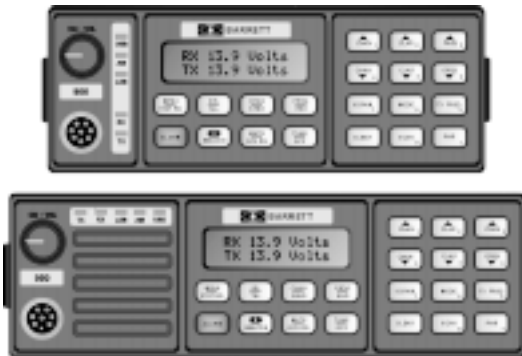


Barrett 900 Series Transceiver Programming Software Manual



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BCM90001/1

Head office:

Barrett Communications Pty Ltd
10 Port Kembla Drive, Bibra Lake WA 6163
P O Box 1214, Bibra Lake WA 6965
AUSTRALIA
Toll Free Tel: 1800 999 570
Tel: (61-8) 9 434 1700
Fax: (61-8) 9 418 6757

European office:

Barrett Europe Limited
19 Lenten Street
Alton, Hampshire
GU34 1HG
UNITED KINGDOM
Tel: (44) 1420 542254
Fax: (44) 1420 543373

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1.0 Introduction

Barrett 900 series transceiver programming software enables simple management of 930, 940 and 950 transceiver configurations for multiple clients and transceiver configurations.

The package is designed for use by Barrett dealers and network managers. It can be loaded onto any PC that has a serial port and the minimum hardware configuration as listed at the rear of this manual.

This manual describes how to load and start the software package. It also provides basic details on the programming package operation, more detailed operating instructions are provided in the package's built in help function.

2.0 Software Installation

Insert Setup disk 1 into floppy drive A:

Go to the Start button on the task bar (Windows 95), and click on the Run.. command.

Type "A:\setup.exe and press enter.

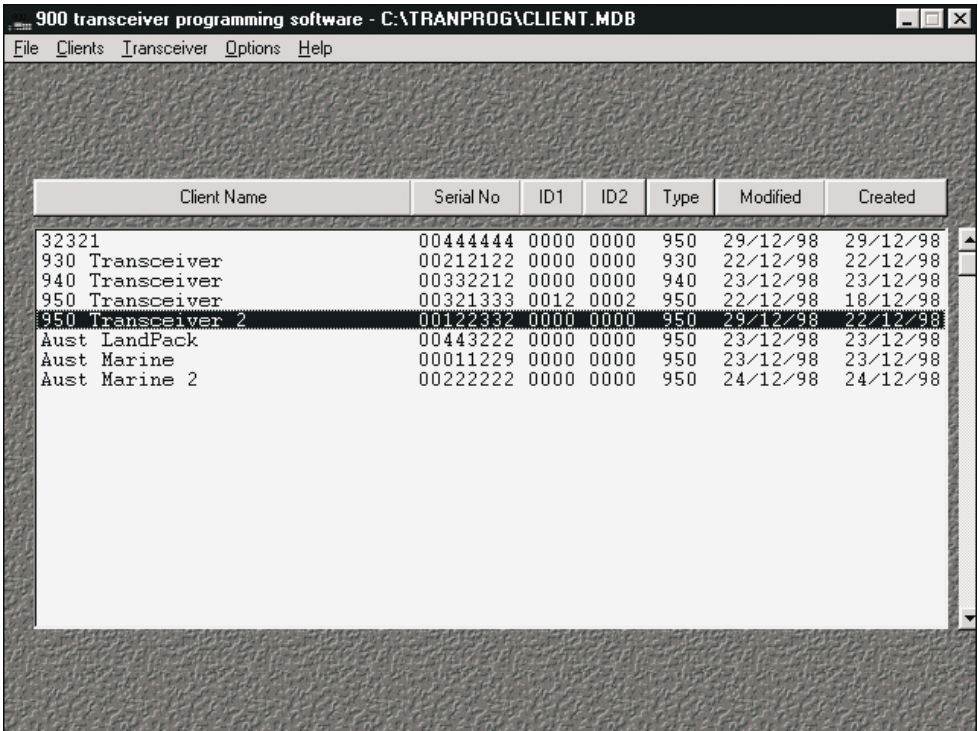
Follow the on-screen prompts to install the software.

Or go to windows explorer and double click on the "setup.exe" icon in the a: drive.

3.0 Operation

3.1 Main Screen

When the user initially starts the program, the main user screen is displayed. This screen is used to control the client (transceiver) databases. The following section describes each menu option.



3.1.1 File Menu

New Client (transceiver) List

This will create a new Barrett 900 series transceiver database with no clients in it. Use the Clients Menu to add, edit and delete clients (transceivers) to and from this database.

Open Client (transceiver) List

This will open an existing Barrett 900 series transceiver database. If a Barrett 550 / DOS RadCfg database is selected you will be prompted to convert it. The new database created will be of the same name, but with the .MDB file extension.

Close Client (transceiver) List

This will close the currently opened Barrett 900 series transceiver database. All edit features will be disabled until another Barrett 900 transceiver database is opened.

Exit

This will exit the program, and close the open Barrett 900 series transceiver database.

3.1.2 Clients (transceiver) Menu**Add Client**

Adds a new client (transceiver) to the client database. You will be required to fill in the client's name, a unique serial number, selcall id's and transceiver pin number.

Edit Client

This will allow you to edit the client's name, transceiver serial number, selcall id's and transceiver pin number. A client must be selected from the list.

Copy Client

Copies the currently selected transceiver configuration to another client.

