



16-way Selector

Each position denotes a channel or group of channels.

On/off/volume Control

Rotate clockwise to turn on the radio and increase volume, counterclockwise to decrease volume and turn off the radio.

LED Indicator

See inside back cover, or pages 9 to 10.

Function Keys

Preprogrammed functions. See pages 13 to 14.

Speaker/Microphone

PTT Key

(Press-To-Talk)
Press to transmit, release to receive.

Display

(Orca Excel only)
See pages 11 to 12.

Keypad

(Orca Excel only)
See pages 8 to 9.

- 🎵 Call
- 📶 Channel
- 📞 DTMF
- ✕ Monitor/Clear
- ◀ Scroll Left
- ▶ Scroll Right
- ↩ Enter

Handset Microphone

In handset mode. See page 29.

Tait Electronics Ltd Software Licence Agreement

By opening this product package and/or using the product, you agree to be bound by the terms of the Tait Electronics Ltd Software Licence Agreement. Please refer to the back of this manual for complete information on the Tait Electronics Ltd Software Licence Agreement.

Important Charging Information

- Turn your radio off before charging.
- New batteries must be fully charged before first use.
- Replace or recharge your battery as soon as the radio indicates the battery is low.

Use of Green Conditioning Button

(Fast charger only)






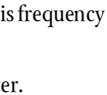
The green button on the fast charger is the conditioning button and is only used for short and long conditioning. See “Conditioning Using the Fast Charger” on page 35 for more information.

- Short condition your NiCd battery weekly.
- Long condition the battery following prolonged storage or if battery performance has deteriorated.
- Do not press the conditioning button if you just want to charge the battery. Only press the conditioning button when you want to initiate short or long conditioning.

For More Information...

Complete information on batteries and battery chargers is provided in “Charging and Caring for Batteries” on page 32.

Safety Warnings

- Do not hold the radio with its antenna close to or touching any part of your body, especially your face and eyes, when transmitting. 
- Switch the radio off at petrol filling stations. 
- Switch the radio off in the vicinity of explosive devices, such as at a quarry that uses blasting techniques. 
- Use of a handheld microphone or radio while driving is not permitted in some countries. Check the vehicle regulations in the area where you are driving. 
- Use only Tait Orca battery chargers to charge your radio battery. 
- If using the radio with an earphone or headset, avoid using unnecessarily high volume levels. 
- Frequency band 406 to 406.1 MHz is reserved for use by distress beacons. Transmissions should not be made within this frequency band.
- Do not immerse your Tait Orca radio in water.

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Tait Electronics Ltd has made every effort to ensure the accuracy of the information in this manual. However, Tait Electronics Ltd reserves the right to update the radio and/or this manual without notice.

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Getting Started

Your Tait Orca handportable radio is preprogrammed to suit your communication needs. If you are unsure which of the features described in this manual are available on your radio, consult your system manager or the person who programmed your radio.

The custom features programmed for your radio may be listed on the “Custom Settings” page on the inside back cover of this manual.

When you receive your Tait Orca handportable radio, make sure all items you ordered are included. Typically, you should receive the following:

- Tait Orca handportable radio unit
- Battery pack
- Antenna
- Belt clip
- Charger
- Plug pack
- *User’s Manual*

If any parts are damaged or missing, report this to your local Tait dealer immediately.

Installing the Antenna

Before using the radio, connect the antenna to the socket at the top of the radio.

Charging the Battery Before First Use

The battery pack must be fully charged before you first use the radio. It is highly recommended that the battery also be put through a long conditioning cycle after the initial charge and before use. Putting the battery through a long conditioning cycle will maximise the battery’s initial capacity.

If using the fast charger or multi-charger, the battery will fully charge within four hours. If using the trickle charger, the battery will fully charge within 16 hours. The trickle charger is not recommended for NiMH battery packs.

For more information on charging and conditioning the battery, see “Charging and Caring for Batteries” on page 32.

Installing and Removing the Battery Pack

To fit the battery pack to the radio, insert the bottom edge of the battery pack into the two slots at the back of the radio. Push the battery pack towards the radio. It should snap into place.

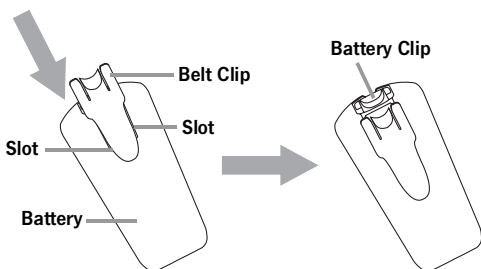
To remove the pack, push the battery catch down and from the sides pull the battery away from the radio.

