CODAN

NGT Transceiver
ASR

HF RADIO COMMUNICATIONS
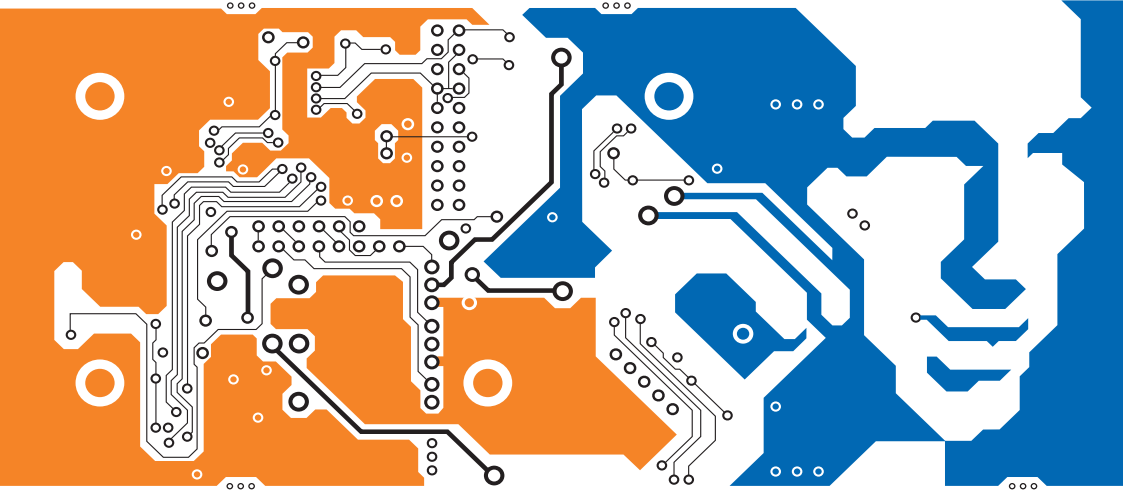
GETTING STARTED GUIDE

Table of contents

Introduction

1 NGT transceiver compliance

2 Installation

3 The handset

4 Getting started

Appendix A—Standard hot keys

Appendix B—Entering and editing text

Appendix C—Finding words and values

Appendix D—Creating an entry in a list

Appendix E—HF radio transmission

Appendix F—Definitions

Index

List of figures

This page has been left blank intentionally.

List of tables

Introduction

This guide provides instructions on how to connect up your NGT *ASR* transceiver, and how to perform basic setup and operating tasks. It assumes that you have limited knowledge of HF communication and of using an HF radio.

This guide contains the following sections:

Section 1   NGT transceiver compliance—compliance information and safety notices

Section 2   Installation—explains briefly how to connect the components of your transceiver

Section 3   The handset—describes the handset and the function of each key on the handset

Section 4   Getting started—explains how to use the basic operating features of your transceiver

Appendix A   Standard hot keys—describes the standard hot keys on the handset

Appendix B   Entering and editing text—describes how to enter and edit text in editable screens

Appendix C   Finding words and values—describes how to find words and values using the 🔍 key

Appendix D   Creating an entry in a list—describes how to create an entry in the Address List, Channel List, Network List, NET List and Phone Link List

Appendix E   HF radio transmission—describes the medium of HF communication and how to use it effectively

Appendix F   Definitions—explains the terms and abbreviations used in this guide

There is an index at the end of this guide and a CD containing extensive reference material.

Accessing the CD

To access the CD:

❑ Place the CD in the CD drive of your computer.

The CD should automatically launch the NGT *ASR* Transceiver Reference Manual as a fully text-searchable HTML help file.

1 NGT transceiver compliance

This section contains the following topics:

Introduction

This section describes how to ensure the NGT transceiver complies with the European Electromagnetic Compatibility Directive 89/336/EEC and the European Low Voltage Directive 73/23/EEC as called up in the European Radio and Telecommunications Terminal Equipment Directive 1999/5/EC.

This section also contains the requirements for FCC compliance.

European Radio and Telecommunications Terminal Equipment Directive

The NGT transceiver product range has been tested and complies with the following standards and requirements (articles of the R&TTE Directive):

- Article 3.1b: ETSI EN 301 489-1

- Article 3.1b: ETSI EN 301 489-15

- Article 3.2: Australian type approval according to AZ/NZS 4770:2000 and ECR 209

- Article 3.1a: Assessed against ICNIRP and FCC requirements

- Article 3.1a: EN 60950

Compliance with these standards is deemed sufficient to fulfil the requirements of the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC.

Product marking and labelling

Any equipment supplied by Codan that satisfies these requirements is identified by the C€0191⊙, C€0191 or C€ markings on the model label of the product.

Declaration of Conformity and Expert Letter of Opinion

The CE Declarations of Conformity and Expert Letter of Opinion for each specific product are listed on . These documents can be made available upon request to Codan or a Codan-authorised supplier.

Protection of the radio spectrum

CAUTION

Most countries restrict the use of HF radio communications equipment to certain frequency bands and/or require such equipment to be licensed. It is the user's responsibility to check the specific requirements with the appropriate communications authorities. If necessary, contact Codan for more information.

Electromagnetic compatibility and safety notices

Radiation safety

To ensure optimal transceiver performance and to avoid exposure to excessive electromagnetic fields, the antenna system must be installed according to the instructions provided.

WARNING — Do not touch the antenna while it is transmitting.

You should not transmit from your transceiver if people are within:

WARNING
- 1.5 m of any part of a mobile antenna
- 2 m of any part of a fixed antenna in a data installation with < 125 W output
- 5 m of any part of a fixed antenna in a data installation with < 1 kW output

Electromagnetic compatibility

To ensure compliance with the EMC Directive is maintained, you must:

❑ Use standard shielded cables supplied from Codan (where applicable).

❑ Ensure the covers for the equipment are fitted correctly.

CAUTION — If it is necessary to remove the covers at any stage, they must be refitted correctly before using the equipment.

❑ Cover unused connectors on the junction box and RF unit with the protective caps supplied to prevent electrostatic discharge passing through your NGT equipment.

Electrical safety

To ensure compliance with the European Low Voltage Directive is maintained, you must install and use the NGT transceiver in accordance with the instructions in the *NGT ASR Transceiver Getting Started Guide* and the *NGT ASR Transceiver Reference Manual*.

When using equipment that is connected directly to the AC mains these precautions must be followed and checked before apply AC power to the unit:

❑   Use the standard AC mains cable supplied.

CAUTION	If it is necessary to remove the covers at any stage, they must be refitted correctly before using the equipment.

❑   Ensure the covers for the equipment are fitted correctly.

WARNING	A protective earth connection must be included in the mains wiring to the 3020 Transceiver Supply (see page 8, *Earth symbols*). The protective cover must always be fitted when the 3020 Transceiver Supply is connected to the AC mains.

Earth symbols

Chassis earth connection points have been provided on the NGT transceiver and 3020 Transceiver Supply. A protective earth is provided in the AC mains wiring of the 3020 Transceiver Supply. This protective earth needs to be connected at the AC mains supply outlet. The symbols shown in Table 1 are used to identify the earths on the equipment.

Table 1:   Earth symbols

Symbol	Meaning
	Chassis earth
	Protective earth

FCC compliance

FCC Part 90 certification

The NGT *ASR* transceiver has been tested and certified to FCC Part 90 (FCC identifier code DYYNGT-2).

FCC Part 15 compliance

Any modifications made to the NGT transceiver and 3020 Transceiver Supply that are not approved by the party responsible for compliance may void your equipment's compliance under Part 15 of the FCC rules.

The NGT transceiver and 3020 Transceiver Supply have been tested and found to comply with the limits for a Class B device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by switching the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna

- increase the separation between the equipment and receiver

- connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- consult the dealer or an experienced radio/TV technician for help

2   Installation

This section contains the following topics:

NGT *ASR* mobile stations

An NGT *ASR* mobile station typically consists of:

• a handset and cradle

• a junction box

• a speaker

• an RF unit and vehicle mounting cradle (includes DC power cable)

• a 12 V DC power supply (battery)

• an automatic tuning antenna

Figure 1 on page 13 shows a typical NGT *ASR* mobile station.

Figure 1: Typical NGT *ASR* mobile station

Cables

Table 2:   Cables for a typical NGT *ASR* mobile station

Cable	Symbol	Part number[a]
CIB cable between RF unit and junction box	⊥	08-05610-006
Coaxial cable between RF unit and antenna	Y	08-05103-006
Control cable between RF unit and antenna	⅄	08-05627-006
DC power supply cable		08-03255

a.   The part number corresponds to a standard 6 m cable. The cables are also available in a number of shorter and longer lengths.

Mounting an NGT *ASR* mobile station

Most components of an NGT *ASR* mobile station are provided with their own mounting cradles. For general guidance on suitable locations for equipment and installing these stations see the reference material on the enclosed CD.

Mounting the handset cradle

To mount the handset cradle:

❑   Mount the handset according to the fitting instructions (Codan part number 15-00129-001) provided with the handset cradle.

Mounting the speaker

To mount the speaker:

❑ Secure the mounting cradle to the surface with at least two screws.