Delete Client

This will delete a client from the client database.

Sort Method

This will select the method used to sort the clients (transceiver) list. Clicking the appropriate button above the client list can also access this function.

Print Client (transceiver) List

This will print, to the selected printer, a list of all the clients in the currently open client (transceiver) list.

Copy Client (transceiver) to another Database

This will copy the selected client (transceiver) to another database. If the destination database does not exist, it will be created. If you wish to move the client (transceiver), use this option, then delete this client from the current database.

3.1.3 Transceiver Menu

Edit

Enables editing of the transceiver configuration for the currently selected client (transceiver). If the client (transceiver) has been newly created, then the transceiver configuration will be set to its default. Right clicking the mouse button in the client (transceiver) list window can also access this function.

Send

This will send the transceiver configuration for the currently selected client to the Barrett 900 transceiver. The Barrett 900 transceiver will have to be setup to receive the configuration. Right clicking the mouse button in the client (transceiver) list window can also access this function.

Receive

This will receive the transceiver configuration from the Barrett 900 transeiver and write it to the currently selected client. Any existing configuration this client had in the database is deleted and overwritten. Right clicking the mouse button in the client (transceiver) list window can also access this function.

Print

This will print the Barrett 900 transceiver configuration for the currently selected client.

Send Blank

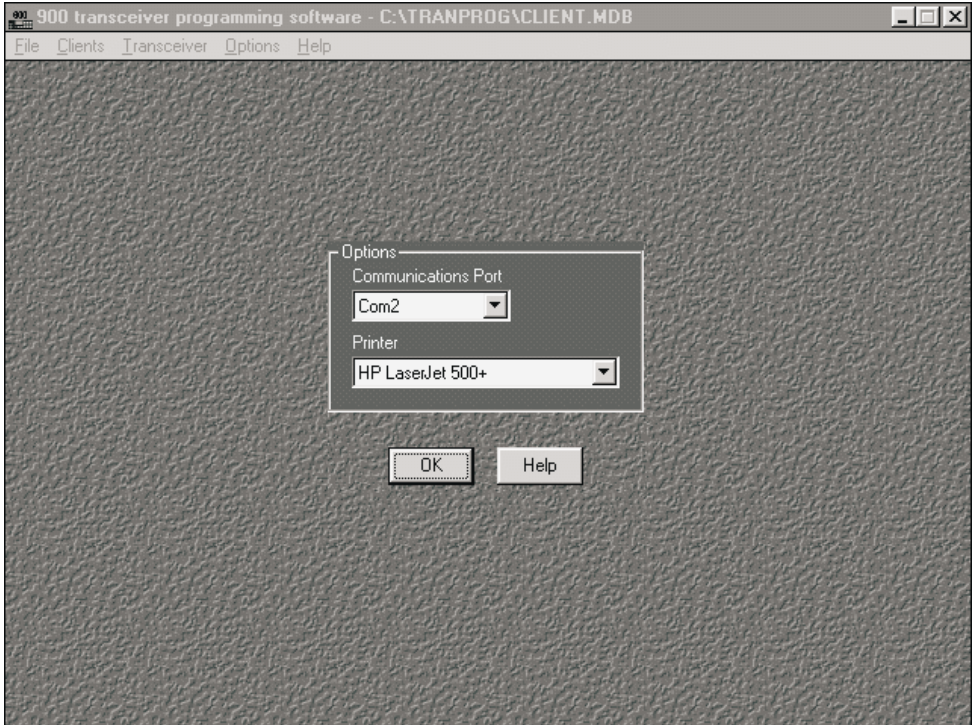
This will send a blank pack to the Barrett 900 transceiver. This pack will contain all default configuration options.

Unlock

This is used to unlock the transceiver, after a transceiver lock command was sent from the remote transceiver.

3.2 Configuration Options

To access the configuration options, go to the options menu on the main screen. After clicking on it, the following options are displayed:-



Communication Port

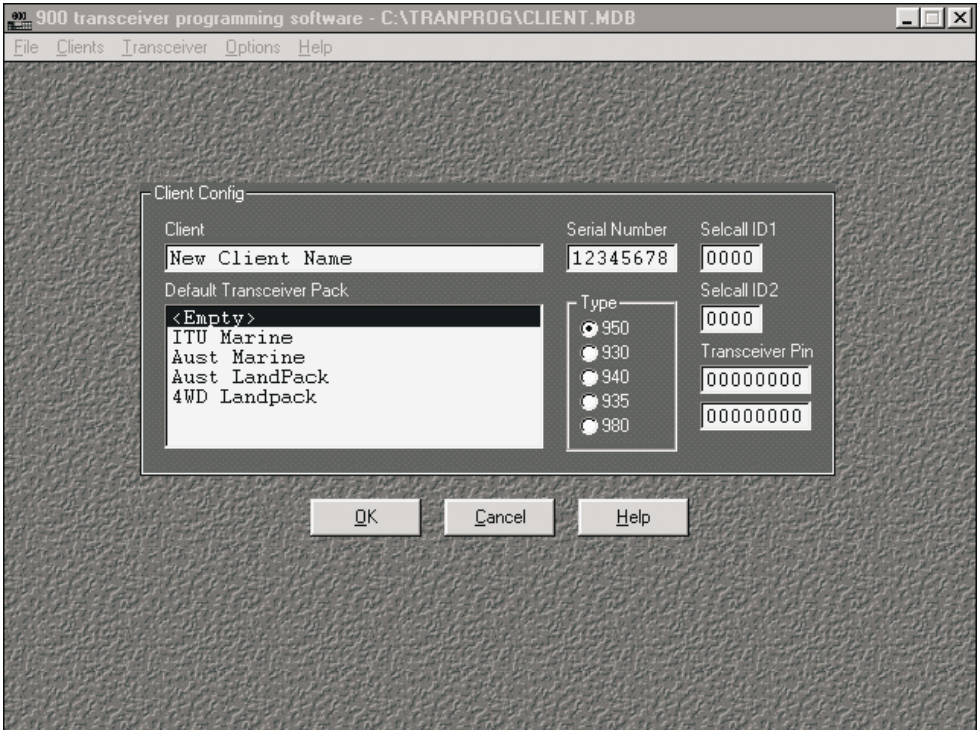
This is the serial port where the Barrett 900 transceiver is connected. Usually COM1 or COM2 depending on how the mouse, modem, or other peripherals are configured.