Installing a Belt Clip

Two types of belt clip are available for Tait Orca radios:

- 38 mm belt clip; and
- 55 mm spring loaded belt clip.

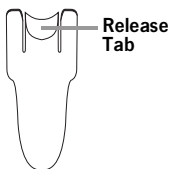
For both types of belt clip, slide the belt clip into the two slots on the top of the battery. Push down until the clip snaps into place.



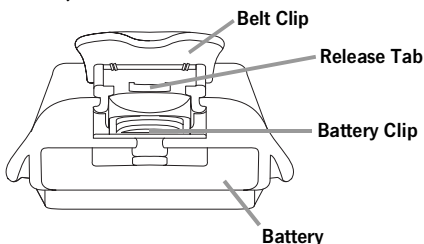
Removing a Belt Clip

Both belt clips have been designed to avoid accidental removal. However, they can be replaced if required.

To remove the 38 mm belt clip, insert the end of a flat-bladed screwdriver under the edge of the release tab (right) without forcing it. Gently lift the release tab up, then slide the belt clip away from the battery.



To remove the 55 mm belt clip, lie the battery on a flat surface. Insert the end of a flat-bladed screwdriver under the release tab (shown below) and lift. Slide the belt clip away from the battery.



Should the small battery clip come loose while removing either belt clip, it can easily be refitted by sliding it into the slot at the top of the battery until it snaps into place.

Radio Controls and Indicators

Your Tait Orca handportable controls and indicators include the on/off/volume control, the 16-way selector, side panel keys, keypad (Orca Excel only), and various radio indicators.

Some keys can have functions assigned to both short and long presses. A short keypress is defined as less than one second. You may need to experiment to become familiar with the duration of short and long keypresses.

On/Off/Volume Control

Rotating the on/off/volume control clockwise turns on the radio and increases volume. Rotating the control counter-clockwise decreases volume and turns off the radio. This also controls the volume level of indicators and confidence tones.

16-Way Selector

Each position on the 16-way selector can be preprogrammed for a channel or group of channels. See “Selecting a Channel” on page 16 for more information.

Side Panel Keys

The side panel keys include:








- Function keys 1 and 2 for access to preprogrammed functions. See “Programmable Function Key Settings” on page 13 for more information on the options that can be preprogrammed for the function keys.
- PTT (press-to-talk) key for making the radio transmit each time you talk.

Keypad

This section applies only to Orca Excel radios.

Keys 0 to 9 are used for dialling numbers and entering data. Other key functions are outlined on page 9.

Functions marked * must be preprogrammed in order to operate.

| Symbol | Key Name | Function |
|---|-------------------|---|
|  | Call | Short: Enter Selcall dialling mode*. Long: Send a preset Selcall call*. |
|  | Channel | Short: Enter channel selection mode. Long: Turn repeater talk around* on and off. |
|  | DTMF | Short: Enter DTMF entry mode*. Long: Send a preset DTMF call*. |
|  | Monitor/ Clear | Short: Turn monitor on and off. Note that the radio may be preprogrammed so that monitor cannot be activated. If this is the case, a short press of this key will always turn monitor off, if it is active. Long: Clear, or turn squelch override* on and off. |
|  | Enter | End an entry or make a selection. |
|  | Left/Star | Left arrow: Arrow key when scrolling. Star: For group and DTMF dialling*. |
|  | Hash/Right | Hash: For group and DTMF dialling*. Right arrow: Arrow key when scrolling. |

Radio Indicators

In combination, the radio's LED indicator and audible signals provide you with information on the state of your radio. On the Orca Excel, display messages provide additional information.

Radio indicators are summarised on the "Radio Indicators" page on the inside back cover of this manual.

LED Indicators

The radio's LED is the main indicator for displaying the state the radio is in. Other indicators provide additional information intended to supplement that provided by the LED.

“Slowly flashing” is one flash every 2 seconds, “Moderately flashing” is one flash every second, and “Rapidly flashing” is four flashes every second.

| Colour | Rate | Meaning |
|---------------|---------------------|---|
| Red | Steady | Transmitting. |
| Red | Slowly flashing | Battery low. Radio will also emit low-pitched beeps. Recharge or replace as soon as possible. |
| Red | Moderately flashing | Low power transmit mode active. |
| Red | Rapidly flashing | Radio is stunned. Radio will also emit very high-pitched beeps. Contact your despatcher. |
| Red | Two rapid flashes | The power-up sequence is complete. Radio will also emit two medium-pitched beeps. |
| Green | Steady | Channel busy. |
| Green | Slowly flashing | Economy mode active. |
| Green | Moderately flashing | Monitor or squelch override active. |
| Amber | Steady | Radio is scanning or voting a group of channels for activity or greatest signal strength. |
| Amber | Slowly flashing | Repeater talkaround active. |
| Amber | Moderately flashing | Activity detected on one of a group of channels being scanned. |
| Amber | Rapidly flashing | A Selcall call has been received. |
| Red/Green | Slowly flashing | Handset mode active. |
| Red/Green | Rapidly flashing | Radio programmed incorrectly or faulty. Contact your Tait dealer. |

Audible Signals

Your radio may be preprogrammed so that whenever you press a key, the radio will beep to indicate whether or not the action you wish to carry out is permitted.

