr access**

Determines which Selcall IDs can be accessed by a telephone user. The different transceiver access levels are as follows:

- Barred - this means that the selected Selcall IDs cannot be called by a telephone operator.
- Selcalls Only - this means that the selected IDs can only be called using Selcall, no telephone number can be sent to that ID.
- Selcalls and Telcalls - this means that the selected IDs can be called using Selcall or Telcall.



Press the  key (example shown "Setting ID 1234 to have Selcalls and Telcalls"):-



Enter the starting Selcall ID. This can be either a 4 digit or 6 digit ID.





Press the  key. Then enter the ending Selcall ID. For setting transceiver access levels for a single Selcall ID enter the same ID as the starting ID.



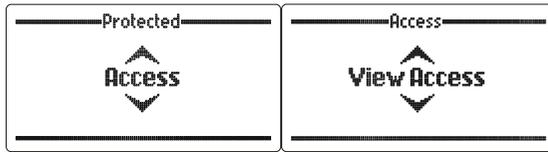
Press the  key. Then use the **Scroll keys** to select "Selcalls and Telcalls".



Press the  key. The selected IDs will now be programmed



**View access**



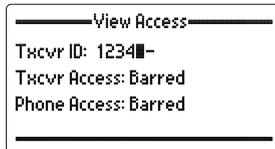
Allows the operator to view both transceiver and phone access levels assigned to different Selcall IDs.

Press the  key (example shown "Show ID 1234 access levels"):-

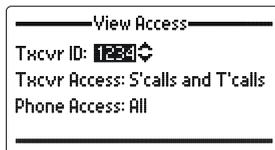


The operator can use the **Scroll keys** to scroll to the Selcall ID required for viewing, or the operator can enter the Selcall ID

directly by using the digit keys then pressing . This can be either a 4 digit or 6 digit ID.



Press the  key. The access level for that Selcall ID will be displayed.



**ALE Phone Access**

Determines what type of phone calls can be made from ALE stations in the HF network. Only "Other" IDs can be modified, "Self" IDs will be shown but cannot be accessed.



Available options for Phone Access are:

- Barred - this means that the selected ALE ID does not have any phone access available.
- Preset Only - this means that the selected ID can access the telephone system through preset telephone numbers by sending only 2 digits via the "ALE Phone" call option in the transceiver.
- Preset and Telcalls - this means that the selected ID can call pre-dialled and full telephone numbers via the "ALE Phone" call option in the transceiver (2 digits for pre-dialled numbers, more than 2 digits for all other telephone numbers).



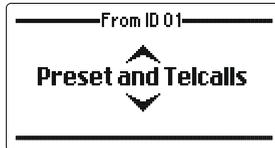
Press the  key (example shown "Setting ID 01 to have Preset and Telcalls"):-



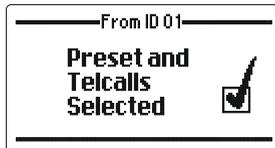
Use the **Scroll keys** to scroll to the ALE ID required for viewing/modifying, then press  .



Use the **Scroll keys** to select "Preset and Telcalls".



Press the  key. The selected ID will now be programmed



## Secure Keys

Sets a unique secure call ID for Selcall IDs. This is used when a secure call is established.

### Program secure keys



This allows the operator to setup secure call IDs for individual or groups of Selcall IDs.

Press the  key (example shown "Setting ID 1234 to have secure key 4568"):-



Enter the starting Selcall ID. This can be either a 4 digit or 6 digit ID.



Press the  key. Then enter the ending Selcall ID. For setting transceiver access levels for a single Selcall ID enter the same ID as the starting ID.



Press the  key. Enter the 4 digit secure key for the Selcall ID / IDs.



Press the  key. The selected IDs will now be programmed



### Clearing secure call keys

To clear secure call keys from a particular Selcall ID, just press the  key at the “Program Secure Key” screen without entering any digits. This will reset the secure call key for the ID / IDs selected. Once cleared a confirmation screen will be shown.