Printer

Selects the windows printer device to print to. Selecting 'File' as the printer here will prompt the user for a file name when any printing occurs in the program.

3.3 Adding / Editing a Client (transceiver)

To add a new client (transceiver), go to the Add Client menu option, in the Clients menu. To edit a client (transceiver) in the database, it is first necessary to open a database file in the file menu. Then go to the Clients menu in the main user screen. Select the Edit Client menu option.



The user is presented with the following options:-

Client

This is the client's name. The client name can be up to 30 characters.

Serial No

This is a unique transceiver serial number which you can assign to the transceiver. If the serial number exists in the current database when you select close, you will be prompted to change it.

Selcall ID1

This is the selective call ID for the client's transceiver which you can assign. This is usually unique to the client. The selcall ID is a 4 digit number.

Selcall ID2

This is the second selective call ID for the client's transceiver. The second Selcall ID is usually not used, and therefore set to the same as selcall ID1. Each transceiver channel can be set to use either selcall ID by default.

Transceiver Pin

This is a pin number that is used in the transceiver kill function. A confirmation pin is required to be entered below it. This must be an 8 digit pin number.

Default Transceiver Pack

Selects the default configuration options to send to the radio. These options can be modified through the transceiver configuration dialog box.

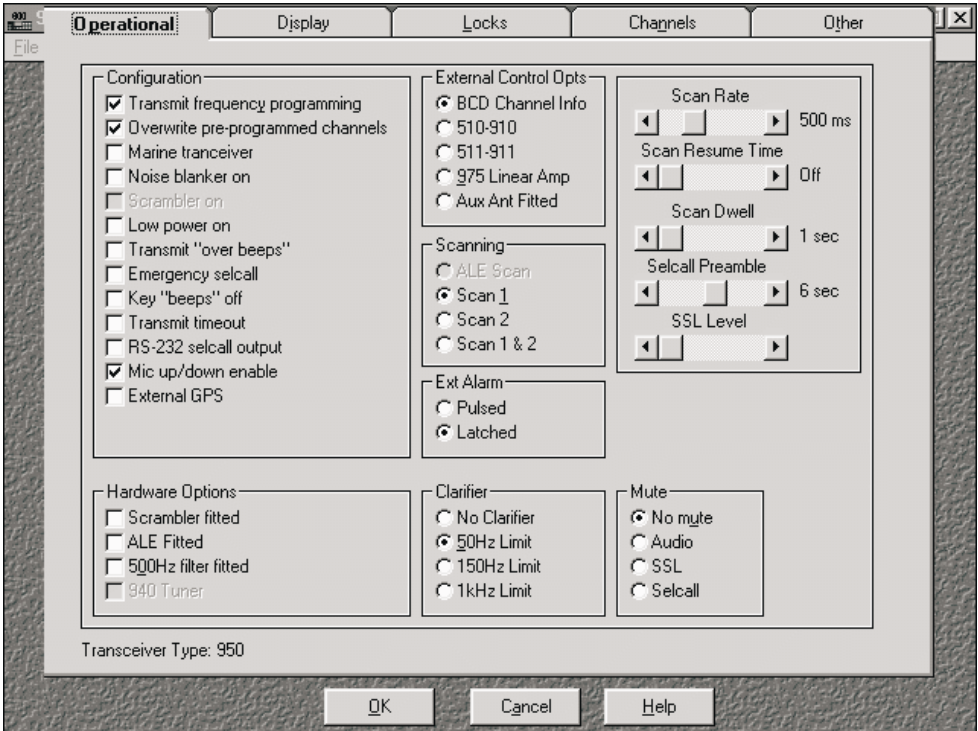
Type

Selects the type of the transceiver to be programmed.

3.4 Transceiver Configuration

Go to the Edit menu option in the Transceiver menu. This will edit the transceiver configuration for the currently selected client and transceiver.

3.4.1 Operational Parameters



To edit the operational parameters, go to the operational tab in the configuration window.

3.4.1.1 Configuration

These options are used to initially configure the transceiver. Whether the client can change these options depends upon options set in Locks.

Transmit Frequency Programming

Enables transmit frequency programming. Note:- if frequency ranges are specified in the "Band" section, transmit frequencies will only be allowed to be programmed from the front panel within these ranges. The purpose of the "Bands" section is to allow for instance only amateur band frequencies to be transmit frequency programmed.

Note:- This feature may be used only where local laws and regulations allow.

Overwrite pre-programmed channels

When overwrite is enabled the client will be able to change pre-programmed channels, Effectively this will allow the client to program all channels. If this option is not enabled the client will only be able to program "empty channels" and channels that do not have the pre-programmed option set.

Marine Transceiver

When this check-box is enabled any channels programmed by the client will default as marine channels. This means that the clarifier for the channel will be 150Hz, unless the channel is programmed to be a selcall channel.