A short, medium-pitched beep indicates that an action or selection is valid, whereas a long, low-pitched beep indicates that the action or selection is not valid.

Common audible signals are summarised on the “Radio Indicators” page on the inside back cover of this manual.

Audible signals may be disabled at radio programming time, and a function key may be programmed to turn audible signals on and off.

Display Messages

This section applies only to Orca Excel radios.

A typical display is shown below.














The upper lefthand corner of the display shows the mode the radio is currently in. In this example, **CHAN** indicates the radio is in channel selection mode. The lower lefthand corner gives additional information on the status of the radio. In this example, **RTA** indicates the radio is in repeater talk around mode.

The panel on the righthand side shows data for the current radio operation, and characters may be single- or double-height. In this example, **CHAN9** indicates what channel the radio is currently operating on. When you enter data for a specific function, such as dialling a call, the information will appear in this panel.

The bottom line of the display shows a series of icons that give additional information on the state of the radio. The meaning of these icons is outlined in “Display Icons” on page 12.


Throughout this user’s manual, messages that appear in the display of the Orca Excel radio are shown in **BOLD ALLCAPS**.

Display Icons

| Icon | Meaning |
|---|--|
|  | Flashing: Recharge the battery. |
|  | Steady: The battery is charged. |
|  | Steady: The radio is in DTMF dialling mode. |
|  | Steady: Monitor or squelch override is active. |
|  | Steady: Scrolling is permitted. |
|  | Steady: The radio is scanning a group of channels for activity. Flashing: Activity has been found on a group of channels being scanned. |
|  | Flashing: The radio is transmitting at normal power. |
|  | Steady: Low power transmit mode is active. Flashing: The radio is transmitting at low power. |
|  | Steady: Handset mode is active. |
|  | Steady: An auxiliary device is operating. |
|  | Steady: The selected channel is busy. |

Battery Life Indicator

The battery life indicator in the lower lefthand corner of the display (Orca Excel only) shows how charged the battery is. Note that while the battery is charging and for up to half an hour after removing the radio from the charger, the battery indicator will not accurately reflect how charged the battery is.

When the battery is low, the low battery icon () will flash, the radio will emit a low-pitched beep every five seconds and the LED indicator will slowly flash red. See “Charging and Caring for Batteries” on page 32 for recharging instructions.

To preserve battery life, it is recommended that you turn off the radio when it is unattended, or use economy mode (see “Other Features” on page 28), if it has been programmed.

Programmable Function Key Settings

Functions marked * are described more fully in “Other Features” on page 28. Some functions are not permitted in some countries.

| Function | Description |
|-----------------------|--|
| Audible Indicators | Turns audible indicators on and off. |
| Backlighting* | Orca Excel only. Turns backlighting on. Backlighting will turn off after a preprogrammed time. |
| Channel's DTMF Preset | Sends the DTMF preset call assigned to the current channel. |
| Contrast Adjustment* | Orca Excel only. Allows you to adjust the display contrast. |
| Disable Monitor | Turns off the monitor facility, if it is active. On Orca Excel radios, a short press of the monitor/clear key (X) disables the monitor facility. |
| Economy Mode* | Turns economy mode on and off. |
| Emergency | Activates emergency mode. |
| Handset Mode* | Turns handset mode on and off. |
| Keypad Lock* | Orca Excel only. Locks the keypad so the keys cannot be activated accidentally; a long press of the clear key (X) turns off keypad lock. What keys are locked depends on how the radio was preprogrammed; however, the clear key (X) cannot be locked. |
| Low Power Transmit* | Changes the transmit power from medium or high to low. Pressing the key again returns the transmit power to the preprogrammed level. Channels can also be preprogrammed for low power. |
| Night Use* | Orca Excel only. Turns night operation mode on and off. |
| Nuisance Delete | Temporarily deletes the current channel from the scanning regime. |