View secure keys



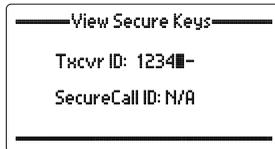
This allows the operator to view secure call keys for different Selcall IDs.

Press the  key (example shown “Show ID 1234 secure call key”):-



The operator can use the **Scroll keys** to scroll to the Selcall ID required for viewing, or the operator can enter the Selcall ID

directly by using the digit keys then pressing . This can be either a 4 digit or 6 digit ID.



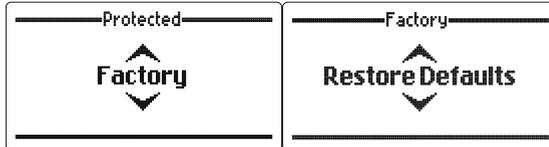
Press the  key. The secure call key for that Selcall ID will be displayed.



## Factory

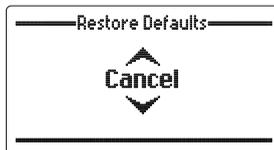
Allows the operator to restore default system settings, clear system parameters, clear and view logging data status.

### Restore defaults



This restores all user defined parameters of the 2060 to default values.

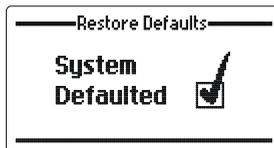
Press the  key (example shown "Restoring defaults"):-



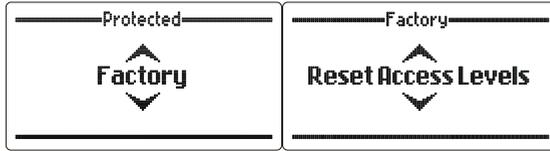
Use the **Scroll keys** to select "Confirm".



Press the  key. The system settings will now be defaulted.

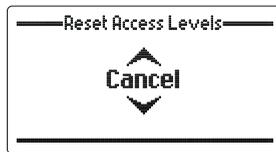


Erase access levels



This will reset all transceiver and phone access levels.

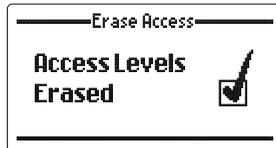
Press the  key (example shown "Reset Access Levels"):-



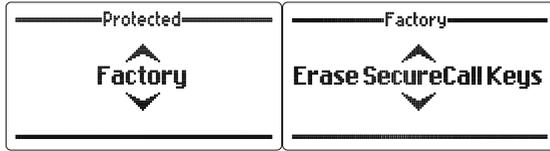
Use the **Scroll keys** to select "Confirm".



Press the  key. All phone and transceiver access levels will now be reset.



Erase secure call keys



This clears all secure call keys from all Selcall IDs.

Press the  key (example shown "Erasing Secure Call keys"):-

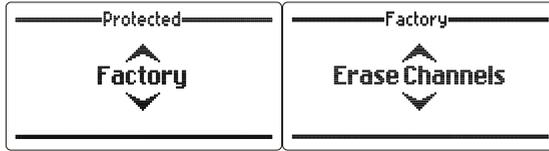


Use the **Scroll keys** to select "Confirm".



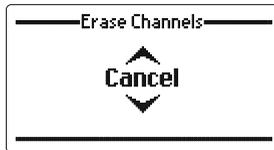
Press the  key. The secure call keys will now be erased.



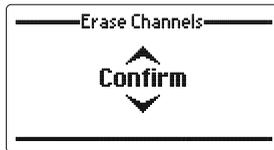
**Erase channels**

This will clear all programmed channels and set channel 1 to a 10MHz default frequency.

Press the  key (example shown "Erasing Channels"):-



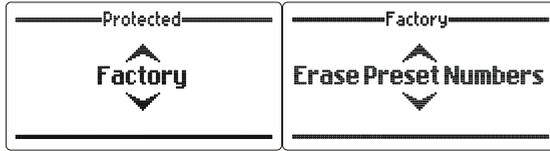
Use the **Scroll keys** to select "Confirm".