Noise blanker On

If this option is enabled the noise blanker circuitry will be turned on. When disabled the noise blanker will be turned off.

Scrambler On

If this option is enabled the scrambler circuitry will be turned on. When disabled the scrambler will be turned off. The Scrambler Fitted option must also be set.

Low Power On

If this option is enabled the transceiver will transmit in low power mode on all channels. If not enabled the transceiver will transmit at the default power programmed in each channel.

Transmit "over beeps"

If this option is enabled, when PTT is released a quick "over beep" is transmitted on air.

Emergency selcall

This option, when enabled, allows the transceiver to receive and transmit emergency selcalls. Note:- Emergency selcall status can be assigned to any channel in the channel programming setup.

Key "beeps" off

If this option is enabled beeps are not emitted when the user presses the front panel keys.

Transmit timeout

This option turns the transmitter off if the microphone PTT is held activated (i.e. wedged in a car seat) for more than 1.5 minutes.

RS-232 selcall output

If this option is enabled a sentence will be output to the RS-232 port when the transceiver receives a selcall or telcall. Also the transceiver will not audibly announce the reception of a selcall , telcall or GPS call etc.

Mic up/down enable

Enables the 'UP' and 'DOWN' keys on the microphone. These keys then operate in the same fashion as the scroll keys on the front panel. i.e. channel up/down or receiver tuning when in the tunable receiver mode.

External GPS

If selected this option enables the use of an external GPS connected to the NMEA input on the auxiliary connector.

3.4.1.2 Hardware Options

These options are used to identify what hardware is to be configured in the transceiver.

Scrambler fitted

When this option is enabled it indicates to the transceiver operational software that the optional scrambler hardware is fitted to the transceiver, the user can turn the scrambler on or off using the "SCRAM" key on the front panel.

ALE fitted

When this option is enabled it indicates to the transceiver operational software that the optional ALE hardware is fitted to the 900 transceiver. When this option is enabled the ALE option becomes available to the user.

500Hz filter fitted

When this option is enabled it indicates to the transceiver operational software that the optional 500Hz filter hardware is fitted to the 900 transceiver. When this option is enabled the 500Hz filter is automatically selected in AFSK and CW mode. Normally these modes use the standard wide filter.

940 tuner

When this option is enabled in the 940 portable it indicates to the transceiver operational software that the optional 940 antenna tuner is fitted. The 940 will then operate automatically with the tuner.

3.4.1.3 External Control Options

This option determines which external control options are available on the 25 pin accessory socket on the rear of the transceiver.

BCD Channel info

When this option is selected the transceiver can be used with base station type antennas such as Barrett 912 series broadbands. In addition the BCD output lines on the auxiliary connector represent the current channel number selected on the transceiver. These outputs can be used to drive ancillary devices such as remote control systems or multiple antenna select units. (Refer to the operation or technical manual for BCD codes)

510-910

Set this option if the transceiver is fitted with a 510-910 auto tuning antenna.

511-911

Set this option if the transceiver is fitted with a 511-911 antenna auto tuner.

975 Linear Amp

Set this option if the transceiver is connected to a 975 linear amplifier.

Aux Ant Fitted

This option enables the use of the auxiliary antenna socket that can be fitted on the rear panel of 930 or 950 transceivers. See the 900 series technical manual for details.

3.4.1.4 Scanning

This option is used to select the active scan table after configuration:-

ALE Scan

This option is used to select the ALE to control the scanning of the 900 transceiver.

Scan 1

This option is used to select scan table 1 as the currently active table.

Scan 2

This option is used to select scan table 2 as the currently active table.

Scan 1 & 2

This option is used to select scan table 1 and 2 as the currently active tables.

3.4.1.5 Ext Alarm

An external alarm is generated when a selcall is received. This option sets the nature of the alarm. Note:- Only available on 930 or 950 transceivers.

Pulsed

A pulsed alarm is generated on the alarm output line of the auxiliary connector.

Latched

A latched (continuous) alarm is generated on the alarm output line of the auxiliary connector.

3.4.1.6 Clarifier Options

This option sets the limit for the clarifier on land type channels. Marine and Selcall channels have fixed clarifier limits of 150Hz and no clarifier respectively.

No clarifier

This option prevents any non-marine channels from being clarified.

50Hz Limit

This option limits any non-marine or non selcall channels to have a clarifier limit of 50Hz.

150Hz Limit

This option limits any non-marine or non selcall channels to have a clarifier limit of 150Hz.

1kHz Limit

This option limits any non-marine or non selcall channels to have a clarifier limit of 1kHz.

3.4.1.7 Mute Setting

This is the default mute setting. This is the setting that the transceiver will have initially after transferring the transceiver configuration.

No Mute

When this setting is enabled, the transceiver mute is always "open".

Audio

This setting enables the syllabic mute which "opens" when speech is detected.

SSL

This mute "opens" when the received signal exceeds the set SSL level.

Selcall

This setting enables the selcall mute which "opens" when the transceiver receives a valid selcall.

3.4.1.8 Scan/ Selcall and SSL Settings

Scan Rate

Sets the scan rate on a non-selcall scan channel when scanning. On selcall channels the rate is fixed at 500 milliseconds.

Scan Resume Time

Scan resume time sets the time delay, after the last key press or PTT activity, before the transceiver automatically resumes scanning. Selecting "Off" disables the scan resume function.

Scan Dwell

Sets the time that the transceiver will remain on a scan channel AFTER the scan stop condition becomes invalid.