| Function | Description |
|----------------------|---|
| One Touch | Sends a preset Selcall call or DTMF call, or selects a channel. |
| Preset Call | Sends the preset Selcall call assigned to the current channel. |
| Repeater Access Tone | Sends the repeater access tone to key up the transmitter. |
| Repeater Talk Around | Allows you to bypass normal repeater operation and communicate directly with another radio. Pressing the key again or changing to another channel turns off repeater talk around. Orca Excels may be preprogrammed so that a long press of the channel key (Y) turns repeater talk around on and off. |
| Squelch Override | Turns the squelch override on and off so the user can hear all activity on a channel, including noise. Orca Excels may be preprogrammed so that a long press of the monitor/clear key (X) turns squelch override on and off. |
| Toggle Monitor | Turns monitor on and off so the user can hear all traffic on a channel. On Orca Excel radios, a short press of the monitor/clear key (X) disables the monitor facility. |
| Volume Control | Controls volume in handset mode. |

Basic Operation

This section describes the basic operation of your radio, including turning the radio on and off, adjusting volume, selecting channels, and making and receiving calls.

Turning the Radio On and Off and Adjusting Volume

Rotating the on/off/volume control clockwise turns on the radio and increases volume. Rotating the control counter-clockwise decreases volume and turns off the radio.

To preserve battery life, it is recommended that you turn off the radio when it is not in use.

When you turn on an Orca Excel radio, you may need to enter a personal identification number (PIN) before you can use the radio. If you get the message **ENTER CODE**, enter your assigned PIN, which will be up to five digits long, then press the enter key (↵). If you do not know your PIN, consult your system manager or the person who programmed your radio.

Once the power-up sequence is complete, the LED will flash red twice and the radio will give two short, medium-pitched beeps. The Orca Excel will also display a message such as **TAIT ORCA RADIO**.

Operating Modes

This section applies only to Orca Excel radios.

Once the power-up sequence is complete, the message in the upper lefthand corner of the display will indicate which operating mode the radio is in.

What modes are available depends on how your radio was programmed. The radio can be preprogrammed to enter the same mode each time it powers up or to enter that last used when the radio was previously turned off.

Selecting a Channel

Each position on the 16-way selector denotes a channel or group of channels. If when you select a channel the radio gives two short, high-pitched beeps, then that channel was the last one activity was found on during scanning. See “Scanning and Voting Groups” on page 19 for more information on groups of channels.

If the channel selected is busy, the LED will glow green and on Orca Excel radios the channel busy icon (Ψ) will appear in the display. Wait until the channel is free before transmitting.

On Orca Excel radios, you can also select channels using the keypad. To select a new channel using the keypad, the radio must be in channel selection mode (**CHAN** in the upper lefthand corner of the display). If not, give a short press of the channel key (Υ). The message **CHAN** and the scrolling permitted icon ($\leftarrow\rightarrow$) will appear. The name of the current channel or group will be displayed, e.g. **BASE**.

To select another channel or group, you can either:

- scroll through the available channels using the scroll key ($\blacktriangleleft/\blacktriangleright$) and select the desired channel; or
- key in the desired channel number.

Note that you cannot change channels while transmitting.

Receiving a Call

Your radio will remain quiet until there is valid activity on the channel your radio is currently on (see “What You Hear On a Channel” on page 17). When you hear your own call sign, respond promptly by pressing the PTT key and replying.

Making a Call

Select the desired channel as described above.

If the channel is busy, you will not normally be able to transmit; if you try to transmit, the radio will sound a low-pitched warning beep. You may not be able to hear the activity, but the LED will glow green and on the Orca Excel

the channel busy icon (Ψ) will appear in the display. You can activate the monitor function to listen to channel activity.

When the channel is clear, hold down the PTT (press-to-talk) key and speak clearly into the radio. Identify yourself and the party you are calling using the call signs you have been assigned. Release the PTT key when you have finished talking.

While you are transmitting, the LED will glow red and on the Orca Excel the transmitting icon (⚡) will flash. If you are transmitting at low power, the low power icon (⚡) will flash. While the other party is transmitting, the LED will glow green and on the Orca Excel the channel busy icon (Ψ) will appear in the display.

If Selcall mute is programmed for a particular channel, you will only be able to make Selcall calls on that channel until the monitor function is activated and the channel is clear.


Transmit Timer

Your radio is programmed with a transmit timer that limits the amount of time you can transmit continuously. If the radio gives three medium-pitched beeps, the transmit timer is about to expire. Ten seconds later, the radio will automatically stop transmitting. You will have to release the PTT before you can transmit again. The radio may be programmed to prevent transmission for a period after the transmit timer has expired.

If Selcall mute is programmed for a particular channel, you will only be able to make Selcall calls. See “Monitor” on page 18 for more information on the monitor function and the Selcall mute.