Ensure there is sufficient space at the rear for the cable.

❑ Attach the speaker to the cradle with the two screws and rubber washers.

Mounting the junction box

To mount the junction box:

❑ Use cable ties or screws to secure the junction box in a suitable location.

Mounting the RF unit

WARNING If you are transferring a fixed station to a mobile station and you have installed rubber feet to the bottom of the RF unit, you must remove the rubber feet before installing it into the mounting cradle.

The cradle can be mounted in any position that allows the RF unit to be inserted into the cradle.

To mount the RF unit:

❑ Secure the mounting cradle to the surface with at least four screws, one in each corner of the cradle.

NOTE Ensure there is sufficient space at the rear of the cradle to clear the RF unit heatsink.

❑ If the key is locked to the base of the cradle, flip the key away from the base until it can be rotated (see Figure 1 on page 13), then rotate the key in a counterclockwise direction.

❑ Place the RF unit into the cradle and push it under the tabs at the rear of the cradle, then hold the clamp against the front of the RF unit.

❑ Rotate the key clockwise, then push the key toward the base of the cradle to lock the RF unit into position.

Connecting an NGT *ASR* mobile station

Connecting an NGT *ASR* mobile station

NOTE   If you are installing a VP-116 Voice Privacy Unit, you will have been supplied with an Encryptor Interface junction box. The VP-116 connects to the 15-way Encryptor connector (🔒).

To connect an NGT *ASR* mobile station:

❑ Connect the plug of the handset cable to the 📞 socket on the junction box, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the speaker cable to the 🔊 socket on the junction box.

❑ Connect the socket at the end of the ⊥ cable to the plug at the end of the ⊥ cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the socket at the opposite end of the ⊥ cable to the ⊥ plug on the junction box, then secure the locking ring tightly into position.

❑ Connect the plug at the end of the ⅄ cable to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑ Connect the plug at the opposite end of the ⅄ cable to the socket located at the base of the antenna, then secure the locking ring tightly into position.

Connecting the control cable to an automatic tuning antenna

To connect the control cable:

❑   Connect the socket at the end of the ⅄ cable into the plug at the base of the antenna, then secure the locking ring tightly into position.

❑   Fit the plug at the opposite end of the ⅄ cable into the socket at the end of the ⅄ lead from the RF unit.

Connecting the power supply

To connect the transceiver to the battery power supply:

❑   Connect the power supply cable (Codan part number 08-03255) to the plug at the end of the 12 V cable lead from the RF unit.

❑   Route the power supply cable according to the instructions supplied with the Vehicle Installation Kit (Codan part number 15-00112).

❑   Insert the 32 A fuse and holder in the power supply cable at a convenient location, as close as possible to the battery terminals.

❑   Connect the power supply cable to the battery terminals, black to negative, red to positive.

Connecting ancillary equipment

The NGT *ASR* mobile transceiver system uses the junction box for connecting to ancillary equipment.
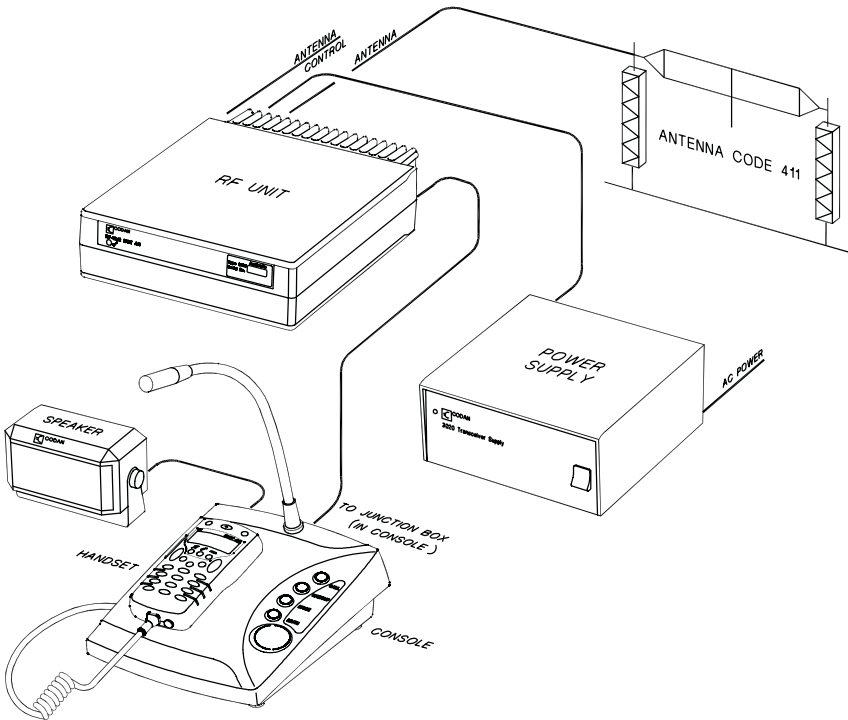
NGT *ASR* fixed stations

An NGT *ASR* fixed station typically consists of:

• a desk console, containing a handset, a goose neck microphone, a junction box, and a speaker

• an RF unit

• an AC transceiver supply

• a suitable fixed antenna (see the reference material on the enclosed CD)

Figure 2 shows a typical NGT *ASR* fixed station.

Figure 2: Typical NGT *ASR* fixed station

	NOTE	The junction box is fitted inside the desk console. The connectors on the junction box are at the rear of the desk console.

Cables

Table 3: Cables for a typical NGT *ASR* fixed station

Cable	Symbol	Part number
CIB cable between RF unit and console[a]	⊥ ⊥	08-05610-006
Coaxial cable between RF unit and antenna[b]	Y	08-05103-030

a. The part number for this cable corresponds to a 6 m CIB cable. The cable is also available in a number of shorter or longer lengths.
b. The part number for this cable corresponds to a 30 m coaxial cable. The cable is also available in a number of shorter lengths.

Mounting an NGT *ASR* fixed station

An NGT *ASR* fixed station is most commonly mounted using a desk console (Codan part number 15-10471). For general guidance on suitable locations for equipment and installing the fixed station see the reference material on the enclosed CD.

Desk console

The pre-assembled desk console combines a handset, a goose neck microphone, a junction box, an in-built speaker and a headphone jack (see Figure 2 on page 18).

RF unit and transceiver supply

The RF unit and the transceiver supply are self-contained and are usually stacked loosely. If you want to mount the RF unit and/or the transceiver supply, contact your Codan representative to obtain a rack-mounting unit or the appropriate mounting cradles.

Rack-mounting unit

A rack-mounting unit consists of a 19 inch rack tray. It can be used in conjunction with a desk console to mount your fixed station. If you do not have a desk console, a cradle is available for mounting the handset on the front panel of the rack unit.

Mounting cradles

WARNING	If you are mounting an RF unit in a cradle, do not fit rubber feet to the bottom of the RF unit.
NOTE	If you are transferring a mobile station to a fixed station, and you are not mounting the RF unit in a cradle, rubber feet can be fitted to the bottom of the RF unit. The rubber feet are available from Codan (Codan part number 30-11208-000).

If you want to mount components of your fixed station separately, customised mounting cradles exist for each component. Mounting cradles are not commonly used in an NGT fixed station, but they are available as options (see the reference material on the enclosed CD).

Connecting an NGT *ASR* fixed station

NOTE   The handset is supplied connected to the desk console.

NOTE   If you are installing a VP-116 Voice Privacy Unit, you will have been supplied with an Encryptor Interface junction box. The VP-116 connects to the 15-way Encryptor connector (⊟).

To connect an NGT *ASR* fixed station:

❑   Connect the socket at the end of the ⊹⊤ cable to the plug at the end of the ⊹⊤ cable lead from the RF unit, then secure the locking ring tightly into position.

❑   Connect the socket at the opposite end of the ⊹⊤ cable to the •⊤ plug at the rear of the desk console, then secure the locking ring tightly into position.

❑   Connect the plug at the end of the ⅄ cable to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑   Connect the plug at the opposite end of the ⅄ cable to the socket located at the base of the antenna, then secure the locking ring tightly into position.

Connecting an automatic tuner to the RF unit and antenna (optional)

NOTE   You may need to install a tuner to improve the efficiency of the antenna in your fixed station (see the reference material on the enclosed CD).

NOTE   The tuner used in most applications has connectors at the end of the cables attached to the tuner, as described below. However, you may have a tuner that has sockets on the connector panel of the tuner.

To connect the tuner to the RF unit:

NOTE   If the connectors at the end of the control cables from the RF unit and tuner are incompatible, you may require an NGT adaptor cable (Codan part number 08-05655-001) to connect the tuner to the RF unit.

❑   Connect the plug at the end of the coaxial cable from the tuner to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑   Connect the plug at the end of the control cable from the tuner to the socket at the end of the ⅄ cable lead from the RF unit, then secure the locking ring tightly into position.

❑   Connect the antenna to the antenna connection on the tuner, then secure it tightly into position.

Connecting the transceiver supply

To connect the transceiver to the transceiver supply:

❑   Connect the DC output from the transceiver supply to the plug at the end of the 12 V cable lead from the RF unit.

