8570 and 8571 Remote control
Operators handbook

CODAN

Codan Part Nº 15-04018 Issue 2, February 1996

Contents

4 Sending and receiving calls

5 Programming channels

6 Ancillary equipment

7 Appendix

Index

Figure

❑

1 About this handbook

The 8570/8571 remote control system is used to control a remotely sited transceiver. This handbook explains how to operate the installed system from the 8570 console. It assumes that you already know how to operate the transceiver and power supply, which are supplied separately.

The handbook contains seven chapters:

Chapter 2 gives an overview of the system. It describes the system components and explains the use of many of the controls.

Chapter 3 tells you how to operate the remote control system.

Chapter 4 tells you how to send and receive calls.

Chapter 5 tells you how to program channels.

Chapter 6 provides information about using ancillary equipment with your remote control system.

Chapter 7 contains a list of warning and error messages.

Standards and icons

The following standards and icons are used in this handbook:

- the names of buttons and knobs appear in bold typeface—for example: ‘press the **Tune** button on the remote control console’
- menu names and text requiring emphasis are in italics

This icon...	Means...
❑	the end of a subject.
	a warning.

❑

Glossary

This term…	Means…
ARQ	Automatic Repeat Request—a type of signalling in which the call is repeated until answered
Called ID	the ID of the station being called (the receiving station’s self ID).
CB	Citizens Band
CICS	Computer Interface Command Set
Selcall station	a location of a transceiver able to transmit and receive Selcalls
EPROM	Erasable Programmable Read Only Memory
EEPROM	Electrically Erasable Programmable Read Only Memory
FEC	Forward Error Correction—a type of signalling that does not require an answer; parity checks are carried with the data signal
Group call	a Selcall to all transceivers within a selected group
HF	High Frequency
ID	Identification
I/O	Input/output
LCD	Liquid Crystal Display
LED	Light Emitting Diode

LSB	Lower Sideband
PCB	Printed Circuit Board
PIN	Personal Identification Number
PSTN	Public Switched Telephone Network
PTT	Press-To-Talk button
Revertive signal	A signal automatically transmitted back from a receiving transceiver to indicate message received and decoded satisfactorily. The signal is not transmitted for group calls.
RF	Radio Frequency
RFDS	Royal Flying Doctor Service (of Australia)
Rx	Receive
SDE	Selective calling option that transmits to a pre-set address; also decodes incoming calls
SDEM	Selective calling option that transmits a programmable address; also decodes incoming calls
SE2	Selective calling option that transmits to a pre-set address; does not decode incoming calls
Self-ID	the programmed address identification number of your station. (Used by other stations to call you.)
SEM	Selective calling option that transmits to a changeable address; does not decode incoming calls
Tcvr	Transceiver

Tx	Transmit
USB	Upper Sideband

Other documents

For information on how to install and setup the remote control system, refer to the *8570 and 8571 installation handbook* (Codan part number 15-04070).

For information on ALE calling, refer to the *9300 ALE controller user guide* (Codan part number 15-04046).

For information on the installation and operation of an 8580 data modem, refer to the *8580 Data modem user guide* (Codan part number 15-04022).

For information on the installation and operation of the 9001 interface refer to the *9001 HF Fax and data interface user guide* (Codan part number 15-04038).

For information on the installation and operation of the 9002 modem refer to the *9002 HF Data modem user guide* (Codan part number 15-04041).

For information on using an IPC-500 Radio telephone interconnect unit refer to the *IPC-500 Interconnect user guide* and *Installation manual* (Codan part number 15-04064 or 15-04065).

2 Overview

This chapter describes:

- the main features of the 8570 and 8571 remote control system (2-2)
- the buttons and knobs that control the 8570 console (2-3)

The remote control system is used to control a selected range of Codan high frequency (HF) transceivers. It allows you to install your transceiver in a remote location and control it from another site. This enables you, for example, to site your receiver or transceiver in an electrically quiet location while controlling it from a poor reception area.

Equipment

The system consists of two units:

- the 8570 remote control console (the console)
- the 8571 remote control interface (the interface)

The console and interface are connected by a land line or VHF/UHF radio link.

You can use most transceiver functions, including channel scanning and selective calling.

Options available for the remote control system are listed in *8570 and 8571 Installation handbook, Chapter 7, Appendices, Options and accessories.*

Installing your remote control system

To install and setup the components of your remote control interface system, refer to the *8570 and 8570 Remote control installation handbook, Chapter 2, Installation*.

❑

The console

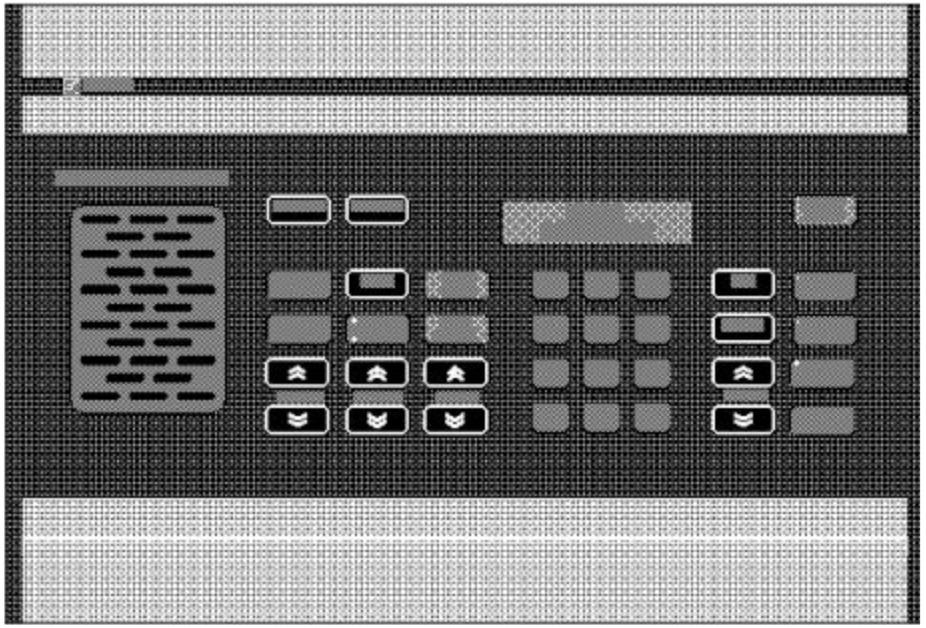


Figure 2.1 The 8570 remote control console

Key-pad

The console has five sets of buttons:

- power control
- functions
- intercom/function
- transceiver control
- numeric.

Power control buttons

Switches the console on and off.

Function buttons

Function buttons are mainly used to set up line parameters:

Sets up line compensation for the console.

Sets up line compensation for the interface.

Sets up line compensation between two interfaces in split site configurations.

Selected use to suit system requirements.

You can customise these buttons to perform operations such as communicating with the interface and disabling other consoles in your system.

For further information on these options see *Setting up the inputs and outputs* in the *8570 and 8571 Remote control installation handbook, Chapter 5, Accessories*.

Intercom/function buttons

Uses the console as an intercom to talk to other consoles in your system.

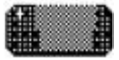
Uses special functions, sets up menus and views options for the current channel.

Transceiver control buttons

Turns the remotely sited transceiver on and off.

Tunes the antenna. You need to do this each time you change channel for automatic tuning antenna tuners.

Selects upper sideband (USB) or lower sideband (LSB) operating mode. The indicators on the button show the sideband selected. (LSB is unavailable in Australia except for receive-only channels.)



Mutes normal background noise until a selective call is received. When Selcall mute is selected, the indicator to the top left of the button is on.

Removes background noise when there is no voice signal present. When mute is selected, the indicator to the top left of the button is on.

Starts the transceiver scanning the selected channels.

Tunes the receiver in 10 Hz steps to help clarify the received speech.

Selects the next higher channel.

Selects the next lower channel.

Increases the speaker volume.

Decreases the speaker volume.

Starts a call on the selected channel.

Deletes a channel.

Selects the next higher setting.

Selects the next lower setting.

Numeric key-pad

Enters numbers.

Selects a channel on which to receive or transmit. (Use with **0** button to select a P channel for 8528 only.)

Used with number buttons to change the channel number, receive frequency or scan program mode.

3 Using the system

This chapter explains how to operate your remote control system. It assumes that the equipment has been installed and setup to operate correctly, as described in the *8570 and 8571 Remote control installation handbook, Chapter 3, Installation*.

This chapter covers:

- Operating the remote control system (3-2)
- Channels (3-5)
- Tuning the antenna (3-8)
- Adjusting the volume (3-10)
- Clarifying the signal (3-11)
- Muting the background noise (3-12)
- Scanning channels (3-13)
- Viewing the setup functions menus (3-27)
- Setting up the console for selective calling (3-30).

Throughout this section all displays show examples of channel and frequency numbers. You must insert your selected channel and frequency numbers as appropriate.

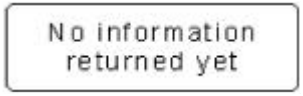
Operating the remote control system

It is assumed that the remote site is in an operating condition and setup in all respects for remote control from the local or base station console.

Operating the console

To switch on the console:

	Action	Notes
1.	To switch on the power press 	The console ‘beeps’ and the window displays opening messages (for example, the software version number). One of the **USB/LSB** indicator lights comes on and the **S'call Mute** or **Mute** light may come on (depending on the current set up).
	If switching on with a security PIN enter your PIN number and press 	The display shows: SECURITY PIN Enter _ _ _ _ _ _
2.		The final message on the display is one of the following: If the remote transceiver is on: Chan Tx 9,983.0 3 Rx 9,983.0

Action	Notes
2. cont.	If the transceiver is off:  In this case follow the instructions in *Switching on the transceiver from the console*, page 3-4. If the remote power supply is off:  alternating with  In this case you must first switch the power on at the remote location and then on at the transceiver.