What You Hear On a Channel

What traffic you hear on a channel depends on how your radio was programmed. A channel can be programmed so that you hear all conversations on a channel (no signalling), or your user group may be segregated from others using various types of signalling (CTCSS, DCS or Selcall).

When your group is segregated, you will not hear other groups talking on the current channel unless the monitor function is active (see below). If the channel is busy, the LED will glow green and on the Orca Excel the channel busy icon () will appear in the display.

CTCSS and DCS


CTCSS (continuous tone controlled subaudible signalling) and DCS (digitally coded squelch) signalling use subaudible tones to isolate your calls so you only hear activity for your group.



Selcall

Selcall (selective calling) uses audible tones to isolate your calls and direct calls to specific individuals within a group. You may hear the Selcall tones at the beginning of a transmission.

Monitor

Monitor lets you hear all conversations on a channel, including those outside your group. Once activated, monitor will automatically turn off after a preprogrammed time period, and can also be reset by your dispatcher or when some types of calls are received. Your radio may be programmed so that monitor is activated when your radio is turned on or when you send some types of calls.

While monitor is active, the LED will moderately flash green and on Orca Excel radios, the monitor icon () will appear in the display.

Monitor may be assigned to a function key or on Orca Excel radios can be turned on and off by a short press of the monitor/clear key (). Your radio may be programmed so that a press of the assigned function key or monitor/clear key () will only deactivate monitor, if it is active.

Monitor can be programmed to override both CTCSS/DCS signalling and Selcall signalling or only Selcall signalling (Selcall mute).

If a particular channel is programmed with Selcall mute, you will only be able to hear traffic that matches your Selcall identity and you will only be able to make Selcall calls. Turn on monitor to hear all traffic and make calls other than Selcall calls.

Squelch Override

The radio's squelch allows reception of a signal only when it is above a factory-set threshold so that only intelligible signals will be made audible. Activating squelch override can sometimes improve reception of a signal in marginal signal strength areas.

If programmed, squelch override can be turned on and off by a long press of the monitor/clear key (X)(Orca Excel only), or it may be assigned to a function key. While squelch override is active, the LED will moderately flash green and the monitor icon (🔊) will appear in the display.

Squelch override cannot be activated when a scan group is selected, and will automatically be turned off when you change to a scan group.

Scanning and Voting Groups

A series of channels may be grouped together so that the radio can scan through them looking for activity. Groups are selected the same way as channels. When a scanning or voting group is selected, the LED will glow amber, and on Orca Excel radios, the group name and scanning icon (🔄) will be displayed, as shown below.



When a busy channel is detected and the signalling is valid (see “What You Hear On a Channel” on page 17), the LED will flash amber, the scanning icon (🔄) will flash (Orca Excel only), and the radio will stop on that channel. On the Orca Excel, the name of the captured channel will be displayed

rather than the group name and you will be able to hear the transmission. Scanning will resume when the channel is no longer busy or the signalling is no longer valid.

One or two priority channels may also be set. These channels are scanned more often than other channels and are scanned periodically when a non-priority channel is busy.

Voting works the same way as scanning, except the group's member channels carry the same traffic and the radio searches for and stops on the channel with the strongest signal.

Nuisance Delete

If a channel is busy for a long time and you do not wish to hear the conversation, you can temporarily delete it from the scanning regime if one of the function key settings is programmed for nuisance delete. Pressing the assigned function key deletes the currently held channel from the regime. When the scan group is next selected, the deleted channel will again be part of the group.

Selcall (Selective Calling)

Selcall (selective calling) segregates a group of users from others on a channel using a set of audible tones. Because each radio has a unique identity, you can direct calls to individuals within your own group and make different types of calls. An emergency call may also be preprogrammed.

Receiving a Selcall Call

When a call is received that contains your radio's identity, the radio will give a ringing tone and the LED indicator will flash amber. The ringing tone is preprogrammed, and the radio will give different ringing tones when different types of calls are received. On Orca Excel radios, the display will flash **CALL** and the caller's identity and status may be displayed.



If the caller's identity is displayed, it will be as a name or a number, depending on how your radio was preprogrammed. If status is displayed, it will be a number from 00 to 99. See the person who programmed your radio for the meaning of different status numbers.

To accept the call, press the PTT key and begin speaking. If the call is a group call, there is usually no need to respond.

Making a Selcall Call

The only types of Selcall calls Orca Elan radios can make are preset Selcall calls. Orca Excel radios can make preset Selcall calls and can also dial Selcall numbers.

Preset Selcall Calls

Your radio may be programmed with preset Selcall calls. On Orca Elan radios, these are the only Selcall calls that can be made.