❑   Connect the transceiver supply to the AC mains supply.
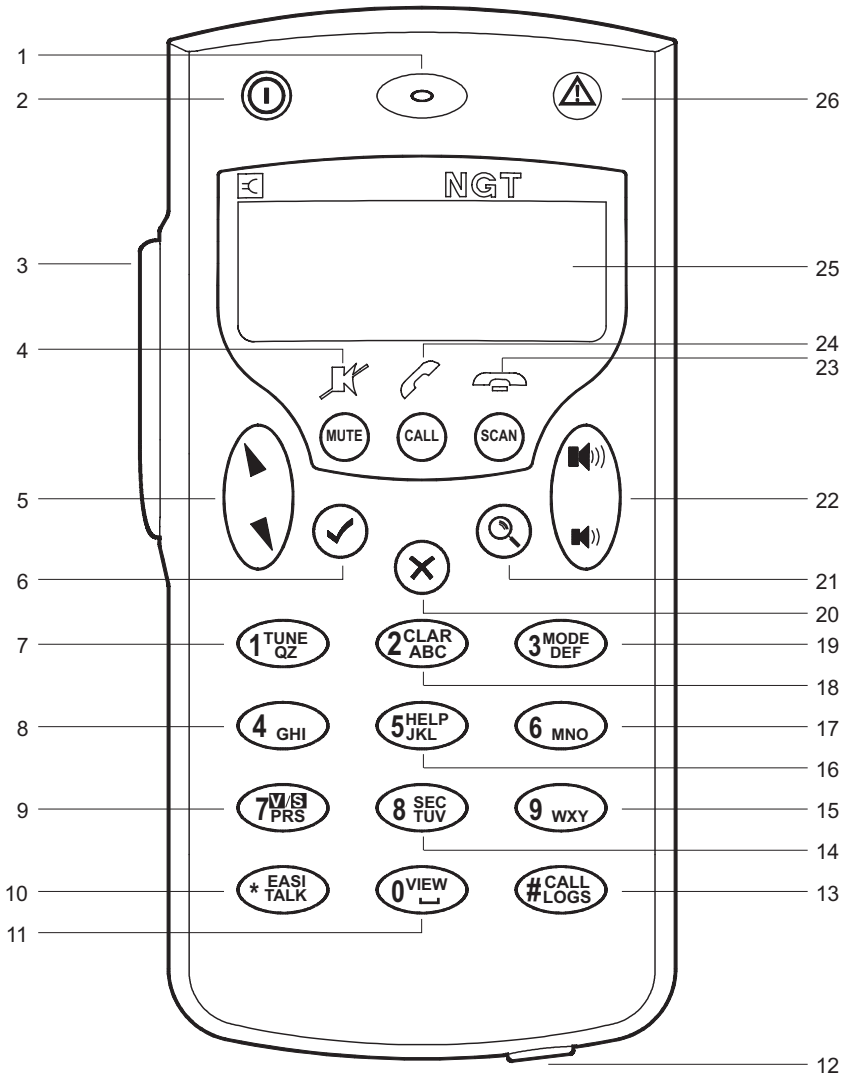
3 The handset

Figure 3: The handset

Table 4 explains the features of the handset and the tasks they enable you to perform.

Table 4:   Features of the handset

No.	Feature	Name	Hot key function	Normal function
1		Microphone		speak to other stations
2		Power On/Off key		switch power to the transceiver on or off
3		Press-to-talk button		communicate during voice calls, switch mute off, cancel voice calls prior to the point where voice can be transmitted, cancel calls where data is being transmitted, and exit out of editable screens without saving changes
4		Mute key		switch mute on or off
5		Scroll keys		scroll through items in a list and scroll over text on a line
6		Tick key		navigate down through lists, select items in lists, edit settings, save changes, send a message in a call (if enabled), and answer 'yes' to prompts

Table 4:   Features of the handset (cont.)

| No.	Feature	Name	Hot key function	Normal function
7	1 **TUNE** QZ	1QZ key	Go to Manual Tune	enter 1, Q and Z
8	4 GHI	4GHI key		enter 4, G, H and I
9	7 **V/S** PRS	7PRS key	Toggles between Selcall mute and Voice mute	enter 7, P, R and S
10	* **EASI** TALK	Asterisk key	Toggles Easitalk on or off	enter the upper-case text (A) punctuation marks . , ' ? ! & # $ * ( ) - + / in editable text screens, and enter @ ? , in address screens
11	0 **VIEW** ␣	Zero space key	Toggles between Channel List and Address List	enter 0 and a space
12	⟋	Programming jack		use a programming cable and a PC on which NSP software has been installed to upload/download information to/from the transceiver
13	# **CALL** #LOGS	Hash key	Go to Calls Out Log, Calls In Log, Last Heard Log, then return to the screen from which you began	display the Calls Out, Calls In, and Last Heard Logs, and toggle between upper-case, lower-case and numeric characters when entering text

Table 4:   Features of the handset (cont.)

| No.	Feature	Name	Hot key function	Normal function
14	8 SEC TUV	8TUV key	Toggles VP-116 or Voice Encryptor on or off, if installed	enter 8, T, U and V
15	9 WXY	9WXY key		enter 9, W, X and Y
16	5 HELP JKL	5JKL key	Toggles Help Mode on or off	enter 5, J, K and L
17	6 MNO	6MNO key		enter 6, M, N and O
18	2 CLAR ABC	2ABC key	Go to Clarifier	enter 2, A, B and C
19	3 MODE DEF	3DEF key	Selects USB, LSB or AM (if available)	enter 3, D, E and F
20	✕	Cross key		navigate up through lists, backspace over text, remove messages on the screen, cancel changes, display the home screen, and answer 'no' to prompts
21	🔍	Find key		display the Find prompt, open the List Manager, and select the best channel for an ALE call
22	🔊)) 🔊)	Volume up/down keys		increase or decrease the volume of the speaker

Table 4:   Features of the handset (cont.)

No.	Feature	Name	Hot key function	Normal function
23	☎	Hangup/Scan key		end a call if a call is in progress, or toggle scanning on or off
24	✆	Call key		start a call
25		Handset screen		view the status of the transceiver
26	⚠	Emergency key		begin an emergency call

The channel screen

The channel screen is displayed when you open the Channel List. It displays:

• the name of the currently selected channel

• a bar graph that indicates the signal strength on receive and the output power on transmit

• the power level indicator

• the mode

• the transmit and receive frequencies, if applicable

• an arrow that indicates whether the transceiver is receiving or transmitting
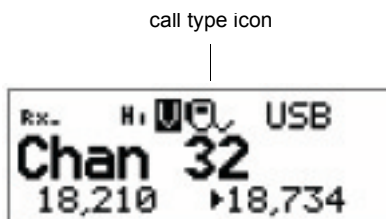
Figure 4:   The channel screen in the Channel List
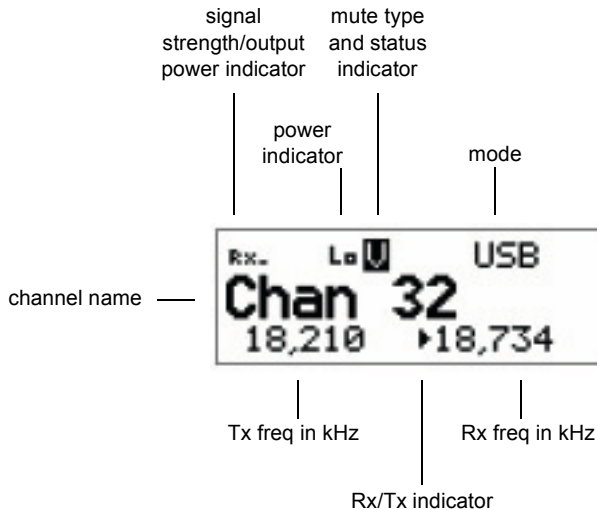
If the transmit and receive frequencies are the same, the frequency is only displayed in the receive frequency position on the right side of the screen and the Rx indicator arrow is not used. The signal strength/output power indicator shows whether the transceiver is receiving or transmitting.

While a call is being established, the transceiver will show that calling activity is in progress by flashing the ✎ icon in place of the scan indicator.

During a call the scan indicator is replaced with an icon that indicates the type of call being sent or received.

Figure 5:   The channel screen during a call

call type icon

Rx.   H₁ 🔲🔍 USB
Chan 32
18,210 ▸18,734

When the transceiver is scanning the channel screen is replaced by the scanning screen.

Figure 6:   The scanning screen

🔲🎹
Scanning

Selecting a channel

To select a channel:

❑   Go to the Channel List.

❑   Scroll through the channels in the list. Stop scrolling
    when the channel you want is displayed.

    The channel is selected.

NOTE	If you want to change the mode, press the **3 MODE DEF** key. If the mode does not change there is only one mode for the channel.
	You can also use the Find feature to find a channel (see page 67, *Finding words and values*).
	If you have an automatic antenna fitted, press the PTT button to tune the antenna to the currently selected channel.

❑   Press the ✖ key to return to the Main Menu.