Selcall Preamble

This is the length of pre-amble sent before the data portion of a selcall signal. The greater the number of channels that are set for selcall scanning the longer the selcall pre-amble length should be. I.e. scanning two channels will take 1 second, therefore the pre-amble length should be set to more than one second. Scanning six channels will take 3 seconds, therefore the pre-amble length should be set to more than 3 seconds.

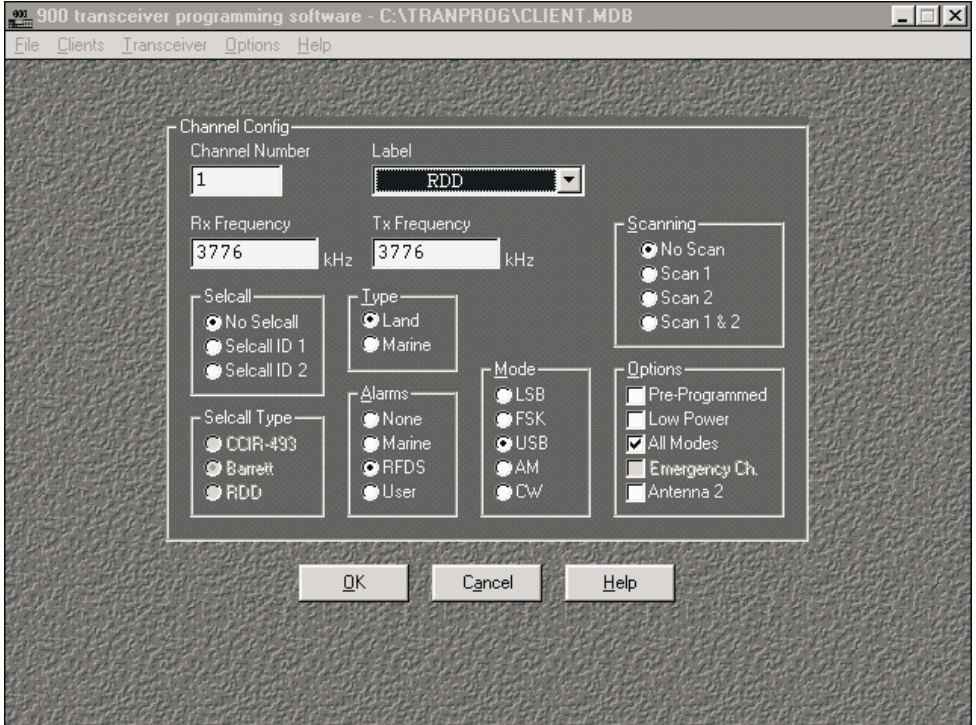
SSL Level

Sets the signal level that the signal strength mute will "open" at. i.e. if you wish have the SSL mute open on signals that result in a signal strength indication of two signal strength bars on the transceiver display, set two signal strength bars in this option.

3.4.2 Channel Parameters

To edit the channels, go to the channels tab in the configuration dialog box. Press “+” to add another channel, and press “-” to delete the currently selected channel. Press Edit to edit the currently selected channel. The fields in this section can be entered or edited by pointing and clicking in the field with your mouse or by using the TAB key.

A dialog box with the following options is displayed;



3.4.2.1 Channel Number

This field is for the channel number. The channel number must be in the range 1 to 9999 inclusive for 950's, 980's and 940's and 1 to 20 inclusive for 930's . All channels are sorted in ascending channel number order. When the channel is saved the channel number is checked to make sure the channel does not already exist.

3.4.2.2 RX/TX Frequency

This field is for the channels receive and transmit frequency. The frequency should be entered in kHz. When the Rx frequency is entered it's value is automatically entered into the Tx frequency field.

3.4.2.3 Channel Label

This field is for the label that will appear on the bottom line of the transceivers display of the labels currently defined for the transceiver. (To create labels, see "Other" tab in the configuration window.)

3.4.2.4 Channel Mode

Used to select the default mode in which the channel will operate.

The modes available for a channel are:-

LSB

Selects Lower Side Band. (J3E)

USB

Selects Upper Side Band. (J3E)

AM

Selects Amplitude Modulation.(H3E)

AFSK

Selects Audio frequency Shift Keying. (F1B)

CW

Selecting this mode will cause the transceiver to receive and transmit CW. (J2A)

3.4.2.5 Selcall

This field is used to select the selcall format for this channel.

No Selcall

This channel is not a selcall channel.

Selcall ID1

This channel will use Selcall ID1 for sending and receiving selective calls.

Note:- ID1 is associated with the Barrett and CCIR-493 selcall formats. In the next section if you have selected ID1 in this section you will only be able to select Selcall types CCIR-493 or Barrett.

Selcall ID2

This channel will use Selcall ID2 for sending and receiving selective calls.

Note:- ID2 is associated with the Australian RDD selcall format. In the next section if you have selected ID2 in this section you will only be able to select Selcall type as RDD.

3.4.2.6 Selcall Type

CCIR-493

This channel will transmit/ receive CCIR-493 (Australian WA1 and WA2) format selcalls, used only in Australia.

Barrett

This channel will transmit/ receive Barrett format (Codan compatible) selcalls.

RDD

This channel will transmit/receive Australian RDD type format selcalls.

3.4.2.7 Channel Alarm Type

This field is used to select the alarm generated by the transceiver when the alarm key is pressed.

The alarms available for a channel are:-

None

If this alarm is selected the channel does not have an alarm, a message stating not an alarm channel will appear on the bottom line of the display if the client presses the alarm key on this channel.

Marine

Selecting this alarm will cause the channel to generate the international marine alarm when the alarm button is pressed.