There are two different types of preset Selcall calls that may be programmed for your radio:

- Two preset Selcall calls can be assigned to each channel that has Selcall. If programmed, these calls will be assigned to a function key, and each channel that has Selcall may have different preset calls. To make one of these calls, change to the desired channel and press the assigned function key.
- A single one-touch Selcall call may also be assigned to one of the function keys. It is not necessary to change channels to send this call; simply press the assigned function key.

Orca Excel radios can have an additional preset Selcall call preprogrammed for each channel that has Selcall. To make this call:

- Change to the desired channel.
- Give a long press of the call key (🎵).

When the called party responds, proceed with your conversation.

Dialling Selcall Calls

This section applies only to Orca Excel radios.

If you are unsure what numbers you can dial, consult your system manager or the person who programmed your radio. If you know your system's group tone, you can also make a call to a group of users.

To dial a Selcall call:

- Switch to a channel that has Selcall programmed.
- Give a short press of the call key (🎵) to enter Selcall dialling mode.

- The message **CALL** will appear in the display, and the last number dialled may also appear. If the number displayed is that you wish to call, press the enter key (↵).
- If you wish to call another number, enter up to three digits, then press the enter key (↵).

While you are transmitting, the LED will glow red and the transmitting icon (⚡) will flash. If you are transmitting at low power, the low power icon (⚡) will flash.

When the called party responds, proceed with your conversation.

Emergency Call

One of the preset Selcall calls programmed for your radio may be an emergency call. If programmed, the emergency call will be assigned to a function key.

Pressing the function key sends an emergency sequence to a preprogrammed party, usually your dispatcher. It is not necessary to change channels to send the emergency call.

When in emergency mode, the radio cycles between receiving and transmitting so that your dispatcher can hear activity near the radio and so decide how to respond. All radio indicators will remain unchanged.

The radio can be reset to normal operation remotely by your dispatcher or by turning the radio off, then on again.

Other Selcall Features

Other Selcall features that may be preprogrammed are:

- deferred calling;
- immediate callback; and
- no acknowledgement retries.

Deferred Calling

If the channel you are making a call on is busy, the radio may be preprogrammed to store the call and send it again once the

channel is free. The radio will give a low-pitched beep if the channel is busy, and will then give two long, medium-pitched beeps at regular intervals until the channel is free and the call can be sent.

If the call is being resent and you wish to cancel it, press any key.

Immediate Callback

This section applies only to Orca Excel radios.

If you did not answer a call, the LED will rapidly flash amber and the display will flash **CALL**. The caller's identity and status may also be displayed. If the caller's identity is displayed, you can call back the caller by a press of the enter key (↵).

No Acknowledgment Retries

This section applies only to Orca Excel radios.

When you send a call and there is no reply, your radio may be programmed so that the call will be resent up to 15 times. If the called radio does not acknowledge, the display will show **NO ACKNOWLEDGE**.

If the call is being resent and you wish to cancel it, press any key.

DTMF Calls

DTMF (dual tone multiple frequency) is the tone-based system used in the world's telephone networks. If your system has access to the public switched telephone network or other networks that make use of DTMF tones, your radio can make a call to a telephone or send control codes to a remote device.

There are two ways to make DTMF calls:

- preset DTMF calls; and
- dialled DTMF calls.

Dialled DTMF calls are only available for Orca Excel radios.

Preset DTMF Calls

There are two different types of preset DTMF calls that may be programmed for your radio.

- A preset DTMF call can be assigned to one of the function keys. To send the call, select the channel the DTMF call is assigned to and press the assigned function key. Different preset calls may be available on different channels.
- A single one-touch DTMF call may also be assigned to one of the function keys. It is not necessary to change channels to send this call; simply press the assigned function key.

On Orca Excel radios, a preset DTMF call may also be assigned to a long press of the DTMF key (☎). To send the call, select the channel the DTMF call is assigned to and give a long press of the DTMF key (☎). Different calls may be available on different channels.

Dialled DTMF Calls

This section applies only to Orca Excel radios.

Consult your system manager or the person who programmed your radio for what DTMF strings you can dial. They will consist of DTMF tones 0 to 9, * and #, and perhaps tones A to D.

If you wish to dial tones A to D, your radio may be programmed so that you can use the PTT key as a “shift” key in conjunction with the numeric keys as follows:

- PTT + **2** = A
- PTT + **5** = B
- PTT + **8** = C
- PTT + **0** = D

So pressing the PTT key, holding it, then pressing the **2** key enters tone A in the DTMF string.