4   Getting started

This section contains the following topics:

WARNING

You should not transmit from your transceiver if
people are standing within:

• 1.5 m of a mobile antenna

• 2 m of a fixed antenna in a data installation
  with < 125 W output

• 5 m of a fixed antenna in a data installation
  with < 1 kW output

Switching on the transceiver

To switch on the transceiver:

❑ Press the ⏻ key.

If you are prompted to enter a password, enter your user or administrator password then press the ✔ key.

If you enter an incorrect password it is automatically erased. If you enter an incorrect password three times the transceiver automatically switches off.

Switching off the transceiver

To switch off the transceiver:
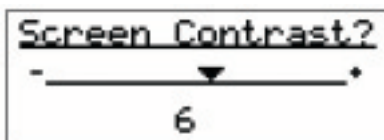
❑ *Hold* the ⏻ key down for two seconds then release.

The transceiver is switched off.

Changing the screen contrast

To change the contrast of the screen:

❑ Press ⓞ + **9** **wxy** to access the Screen Contrast entry in the Control List.

The Screen Contrast slider screen is displayed.

```
Screen Contrast?
-_____▼_____•
        6
```

❑ Use the ◗ or ◖ key to increase or decrease the contrast.

❑ Press the ✓ key to save the value.

❑ Press the ✕ key repeatedly until you return to the Main Menu.

Changing the screen brightness

To change the brightness of the screen:

❑ Press ① + 0 **VIEW** to access the Screen Brightness entry in the Control List.

The screen brightness setting is displayed.

```
Screen Brightnes
Medium
Bright
```

❑ Scroll through the values until the one you want is displayed on the active line.

❑ Press the ✔ key to save the value.

❑ Press the ✖ key repeatedly until you return to the Main Menu.

NOTE   If the Screen Auto-Dim entry in the Control List is enabled then the brightness drops one level after the specified time.

Using the keys on the handset

NOTE   Detailed information on the function of the keys on the handset is provided on page 23, *The handset* and page 59, *Standard hot keys*.

There are two ways to use the keys on the handset. You can:

• press a key

• *hold* a key

Pressing a key means to press a key until the handset makes a short beep sound, then release the key.

Holding a key means to press and hold a key until the handset makes a short beep followed by a higher pitched beep, then release the key.

NOTE   The keys will only beep if the Key Beep entry in the Control List is set to On.

The two actions perform different functions. The instructions in this guide specify whether you need to press or *hold* a key to perform a task.

The scroll keys

The ▶ and ◀ keys are the scroll keys. Use these keys to scroll up or down through any kind of list, to scroll left or right over text, and to increase or decrease a value.

The ✔ and ✖ keys

The ✔ and ✖ keys are context sensitive: their functions change according to the task you are performing. For example, to select an item and navigate down through the lists in the transceiver, press the ✔ key. To navigate up through the lists, press the ✖ key. To edit a setting, *hold* the ✔ key. To discard your changes, *hold* the ✖ key.

Press the ✔ key to:

- navigate down from the Main Menu to entries and then to settings by selecting the item on the active line in the list

- save changes

- answer 'yes' to prompts

Hold the ✔ key to edit settings.

Press the ✖ key to:

- navigate up from settings to entries and then to the Main Menu

- backspace over text

- remove messages on the screen

- cancel changes

- answer 'no' to prompts

Hold the ✖ key to go from any location to the home screen, and from the home screen to the Main Menu. If you have entered text into a setting and want to discard the changes you made, *hold* the ✖ key.

Accessing the Main Menu

The Main Menu is easily accessed from the home screen. The home screen may be any screen that you choose however, by default the home screen is the channel screen. For information on setting the home screen see the reference material on the enclosed CD.

To access the home screen from any other screen:

❑   *Hold* the ✖ key.

To access the Main Menu from the home screen:

❑   Press the ✖ key.

Switching scanning on or off

To switch scanning on or off:

❑ Press the ⬛ key.

If a call is not in progress, scanning is toggled on or off.

If a call is in progress, the call is ended.

If the transceiver was scanning before the call was sent or received, it resumes scanning. If the transceiver was not scanning before the call, press the ⬛ key to switch scanning on.

NOTE

When scanning is switched on mute is also switched on.

You cannot use the PTT button while the transceiver is scanning.

Pausing scanning

To pause scanning:

❑ Do one of the following:

- to pause scanning on the current channel/mode, press the ✔ key

- to pause scanning and scroll to another channel/mode, press the ▶ or ◀ key

The channel/modes through which you can scroll are those in the networks that were being scanned. They are not listed alphabetically but in the order in which they were being scanned.

If you do not press a key within 30 seconds the transceiver automatically resumes scanning.

❑ While scanning is paused, do one or more of the following:

- to converse, *hold down* the PTT button

- to resume scanning immediately, press the ✔ key

Switching mute on or off

To switch mute on or off:

❑ Press the 🔇 key.

A message is displayed briefly to inform you that mute has been switched on or off.

When the channel screen is displayed the mute status is indicated by a V or S at the top centre of the screen. If the letter is highlighted, mute is on. If the letter is not highlighted, mute is off.

Setting the mute type

To select the mute type:

❑ Press the 7**PRS** key to toggle the mute type between Voice mute (V) and Selcall mute (S).

Entering your station self address

To enter your station self address:

❑   Go to the Address entry in the Control List.

❑   Select the entry.

If a self address has not yet been entered the screen displays (none). Press the ✔ key to open the List Manager.

```
Address/Network...
(none)
```

If one or more self addresses have already been entered the screen displays the number of addresses (e.g. 1 items). Press the ✔ key to display the self addresses, then *hold* the 🔍 key to open the List Manager.

```
Address/Network
BH/<all>
                1 of 1
```

❑   Select Add item.

```
List Manager
Add item
Display options...
```

❑   Enter the self address of your station. For example:

```
Address?
MN1█
                    #
```
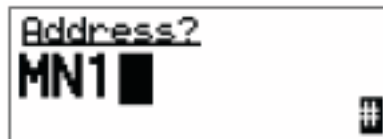
NOTE   For help with entering text see page 61, *Entering and editing text*.

Enter up to 15 upper-case letters or numbers, or a combination of both. ALE addresses are sent in groups of 3 characters. You should use addresses with a length that is a multiple of 3, but preferably just 3 characters.

❑ Press the ✔ key.

❑ Select the network in which you want to use this self address.

To use the self address in all networks, select <all>.

```
Network?
<all>
Network A
```
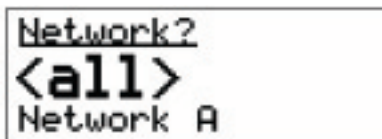
The self address is created and the List Manager remains open.

❑ If you want to view the self address you have created, close the List Manager by pressing the ✘ key.

```
Address/Network
MN1/PrimEas
              2 of 2
```

❑ Press the ✘ key repeatedly until you return to the Main Menu.

Listen Before Transmit Mode

NOTE   If you change the setting in the Cfg LBT Mode
         entry in the Control List you must switch the
         transceiver off then on again for the change to
         take effect.

The NGT transceiver is capable of listening to a channel
before initiating a call on the channel. If the Cfg LBT Mode in
the Control List is enabled, the transceiver will detect whether
or not there is traffic on the selected channel, i.e. the channel is
occupied. The transceiver will listen on a channel for the
length of time specified in the Cfg LBT Period entry in the
Control List. The transceiver will try busy channels twice
before reporting that they are busy.

The Cfg LBT Mode may be set to Enabled, Override allowed,
or Disabled.

When the Cfg LBT Mode is set to Enabled, and the
transceiver detects that the channel(s) tried is(are) busy, it will
prompt you to try the call again. You can:

- press the 📞 key to try the call again using LBT

- press the 🔍 key to select a new channel, then press the
  📞 key to make a call on this channel using LBT

NOTE   If only one channel was tried and found to be
         busy using LBT, you can listen for traffic on the
         channel then, if clear, override LBT by *holding*
         the 📞 key.

When the Cfg LBT Mode is set to Override allowed, and the transceiver detects that the channel(s) tried is(are) busy, it will prompt you to try the call again. You can:

- press the ✆ key to try the call again using LBT

- *hold* the ✆ key to try the call again without LBT (send the call regardless of any detected traffic)

- press the 🔍 key to select a new channel, then press the ✆ key to make a call on this channel using LBT

- *hold* the 🔍 key to select a new channel and try the call on this channel without LBT (send the call regardless of any detected traffic)

Calls using the Emergency call type or calls made through the ⚠ key will override the LBT Mode if it is enabled at either level.

NOTE   For information on setting up the ⚠ key see the reference material on the enclosed CD.

Replacing LQA information for all channels in an ALE/CALM network

CAUTION   You cannot make a Channel Test call using the ALL, ANY or Wildcard address syntaxes, or to a NET that is set up to link immediately.

If your station operates in a rapidly changing environment, e.g. interactions with mobile stations, you may want to replace the LQA information in the relevant part of the database for the channels in an ALE/CALM network just prior to making a call in the network. You can do this by making a Channel Test call in the network using the Group Selective or NET address syntaxes.

During a Channel Test call in an ALE/CALM network the LQA screen will be visible, indicating the most recent response from a station, and a progress report on the highest number of responses received on any channel and the number of channels tried.