Press the  key. The channels will now be erased and channel will be defaulted to 10MHz.

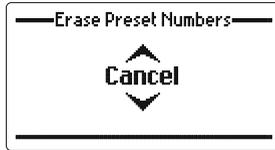


**Erase preset numbers**

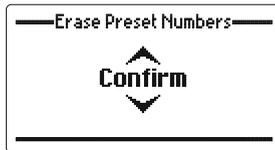


This clears all the preset telephone numbers.

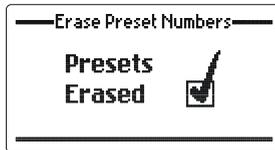
Press the  key (example shown "Erasing preset numbers");-



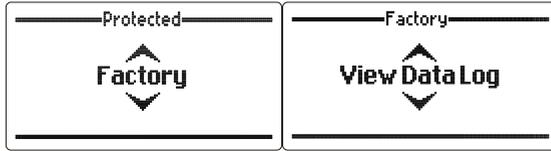
Use the **Scroll keys** to select "Confirm".



Press the  key. All preset telephone numbers will now be cleared.

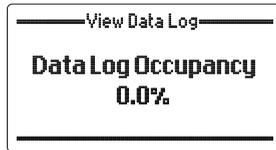


**View data log**



This will display how full the call billing log is.

Press the  key:-



# Programming Functions

The Barrett 2060 telephone interconnect can be setup in the following ways:-

1. Using the 2060 supervisory software loaded on a PC.
  - a. transferring information via RS-232 through direct connection to the RS-232 connector.
  - b. transferring information via RS-232 by dialling up the 2060 through the PSTN.
2. Programming information directly from the front panel of the 2060

**Note:-** This facility may not be available if the network administrator has barred the function during programming using a PC.

## **Programming using the Barrett 2060 supervisory software**

The Barrett 2060 supervisory software should be loaded onto a PC using the instructions supplied with the package.

## **Programming using the Barrett cable P/N BCA90023/BCA204020**

To program the 2060 using the RS-232 port of your PC or Laptop plug one of the cables mentioned above into the PC or laptop's serial port. The other end should be plugged into the RS-232 socket of the 2060. Your PC or laptop should have the Barrett 2060 supervisory software running and the 2060 should be switched on. Programming functions can now commence.

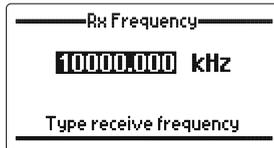
**Note:-** When programming it is suggested you use a Barrett supplied programming cable. Other common serial cables have other pins connected. In some cases when connected to the programming computer these pins can have varying effects.

### Programming a channel from the front panel

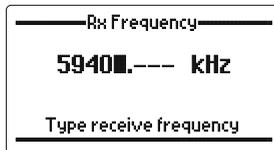
**Note:-** To program a channel from the front panel it is necessary to have this function enabled.

To enter the programming mode first select the channel you want to program then press the  key:-

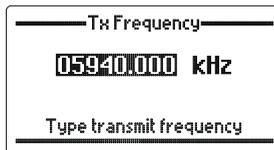
### Transmit and receive frequencies



Use the numeric keypad to enter the receive frequency (example: 5940 kHz)



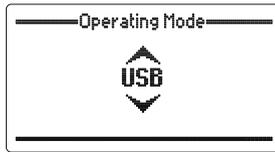
then press the  or the  key (twice if a new number has been entered)



Use the numeric keypad to enter the transmit frequency

then press the  or the  key (twice if a new number has been entered)

### Operating mode



Use the **Scroll keys** to select the required operating mode, USB, LSB or AM

then press the  or  key

### Selcall format

Each channel can be programmed for one Selcall format; for a description of the formats available refer to the beginning of this manual.