Switching on the transceiver from the console

Refer to the messages in the previous section to decide whether the transceiver is on or off.

To switch on the transceiver:

	Action	Notes

1.	Press the green  button on the console.	For software version V4.00 onwards the display shows:
		`RADIO`
		`POWERING UP`
		Then the display shows the current transceiver status:
		`Chan Tx 9,983.0`
		`3 Rx 9,983.0`

The system is ready for use. You must now select a channel on which to receive or transmit, as explained in the next section.

❑

Channels

The transmit/receive channels are stored in the memory of the transceiver used in the remote control system.

These channels are normally programmed when the equipment is supplied, but additional channels can be added by an approved Codan service agent, or where licence permits, by the operator.

The licensing restriction only applies to transmit frequencies. Copying channels to another channel location or creating receive only channels are normally permitted by the user.

For information on copying and creating channels see *Chapter 5, Programming channels.*

How to select a channel

To select a channel to send or receive a call, use one of the following methods:

- Scrolling—use the **Channel** buttons to scroll through the channels until you find the one you want. This is the best method if the channel you want is close to the one displayed.
- Direct access—select a particular channel using the **Recall** button. This is the best method for changing channels over a large range.

Scrolling

	Action	Notes
1.	Press  up or down until the channel you want is displayed.	If you press the button once the next channel is displayed. If you hold the button down the channels are scrolled on the display.

Direct access

	Action	Notes

1.	Press  (on the numeric key-pad).	Example of the display:
		`Recl Tx 12,217.0`
		`____ Rx 12,217.0`

2.	Enter the channel number (for a permanent channel);
	or
		The channel appears in the lower left of the display:
		`Recl Tx 12,217.0`
		`264 Rx 12,217.0`

	P-channels P1 to P99 can be selected by pressing 0 followed by the P-channel number (for systems using 8525/8528 trans-ceivers).	The channel appears in the lower left of the display:
		`Recl Tx 11,501.0`
		`P85 Rx 11,501.0`

3.	Press 	The channel selected is displayed:
		`Chan Tx 12,217.0`
		`264 Rx 12,217.0`
		or
		`Chan Tx 11,501.0`
		`P85 Rx 11,501.0`

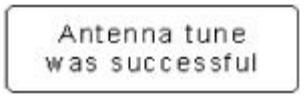
❑

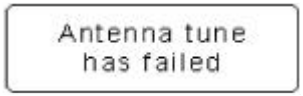
Tuning the antenna

If you have a manual or automatic antenna tuner, you need to tune the antenna after selecting a channel if you are about to transmit a call.

Although the transceiver will tune automatic tuners and antennas, it is always a good idea to press the Tune button whenever you change channel. Tuning the antenna makes it easier to hear when the channel is free from voice and data traffic before starting a call.

To tune the antenna:

	Action	Notes
1.	Press 	The remote antenna starts to tune. This message displays during the tuning period:  The transceiver ‘beeps’ while the antenna is tuning. When it is tuned two high pitched ‘beeps’ are heard and this message is displayed: 

Action	Notes
1. cont.	If no tuning point can be found, two low pitched ‘beeps’ are heard and this message is displayed:  This means that the antenna may be faulty or incorrectly installed.

❑

Adjusting the volume

To adjust the speaker volume:

	Action	Notes
1.	Press 	As you adjust the volume, any muting selected momentarily switches off. The transceiver ‘beeps’ at the minimum and maximum volume settings.

❑

Clarifying the signal

Clarifier mode allows you to improve the clarity of the voice you can hear by adjusting the frequency of your transceiver channel to match that of the received signal.

To use the clarifier:

	Action	Notes
1.	Press  (up or down) until the sound quality is improved.	The transceiver ‘beeps’ at the minimum and maximum settings.

❑

Muting the background noise

Muting allows you to silence the transceiver so that you do not hear unwanted background noise on the channel until you receive a call.

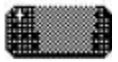
Two buttons control the mute setting of the transceiver:

- **Mute On/Off**—this function inhibits background noise until a voice signal appears.
- **S'call Mute**—this function inhibits background noise until your transceiver has been selectively called. This function is only available if your transceiver has Selcall option fitted.

Voice mute

	Action	Notes
1.	Press  to switch on and off.	The indicator is lit when this option is selected and the display does not change. This control inhibits background noise until a voice call is received.

Selective call mute

	Action	Notes
1.	To switch on press  To switch off press 	The indicator is lit when this option is selected and the display does not change. This control inhibits background noise until a selective call is received.

❑

Scanning channels

Scanning allows the transceiver to detect incoming calls on more than one channel frequency. This is useful if you expect to receive calls from several stations or from stations that transmit on more than one frequency.

The transceiver scans the list of channels set up in a scan table. It repeatedly scans each channel in the scan table until an incoming call is detected on any of the channel frequencies.

This section gives information on how to select and create a scan table and how to operate the scanning mode for incoming calls.

Your system must include a suitable broadband antenna or Codan automatic antenna tuner for scanning to be successful.

Programming scan tables

The scan tables and programming procedure differ slightly between the two types of transceivers that can be used with the remote control system and therefore are detailed separately:

Transceiver type 8525 and transceiver type 8528 series

With these transceivers you can program up to 15 channels in sequence for audio (voice) signals. Channels required to operate on selective call must be programmed within the first eight channels. There is only one scan table.

When you enter the scan programming mode the existing scan channels are automatically deleted from the table.

To program scan channels into the transceiver:

	Action	Notes
1.	Press  then  within one second to begin the process.	The entries already held in the scan program are erased. Example of the display: 
2.	Press  up or down to select the channel to be used.	Alternatively, press  followed by the channel number then  The channel is shown at the bottom left. (P57 in the example in step 1.) **Note**: to select P channel enter **0** before the channel number.
3.	If necessary, press the  button to select the required mode.	The light on the **USB/LSB** button shows the current mode.

	Action	Notes
4.	Press  to enter the channel and mode selection into the program.	The x1 entry at top right of the display  indicates the number of times this channel has been chosen for scanning. (Note that any selective calling channels must be within the first eight entries.)
5.	Press  up or down to select the next required channel in the scan table. Press  to enter. Repeat this procedure for the remaining required channels in the scan table.	To delete a channel press  on the displayed channel.

	Action	Notes
6.	When you have entered all the channels to be scanned, press  then  within one second to complete the process.	The console ‘beeps’ and the display returns to its previous status. If you try to program more than 15 channels, you hear a single low-pitched tone and a warning is displayed: 
7.	If you make an error while entering the channels, press  then  then start setting up the scan table again.	

Note: When in scan programming mode press **Review** to step through channels in the scan table.

Transceiver type 9323 and transceiver type 9360 series

With these transceivers connected into a remote control system you can program up to eight channels for audio (voice) or selective call—transceivers not connected in a remote control system can be programmed for ten channel scanning.

You can program three separate scan tables.

When you enter scan programming mode you do not delete existing channels in the table. Any channel not required must be deleted during scan programming.

Programming the 9323 or 9360 transceiver in the scan mode will include:

- scan table—1,2 or 3
- scan mode—continuous, audio pause, audio hold, selcall mute and ALE mute
- channel frequency and operating sideband mode.

To program scan channels into the transceiver:

	Action	Notes
1.	Press  then  within one second to begin the process.	The display shows: Scan PROGRAM Table number 1

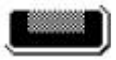
	Action	Notes
2.	Press  up or down to select the scan table 1, 2 or 3 that you wish to program.	Alternatively, press 1, 2 or 3 on the numeric key-pad.
3.	Press  to retrieve the selected scan table.	The display shows: Retrieving Scan table _ _ _
4.	Select scan mode using 	This example shows Selcall mute selected: Scan Mode Enter Selcall mute

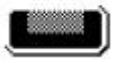
Scan mode types available for selection:

Continuous	No mute, scan continuous—Scan stops for Selcall
Audio pause	Stops scanning on Voice for three seconds, and Selcall
Audio hold	Stops scanning on Voice for as long as Voice is present, and Selcall
Selcall mute	Stops scanning during selcall
ALE mute	Can only be selected if ALE unit is fitted—Scan stops for ALE calls only.

Note: Current mute setting is also displayed.

	Action	Notes
5.	Press 	Your selection will be retained.

	Action	Notes
6.	Press  up or down to select the channel you want in the scan table. Press  to select Sideband (if available).	An example of channel display: Scan PROGRAMMING 6 Rx 12,200.0
7.	Press  to enter the selected channel into the scan table.	The display shows: Scan program x 1 6 Rx 12,200.0 after the channel is programmed into the scan table.

	Action	Notes
8.	Select remaining channels required in the scan table. Press  to enter each channel. Press  to delete any channel from the table.	
9.	Press 	Use the up and down buttons to review channels already programmed into the scan table.
10.	Press  then within one second to save your changes.	To exit without saving changes to the scan table press **PTT**.

Selecting a programmed scan table

For transceivers 9323 and 9360 it may be necessary to select a pre-programmed scan table prior to commencement of the scanning mode for incoming calls. To select the scan table:

	Action	Notes
1.	Press  followed by  within one second to select the scan table.	This example shows table 1 selected: Scan Program Table number : 1
2.	Press  up or down to select the required scan table 1, 2 or 3.	Alternatively, press 1, 2 or 3 on the numerical key-pad.
3.	Press  to return to channel mode.	