RFDS

Selecting this alarm will cause the channel to generate the Australian Royal Flying Doctor Service alarm when the alarm button is pressed.

User

Selecting this alarm will cause the channel to generate a custom Barrett alarm when the alarm button is pressed.

3.4.2.8 Scanning

This option selects whether this channel will be scanned when the transceiver is scanning.

No Scan

This channel will never be scanned.

Scan 1

This channel will be scanned when scan group 1 is selected.

Scan 2

This channel will be scanned when scan group 2 is selected.

Scan 1 and 2

This channel will be scanned when scan group 1 is selected and when scan group 2 is selected.

3.4.2.9 Type

This field is used to select the type of the channel. The type defines the clarifier limit that the channel will use, and whether the channel can send or receive selcalls.

Land

If this option is selected the channel will use the default clarifier limit set in the configuration options.

Marine

If this option is selected the channel will use the marine clarifier limit. This is fixed at 150Hz.

3.4.2.10 Pre-programmed

When this option is enabled and pre-programmed overwrite in the operational tab is not enabled then the user will not be able to program this channel from the front panel.

3.4.2.11 Low power

When this option is enabled the channel will only transmit in low power and the "Power" key on the front panel will be inoperative.

3.4.2.12 All Modes

When this option and the mode key is enabled, the user will be able to change the mode of the channel using the "Mode" key.

3.4.2.13 Emergency Channel

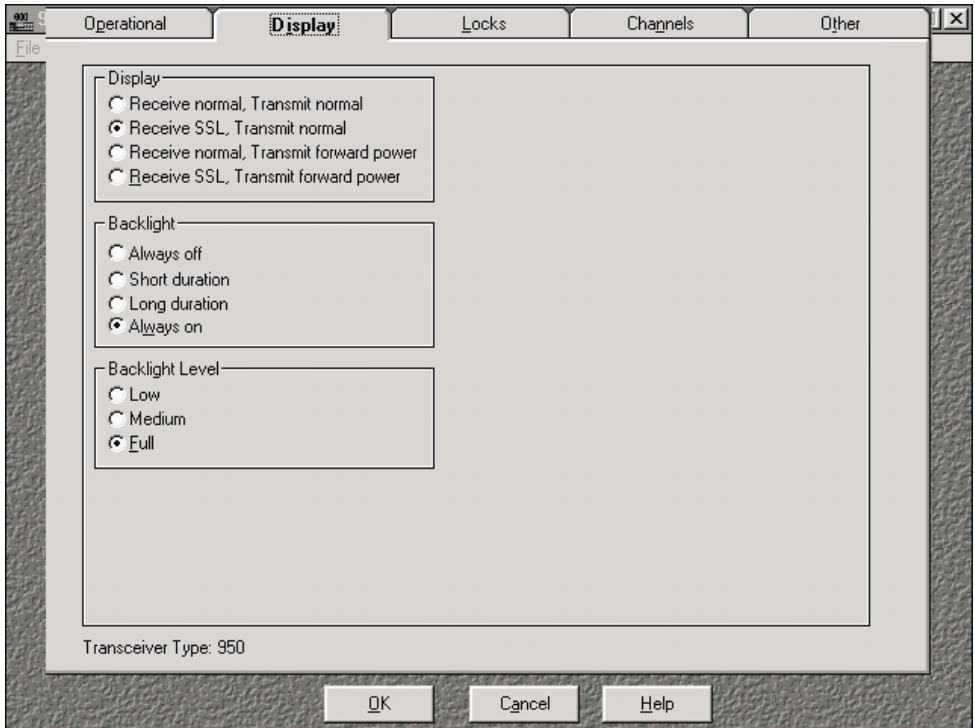
When this option is checked, this channel will be entered as an "Emergency Selcall Channel". The "Emergency Selcall" function must also be enabled in the Operational tab.

3.4.2.14 Antenna 2

When this option is checked, this channel will use antenna connector two for transmit and receive. (Note:- the second antenna connector hardware option must be fitted to the transceiver)

3.4.3 Display

Sets the way that the 900 transceiver software uses the LCD display. Go to the Display tab in the configuration options dialog box.



3.4.3.1 Display Options

The top line of the local and remote displays will normally show the channel number and frequency on the top line of the display. The following options select what is shown on the bottom line of the display:-

Receive normal, Transmit normal

The bottom line will show the status and channel label in both receive and transmit.

Receive SSL, Transmit normal

The bottom line will show the signal strength when in receive and the status and channel label when in transmit.

Receive normal, Transmit forward power

The bottom line will show the status and channel label when in receive and the forward power when in transmit.

Receive SSL, Transmit forward power

The bottom line will show the signal strength when in receive and the forward power when in transmit.

3.4.3.2 Back-light Options

The backlighting for the display and keys consumes a significant amount of power. Therefore these options are provided to satisfy user preferences and to optimise power consumption.

Always Off

This option sets the display and key backlighting to be always off.

Short Duration

This option sets the display and key backlighting to be on for a short duration of approximately 5 seconds after the last action.

Long Duration

This option sets the display and key backlighting to be on for a long duration of approximately 30 seconds after the last action.

Always On

This option sets the display and key backlighting to be always on.

3.4.3.3 Back-light Level

This option allows the display backlighting to be varied according to user requirements:-.

Low

This option sets the display and key backlighting will be on low intensity.