Use the **Scroll keys** to select the required Selcall format

then press the  or  key

This last key press displays the following screen indicating the channel programming is complete:-

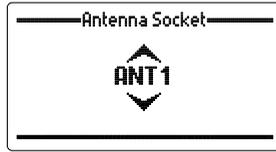


The channel program sequence can be aborted at any stage in the programming sequence by pressing the  key.

### Antenna socket selection

Each channel can be directed to use either the default antenna socket or the auxiliary antenna socket. This is useful if two antennas are used for different frequency ranges.

**Note:-** the default antenna socket is ANT 1, the Auxiliary antenna socket is ANT 2.

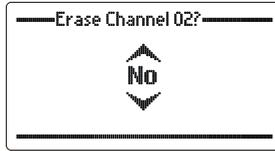


Use the Scroll keys to select the required antenna socket 1 or 2

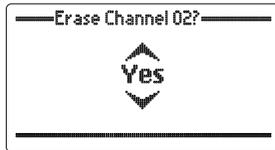
then press the  or  key

### Deleting a channel from the front panel

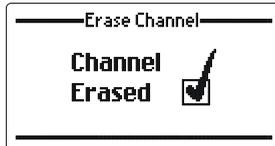
To delete a channel from the 2060, program the transmit and receive frequency to 0.0 kHz. Then try to change channels, the 2060 will display the following confirmation screen.



Use the **Scroll keys** to select "Yes".



Press the  key. The channel will now be erased.



## Installing the Barrett 2060 Interconnect

**Barrett Communications recommends that any installation should only be carried out by suitably qualified technicians.**

## BARRETT 2060 HF SSB TELEPHONE INTERCONNECT

Before connecting the system together ensure that all components to be connected in the system are switched off. For correct installation of the 2050 transceiver please refer to the "Barrett 2050 Operating and Installation Manual" supplied.

Connect the 25way connector supplied from the 2050 transceiver "AUXILIARY CONNECTOR" to the 2060 Interconnect "TRANSCEIVER" connector.

Connect the power leads from the 2022 power supply to the 2050 transceiver and the 2060 Interconnect.

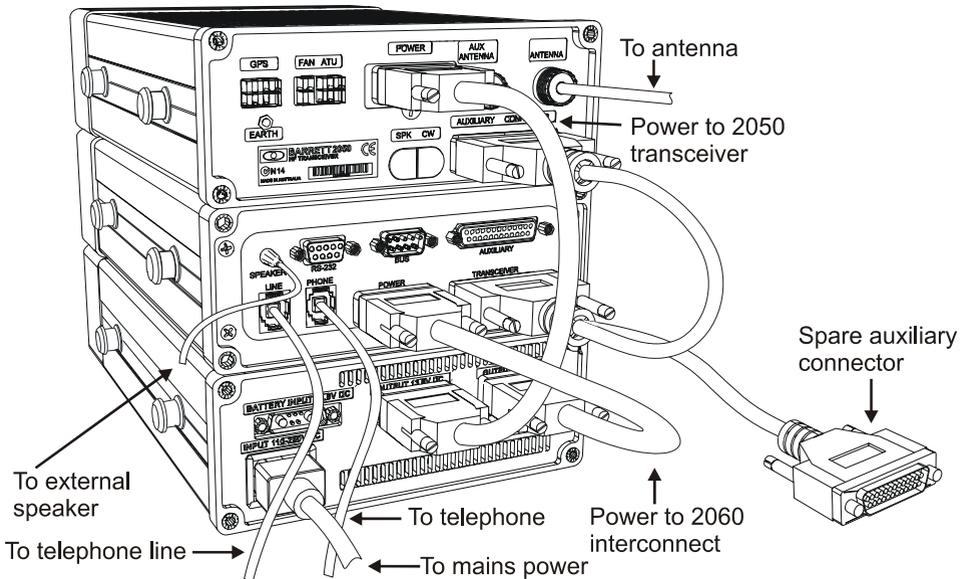
Connect a suitable antenna to the 2050 transceiver "ANTENNA" socket.

If a speaker is required plug it into the 2060 "SPEAKER" socket.