Scanning for incoming calls

In scan mode your transceiver is able to listen to selected channels for Selcall or voice calls. The selected channels are contained in the scan tables you have created.

Using transceiver 8525 or 8528 series you have only one scan table: with the 9323 or 9360 you have a choice of three. Select the required table as detailed in *Selecting a programmed scan table* on page 3-22 before commencing scanning.

The programmed scan facility for 9323 and 9360 provides five modes of scanning—as for page 3-19—which is indicated during operation as:

Scan Mode	Description	Results
Selcall	Selcall scanning is the normal setting if you expect to receive Selcalls. Scanning only stops for Selcalls.	Light on **Selcall** button.
Continuous	Use Continuous scanning if you want to listen to voice traffic as the channels are scanned. Scanning only stops for Selcalls.	No light.
Pause	Use Pause scanning if you expect voice calls and want scanning to pause for three seconds when voice is detected on the channel.Scanning also stops for Selcalls.	Light on **Mute On/Off** button.

Hold	Stops when a voice or Selcall is detected, and continues only when the signal stops.	Light flashes on **Mute On'Off** button.
ALE*	The scan stops for an ALE call only.	

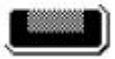
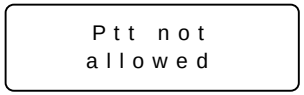
* only available when an ALE unit is fitted.

Note: On entering the scan mode and the selected table there may be occasions when only the programmed channel number is displayed—not the channel frequency.

If the frequencies are also required to be reviewed it will be necessary to 'refresh' the console's memory by recalling the channel number to display the frequencies before entering the scan mode.

To commence scanning:

	Action	**Notes**
1.	Press  to commence scanning selected channels.	The scan table number is not shown for 8525 and 8528. It is shown for 9323 and 9360: Chan Scanning 1 10 Rx 5,875.0

	Action	Notes
2.	Press *  for Selcall mute. Press *  once for Pause mute, and twice for Hold mute.	* This is for 8525 and 8528 only. For 9323 and 9360 mute is programmed in scan mode of the table.
3.	Press  again to stop scan, or **PTT** twice.	If **PTT** is used the display shows:  It will not transmit.

Using autoscan

You can set up your remote control system to scan channels automatically if no other activity is occurring. (Activity includes button presses, PTT, commands, or data transfer mode traffic.)

Using this function, you set a time of 1 to 10 minutes, after which scanning starts automatically if no system activity occurs within the time set.

For 9323 and 9360 transceivers only, the autoscan always selects table 1.

You enable autoscan using a console setup option—function 1. See *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options* for instructions.

Viewing the setup functions menus

You can view how the console operating function menus and their options have been installed while in the normal operating mode.

To view the setup functions:

	Action	Notes
1.	Press 	
2.	Enter the relevant function number within two seconds and press **Enter**.	The display shows  for example.
3.	Press  up or down to scroll through the menu.	

To return to the normal operating display press **Function** again (or leave the keys untouched for one minute, after which time the display resets to normal).

Functions and options available

The functions are divided into three groups:

Group 0 *console set up*—used to set up the console

Group 1 *system information*—general setup options for the system as a whole

Group 2 *line set up*—includes function and option menus specific to the line or link connecting the system equipment.

Within each group there are functions that are identified with a number.

See the *8570 and 8571 Installation handbook, Chapter 6, Setup functions and options* for more information about these functions:

	Function	Description
Group 0	0	Setting a PIN (password)
(Console setup options)	1	General setup options
	2	Access priority options
	3	Set start-up mute
	4	Set display backlight intensity
	5	Enable/disable monitor mode
	7	Backup transceiver setup
Group 1	10	Transceiver details
(System information)	11	Remote control software details
	14	Local supply voltage
	15	Remote supply voltage
	18	Update channel frequency memory
Group 2	20	Line parameters
(Line setup options)	21	Line equalisation parameters
	25	Miscellaneous menu
	30	RS-232 terminal menu
	31	Function key setup
	35	RS-232 window
	99	View configuration

❑

Setting up the console for selective calling

Several parameters must be set before you can use the selective calling facility. These are:

- your console's self ID
- called ID (optional)
- call preamble length
- revertive type
- Selcall lockout
- 4-digit or 6-digit compatibility.

Note: You can view these parameters while the console is in the normal operating mode (see *Viewing the setup functions menus* on page 3-27), but the console must be in setup mode before you can set or change them.

Setup mode—selective call

It is assumed that the general setup procedure for selective call operation has been done during the system installation. However, there will be a requirement by the system operator to change some of the setup parameters from time to time. For this purpose the following has been reprinted from the installation handbook.

To enter setup mode, turn the console off. Then, press and hold down the **Function** and **Control On/Off** buttons together for about two seconds to turn the console back on. 'Setup Mode' will be displayed. If your console has a PIN number, after the **Function** and **Control On/Off** keys are held down the display will show 'SECURITY PIN'. Enter the PIN number and press **Enter**.

See also the *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options*: Function 1.

Making changes—selective call

To install or change the selective call operating parameters, enter the setup function 1 once the setup mode has been selected (see *Viewing the setup functions menus* on page 3-27). Then:

	Action	Notes
1.	Press  then 	Press the **1** within two seconds. The display shows: 
	then 	The display shows: 
2.	Press  up or down to view the menu options. Press  up or down to change the state of any option.	You do not need to press **Enter** to save any option. If it is displayed when you press the **Review** button to move to the next option, it will be saved when you leave the *General Setup* menu. To leave the setup mode, switch the console off using the **On/Off** key.

The following setup options are to be reviewed.

Selective call self-identification

This function sets your console's address for selective calling. The console only responds to selective calls made to this address. Use the numeric key-pad to enter the address:

- maximum of 4 digits for 8525/8528 transceivers
- maximum of 6 digits for 9323/9360 transceivers.

Note: Do not use an address ending in 00 or 99. These numbers are reserved for State, All calls and 99 beacon calls.

For split site systems all connected transceivers (operating receivers and transmitters) must not be programmed with a Selcall self address ID. See the *8570 and 8571 Installation handbook*, *Chapter 2*, *Overview*, *Selective calling* for more information.

Example of the display:

Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

Selective call called address

This option sets an address to be called automatically each time you press the **Call** key. If you do not set an address you can enter any address when you press **Call**:

- maximum of 4 digits for 8525/8528 transceivers
- maximum of 6 digits for 9323/9360 transceivers.

Example of the display:

Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

S'call preamble length

This function sets the preamble length. There are two options:

- 'short'—two seconds
- 'long'—six seconds.

You must use a long preamble if you are calling a scanning station. This is applicable for type 8525/8528 series transceiver.

For transceiver type 9323/9360 the preamble length is setup in the transceiver when ALE scan is selected.

Example of the display:

Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

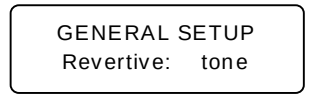
Selective call revertive type

This function sets the type of selective call revertive sent to a calling station. The revertive can be either:

- 'tone'—the standard revertive type
- 'digi'—digital—only used under special circumstances

Tone setting is the normal operating mode.

Example of the display:



Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

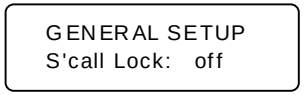
Selcall lockout

This function switches Selcall lockout on or off. Switching on Selcall lockout prevents you from sending a Selcall or beacon call if the transceiver detects that another station is sending a call on the same channel. This reduces call interference between stations and increases the chance of success when a Selcall or beacon call is transmitted.

The options are:

- ‘on’
- ‘off’.

Example of the display:



Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

Digits—4 or 6 digit compatibility

This function allows communication with stations whose address is either 4 or 6 digits.

The options are:

- '4 or 6'—to allow 4-digit and 6-digit addresses
- '6 only'—to allow 6-digit addresses only.

Example of the display:

```
GENERAL SETUP
Digits : 4 or 6
```

Refer to *Making changes—selective call* on page 3-31 for the procedure for making changes.

❑

4 Sending and receiving calls

This chapter explains how to send and receive calls. It assumes that the equipment has been installed and setup to operate correctly, as described in the *8570 and 8571 Remote control installation handbook, Chapter 3, Installation*.

This chapter covers:

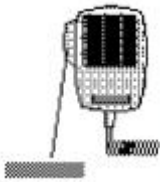
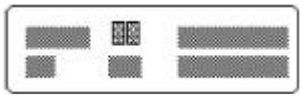
- Sending a voice call (4-2)
- Selective calling (4-5)
- Group calls (4-14)
- State calls and All calls (4-15)
- Using the beacon feature (4-17)
- Sending and receiving tone calls (4-23)
- Using the free-tuning receiver (4-28)
- Using the console as an intercom (4-30)
- Receiving emergency Selcalls (4-36).

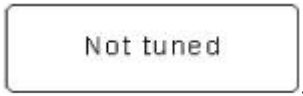
Throughout this section all displays show examples of channel and frequency numbers. You must insert your selected channel and frequency numbers as appropriate.

Sending a voice call

To send a voice message, select the correct channel and adjust the volume. If you have an automatic tuning system, tune the antenna before you start transmitting.

To send a voice call:

	Action	Notes
1.	Listen:	Make sure the selected channel is free of traffic before you begin your transmission.
2.	Press the microphone PTT button.  Hold the micro-phone side-on, close to your mouth, and speak clearly.	A vertical bar graph replaces ‘Tx’ in the display to indicate that transmission is occurring:  **Note**: Remember to release the PTT button to listen for a response.

Action	Notes
3.	If you hear two low pitched tones and this error message appears on the display:  , you have an automatic antenna tuning system that has not been tuned. Refer to *Chapter 3, Using the system, Tuning the antenna* for instructions.