You can also send a pause by pressing the PTT, holding it, and then pressing the **1** key. A hyphen will be entered in the display to indicate a pause.

Depending on how your radio was programmed, the digits may be transmitted as you dial them (normal dialling) or once the string has been entered in full and you have pressed the enter key (**↵**) (buffered dialling).

To send a DTMF string:

- Make sure the radio is in DTMF dialling mode (**DTMF** in the upper lefthand corner of the display). If not, give a short press of the DTMF key (**☎**).
- The message **DTMF** will appear in the display. The last call dialled may also appear, and if this is the call you wish to make, press the enter key (**↵**).
- If you wish to call another number, enter the required DTMF string then press the enter key (**↵**).

When the called party responds, proceed with your conversation.

Short Data Messages

This section applies only to Orca Excel radios.

Orca Excel radios may be preprogrammed to receive short data messages (SDMs).

When your radio receives an SDM, the message **SDM** will flash in the lower lefthand corner of the display and the radio will give three short, medium-pitched beeps. To read the message, give a long press of the enter key (↵).

The message will appear across both rows of the display. Use the scroll keys (◀/▶) to read the whole message. To display the message from the start, hold the PTT and press the left arrow key (◀). To display the message from the end, hold the PTT and press the right arrow key (▶).

When you have finished reading the message:

- Press the monitor/clear key (✕) to delete the message. The radio will revert to the mode it was in before you viewed the message.

OR

- Press any of the mode keys. The message will remain in memory. To read the message again, give a long press of the enter key (↵).

Other Features

Note that some features are not permitted in some countries.

Backlighting

This section applies only to Orca Excel radios.

Control of backlighting for the display can be assigned to a function key. Pressing the assigned function key turns backlighting on. Backlighting will remain on for only a few seconds.

Backlighting can also be activated by turning on the night use feature (see below).

Night Use

This section applies only to Orca Excel radios.

When the radio is programmed for night use, backlighting will be turned on whenever a key is pressed or when a call is received. Backlighting will remain on for only a few seconds unless further activity is detected.

Night use can be toggled on and off by the press of an assigned function key.

Contrast Adjustment

This section applies only to Orca Excel radios.

If the radio's display is too light or too dark, you can adjust the LCD contrast using the contrast adjustment function.

The contrast adjustment function is accessed by a press of a function key. The message **CONTRAST ADJUSTMENT** will appear in the display. Use the scroll keys (◀/▶) to adjust the contrast to the desired level.

The radio will automatically return to its previous mode of operation after a few seconds of inactivity.

Economy Mode

Economy mode can extend battery life when there is little or no activity on the radio. When in economy mode, the radio will cycle between the receive state and a standby state once there has been no activity for a preprogrammed period.

Receiving or sending a call returns the radio to the fully active state.

Economy mode may be permanently enabled or can be toggled on and off by the press of an assigned function key.


While economy mode is active, the LED will slowly flash green.

Handset Operation

The radio can be operated as a normal radio where you hold the radio with the microphone about 15 cm away from your mouth. It can also be operated like a telephone handset in noisy environments or when privacy is required. While in handset mode, the radio's handset microphone will operate. Note that the radio can be preprogrammed so that the handset microphone is also the default microphone.

Ensure that while using the radio in handset mode, you do not hold the speaker pressed against your ear and the antenna does not touch your body.

Handset mode can be toggled on and off by the press of an assigned function key. Your radio may be preprogrammed so that handset mode will automatically turn off after a period of inactivity.

While handset mode is active, the LED will slowly flash red and green. On the Orca Excel, the handset icon () will appear in the display.

Volume Override

Your radio may be preprogrammed so that the function keys are used as volume up and down keys while in handset mode. What keys act as volume control keys may be listed on the "Custom Settings" page on the inside back cover of this manual.

Keypad Lock

This section applies only to Orca Excel radios.

The keypad lock prevents accidental operation by locking the keypad so that only a certain set of keys can be used. What keys are locked depends on how your radio was programmed, but the monitor/clear key (✕) can never be locked. If a call is received while the keypad is locked, press any key to answer the call.

Keypad lock can be activated by the press of an assigned function key, and can be deactivated by giving a long press of the monitor/clear key (✕). While the keypad is locked, the radio will give a long, low-pitched beep and display the message **KEYPAD LOCKED** whenever you press a locked key.

Low Power Transmit

If you are using your radio in conditions where signal strength is high, you can extend battery life by transmitting at low power.

While low power transmit is active, transmissions will be made at low power rather than at the preprogrammed power level. Note that some channels may be preprogrammed to always transmit at low power.

Low power transmit can be toggled on and off by the press of an assigned function key.