For an installation where no operator will be required only the PSTN line needs to be connected. This is connected to the 2060 "LINE" socket.

If an operator is needed then a phone handset needs to be connected to the 2060 "PHONE" socket.

See below for system interconnection diagram.

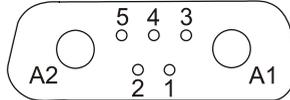


Once all of the required cables are connected the 2060 can be turned on and programmed to suit.

## Connectors

**Note:-** All connectors below viewed looking at the rear of the 2060

### Power connector



1	N/C
2	N/C
3	N/C
4	N/C
5	N/C
A1	+13.8 VDC input +13.8 VDC
A2	-13.8 VDC/Ground 13.8VDC/Ground

### RS232 connector

(9 pin female "D" connector on rear panel)

Pin	Name	Description of function	Level
1			
2	Tx Data	RS-232 data output	True RS-232
3	Rx Data	RS-232 data input	True RS-232
4			
5	RS-232 Gnd	RS-232 Ground	0V
6			
7			
8			
9			

**BUS connector** (9 pin male "D" connector on rear panel)

<b>Pin</b>	<b>Name</b>	<b>Description of function</b>	<b>Level</b>
1	RS485 Line 1	RS485 Bus Line	
2	RS485 Line 2	RS485 Bus Line	
3			
4			
5			
6			
7			
8			
9			

**BARRETT 2060 HF SSB TELEPHONE INTERCONNECT****Transceiver connector** (25 pin female "D" connector on rear panel)

<b>Pin</b>	<b>Name</b>	<b>Description of function</b>	<b>Level</b>
1	Ground	Ground	0V
2	Tx Data	RS-232 data output	True RS-232
3	Rx Data	RS-232 data input	True RS-232
4			
5			
6			
7	RS-232 Gnd	RS-232 Ground	0V
8	ALC In	Ext. ALC from Linear Amp	0-10V
9	PTT Out	PTT Output	Active low 0V
10			
11	Bal. Tx Audio In	Balanced Tx audio input (with pin 24)	600 $\Omega$ -24dBm to 0dBm
12	Bal. Rx Audio Out	Balanced Rx audio output (with pin 25)	600 $\Omega$ -6dBm to +9dBm
13	Ground	Ground	0V
14			
15			
16			
17			
18			
19			
20			
21			
22			
23	+13.8 V Fused Input	+13.8V Input (+11VDC to +15VDC)	13.8V
24	Bal. Tx Audio Output	Balanced Tx audio output (with pin 11)	600 $\Omega$ -24dBm to 0dBm
25	Bal. Rx Audio Out	Balanced Rx audio output (with pin 12)	600 $\Omega$ -6dBm to +9dBm

**BARRETT 2060 HF SSB TELEPHONE INTERCONNECT****Auxiliary connector**

(25 pin female "D" connector on rear panel)

Pin	Name	Description of function	Level
1	Ground	Ground	0V
2	Tx Data	RS-232 data output	True RS-232
3	Rx Data	RS-232 data input	True RS-232
4			
5			
6			
7	RS-232 Gnd	RS-232 Ground	0V
8	ALC In	Ext. ALC from Linear Amp	0-10V
9	PTT Out	PTT Output	Active low 0V
10			
11	Bal. Tx Audio In	Balanced Tx audio input (with pin 24)	600 $\Omega$ -24dBm to 0dBm
12	Bal. Rx Audio Out	Balanced Rx audio output (with pin 25)	600 $\Omega$ -6dBm to +9dBm
13	Ground	Ground	0V
14			
15			
16			
17			
18			
19			
20			
21			
22			
23	+13.8 V Fused Input	+13.8V Input (+11VDC to +15VDC)	13.8V
24	Bal. Tx Audio Output	Balanced Tx audio output (with pin 11)	600 $\Omega$ -24dBm to 0dBm
25	Bal. Rx Audio Out	Balanced Rx audio output (with pin 12)	600 $\Omega$ -6dBm to +9dBm