For more information on the LQA screen see the reference material on the enclosed CD.

Replacing LQA information as part of a call in an ALE/CALM network

To replace LQA information as part of a call:

❑ Press the 📞 key to stop scanning.

❑ Start the call using your preferred method.

For example, go to the Address List then select the entry for the station you want to call.

❑ When the transceiver prompts you to select a channel/mode, select <auto>, then *hold* the 📞 key.

❑ View the LQA screen for the best channel/mode to use.

❑ Press the 📞 key to continue the call.

❑ When prompted again to select a channel/mode, you can either:

• press the 🔍 key to select the best channel/mode combination determined during the Channel Test call

• select any other channel that had an acceptable LQA score

• select <auto> for the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established

❑ Press the 📞 key to continue the call.

Making a Channel Test call in an ALE/CALM network

To make a Channel Test call in an ALE/CALM network:

❑ Press the ✆ key.

❑ Type the ALE address syntax of the stations for which you want to replace the LQA information and select Channel Test as the call type.

❑ Select the ALE/CALM network in which you want to make the call.

> NOTE   You do not have to select a network if you are sending the call to a NET address as the network is already defined by the NET.

The LQA Screen will display the best channel for the network, including the LQA score as a percentage, and the BER/SINAD scores at the local and remote stations.

Making a manual sounding operation in an ALE/CALM network

If you need to perform a manual sounding operation using the handset, you make a Channel Test call in an ALE/CALM network using the text SOUNDING as the address. You can do this as part of a new call, or if you use this feature often, set up an entry in the Address List, then use this entry to perform a sounding operation in the selected network (see page 204, *Creating an entry in the Address List*). The sounding operation will update the LQA database in transceivers that detect the sounding.

To make a manual sounding operation:

❑ Press the 📞 key.

❑ Select Channel Test as the call type, then press the * EASI TALK key to enter the text SOUNDING as the address, then press the 📞 key.

❑ Select the ALE/CALM network in which you want to make the sounding, and if scanning was switched off, the channel/mode on which you want to make the sounding.

A sounding operation on all channels, or the specified channel, in the network is performed.

Selecting the best channel in an ALE/CALM network

In order to select the best channel based on LQA information stored in the transceiver, you need to provide the context of the best channel, i.e. the address that you want to call and the network in which you want to make the call.

To select the best channel:

❑ Press the 📞 key to switch off scanning.

❑ Press the 📞 key.

❑ Type the address of the station(s) for which you want to find the best channel.

❑ Select any valid call type for the address entered.

❑ Select the ALE/CALM network in which you want to make the call.

❑ At the channel/mode prompt, press the 🔍 key.

The best channel is selected.

Making a Selective call from the Address List

This section shows you how to make a Selective call from the Address List. It assumes that you have created an entry in the list to do this (for help see page 71, *Creating an entry in a list* and the reference material on the enclosed CD).

To make a Selective call from the Address List:

❑ Go to the entry you want to call in the Address List.

| NOTE | Scroll to the entry or use the Find feature (for help see page 67, *Finding words and values*). |

❑ Press the ✆ key.

❑ If you are prompted for details about the call, use the information in the following table to enter them, then press the ✆ key.

If this prompt is displayed...	Do this...
Select network	• select the network in which you want to make the call
My address?	• select or enter the self address from which you want to send the call
Select chan/mode	• select <auto> if you want the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established, or
	• select the channel/mode you want to use to make the call, or
	• press the 🔍 key to select the best channel/mode combination from the LQA database
	NOTE You can test the quality of the selected channel by sending a Channel Test call (see page 45, *Replacing LQA information as part of a call in an ALE/CALM network*).

> | NOTE | To abort the call before a connection to the other station is made, press the PTT button. |
> |------|------|

☐ Wait until a message informs you that the call has been successful (this means your call has been automatically answered by the other station).

☐ *Hold down* the PTT button then speak.

Release the PTT button when you have finished speaking.

> | NOTE | If you made the call using a special ALE address syntax, you will be able to send data within the established link by pressing the ✆ key and following the prompts. |
> |------|------|

☐ To end the call, press the ☎ key.

If the transceiver was scanning prior to the call it resumes scanning.

Making a Phone call from the Address List

This section shows you how to make a Phone call from the
Address List. It assumes that you have created an entry in the
list to do this (for help see page 71, *Creating an entry in a list*
and the reference material on the enclosed CD).

To make a Phone call from the Address List:

❑   Go to the entry you want to call in the Address List.

NOTE	Scroll to the entry or use the Find feature (for help see page 67, *Finding words and values*).

❑   Press the ✆ key.

❑   If you are prompted for details about the call, use the
information in the following table to enter them, then
press the ✆ key.

If this prompt is displayed...	Do this...
Select link	• select the phone link station through which you want to make the call
Phone link addr?	• enter the address of the phone link station through which you want to make the call (including any special ALE address syntax for ALL, ANY, Group Selective, NET and Wildcard calls)
Select network	• select the network in which you want to make the call
My address?	• select or enter the self address from which you want to send the call

If this prompt is displayed...	Do this...
Select chan/mode	• select <auto> if you want the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established, or • select the channel/mode you want to use to make the call, or • press the 🔍 key to select the best channel/mode combination from the LQA database NOTE You can test the quality of the selected channel by sending a Channel Test call (see page 45, *Replacing LQA information as part of a call in an ALE/CALM network*).

NOTE To abort the call before a connection to the other station is made, press the PTT button.

❑   Wait until you hear a reply from the person you called.

❑   *Hold down* the PTT button then speak.

Release the PTT button when you have finished speaking.

❑   To end the call, press the 📞 key.

If the transceiver was scanning prior to the call, it resumes scanning.

Making an emergency call using the emergency key

NOTE For information on setting up the ⚠ key see the reference material on the enclosed CD.

To make a call using the ⚠ key:

❑ *Hold* the ⚠ key for at least 2 seconds.

❑ If you are prompted for details about the call, use the information in the following table to enter them, then press the 📞 key.

If this prompt is displayed...	Do this...
Select network	• select the network in which you want to make the call
My address?	• select or enter the self address from which you want to send the call
Select chan/mode	• select <auto> if you want the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established, or • select the channel/mode you want to use to make the call, or • press the 🔍 key to select the best channel/mode combination from the LQA database NOTE You can test the quality of the selected channel by sending a Channel Test call (see page 45, *Replacing LQA information as part of a call in an ALE/CALM network*).

NOTE To abort the call before a connection to the other station is made, press the PTT button.

❑ To complete the call, use the information in the following table.

If you are making an...	Do this...
Emergency call	• wait until a message informs you that the call has been successful • *hold down* the PTT button then speak, releasing the PTT button when you have finished speaking • press the ☎ key to end the call and resume scanning

NOTE

You should test your transceiver's emergency call facility on a regular basis. In doing this, the process of making an emergency call will become familiar, so that in an emergency you will have confidence that the call is effective.

Before testing the emergency call, you should notify the recipients of the call that you are going to perform a test emergency call.

Using a special ALE address syntax to make a call

CAUTION	Depending on the configuration of a NET, a NET call may take several minutes to establish a link.
NOTE	Detailed information on the special ALE address syntaxes is provided in the reference material on the enclosed CD.

To make a call using a special ALE address syntax:

❑ Press the ☎ key.

❑ If you are prompted for details about the call, use the information in the following table to enter them, then press the ☎ key.

If this prompt is displayed...	Do this...

CallType–Address	• select the Emergency, Message, Phone, Selective or Send Position call type
	• do one of the following:
	  • to make an ALL call, enter @?@
	  • to make an ANY call, enter @@?
	  • to make a Group Selective call, enter each station address separated by a comma
	  • to make a NET call, enter the address of the NET
	• to make a Wildcard call, enter any wildcard string that will match stations scanning your channels
	
	NOTE The ? in the ALL and ANY address syntaxes may be replaced by any upper-case letter or number. This limits the call to stations that have this letter or number as the last character of their self address.

Select network	• select the ALE network in which you want to make the call

⬛

If this prompt is displayed...	Do this...
My address?	• select or enter the self address from which you want to send the call
Select chan/mode	• select <auto> if you want the transceiver to select the best channel/mode for the call, starting with the channel on which the most recent successful link was established, or
	• select the channel/mode you want to use to make the call, or
	• press the $\mathbb{Q}$ key to select the best channel/mode combination from the LQA database

NOTE   To abort the call before a connection to the other station is made, press the PTT button.

Depending on the type of call you have made and the NET configuration of the receiving stations, you may receive a pop-up response from the stations you have called.

When you use a special ALE address syntax through the Selective call type, the call icon will change to the corresponding icon when the call is started.

You may connect to:

NOTE

• one other station if there is a Selective icon ($\boxed{\blacksquare}_\downarrow$) on the channel screen

• a group of stations if there is an ANY icon (🐾?), Group Selective/NET icon (🐾), or Wildcard icon (?🐾?) on the channel screen

• all stations scanning the channel if there is an ALL icon (🔅) on the channel screen

Your transceiver will inform you when the call has been successful.

❑ If required, *hold down* the PTT button then speak.