Using the microphone

When talking into the microphone:

- hold the microphone side-on and close to your mouth.
- press and hold down the PTT button
- speak clearly at normal volume and rate
- use the word ‘over’ to indicate when you have finished speaking and release the PTT button
- your conversation can be monitored by anyone tuned to your transmit frequency.

PTT timer

The PTT transmit cutout sets a timer to prevent the transceiver being left on in the transmit state by mistake.

The timer is set in the factory to ten minutes, but you can adjust this if you wish.

You set the PTT timer using a general setup option—function 1. See *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options* for instructions.

❑

Selective calling

Selective call allows you to call an individual transceiver or a group of transceivers. This can be likened to a normal telephone system where the called station has a unique calling address or number.

Selective call also allows you to call a group of stations.

Each transceiver and console in the system has its own identification number. The identification number is a four or six digit code that is either:

- programmed into the transceiver using the front panel buttons
- pre-set at the factory.

The selective call feature operates by the transmission and reception of coded signals. These signals contain the identification number of the station being called (the called address) and the number of the station sending the call (the self-identification).

The identification numbers are represented by 4-digit codes for 8525/8528 transceivers and 4- digit or 6-digit codes for 9323/9360 transceivers. You program these codes into the memory using the console's key-pad.

Setting up the transceiver and console

It is assumed that all system transceivers installed incorporate the selective call facility and that for split site operation the transceivers do not have the self ident address programmed.

Your console must be set up to use the selective calling facility. For information about how to do this, see *Chapter 3, Using the system, Setting up the console for selective calling*.

Sending a selective call

From channel mode:

	Action	Notes
1.	Press  up to down to select the required channel.	The display shows: Chan Tx 2,500.0 2 Rx 2,500.0
2.	Turn the mute off using 	You will hear background receiver noise.
3.	If your system has an automatic antenna tuner system, press  to tune this channel.	Receiver noise may increase.
4.	Listen.	Ensure the selected channel is free of voice or data transmission.

	Action	Notes

5.	Press 	The display shows:
		`Chan Send beacon`
		`2 to 123456`

6.	If Call (Selcall) is not displayed press  up or down until Call is shown, or press 	The display shows:
		`Chan Send call`
		`2 to 123456`

7.	Press numerals  to enter the Selcall ID (if different from that displayed).	The display shows:
		`Chan Send call`
		`2 to 232246`
		If fixed in the setup menu the ID cannot be changed.

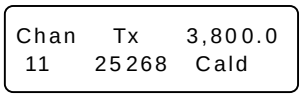
8.	Press  to send call.	The display shows:
		`Chan Sending`
		`2 232246`
		You will hear a ‘warbling’ sound for approximately ten seconds.

	Action	Notes
9.	Listen.	If the Selcall is successful a revertive of six ‘beeps’ will be heard from the called station. If the called station is attended, voice communication can commence. If unattended, your call will be recorded in the call stack at the called station for later communications.

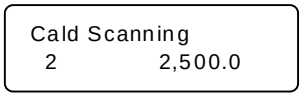
Receiving a selective call

When you receive a selective call, you will hear a series of three telephone rings or 16 short ‘beeps’ for group calls.

If the transceiver is unattended the call is stored in the call stack. It is also shown on the channel display as shown:



The caller’s self ID and ‘Cald’ is displayed on the receive channel.



An example as seen on other scanning channels.

If you do not answer the call immediately, after the call is stored in the call stack the console will continue to sound a beep every four seconds to indicate a call has been received. Any function on the control panel will silence the beeps, eg. Volume ⩓ or ⩔.

To answer the call and begin normal two-way conversation, stop Scanning by pressing **Scan**, and select the called channel. Press the **PTT** button and begin to speak into the microphone.

Note: Pressing **PTT** on the called channel removes the ‘Cald’ and ID from the display. The called ID remains in the call stack.

Pressing **Delete** will delete entries from the call stack when you are reviewing calls.

Receiving a selective call in scan mode

When a Selcall signal is received during selective call scanning, scanning is stopped until the call is decoded. If the call is found to be addressed to the console, three telephone rings are heard and the scanning is halted. The display shows the number of the channel on which the call was received.

After the telephone rings a single ‘pip’ is sounded at four second intervals. When scanning is resumed, the ‘pips’ continue and the display shows the address of the calling station on the channel(s) on which the calls were received., For example, when a station with Selcall ID 555661 calls on the channel 1234 whilst in scan table 1, the display shows:

The call is stored in the call stack memory. The call stack can record up to 20 calls and can be reviewed at any time (see *Reviewing received calls* on page 4-11). The ‘pips’ can be stopped by operating any button function. See also *Receiving a selective call* on page 4-9.

See Chapter 3, *Programming scan tables* for instructions for programming the channels.

Reviewing received calls

The console records up to 20 separate calls in its memory. If a station calls more than once on the same channel, it is only recorded once.

If more than 20 calls are received, the first call stored in the stack is deleted to make room for the latest call. When power is removed from the console all information in the call stack is lost.

To view the stack, press one of the **Review** buttons. If no calls have been received, the display shows:

If one or more calls have been received, the display shows:

```
Chan   review 1
324  3422 called
```

The display shows the caller's selective call ID and the channel number called. The last station to call is shown first.

For tone calls received and held in memory (8525and 8528 systems) the display shows:

```
Chan   review 1
324    Tone call
```

To review the calls, press the **Review** buttons. Each entry includes the channel on which the call was received.

Returning a Selcall from the call stack:

	Action	Notes

1.	Press  to select the call you wish to send.	The display shows:
		`Chan review 1`
		`324 3422 called`

2.	Press twice 	This will send a Selcall to the station that called you using the same channel and call ID.

Returning a tone call—8525/8528 series—from the call stack:

	Action	Notes

1.	Press  to select the call to be returned.	The display shows:
		`Chan review 1`
		`324 Tone call`

2.	Press once 	

❑

Group calls

A group call is a special type of selective call in which a coded message is transmitted to all stations in a selected group.

Note: You can still call an individual station in that group by entering the station's ID in the console in the normal way.

Sending a group call

You send a group call in the same way as any other selective call—by pressing the **Call** button—but for a group call the address must end in 00.

For example, a call to station 0200 is received by all stations whose identification address is in the range from 0201 to 0299.

No revertive will be heard.

State calls and All calls

State calls and All calls are both variations on the standard group call. They are used only for special case applications with engineered systems incorporating custom built transceivers programmed to operate within this calling mode.

State calls

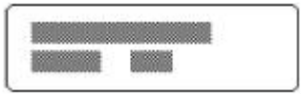
A State call is a message transmitted to all stations with the same first digit for a 4-digit Selcall and the same three digits for a 6-digit Selcall. For example, if your console has the self-identification number beginning with 234 for a 6-digit Selcall, a State call will call all stations from 234001 to 234998. At each receiving console an alarm of 16 short beeps sounds when the State call is received. No revertive signal is sent.

All calls

An All call is a message transmitted to all stations on a given channel capable of responding to a selective call (stations 0000 to 9999). At these stations an alarm of 16 short beeps sounds. No revertive signal is sent. All calls are used almost exclusively for emergencies.

Each transceiver must be programmed to respond to either a State call or an All call. A special functions menu (function 2) is used to select the option at the console. See *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options* for instructions.

To send a State call or an All call:

	Action	Notes
1.	Press  and use  to select State or All.	The display shows: 
2.	Press  to send the State or All call.	The display shows: 

The type of call sent depends on how your software is set and is indicated on the display when you send the call.

❑

Using the beacon feature

The beacon facility is used to check signal conditions between two transceivers fitted with selective call.

The beacon facility has two modes of operation:

- selective beacon mode
- base station (99) beacon mode.

A beacon signal consists of four long tones. Self-identification addresses ending in 99 should be avoided.

No alarm or call is recorded at the remote receiving transceiver or local console. A revertive transmission from the transceiver is not indicated by the console.

If the receiving transceiver (console) is in scan mode, scanning starts again immediately.

Normal selective operation is not affected.

Note: If you have an 8525/8528 transceiver with software earlier than version 3.50, you have to send a 99-beacon call. See *Sending a 99-beacon call* on page 21.

Sending a selective beacon call

You usually send several selective beacon calls before deciding which channel to use for sending a Selcall.

When you send a selective beacon call, the receiving station acknowledges your call by sending a beacon revertive signal consisting of four long beep tones. You compare the quality of the revertive signals to decide which is the best channel to use for communication.

Selective beacon calls allow you to check channel conditions without disturbing stations in your network by frequent test calls. A transceiver receiving a selective beacon call does not record the call or alert the operator.

Before you can make a selective beacon call you need to ensure that the following has been set up:

- your self ID
- a channel for Selcalling

To send a selective beacon call:

	Action	Notes
1.	If in scan mode press  or **PTT** to stop scanning.	The display shows: Chan Tx 3,800.0 11 Rx 3,800.0
2.	Press 	The display shows: Chan Send call 11 to 122563

	Action	Notes
3.	Press  up or down or  to display beacon.	The display shows: Chan Send beacon 11 to 122563
4.	Enter the Selcall address using the numeric buttons  (if it is different from that displayed or fixed in the Setup menu).	The display shows: Chan Send beacon 11 to 144466
5.	Press  to send beacon.	The display shows: Chan Beaconing 11 to 144466
6.	Listen for the revertive of four long tones.	If the receiving station has an automatic antenna tuning system it will tune the antenna before transmitting the revertive.

Action	Notes
7.	The transceiver returns to channel mode after the selective beacon call has been completed. Chan Tx 3,800.0 11 Rx 3,800.0

Sending a 99-beacon call

If your system consists of an 8525/8528 transceiver and the software is earlier than 3.50 you must send a beacon call to a station address ending in 99.