Medium

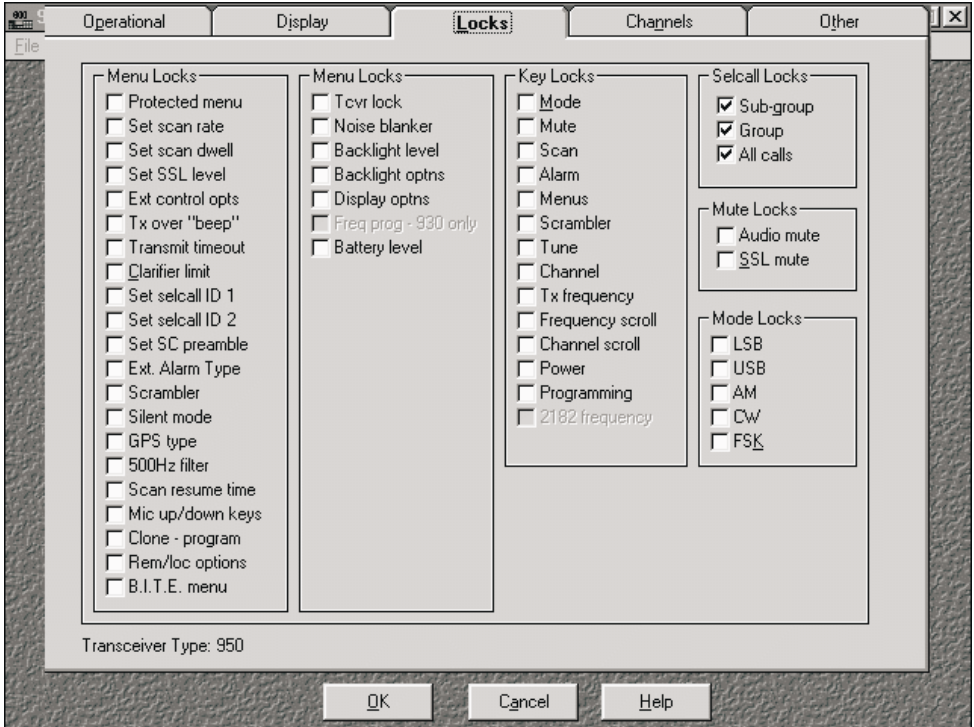
This option sets the display and key backlighting will be on medium intensity.

Full

This option sets the display and key backlighting will be on full intensity.

3.4.4 Locks

This window is for disabling various functions. If a check-box on this screen is enabled then the function will NOT be available to the transceiver user.



3.4.4.1 Menu Locks

These options disable the display and accessing of the menus by the user. If the menu lock is enabled, then the menu item will not be displayed and the user will not be able to access, use or modify the menu item option.

Note:- the items available for locking vary depending upon transceiver type.

3.4.4.2 Key Locks

These options disable the primary function of a key. If the key has a secondary function such as being used for number entry, then that function remains available. If a key lock is enabled, then the primary function is NOT available and the key is locked. If the lock is disabled then the key is enabled and the user can access the primary function.

3.4.4.4 Selcall Group Locks

These locks select the way group selcall are handled:-

Sub-group

If this selcall lock is enabled then selcall sub-group calls will be ignored by the transceiver.

Group

If this selcall lock is enabled then selcall group calls will be ignored by the transceiver.

All Calls

If this selcall lock is enabled then selcall all calls will be ignored by the transceiver.

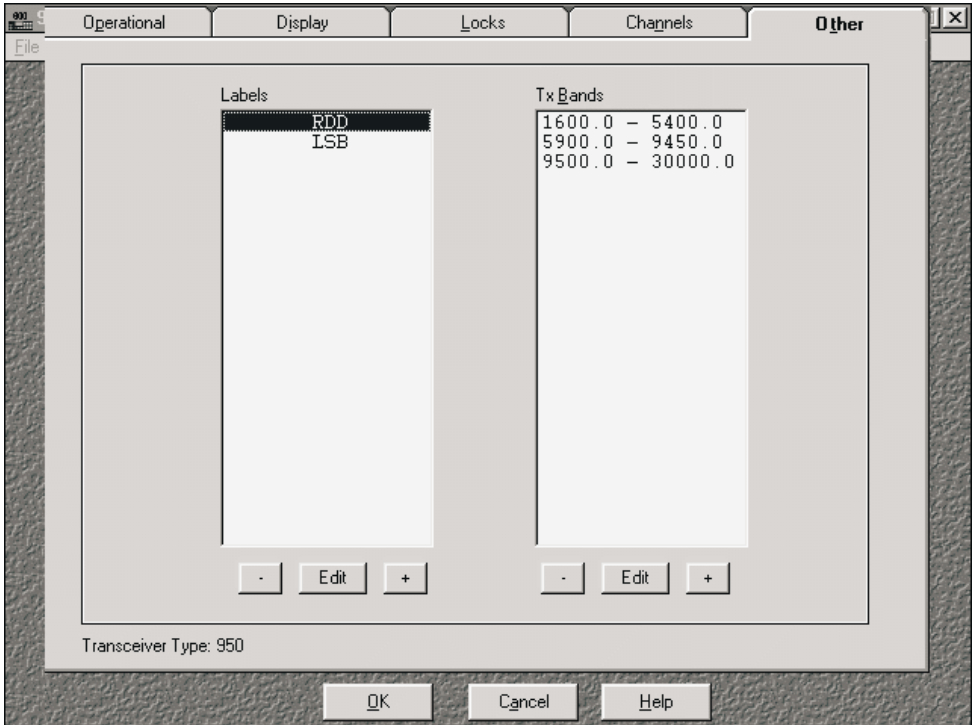
3.4.4.4 Mute Locks

These locks disable the selection of the mute types displayed.