Release the PTT button when you have finished speaking.

NOTE   You are able to send data within the established link by pressing the 📞 key and following the prompts.

❑ To end the call, press the 📞 key.

The transceiver resumes scanning.

This page has been left blank intentionally.

Appendix A—Standard hot keys

Table 5:   Standard hot keys on the handset

Key	Hot key task
0 VIEW	Channel Screen: toggles between the Channel List and the Address List.
1 TUNE QZ	Manual Tune: displays the PTT to tune screen so you can manually tune the antenna.
2 CLAR ABC	Clarifier: displays the Clarifier setting in the Control List so you can change it, if necessary.
3 MODE DEF	Next Mode: switches to the next possible mode for the currently selected channel. To see the name of the mode, go to the Channel List.
5 HELP JKL	Help Mode: toggles Help Mode on or off.
7 V/S PRS	Mute Type: toggles between Selcall mute and Voice mute.
8 SEC TUV	Secure: toggles the VP-116 Voice Privacy Unit, if attached, or voice encryptor on or off, if the hardware option is installed.
* EASI TALK	Easitalk: toggles Easitalk on or off.
# CALL LOGS	Call Logs: displays the Calls Out Log, the Calls In Log, the Last Heard Log, then returns to the screen from which you began.
① + 9 WXY	Screen Contrast: displays the Screen Contrast setting in the Control List so you can change it, if necessary.
① + 0 VIEW	Screen Brightness: displays the Screen Brightness setting in the Control List so you can change it, if necessary.

This page has been left blank intentionally.

Appendix B—Entering and editing text

CODAN

Editing a screen

To gain access to an editable screen:

❑ *Hold* the ✓ key.

A question mark is displayed at the end of the heading to show that you can now enter and/or edit text in the setting.

```
Welcome Line 1?
█
                        ▋
```
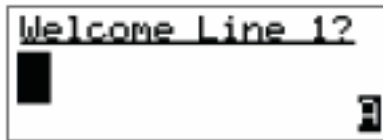
NOTE   If text has already been entered on the line it is highlighted.

❑ Do one of the following:

- To use the text displayed, press the ✓ key.

- To enter new text, start typing. When you have entered the text, press the ✓ key.

- To edit the text displayed, press the ✗ key. The cursor is placed at the end of the line so you can backspace over characters and/or enter new text. When the text is correct, press the ✓ key.

Entering text

To enter text in an editable screen:

❑ To enter one of the letters on a key, press the key repeatedly until the letter is displayed.

```
Welcome Line 1?
O                     ▣
```
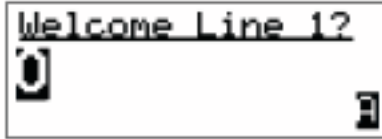
NOTE   You can also hold the key until the letter you want is displayed, then release the key.

❑ To enter another letter on the same key, wait until the cursor moves to the next space...

```
Welcome Line 1?
O█                    ▣
```
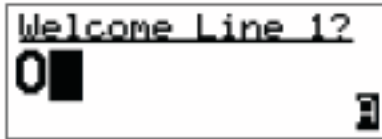
...then press the key repeatedly until the letter you want is displayed.

```
Welcome Line 1?
ON█                   ▣
```
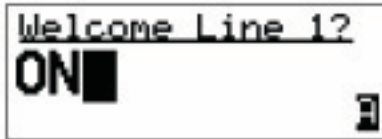
❑ To enter a letter on another key, press the key for the letter.

You do not need to wait until the cursor moves to the next space.

```
Welcome Line 1?
ONE█                  ▣
```
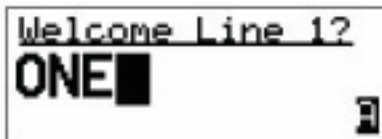
Changing between alpha and numerical characters

To change between upper-case and lower-case letters and numbers in an editable screen:

❑ Press the **#CALL LOGS** key to change the character/case indicator at the bottom right of the screen from 'A' to 'a' to '#'.

NOTE	When you are prompted to enter a call address, the characters that you can enter are determined by the call systems installed in the transceiver.

Moving the cursor

To move the cursor across the text:

❑ Use the ▶ and ◀ keys to move the cursor.

Inserting text

To insert text:

❑ Use the ▶ and ◀ keys to move the cursor to the point where you want to insert text (or a space), then press the required character key.

NOTE	If you want to insert a space, make sure that 'A' or 'a' is displayed at the bottom right of the screen before you press the **0 VIEW** key otherwise you will enter a zero.

Deleting text

To delete text:

❑ Use the ▶ and ◀ keys to move the cursor one position to the right of the character that you want to delete, then press the ✖ key.

Entering special characters in messages and names

To enter special characters:

NOTE

The special characters that are available are:

. , ' ? ! & # $ * ( ) - + /

❑ Use the ◣ and ◥ keys to move the cursor to the point where you want to insert a special character, then press the * EASI TALK key repeatedly until the symbol you want is displayed.

NOTE

Make sure that 'A' or 'a' is displayed at the bottom right of the screen before you press the * EASI TALK key otherwise you will enter a decimal point.

To enter one of an extended range of special characters:

NOTE

The characters that are available are:

space , . ; ? : ¨ ' ' / ! @ # $ % ^ & * ( ) _ - + = | \ ~ < > { } [ ] 0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

❑ Use the ◣ and ◥ keys to move the cursor to the character or space where you want to replace a character.

NOTE

If you want to add a new character, enter a space then move the cursor to this space.

❑ Press the 🔍 key to place an underscore beneath the current character or space.

❑ Use the ◣ and ◥ keys to scroll through the character choices.

❑ When you have selected the character that you want to use, use the 1 $^{TUNE}_{QZ}$ or 3 $^{MODE}_{DEF}$ keys to scroll left or right respectively.

❑ When you have made the changes, press the 🔍 key to exit the special character mode.

Entering text in an ALE call address

NOTE	The * $^{EASI}_{TALK}$ key may be used to enter the special ALE addressing characters easily.
NOTE	You can use any of the characters in the basic 38 ASCII subset (A–Z, 0–9, @ and ?) for the address.

To enter a special addressing character:

❑ Ensure that you are in an editable address screen in which you can enter upper-case letters (A).

```
Selective?
🔍▮

                     ♬
```
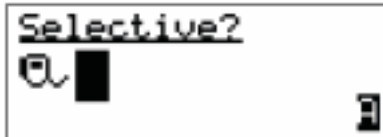
❑ Do one of the following:

• to enter an '@' press the * $^{EASI}_{TALK}$ key once

• to enter a '?' press the * $^{EASI}_{TALK}$ key twice while the cursor is in the same space

• to enter a ',' press the * $^{EASI}_{TALK}$ key three times while the cursor is in the same space

• to enter any upper-case letter, press the corresponding key

• to enter a number, press the # $^{CALL}_{LOGS}$ key once to change to numeric text entry, then press the corresponding key

Saving text changes

To save the changes you have made:

❑   Press the ✔ key.

The question mark is removed from the heading.
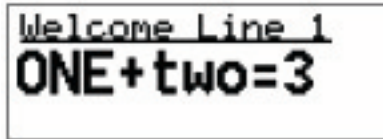
If you do not want to save the text, *hold* the ✖ key to discard the changes.

Appendix C—Finding words and values

Finding a word

To find any word in the Main Menu or in the name of an entry:

❑ From the Main Menu select the list in which you want to search.

❑ Press the 🔍 key once.

The Find prompt is displayed on the top line.

❑ Enter the first character of the word you want to find.

The first item that contains a word beginning with this character is displayed.

If there aren't any words that begin with this character the character is deleted and an error beep is made.

NOTE
To refine your search, enter more characters in the word you want to find.

To backspace over text, press the ✕ key.

❑ Scroll through the list until the item you want is displayed on the active line.

❑ Press the ✓ key to exit Find at the entry.

Finding a value

To find a value that begins with a specific character:

❑ From the Main Menu select the list in which the value is stored.

> NOTE   You cannot use this type of search in the Main Menu or in the Control List.

❑ Press the 🔍 key twice.

The Find prompt is displayed on the top line with the name of the first setting in the entry. For example:

```
Receive Freq:■
Chan 6
  8500 kHz        ⊞
```

> NOTE   The search for a value will be conducted in the setting displayed. To search for a value in a different setting, press the 🔍 key until that setting is displayed.

❑ Enter the first character of the value you want to find.

The first entry that contains a value beginning with this character is displayed, and the value is displayed beneath it.

```
Receive Freq:1■
Chan 3
 ▌6660 kHz        ⊞
```
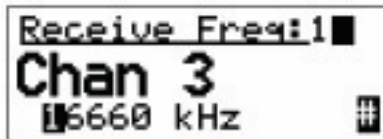
If there aren't any values that begin with this character the character is deleted and an error beep is made.

> NOTE   To refine your search, enter more characters in the value you want to find.
>
> To backspace over text, press the ✖ key.

❑ Scroll through the entries until the one you want is displayed.

```
Receive Freq:1█
Chan 10
  █3576 kHz      ⊞
```

❑ Press the ✔ key to exit Find at the entry.

This page has been left blank intentionally.