This type of beacon call is used to call older transceivers that are incapable of responding to selective beacon calls.

With a base station enabled for beacon mode, it will transmit a beacon signal on receipt of a selective call ending in 99.

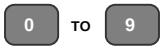
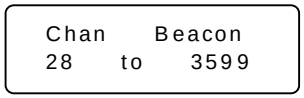
The thousand and hundred digits of the address must be the same for both the beacon transmitting and receiving stations.

If mobile transceivers have the beacon enabled, the first two digits of each mobile transceiver's self-identification address should be set to a different number so that they do not all transmit a beacon response together.

Before you can make a 99-beacon call, ensure the following has been set up:

- the station you are calling is set up for 99-beacon calls
- your self-ID (refer to the *8570 and 8571 remote control installation handbook, Chapter 6, Setup functions and options*: Function 1)
- a channel for Selcalling.

To make a 99-beacon call:

	Action	Notes
1.	In channel mode select a transmit channel that is scanned by the station being called.	
2.	Press 	
3.	Then enter the station address using the numeric buttons with 99 as the last two digits 	The display shows: 
4.	Press  again to send the call.	

❑

Sending and receiving tone calls

A tone call allows you to call a station that has been setup and is capable of receiving your two-tone calling signal.

This section covers sending a tone call for 9323/9360 transceivers and both sending and receiving a tone call for 8525/8528 transceivers.

Selective calling has largely replaced tone calling as a method of calling specific stations. You may want to use tone calling if some stations in your network are incapable of using Selcall ID's.

Note: Tone decoding is only available with transceivers 8525/8528 fitted with option TD.

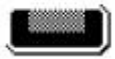
For 8525/8528 series transceivers option TE is required for sending tone calls: option TD is required for receiving tone calls. You cannot use these options and selective calling on the same channel. The calling party is not identified.

The TE option only operates on channels programmed with either T1, T2, T3 or T4.

See Chapter 5, *Programming Channels* for instructions.

Sending a tone call

To send a tone call for 9323/9360 transceivers:

	Action	Notes
1.	If in scan mode press  or PTT to stop scanning.	The display shows: Chan Tx 3,800.0 11 Rx 3,800.0
2.	Press  up or down to select the required channel with tone call enabled.	The display shows: Chan Tx 5,880.0 18 Rx 5,880.0
3.	Press 	The display shows: Chan Send call 18 To 5,880.0

	Action	Notes

4.	Press  up or down until Tone 1,2,3 or 4 is displayed, or press 	The display shows:
		`Chan  Send`
		`18    Tone call 1`

5.	Press  and hold for approximately 10 seconds.	The display shows
		`Chan  Sending`
		`18    Tone call 1`
		and a tone is heard during the transmission.

To send a tone call for 8525/8528 transceivers:

	Action	Notes
1.	If in scan mode press  or PTT to stop scanning.	The display shows: Chan Tx 3,800.0 11 Rx 3,800.0
2.	Press  up or down to select the required channel with tone call enabled.	The display shows: Chan Tx 5,880.0 18 Rx 5,880.0
3.	Press  and hold for approximately 10 seconds.	The display shows: Chan Sending 18 Tone call and a tone is heard during the transmission.

Receiving a tone call—8525/8528 series

If your transceiver is an 8525/8528 and has Option TD fitted, when a call is received, the console emits three short ‘pips’ and the display shows, as an example:

```
Chan  Tx   5,880.0
 18   Tone call
```

After the initial alarm, the pips are repeated at four second intervals.

To cancel the pips and answer the call, press the microphone's PTT button.

The tone call appears in the call memory stack. You can review it or delete the call, following the procedure in *Reviewing received calls* on page 4–11.

Using the free-tuning receiver

The console can be used to operate Codan transceivers as free-tuning receivers. You can then receive signals or broadcasts within the frequency range of 250 KHz to 30 MHz. The channel created is temporary and is lost when you change channels or turn off the console. Transmission is inhibited to prevent you inadvertently transmitting on a broadcast or other receive-only frequency.

To use the transceiver as a free-tuning receiver, make sure the console is turned on and any channel is selected, then proceed with one of the following methods.

First method: to select a fixed frequency:

	Action	Notes
1.	Enter the first digit of the frequency you want.	The display changes from the original selection to show: 
2.	Enter the numbers for the remainder of the frequency.	The numbers will appear on the display as you enter them.
3.	Press 	The display shows the selected frequency: 

This procedure sets up a temporary channel at your chosen frequency. To return to the original channel selection press **Channel** up or down.

Second method: to scan through the frequencies starting with the entered frequency:

	Action	Notes

1.	Press  and hold.	The display changes from the original selection to show the Rx frequency only:
		`Entr  Tx  _ _ _ _`
		`  5  Rx  17,535.0`

2.	Then press  or 	The displayed frequency can be changed up or down in steps of 0.1 kHz with a single press of the buttons or continuous scan from the original frequency. The display shows:
		`Entr`
		`Tune  Rx  17,535.0`

3.	Release  when you end free tuning.	The display will remain at the frequency shown when **Enter** was released.

To return to the original channel selection press **Channel** up or down.

Using the console as an intercom—basic single site, split site or daisy chain

If your system includes more than one console, you can use each as an intercom to call any or all of the others. Each console is allocated an intercom number during installation (for more information refer to the *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options, General setup options—function 1*). You can call an individual console by 'dialling' its number. The intercom system uses a party line that does not exclude other consoles.

When **Intercom** is pressed to enter the intercom mode, all transceiver operations are suspended and all consoles in the system will have 'intercom' displayed. If no buttons are touched for one minute, the system returns to normal transceiver operation.

If a console is in use in a system all others will display 'Busy'.

Each console should be setup with the intercom identity number and the intercom answer mode using:

- 'auto'—to give two rings before the console is connected
- 'normal'—to give eight rings with the console only being connected if **PTT** is pressed.

Example—operator 1 calling operator 2

This example shows you (operator 1) how to use the intercom to call a single operator (operator 2):

Action:	Operator 1's display shows:	Operator 2's display shows:
Press 	INTERCOM This is unit 1	INTERCOM This is unit 2
	followed by:	followed by:
	INTERCOM not connected	INTERCOM not connected
Press 	INTERCOM connect to _ _	
Press 	INTERCOM connect to _ 2	
Press 	INTERCOM ringing 2	INTERCOM call from 1
		The console beeps.
	INTERCOM answer from 2	

Action:	Operator 1's display shows:	Operator 2's display shows:
	If operator 2 is not present or the console is not turned on, the message is:	
	INTERCOM not connected	
	If connection is made the message is:	
	INTERCOM connected	INTERCOM connected
	The console emits a series of beeps.	The console emits a series of beeps.
If connection is made, press PTT and speak.	INTERCOM you are talking	INTERCOM 1 is talking
		
To end, press:		
	Display returns to normal transceiver mode.	Display returns to normal transceiver mode.

Example—operator 1 calling all operators

This example shows you (operator 1) how to use the intercom to call all other consoles in your system:

Action:	Operator 1's display shows:	Other operator (example shown is 2) displays show:
Press 	INTERCOM This is unit 1	INTERCOM This is unit 2
	followed by:	followed by:
	INTERCOM not connected	INTERCOM not connected
Press 	INTERCOM connect to _ _	
Press 	INTERCOM connect to All	
Press 	INTERCOM connecting	INTERCOM call from 1
		The console beeps.

Action:	Operator 1's display shows:	Other operator (example shown is 2) displays show:
	INTERCOM connected	INTERCOM connected
		The console emits a series of beeps.
If connection is made, press PTT and speak.	INTERCOM you are talking	INTERCOM 1 is talking

This procedure sets up a party line in which any operator can take part. While you are talking, a message to this effect is displayed. All other consoles display a message identifying the number of the operator who is talking. If you try to talk while another operator is talking, the following message is displayed:

INTERCOM
line is busy

Several options are available to you while you are using the intercom:

To do this:	Press these buttons:	Your display shows:
Leave the party line		
Force all operators to leave intercom mode		Normal transceiver operation messages.
Re-enter a party line		The same series of connection messages are displayed as when starting the party line.
or		This enters the party line but does not inform the other consoles.

❑

Receiving emergency Selcalls

If your system includes transceivers 9323/9360 with emergency Selcall option enabled or transceivers 8525/8528 with software version 3.52 or later, the console can receive, emergency Selcalls. It cannot send emergency Selcalls.

When an emergency call is received an alarm sounds to alert the operator. If the external alarm is installed (see the *8570 and 8571 Remote control installation handbook, Chapter 3, Installation, External alarm*) the alarm relay will pulsate when an emergency call is received, instead of remaining permanently on as is the case for normal Selcalls. A successfully received call will initiate a revertive signal being returned to the caller: this activates a two tone (‘siren’) alarm at the caller’s console.

It is assumed that during installation the Emergency mode of function 1 (see the *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options*) has been selected to receive Emergency Selcalls and—as necessary—the two emergency only ID’s have been programmed.

Ensure the emergency ID addresses are not the same as the console self ID addresses.

5 Programming channels

This chapter explains how to program channels in your remote control system. It assumes that the equipment has been installed and setup to operate correctly, as described in the *8570 and 8571 Remote control installation handbook, Chapter 3, Installation*.

This chapter covers:

- Programming transceivers type 8525 and 8528 (5-2)
- Programming transceivers type 9323 and 9360 (5-16).

Throughout this section all displays show examples of channel and frequency numbers. You must insert your selected channel and frequency numbers as appropriate.