3.4.4.5 Mode Locks

These locks disable the selection of the checked modes when using the mode key.

3.4.5 Other



3.4.5.1 Labels

This lists all the labels in the transceiver. In this window labels can be added, edited or deleted. Labels can only be ten characters in length, this includes any spaces or punctuation characters.

3.4.5.2 TX Bands

This window allows the selection of a list band of frequency limits. The user can program these as transmit frequencies from the front panel of the transceiver. The user can only program transmit frequencies listed in the TX Bands list. TX Band frequency limits can be added, edited or deleted. As an example this function can be used to set amateur bands to be enabled for transmit frequency programming from the front panel when the transceiver is used by licenced amateur radio operators.

TX Frequency Low

This is the lower limit of TX frequencies that the user will be able to enter.

TX Frequency High

This is the upper limit of TX frequencies that the user will be able to enter.

4.0 Connection of the transceiver to the programming PC

4.1 Barrett 930, 950 and 980

Connect the transceiver programming cable Barrett P/N BCA90023 from the computers selected serial port to the Barrett 900 transceiver auxiliary connector.

4.2 Barrett 940

Connect the transceiver programming cable Barrett P/N BCA94014 from the computers selected serial port to the Barrett 940 transceiver auxiliary connector..

5.0 Sending programming information to the transceiver

In the transceiver programming software Main screen select the Transceiver Menu, you will select Send at the point indicated in the procedure below - this will send the transceiver configuration for the currently selected client to the Barrett 900 transceiver. The Barrett 900 transceiver will have to be setup to receive the configuration as below:-

On the transceiver to receive information select the Cloning - Programming menu as described in that transceiver's operating manual, then using the "Menu" key select as follows:-

```
Protected Menu
Clone - Program
```

```
Clone - Program
Receive Data
```

```
Waiting for Data
from Master tcvr
```


At this point in the transceiver programming software main screen select the Transceiver Menu, then select "Send". As the data is transferred the following will be indicated:-

```
Receiving Data
|>>>>>>>> |
```



```
Transfer Done
Checking Data
```

If the transfer of programming information is unsuccessful the transceiver will display the following:-



```
Transfer
Failed
```

If this is the case the cable connection should be checked and the programming procedure repeated.

6.0 Sending programming information from the transceiver

This procedure is used when transceiver configuration information is to be loaded back into the transceiver programming software from the transceiver. Before this can be done you must first create a new client, or you can overwrite an existing client.

In the transceiver programming software Main screen select the Transceiver Menu, you will select Receive at the point indicated in the procedure below - this will enable the transceiver programming software to receive the transceiver configuration from the Barrett 900 transceiver. The Barrett 900 transceiver will have to be setup to send the configuration as described below:-

On the transceiver to send information select the Cloning-Programming menu as described in that transceiver operating manual, then using the "Menu" key select as follows:-



```
Protected Menu
Clone - Program
```



```
Clone - Program
Transmit Data
```



```
Select "Receive"
on Slave tcvr
```

Then
Press any key

At this point in the transceiver programming software Main screen select the Transceiver Menu, then select "Receive" and push any key on the transceiver. As the data is transferred the following will be indicated:-

Sending Data
|▶▶▶▶▶▶ |

Transfer Done
Press any key

If the transfer of programming information is unsuccessful the transceiver will display the following:-

Transfer
Failed

If this is the case the cable connection should be checked and the programming procedure repeated.

7.0 Unlocking locked (killed) transceivers

Trnsvr Locked
Contact Dealer

If a transceiver has been locked by a security lock selcall sequence connect the transceiver to the PC loaded with the programming software as described in section 4.0. Select the **Transceiver** menu in the transceiver programming software, then select **Unlock**. The transceiver will now be unlocked

8.0 Programming a transceiver with the Cloning - Programming menu locked from users

Switch on the transceiver and carefully watch the status LEDs on the transceiver front panel. When these start to change from initial setting after power on hold down the MENU key until the following is displayed:-



You are now in the Clone - Programming menu. Follow the instructions in either section 5.0 or 6.0 above depending on whether you wish to reprogram the transceiver from the programming software or send programming information from the transceiver to the programming software package.

9.0 Trouble shooting

Symptom

Cure

"Timed out response" is shown

Check cables and connectors. Check that the correct com port has been selected on the computer.

"Incompatible unable to transfer"

Check that the software in the transceiver is the latest version.

System locks up

Check cables and connectors. Remove any memory resident programs that might have conflicts with the com port. Remove any computer cards that may have interrupt conflicts with the com port.

**** Note:-** If problems still occur then check computer hardware. If computer hardware OK then contact Barrett Communications or one of its dealers.

Minimum Hardware requirements

- IBM 486 AT/compatible or better
- MS-Windows 3.1 or later
- RS-232 serial communications port
- Hard disk with a minimum of 10 Mb of disk space
- VGA monitor

10.0 Programming cable details

Barrett P/N BCA90023 - Barrett 930, 950 and 980 transceivers

Transceiver end 25 pin male "D" connector				Computer end 9 pin female "D" connector	Computer end 25 pin female "D" adapter
2	Rx data	←	Tx data	3	2
3	Tx data	→	Rx data	2	3
7	Gnd	← →	Gnd	5	7

Barrett P/N BCA94014 - Barrett 940 transceivers

Transceiver end 8 pin waterproof cable mounted socket				Computer 9 pin female "D" connector	Computer 25 pin female "D" adapter
2	Rx data	←	Tx data	3	2
3	Tx data	→	Rx data	2	3
1	Gnd	← →	Gnd	5	7