Appendix D—Creating an entry in a list

CODAN

NOTE   This process does not apply to entries in the Control List.

To create an entry in a list:

❑   Select the list in which you want to create an entry.

❑   *Hold* the 🔍 key to open the List Manager.

❑   Select Create entry.

```
List Manager
Create entry
Copy entry
```

The transceiver suggests a name for the new entry based on the name of the entry you were on.

❑   Enter the name that you want to use for the new entry.

The name must be unique to the list that you are in.

NOTE   For help with entering text see page 61, *Entering and editing text*.

❑   Press the ✔ key.

The transceiver will prompt you to enter settings for the entry.

NOTE   For information on settings for your particular list see the reference material on the enclosed CD.

The new entry is created and the List Manager remains open.

❑ If you want to view the entry you have created, close the List Manager by pressing the ✖ key.

❑ Press the ✖ key repeatedly until you return to the Main Menu.

Appendix E—HF radio transmission

The HF band is the range of frequencies between 3 and 30 MHz. HF transceivers usually cover a frequency range of 1.6 to 30 MHz.

Codan HF transceivers transmit on single sidebands. This reduces the power required to send HF signals and increases the number of channels available within the HF spectrum.

HF transceivers are primarily used for long-range communication where distances of 3 000 km and more are possible. Obstructions such as buildings and mountains have little effect on long-range communication. HF radio can cover such large distances because of the way the transmitted radio signal propagates.

HF radio waves propagate in three ways simultaneously:

- ground wave
- direct wave
- sky wave

Ground wave

The ground wave travels near the ground for short distances, typically up to 100 km over land and 300 km over sea. The distance covered depends upon the operating frequency, transmission power and type of terrain.

Direct wave

The direct wave travels in a direct line-of-sight from the transmitter to the receiver.

Sky wave

The sky wave is the most important form of HF propagation. The radio wave is transmitted toward the sky and is reflected by the ionosphere to a distant receiver on earth.

The reflective properties of the ionosphere change throughout the day, from season to season, and yearly.

Figure 7:   The reflective properties of the ionosphere

emitted HF wave

reflected HF wave

ionosphere

transmitter

receiver
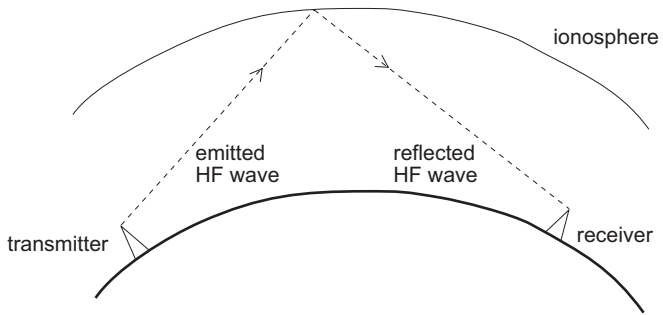
Frequency, distance and time of day

The extent to which a radio wave is reflected depends on the frequency that is used. If the frequency is too low the signal is absorbed by the ionosphere. If the frequency is too high the signal passes straight through the ionosphere. Within the HF band, low frequencies are generally considered to be in the range of 2 to 10 MHz. High frequencies are above 10 MHz.

A frequency chosen for daytime transmission may not necessarily be suitable for night-time use. During the day the layers of the ionosphere are thick. The layers absorb lower frequencies and reflect higher frequencies. At night, the ionosphere becomes very thin. The low frequencies that were absorbed during the day are reflected and the high frequencies that were reflected during the day pass straight through.

Summer HF communications usually operate on higher frequencies than those used in winter over the same distance.

Solar activity varies over an 11 year cycle. Higher frequencies need to be used during periods of peak activity.

It is important to remember that you may need to change the frequency you are using to achieve the best communication. The general rules of thumb for HF communication are:

- the higher the sun, the higher the frequency

- the further the distance, the higher the frequency

Channels and modes

A channel is a name that is given to a frequency or a pair of frequencies, e.g. 'Channel 1', '4500' and 'Headquarters'. The frequencies may be any frequencies within the HF range.

Each channel has one or more modes associated with it. Each mode indicates a sideband that can be used with the channel, such as USB or LSB. When you make a call you need to specify the channel *and* the mode you want to use.

Table 6 shows examples of channels and the information associated with them.

Table 6:   Examples of channels and modes

Channel	Receive frequency (kHz)	Transmit frequency (kHz)	Modes
Channel 1	10600	10600	LSB, USB
4500	4500	–	AM
Headquarters	22758	23000	USB

Networks and scanning

A network is two or more stations that use the same frequencies and call system to communicate.

The frequencies are allocated by a government authority and enable the network to maintain HF communication throughout the day and night.

The call system is the method the network uses to make and receive calls. For example, in networks that use the ALE/CALM call system, the transceiver selects the best channel/mode for the call.

The transceiver can be set to scan the channel/modes used by your network to detect incoming calls. It is recommended that when you are not using the transceiver to communicate you switch scanning on. This ensures that you can receive calls from stations in your network.

The CALM option

The NGT *ASR* transceiver has the CALM option installed as standard. CALM stands for Codan Automated Link Management.

The CALM option enables the transceiver to test the signal propagation qualities of your channels and build a profile of each channel's suitability for use at different times of the day and night. The transceiver can then select the most suitable channel/mode for you when you make a call. You are able to make ALE ALL calls with this option.

CALM is compatible with FED-STD-1045 ALE.

The Advanced ALE options

The Advanced ALE options are installed in addition to the CALM option, and are standard for the NGT *ASR* transceiver. They provide the capability to make ALE calls using ALL, ANY, Group Selective, NET and Wildcard address syntaxes. These calls are from one station to many stations at the same time. The Advanced ALE options also provide advanced link quality analysis and advanced messaging.

The Advanced ALE options are interoperable with FED-STD-1045 ALE and MIL-STD-188-141B.

Etiquette for the use of HF radio

There is a standard procedure for communicating over HF radio. Before you begin transmitting, switch off scanning, select a channel, then press the PTT button to initiate tuning of the antenna. Listen to the channel that you are going to use and ensure that there is no voice or data communication taking place. You may need to wait until the channel is clear or select another channel.

NOTE	If you have the Cfg LBT Mode set to Enabled or Override allowed, the transceiver searches for a channel that is not being used; you do not need to check any channels first.

When you first establish communication with another station it is customary to state their call sign and then your own using the phonetic alphabet (see Table 7 on page 78). For example:

'Alpha Bravo One, this is Alpha Bravo Two. Do you receive me? Over.'

In this example your call sign is AB2 and you are calling a station with the call sign AB1. A call sign is a group of letters and numbers issued by a government authority to identify a station. The phonetic alphabet is used to ensure that your call sign is understood.

The word 'over' is used to signify the end of your transmission. The transceiver may be set up to transmit a short beep when you release the PTT button on the handset. When your conversation with the other party is finished, the party that speaks last should say 'out'.

Swearing or foul language should not be used—heavy penalties can apply.

Keep communication as short as possible.

Table 7:   The phonetic alphabet

Letter	Word	Letter	Word
A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Appendix F—Definitions

Standards and icons

The following standards and icons are used in this guide:

This typeface	Means...
Italic	a cross-reference or text requiring emphasis

This icon	Means...
❑	a step within a task
NOTE	the text provided next to this icon may be of interest to you
CAUTION	proceed with caution as your actions may lead to loss of data, privacy or signal quality
WARNING	your actions may cause harm to yourself or the equipment

Acronyms and abbreviations

This term	Means...
ALE	automatic link establishment
AM	amplitude modulation
CALM	Codan automated link management
DC	direct current
HF	high frequency
ID	identification
LBT	listen before transmit
LCD	liquid crystal display
LED	light emitting diode
LSB	lower sideband
LQA	link quality analysis
NSP	NGT system programmer
PA	power amplifier
PC	personal computer
PTT	press-to-talk
RF	radio frequency
Rx	receive
SB	sideband
tcvr	transceiver
Tx	transmit
USB	upper sideband
V	firmware/software version

Glossary

This term	Means...
active line	The line below the title of a list on the handset screen. Items in the active line are selected by pressing the ✔ key.
address	The HF transceiver equivalent of a telephone number. Your station self address is used by other stations to call you, and it is sent when you make calls to identify you as the caller. It is sometimes referred to as an ID, a station ID, or a self ID.
ALL call	An ALE address syntax used to broadcast to any station that is tuned to the same frequency in an ALE/CALM network or scanning the network. The ALL call uses a special address syntax @?@ that ALE stations recognise. The ALL call does not request any automatic responses from stations that enter the link. Stations can be configured to enter a link on detecting an ALL call or to ignore an ALL call.
	A selective ALL call addresses a subset of stations tuned to the same frequency in an ALE/CALM network or scanning the network.
	A multiple selective ALL call addresses these subsets within the one call.