Generally transceivers are supplied with an inbuilt facility (option TXD—Transmit Disabled) which prevents you from programming or changing transmit frequencies from the control panel. Under special circumstances, and where local licensing authorities permit, option TXE (transmit enabled) may be fitted to the transceiver which allows you to create or change the transmit frequencies of your transceiver.

Channels programmed by Codan or by an approved service agent are stored in the internal memory of the transceiver. These can be reprogrammed or deleted by Codan or the service agent.

You can copy existing transmit/receive frequencies to another location which allows you to group a number of channels together. You can also create new receive-only channels for broadcast reception or monitoring.

The two transceivers series 8525/8528 and 9323/9360 that can be used with the system differ slightly in their programming and have therefore been detailed separately as follows.

Programming transceivers type 8525 and 8528

In the 8525 and 8528 there are 99 programmable channels (P-channels) that can be programmed by you and numbered P01 to P99. Existing channels may be copied as P-channels and their option modified, such as :

- S-selective call
- t-calls (four 2-tone calls)
- Upper Sideband mode (USB) or Lower Sideband mode (LSB)

Note: If you are using and intend programming an 8525B transceiver, you will need to fit a link (3) on the microprocessor PCB (08-03741) of the transceiver before you can program, replace, or delete P-channels. This is an installation operation: refer to the technical service manual 15-02036 for details.

Copying channels to a P-channel—8525 and 8528

A receive/transmit P-channel allows you to receive and transmit on the same frequency.

You can copy an existing channel, creating a new P-channel using the same Tx and Rx frequencies. You might do this, for example, if you want two different configurations for the same frequency. To copy a channel:

	Action	Notes

1.	Press  up or down to select the channel with the required Tx and Rx frequencies.	The display shows:
		`Chan Tx 12,217.0`
		`264 Rx 12,217.0`

2.	Press 	The display shows:
		`Entr Tx __,___,_`
		`264 Rx 12,217.0`

3.	Press  to display the option fields.	The display shows:
		`Entr options`
		`264 S_,_U`

	Action	Notes

4.	Press  and select one of the options S/T1/T2/T3 and T4.	The display shows:
		`Entr options`
		`264 T1,_U`

5.	Press  to select one of the options U (USB), L (LSB), or LU (both).	The display shows:
		`Entr options`
		`264 T1,LU`
		Note: Special hardware is required for operation in lower sideband—option L.

6.	Press  to confirm your selections when the correct options are displayed.	The display shows:
		`Entr Tx 12,217.0`
		`P__ Rx 12,217.0`

7.	Enter the channel number.	The display shows:
		`Entr Tx 12,217.0`
		`P85 Rx 12,217.0`

	Action	Notes
8.	If the channel number is already programmed, the console 'beeps' and displays a warning message. To continue, enter another channel to be used.	The warning message shows:  The channel selection screen is displayed again with the channel number you entered flashing.

*Do not press **Enter** before you enter a new channel number. If you do, the channel will be overwritten.*

9.	Press  to confirm the channel selection.	The console 'beeps' to indicate completion and the display remains unchanged.

The new channel is now ready for use. It remains selected until you change it by pressing one of the **Channel** buttons.

Note: Two-frequency simplex channels (those in which the Rx and Tx frequencies are different) must only use channel reference P70 to P99.

Creating a receive-only P-channel—8525 and 8528

A receive-only channel is one in which transmission is not allowed and has been inhibited. This is useful, for example, for setting up channels to receive broadcasts on frequencies where it is illegal to transmit.

To create a receive only channel:

	Action	Notes

1.	Press  up or down to select any channel.	The channel frequency is displayed, as shown in the example:
		`Chan Tx 12,217,0`
		`264 Rx 12,217,0`

2.	Press 	The display shows:
		`Entr Tx __,___,_`
		`264 Rx 12,217,0`

3.	Press  to begin to program the channel.	The display shows:
		`Entr Tx inhibit`
		`264 Rx __,___,_`

	Action	Notes
4.	Enter a frequency between 250kHz and 30MHz.	The example shown sets 12,457.5 as the receive frequency: Entr Tx inhibit 264 Rx 12,457,5
5.	Press  to display option fields.	The display shows: Entr options 264 S_,_U
6.	Press  to select one of the options U (USB), L (USB), or LU (both).	The display shows: Entr options 264 T1,LU **Note**: Special hardware is required for operation in lower sideband—option L.
7.	Press  to confirm your selections when the correct options are displayed.	The display shows: Entr Tx inhibit P__ Rx 12,457.5
8.	Enter the channel number (1 to 99), e.g. 42.	The display shows: Entr Tx inhibit P42 Rx 12,457,5

	Action	Notes
9.	If the channel number is already programmed, the console beeps and displays a warning message. To continue, enter another channel to be used, unless you want to overwrite this P-channel.	The warning message shows: P channel already used The channel selection screen is displayed again with the channel number you entered flashing.
10.	Press 	The console ‘beeps’ to indicate completion and the display remains unchanged.

The receive-only channel is now ready for use. If you try to transmit on this channel, the console ‘beeps’ twice and the following message is displayed:

Transmit inhibit on this channel

The channel remains selected until you change it by pressing one of the **Channel** buttons. When you scroll through the channels you will see the receive-only channel included, with the Tx frequency inhibited, as shown previously in step 8.

Overwriting an existing P-channel—8525 and 8528

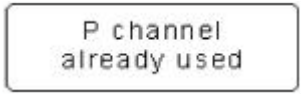
You overwrite an existing P-channel by programming it in the way described earlier, then entering the channel number you want to use—in this case, one that has already been programmed. You can overwrite an existing channel with a receive-only channel, or you can copy another channel and use a different channel number.

You may also want to overwrite an existing channel if you have accidentally selected the incorrect USB/LSB options or selective calling options.

Overwriting a P-channel erases the transmit frequency previously allocated to the channel. You cannot restore it simply.

To overwrite a P-channel, program it following the instructions given for creating a receive-only channel or copying frequencies. Then:

	Action	Notes
1.	Press  to confirm your selections when the correct options are displayed.	The display shows: Entr Tx inhibit P__ Rx 11,501.0
2.	Enter the channel number e.g. 85.	The display shows: Entr Tx inhibit P85 Rx 11,501.0

	Action	Notes
3.	Press 	Since the channel number is already programmed, the console 'beeps' and displays a warning message:  The channel selection screen is displayed again with the channel number you entered flashing.
4.	To overwrite the existing channel: Press  to confirm the channel selection.	The console 'beeps' to indicate completion and the display remains unchanged.

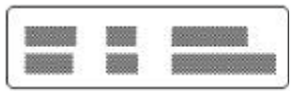
The overwritten channel is now ready for use. It remains selected until you change it by pressing one of the **Channel** buttons.

Note: Two-frequency simplex channels (those in which the Rx and Tx frequencies differ) must only use channel reference P70 to P99.

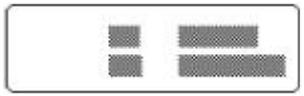
Creating a temporary channel—8525 and 8528

During any channel programming operation, copying or creating a P-channel, a temporary channel can be set up. This is not saved when you switch off power.

To create a temporary channel, program it as a P-channel then press **Enter** instead of entering a channel number when the last programming screen is displayed:



The channel is shown without a ‘P’ number:



Note: The example above is a receive-only channel, but you can create temporary channels for both receiving and transmitting.

Preventing accidental changes or deletion—8525 and 8528

P-channels can be protected from accidental deletion or overwriting.

Note: The console must be in setup mode before you can protect channels from deletion. To enter setup mode, first turn the console off. Press and hold down both the **Function** and **Control On/Off** buttons for about two seconds to turn the console back on.

To protect the existing channels, from setup mode:

	Action	Notes
1.	Press  then  and  within two seconds to select the *Access Priority—P-channel inhibit* menu.	The display shows: 
2.	Press  up or down to scroll through the options until the display reads:	The display shows: ACCESS PRIORITY All P chan inhib

3.	Press  to select the displayed option and return to the setup screen.	All channels are now protected.

There are several functions related to P-channels. You can, for example, remove the protection set up. You can also prevent anyone from creating channels.

See *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options* for more information on these functions.

Deleting a P-channel—8525 and 8528

You can delete unwanted channels at any time, unless they have been protected as described in *Preventing accidental changes or deletion* on page 5-12.

	Action	Notes

1.	Press  up or down to select the channel to be deleted.	The display shows:
		`Chan Tx 11,501,0`
		`P85 Rx 11,501.0`

2.	Press 	The display shows:
		`Entr Tx __,___,_`
		`P85 Rx 11,501.0`

3.	Press  to display option fields.	The display shows:
		`Entr options`
		`P85 S_,_U`

	Action	Notes

4.	Press 	The display shows:
		`Entr Tx 11,501,0`
		`P__ Rx 11,501.0`

5.	Press 
	to delete the channel.
		The display shows:
		`Chan Tx _,___._`
		`P57 Rx 3,860.0`
		The channel is now deleted and the channel immediately before it is displayed.

Programming transceivers type 9323 and 9360

In transceivers 9323 and 9360 there are no P-channel facilities. Instead the transceiver can be programmed with up to 400 channels, with the total number of channels available depending on the amount of channel comment (text) programmed.

Existing channels can be copied to new channel locations and grouped together if used regularly—for example, 10 channels with sequential numbers between 201 and 210.

Channel options can also be modified, such as:

- S-selective call
- t-calls (four 2-tone calls)
- Upper Sideband mode (USB) or Lower Sideband mode (LSB)
- Protected/Not protected

Programmed channels that are protected can only be deleted by an approved Codan service agent. Unprotected channels can be deleted at any time.

Creating a receive-only channel—9323 and 9360

A receive-only channel is one in which transmission is not allowed and has been inhibited. This is useful, for example, for setting up channels to receive broadcasts on frequencies where it is illegal to transmit.

To create a receive only channel:

	Action	Notes

1.	Press  up or down to select any channel.	The screen displays the channel frequency, as shown in the example:
		`Chan Tx 12,217,0`
		`264 Rx 12,217.0`

2.	Press 	The display shows:
		`Entr Tx __,___,_`
		`264 Rx 12,217.0`

3.	Press  to begin programming the channel—selects Tx inhibit.	The display shows:
		`Entr Tx inhibit`
		`264 Rx __,___,_`

	Action	Notes
4.	Enter the frequency. It must be between 250 kHz and 30 MHz or an error message is displayed.	The example shown sets 12,457.5 as the receive frequency: Entr Tx inhibit 264 Rx 12,457,5
5.	Press  to display option fields.	The display shows: Entr option tone 264 __,S_,_U,NP Flashing
6.	Press  up or down to move to Sideband select.	The display shows: Entr option band 264 T1,S_,_U,NP Flashing
7.	Press  up or down to select sideband.	U Upper sideband L Lower sideband UL Upper and Lower sidebands

	Action	Notes
8.	Press  up or down to move to the next option.	The display shows: Entr option prot 264 T1,S_,_U,NP Flashing
9.	Press  up or down to select Protected or not Protected.	**Note**: If you select Protected the channel cannot be deleted or changed except by an approved Codan service agent.
10.	Press  to move to the Channel number program.	The display shows: Entr Tx inhibit ____ Rx 12,467.5
11.	Enter a new channel number (any unused channel) from 1 to 9999.	The display shows: Entr Tx inhibit _100 Rx 12,467.5

	Action	Notes
12.	Press  to complete programming.	The display shows: Entr Tx inhibit 100 Rx 12,467.5

Copying a channel and changing options on protected channels—9323 and 9360

You can copy an existing transmit/receive channel to a new channel location. This will also enable you to change any of the options selected on the channel.

To copy and change options:

	Action	Notes

1.	Press  up or down to select the channel you wish to copy.	The screen displays the channel frequency, as shown in the example:
		`Chan Tx 12,217.0`
		`8 5 Rx 12,217.0`
		(This example uses channel 85 to copy.)

2.	Press 	The display shows:
		`Entr Tx __,___._`
		`8 5 Rx 12,217.0`

3.	Press  to display option fields.	The display shows:
		`Entr option tone`
		`8 5 __,S_,_U,NP`
		Flashing

	Action	Notes
4.	To change tone call option press  up or down to scroll through the options T1/T2/T3 and T4.	The display shows: Entr option tone 8 5 T1,S_,_U,NP Flashing
5.	Press  up or down to move to the next option.	The display shows: Entr option Slcl 8 5 T1,S_,_U,NP Flashing
6.	Press  up or down to select the Selcall option On/Off.	

	Action	Notes
7.	Press  up or down to move to the next option.	The display shows: Entr 8 5 option band T1,S_,_U,NP Flashing
8.	Press  up or down to select sideband.	U Upper sideband L Lower sideband UL Upper and Lower sidebands (L and LU are not available in Australia except for receive only channels.)
9.	Press  up or down to move to the next option.	The display shows: Entr 8 5 option prot T1,S_,_U,NP Flashing

	Action	Notes
10.	Press  up or down to select Protected or Not Protected.	**Note**: If you select Protected the channel cannot be deleted or changed except by an approved Codan service agent.
11.	Press  to move to the Channel number program.	The display shows: Entr Tx 12,217.0 ____ Rx 12,217.0
12.	Enter a new channel number (any unused channel) from 1 to 9999.	The display shows: Entr Tx 12,217.0 _100 Rx 12,217.0 If the channel is used select a new channel number.
13.	Press  to complete programming.	The display shows: Entr Tx 12,217.0 100 Rx 12,217.0

Deleting a channel—9323 and 9360

You can delete unwanted channels at any time unless they have been protected.

	Action	Notes

1.	Press  up or down to select the channel to be deleted.	The display shows:
		`Chan Tx 12,217.0`
		`85 Rx 12,217.0`

2.	Press 	The display shows:
		`Entr Tx __,___._`
		`85 Rx 12,217.0`

3.	Press  to display option fields.	The display shows:
		`Entr Tx options`
		`85 Rx __,S_,_U,NP`

4.	Press 	The display shows:
		`Entr Tx 12,217.0`
		`____ Rx 12,217.0`

	Action	Notes

5.	Press  to delete the channel.	The display shows:
		`Chan Tx 5,880.0`
		`18 Rx 5,880.0`

The channel is now deleted and the next lower channel is displayed.

Note: You cannot delete a protected channel. Protected channels can only be deleted by Codan or a Service Agent.

❑

6 Ancillary equipment

This chapter provides information about using ancillary equipment with your remote control system. These are:

- IPC-500 Radio telephone interconnect (6-2)
- 8580 Data modem (6-3)
- 9300 ALE controller (6-6)
- 9001 HF Fax and data interface (6-9)
- 9002 Data modem (6-9)
- Computer (6-10).

IPC-500 Radio telephone interconnect

With a console connected and installed to operate with an IPC-500 telephone interconnect unit, the remote control system can make and receive telephone calls through the public switched telephone network (PSTN).

In such a system all controls and activity is automatic: the console operator has only to be aware of the action taking place.

Receiving a telcall

When a radio telephone call is received the console passes the audio through to the IPC-500 which decodes the signal and dials the telephone number automatically.

Making a telcall

When a telephone call has been received, the IPC-500 initiates a transmission on a selected channel. The scanning mode displayed will cease to be replaced by the channel details—the bar graph will indicate transmission taking place.

For further details refer to *IPC-500 Interconnect user guide* and *Installation manual* and the appropriate transceiver handbook.

For more information about using the IPC-500 with the remote control system refer to the *8570 and 8571 Remote control installation handbook, Chapter 4, Ancillary equipment*.

8580 Data modem

You can use the remote control system with an 8580 modem to transfer serial data between the console and an interface.

For information about setting up the remote control system for data transmission, refer to the *8570 and 8571 Remote control installation handbook, Chapter 4, Ancillary equipment*.

Establishing data transfer mode

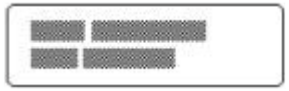
Once you have set up for data transfer and switched the equipment on, the system automatically enters data transfer mode if there is any activity on the RS-232 port of either the interface or the console. When any data is received from the terminal connected to the console, or when any data packets are received from the remote modem and interface, the console display shows ‘data mode’ in the ‘Tx’ frequency window:

The **F2** button will light and all audio will be muted. Any further activity on the console's RS-232 port is transmitted directly to the remote modem via the line or link.

During data transfer mode, you can only use the **Control On/Off** and **F2** buttons.

Receiving an ARQ call

When an ARQ call is received, the console which has the 8580 modem enabled outputs three alternating high-low frequency tones. Each console displays a message indicating that an ARQ call has been received. The display shows:



If the call is not cancelled (by the console operator pressing the microphone **PTT** or any button on the console), the console ‘beeps’ at four second intervals. The alarm relay also closes for two minutes unless the call is cancelled. The received call is added to the call memory.

See *Chapter 4, Sending and receiving calls, Reviewing received calls*, for instructions on how to review this list.

Ending data transfer mode

Data transfer mode ends automatically if there is no data traffic for 14 seconds from the last transmission and if the transceiver has stopped transmission for more than two and a half seconds.

You can end data transfer mode from the terminal or the modem by pressing the console **F2** button. This sends a ‘data transfer end’ command to the interface. When the interface receives the command, it signals to the modem to end data transfer mode. It also sends an instruction down all its attached lines for all consoles in the system to end the mode. Once the consoles have received this instruction, the LED on the **F2** button goes out and the consoles return to normal operation.

❑

9300 ALE Controller

The 9300 ALE Controller simplifies sending calls using Codan transceivers in a remote control system.

An Automatic Link Establishment call (ALE) automatically selects the best channel to use for sending a call. This removes the need to send selective beacon calls on different channels to find the best channel to communicate on.

When you send an ALE call, the ALE controller selects the best frequency from a preset list of channels and attempts to establish a link to the other station on that channel. If it fails, it selects the next best channel and tries again. This process repeats until a link is established or there are no more channels to try.

For further details, refer to the *9300 ALE controller user guide* (Codan part number 15-04046).

Before you can send an ALE call, you need to:

- connect an ALE controller and set the correct RS-232 and baud rate settings (refer to the *8570 and 8571 Remote control installation handbook, Chapter 5, Accessories, RS-232/I^{2}C Interface*)
- make sure that the station you are calling is also set up for ALE calling
- set up your self ID (refer to *Chapter 4, Sending and receiving calls, Selcall address size compatibility, Setting your self-ID*)
- set up a channel for Selcalling (refer to *Chapter 3, Using the system, Channels*)
- set up a scan table for ALE scanning (refer to *Chapter 3, Using the system, Programming scan tables*).

Sending an ALE call

The remote transceiver and console may be in either the ALE scan mode or channel mode. The following covers both operating conditions.

For the console in ALE scan mode:

	Action	Notes
1.		The display shows: ALE 2 Scanning 1 Rx 123456
2.	Press 	The display shows: ALE 2 Send ALE to _ _ _ _
3.	Enter the call address ID of the station you want to call (if it is different to that displayed).	
4.	Press  to initiate an ALE call.	The display shows: Chan 2 Sending ALE to 123456 Note: until **Call** is pressed for the second time the channels will still be scanned.