This term	Means...
ANY call	An ALE address syntax used to broadcast to any station that is tuned to the same frequency in an ALE/CALM network or scanning the network. The ANY call uses a special address syntax @@? that ALE stations recognise. The ANY call requests an automatic response from stations detecting the call. These responses are returned in any slot position (collisions may occur). The initiating station then completes the link establishment with an acknowledgement sent to all stations from which it received a response. The operator at the initiating station can use these responses to gather information on the status of the stations using the network. Stations can be configured to respond to or to ignore ANY calls.
	A selective ANY call addresses a subset of stations tuned to the same frequency in an ALE/CALM network or scanning the network.
	A multiple selective ANY call addresses these subsets within the one call.
automatic tuning antenna	An antenna designed for use with multichannel transceivers. It uses a microcontrolled stepper motor to give continuous tuning over the operating frequency range of the antenna.
channel	Frequencies programmed in the transceiver to transmit and receive signals on air.

This term	Means...
Channel Test call	A call that enables you to test the quality of a channel. It is sometimes referred to as a Beacon call. Channel Test calls may be made in an ALE/CALM network to replace information in the LQA database, and to perform a manual sounding operation.
control cable	A cable connecting two items of equipment that allows control information to be passed between the equipment.
Emergency call	A call that enables you to trigger an emergency alarm at a specific station then speak to an operator there.
fixed base station	A transceiver that is permanently installed and cannot be moved without significant effort. It consists of a transceiver, a transceiver supply, an antenna, control and accessory devices, ancillary equipment, and appropriate connecting cables.
frequency	The number of cycles per second of a radio wave, usually expressed in kilohertz.
Get Position call	A call that gets the GPS position of a specific station.
Get Status call	A call that gets diagnostic information about the transceiver at a specific station.

This term	Means...
Group Selective call	An ALE call that is sent to stations specifically addressed in the call that are tuned to the same frequency in an ALE/CALM network or scanning the network. The Group Selective call requests an automatic response from stations that detect the call. These responses are returned in reverse order from that provided in the call. The initiating station then completes the link establishment by sending an acknowledgement to all stations from which it received a response.
handset	A hand-held device that is used to control the functions of a transceiver. It consists of a microphone, PTT button, display and keypad.
hot key	A key on the handset or desk console that is pre-programmed with a macro that enables you to perform a task quickly.
junction box	The unit in a transceiver to which a handset, RF unit, speaker and related devices are connected. The junction box receives the instructions that a user enters through the handset and sends these instructions to the relevant devices.
Last Heard Log	A log of the last 100 on-air transmissions detected by the current station. The information gathered from each transmission includes the self address of the heard station, the time/date of the transmission, and the channel/mode used for the transmission.

This term	Means...
link	A link is established following a 3-way handshake process. Scanning is off and a timeout, set using the Cfg In Call Timeout entry in the Control List, will be active. With ALL calls and NET calls that are set to link immediately, the linking establishment process is 1-way.
listen before transmit	If enabled, the automatic process that the transceiver uses to detect whether or not there is traffic on a channel and, when necessary, select another channel or inform the user that the channel is busy.
LQA beacon	A Channel Test call made in an ALE/CALM network using a Group Selective or NET address syntax. The LQA beacon tests all channels within the network to determine the best channel according to local and remote BER and SINAD measurements. On completion of the beacon, the information collected replaces the information for the channel stored in the LQA database. It is sometimes referred to as an ALE beacon.
macro	A short set of instructions to automate a task you perform with the transceiver. When a macro is assigned to a key, the key becomes a hot key.
manual sounding	A Channel Test call made in an ALE/CALM network using the text SOUNDING as the call address. The station performs a sounding operation, which other stations use to update the information in their LQA database.
Message call	A call that enables you to send a message to a specific station.

This term	Means...
mobile station	A station that is usually mounted in a vehicle or is portable and easily transportable. It consists of a transceiver, a power supply, an antenna, control and accessory devices, ancillary equipment, and appropriate connecting cables.
mode	A type of reception or transmission you can use with a channel e.g. USB.
NET call	An ALE address syntax that is used to send a call from one station to other stations that have the NET programmed in the NET List. If these stations have their self address in the Member Address setting they become members of this NET. The member stations send an automatic response to the initiating station in a pre-determined response slot, if enabled to do so. The initiating station then completes the link establishment with all member stations. Any other stations with the NET programmed will enter the link at this time too.
network	Two or more stations that use the same frequencies and call system to communicate.
Phone call	A call that enables you to connect to a public telephone network.
PTT button	Press-to-talk button, located on the left side of the handset. This button enables you to communicate during voice calls, switch mute off, cancel voice calls prior to the point where voice can be transmitted, cancel calls where data is being transmitted, and exit out of editable screens without saving changes.

This term	Means...
revertive	A signal sent by a station in response to a call.
RF unit	The unit in a transceiver that modulates audio signals onto radio frequencies that can be transmitted on air, and that demodulates the radio frequencies it receives into audio signals.
Selective call	A call that enables you to contact a specific station then speak to an operator.
Send Position call	A call that sends your GPS position to a specific station.
station	A point of communication consisting of a transceiver, a power supply, an antenna, ancillary equipment, and appropriate connecting cables.
transceiver	An RF unit, junction box, handset, speaker, and appropriate connecting cables.
Wildcard call	An ALE address syntax used to broadcast to any station that is tuned to the same frequency in an ALE/CALM network or scanning the network. The Wildcard address syntax, which ALE stations recognise, uses the wildcard character ? as a placeholder for characters within a self address of a receiving station. Stations that detect the call and whose self address matches the pattern in the wildcard address will send a response to the initiating station. These responses are returned in any slot position (collisions may occur). The initiating station then completes the link establishment with an acknowledgement sent to all stations from which it received a response.

A multiple Wildcard call addresses matching subsets within the one call. |

Units

Measurement	Unit	Abbreviation
Distance	metre	m
Frequency	hertz	Hz
Time	second	s
Voltage	volt	V

Unit multipliers

NOTE	Units are expressed in accordance with ISO 1000:1992 'SI units and recommendations for the use of their multiples and of certain other units'.

Unit	Name	Multiplier
M	mega	1 000 000
k	kilo	1 000
m	milli	0.001

About this issue

This is the first issue of the *NGT ASR* Transceiver Getting Started Guide.

Associated documents

This guide is one of a series of documents associated with the NGT transceiver. The other documents are:

- NGT *ASR* Transceiver Reference Manual (Codan part number 15-04138-EN) supplied on the CD inside the back cover of this guide

- NGT Transceiver System Technical Service Manual (Codan part number 15-02063-EN)

- Declaration of Conformity for the NGT *ASR* transceiver (Codan part number 19-40131)

- Declaration of Conformity for the 3020 Transceiver Supply (Codan part number 19-40127)

This page has been left blank intentionally.

Index

A

Address List
 calling from 49, 51
Advanced ALE options 77

B

best channel
 selecting 48
brightness
 screen 34

C

cables
 fixed station 19
 mobile station 14
call sign 77
call systems
 ALE/CALM 76
call types
 Emergency 43, 53
calls
 from Address List 49, 51
 using emergency key 43, 53
 using special ALE address syntaxes 55
CALM option 76
channel screen 28
channels
 automatic selection 76
 definition 75
 manual selection 30
compliance
 electromagnetic compatibility and safety
  notices 7
   earth symbols 8
   electrical safety 8
   electromagnetic compatibility 7
   protection of the radio spectrum 6
 European Radio and Telecommunications
  Terminal Equipment Directive 5
 FCC 10

contrast
 screen 33
creating an entry in a list 71

D

direct wave 73

E

electromagnetic compatibility and safety notices
 compliance
  earth symbols 8
  electrical safety 8
  electromagnetic compatibility 7
  protection of the radio spectrum 6
Emergency calls 43, 53
emergency key 43, 53
entering and editing text
 changing between alpha and numerical
  characters 63
 deleting text 63
 editing a screen 61
 entering special characters in messages and
  names 64
 entering text 62
 entering text in a call address 65
 inserting text 63
 moving the cursor 63
 saving text changes 66
European Radio and Telecommunications
 Terminal Equipment Directive
 compliance 5

F

FCC compliance 10
FED-STD-1045 ALE 76
finding
 a value 68
 a word 67
fixed station 18
 cables 19
 installing 21
 mounting 19

W

wave
    direct 73
    ground 73
    sky 74

This page has been left blank intentionally.

CODAN

www.codan.com.au

Head Office

Codan Limited
ABN 77 007 590 605
81 Graves Street
Newton SA 5074
AUSTRALIA
Telephone +61 8 8305 0311
Facsimile   +61 8 8305 0411

asiasales@codan.com.au

Codan (UK) Ltd
Gostrey House
Union Road
Farnham Surrey GU9 7PT
UNITED KINGDOM
Telephone +44 1252 717 272
Facsimile   +44 1252 717 337

uksales@codan.com.au

Codan US, Inc.
10660 Wakeman Court
Manassas VA 20110
USA
Telephone +1 703 361 2721
Facsimile   +1 703 361 3812

ussales@codan.com.au

Codan Limited
ABN 77 007 590 605
105 Factory Road
Oxley Qld 4075
AUSTRALIA
Telephone +61 7 3716 6333
Facsimile   +61 7 3716 6350

NCS INTERNATIONAL

CERTIFIED QUALITY
MANAGEMENT SYSTEM
— I S O 9 0 0 1 —