For the console in channel mode:

	Action	Notes
1.		Check that the channel is free of traffic. Tune antenna if automatic tuner is fitted.
2.	Press 	The display shows: Chan Send call 2 to 123456
3.	Press  to select ALE Call.	The display shows: Chan Send ALE 2 to 123456
4.	Enter the call address ID of the station you want to call (if it is different to that displayed).	
5.	Press  to initiate an ALE call.	Chan Sending ALE 2 to 123456

❑

9001 HF Fax and data interface and 9002 data modem

The 9001 provides for the transmission and reception of facsimile and data messages over an HF link. Fully automatic in operation, it can be used to interface data capable 8525/8528 and 9323/9360 transceivers operating with 8570/8571 remote control equipment.

The 9002 provides for data transmission but does not have the facsimile capability.

For operation of the 9001 interface refer to the *9001 HF Fax and data interface user guide* and for the 9002 refer to the *9002 HF Data modem user guide*.

Computer

An IBM (or compatible) computer can be connected to the RS-232 terminal input of the console. The RS-232 port must be set up as detailed *RS-232 terminal menu—function 30*, in the *8570 and 8571 Remote control installation handbook, Chapter 6, Setup functions and options.* Set the RS-232 to the following parameters:

Mode	CICS
Bit length	8
Parity	none
Stop bits	1
Baud	9600
HShake	none

It is assumed that this has already been setup during installation but is shown here for reference.

Computer command language

The computer command language is used to control your remote control console from your computer terminal.

The computer terminal must be operated in full-duplex mode to program your console.

All commands and responses are followed by a <Cr,Lf>.

To control your console, the following commands are used:

Command.....	**Remarks.....**
ECHO=ON ECHO=OFF	To switch between full (echo) and half (echo off) duplex mode. Echo is on by default on power up.

Command.....	**Remarks.....**
CHAN=<number>	Changes the transceiver channel to the indicated number if it exists, otherwise an error NOT FOUND is produced and the transceiver remains on the next highest channel.
CHAN?	Reports the current channel number.
FREQ?	Reports the current common Rx/Tx frequency or the two separate Rx and Tx frequencies—if no frequency information is known from current channel NO INFO is displayed.
SIDEBAND=USB SIDEBAND=LSB	Attempts to force the sideband mode for the current channel. If the channel does not allow mode selection, nothing happens.
SIDEBAND?	Reports the current sideband as USB or LSB. You can type SB for SIDEBAND.
SCAN=<number>	Starts scanning using table number supplied. Stops if ‘0’ is entered (for 9323/9360 only).
SCAN=ON	Starts current scan program.
SCAN=OFF	Scan stops.
SCAN=IPC	Passes control to a connected IPC-500
SCAN?	Reports the current scan ON/OFF status followed by the table (1,2 or 3). (9323/9360 only).
MUTE=OFF MUTE=SELCALL MUTE=VOICE	Sets the mute for the transceiver.
MUTE?	Reports the current status as OFF, SELCALL or VOICE.
SELCALL=<Selcall ID>	Sends a normal Selcall on the current channel.

Command.....	Remarks.....
TELCALL=<Selcall ID>, <Telephone number>	Sends a Telcall on the current channel.
PAGECALL=<Selcall ID>,“text”	Sends a pagecall. Includes up to 64 characters of text within the “” quotes.
SELBEACON=<Selcall ID>	Sends a selective beacon call on the current channel.
GPSBEACON=<Selcall ID>	Sends a GPS beacon call on the current channel.

The transceiver responses:

Response.....	Remarks.....
OK	Command line accepted and executed.
ERROR	Command line longer than 100 characters, or invalid command.
NOT FOUND	Non existing channel number or scan program number.
TX INHIBITED	Attempt to send a call on the current channel which is Tx inhibited.
SCAN TABLE EMPTY	An attempt was made to select a scan program that does not have any channels.
SCAN ABORT:	An attempt was made to send a call while the transceiver was scanning. Scanning is aborted.
SCAN: <number>	Scan mode was changed on the control panel.
MUTE: OFF MUTE: SELCALL MUTE: VOICE	Mute mode has been changed by an action on the control panel.

Response.....	**Remarks.....**
SIDEBAND: USB SIDEBAND: LSB	The sideband for the current channel was changed by an action on the control panel.
PAGE-CALL-ACK: <Channel number>, <Selcall ID>	If the page call is received.

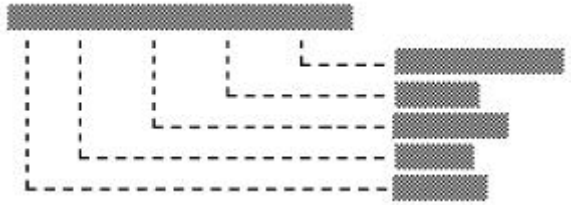
GPS-POSITION: <Channel#>, <Selcall ID>, <Self ID>, “Lat Long Time” *
GPS-POSITION: <Channel#>, <Selcall ID>, <Self ID>, “No GPS unit connected” **

SEL-CALL: <Channel#>, <Selcall ID>, <Self ID>

TEL-CALL: <Channel#>, <Selcall ID>, <Self ID>, “Telephone number”

EMERGENCY: <Channel#>, <Selcall ID>, <Self ID>, “Unknown position” **
EMERGENCY: <Channel#>, <Selcall ID>, <Self ID>, “Lat, Long, Time” *

* Position information is to be printed as follows:



Channel numbers are up to 4 digits and Selcall ID is up to 6 digits. Fields are comma separated and a comma is always followed by a space. Text messages are enclosed in “ ”.

** Text printed as shown.

If a page call is sent to a transceiver that has a computer and printer connected to its RS-232 port, the following message is printed:

PAGE-CALL: <Channel#>, <Selcall ID>, “The received message text”

❑

7 Appendix

This section contains a list of warning and error messages you may see displayed on the console window.

Display messages

In addition to showing the normal channel information, the display is able to show messages indicating the results of an operation, such as an operator error or a system error.

These error or fault messages are generally accompanied by one or more ‘beeps’.

If a transceiver fault is indicated the transceiver must be switched off and tried again. If the fault re-occurs the transceiver must be sent to Codan, or a Codan agent, to have the fault rectified.

Messages are displayed for five seconds and then normal operation is resumed. Pressing any console button or the microphone **PTT** button during this five second period immediately restores normal operation.

System error messages remain displayed until the transceiver is switched off and the fault rectified.

Operator error messages

This message:	With these beeps:	Means this:
Not tuned	Three	You have tried to transmit before the antenna has been tuned.
Transmit inhibit	Two	You have tried to transmit on a receive-only channel, or while scan mode is selected.
Scan fail	Two	You have tried to select scan mode while the transceiver is transmitting, or before any channels have been entered into the scan program.
Scan program full	Two	You have tried to enter too many channels in the scan program.
Scan program x N`	None	Displayed with a channel that is in the scan program, and the number of times it has been entered.
No such channel	Two	No Tx or Rx frequencies have been allocated to the channel number selected.
No calls	Two	Calling is not enabled. For example, an emergency call, option TE call, or a selective call has been attempted on a channel where this function is not programmed.
PTT cutout	Four	The microphone **PTT** has been active for a longer time than that set in the timer.

System error messages

This message:	With these beeps:	Means this:
Frequency unlock	Three	The internal synthesizer in the transceiver is unlocked. All transmission is inhibited and the receiver is muted. If the problem persists, return the transceiver for service.
Antenna tuner problem	Two	The external tuner has not completed a tune operation within two minutes.
No remote	Two	There has been a failure associated with the line/link between the 8570/8571 and the 8570 has entered standby mode.

Supply monitor warning messages

Console local supply

The control console can be powered from a variety of supply sources, derived either from the mains or from standby battery (Option SB).

If the DC voltage to the unit falls below a critical value (such as with a low mains condition or low reserve in the standby battery) a warning message appears on the display. To preserve battery life and prevent erratic performance, the console can switch off automatically.

The following table summarises the events that will occur under specific conditions:

Mains supply status	Internal supply range		Action
ON	greater than	10.0 V	Notes 1 & 7
ON	less than or equal to	10.0 V	Notes 4 & 6
OFF	greater than	11.0 V	Notes 2 & 7
OFF	less than or equal to	11.0 V	Notes 2 & 3
OFF	less than or equal to	10.5 V	Notes 2, 4 & 5
OFF	less than	10.0 V	Notes 2, 4 & 6

Notes:

1. If the mains supply has just been restored, the display backlight will return to the stored setting.
2. If the mains supply has just failed, two ‘beeps’ are given and the message ‘Mains power fail using backup’ is displayed. The display backlight intensity is halved to reduce power consumption.
3. Three ‘beeps’ are given and the message ‘Warning supply voltage low’ is displayed.
4. Three ‘beeps’ are given and the message ‘Warning supply voltage very low’ is displayed.
5. The console switches itself off in 10 minutes.
6. The console switches itself off in 30 seconds.
7. The console switch-off sequence is aborted.

Interface remote supply

The interface can be powered from either a 12 V or 24 V DC source. If the DC voltage to the unit falls below a critical value, a warning message is given on the console's display as shown below:

Internal supply status	Frequency of message	Displayed message
(nom. 12 V)		
< 11.0 V	Every 10 minutes	Remote supply voltage low
< 10.5 V	Every 3 minutes	Remote supply voltage very low
(nom. 24 V)		
< 22.0 V	Every 10 minutes	Remote supply voltage low
< 21.5 V	Every 3 minutes	Remote supply voltage very low

For split site systems (separate transmitter and receiver) the word ‘Remote’ in the above messages is replaced by 'Transmit' for the transmitter site, ‘Receive’ for the receiver site, and ‘Arbitrate’ for the master 8571 in the star configuration.