On the Orca Excel, the low power icon (⚡) will appear in the display while low power transmit mode is active. When you transmit, the LED will moderately flash red and on the Orca Excel, the low power icon (⚡) will flash.

Repeater Talk Around

If the repeater is busy or you are out of range of the repeater, you can communicate directly with another radio by using repeater talk around.

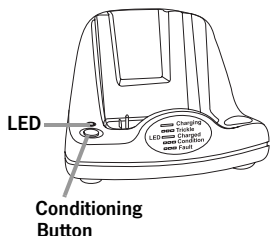
Repeater talk around can be toggled on and off by the press of an assigned function key. Orca Excel radios may be

programmed so that a long press of the channel key (↵) toggles repeater talk around on and off.

Give a press of the assigned function key or a long press of the channel key (↵) (Orca Excel only) to activate repeater talk around. While repeater talkaround is active, the LED will slowly flash amber. On the Orca Excel, the message **RTA** will appear in the lower lefthand corner of the display.

To turn off repeater talk around, press the function key again, give a long press of the channel key (↵) (Orca Excel only), or change to another channel.

Charging and Caring for Batteries



There are three types of chargers available for Tait Orca radios: a desktop fast charger (left), a desktop trickle charger and a multi-charger. The trickle charger does not have a conditioning button, but is otherwise identical in appearance to

the fast charger. The multi-charger is made up of six fast chargers and can be used on a desktop or mounted on a wall. Instructions for using the fast charger also apply to the multi-charger.

A vehicle kit is also available for charging the radio from a vehicle's power supply. Instructions for charging the battery using the vehicle kit are supplied with the vehicle kit.

Batteries can be recharged attached to the radio or as a separate unit. The radio must be turned off to ensure a full charge.

Charging the Battery Before First Use

The battery pack must be fully charged before you first use the radio. It is highly recommended that the battery also be put through a long conditioning cycle after the initial charge and before use. Putting the battery through a long conditioning cycle will maximise the battery's initial capacity.

Important Charging Information

- Turn your radio off before charging.
 - New batteries must be fully charged before first use.
 - Replace or recharge your battery as soon as the radio indicates the battery is low.
-


Use of Green Conditioning Button

(Fast charger only)

The green button on the fast charger is the conditioning button and is only used for short and long conditioning. See “Conditioning Using the Fast Charger” on page 35 for more information.

- Short condition your NiCd battery weekly.
- Long condition the battery following prolonged storage or if battery performance has deteriorated.
- Do not press the conditioning button if you just want to charge the battery. Only press the conditioning button when you want to initiate short or long conditioning.

Low Battery Warning

When the battery is low, the radio will give a low-pitched beep every five seconds and the LED will slowly flash red. On Orca Excel radios, the low battery icon () will also flash. Recharge or replace the battery as soon as possible. When the battery gets too low, the radio will emit a long, low-pitched beep, and on the Orca Excel, the display will read **BATTERY IS FLAT**. The radio will then stop operating. Turn off the radio immediately.

Note that while the battery is charging and for up to half an hour after removing the battery from the charger, the radio's battery indicator will not accurately reflect how charged the battery is.

Using the Fast Charger

The fast charger can be used to:

- charge batteries; or
- condition batteries.

Fast Charger LED States

| LED | Meaning |
|----------------|--|
| Steady Red | Battery charging. |
| Flashing Red | Battery not seated properly in charger, battery or charger contacts dirty, or battery faulty. If this occurs at the end of a long condition, consult your Tait dealer. |
| Steady Green | Battery charged. |
| Flashing Green | Battery trickle charging. |
| Steady Amber | Charge suspended until battery temperature is within correct range. |
| Flashing Amber | Battery being short or long conditioned. |

Charging Using the Fast Charger

Charging using the fast charger involves three stages.

- The fast charge stage quickly brings the battery up to near its full capacity. The charger LED will glow red.
- The trickle charge stage slowly tops up the battery until it is at its full capacity, which is typically 1 1/2 hours. The charger LED will flash green.
- The standby charge stage keeps the battery at its full capacity, as long as the radio is turned off. The charger LED will glow green.

The battery can be charged separately or attached to the radio. The radio must be turned off to ensure a full charge.

To Charge the Battery Using the Fast Charger

- Turn off the radio.
- Insert the battery/radio into the charger.
- The charger LED will glow amber for three seconds, then red.
- When the charger LED glows green, the battery is charged.

Charge Times

| Battery Type | Fast Charge Time | Trickle Charge Time |
|-------------------------|-------------------|---------------------|
| 1100 mAh NiCd (TOPB100) | up to 1 1/2 hours | 1 1/2 hours |
| 1500 mAh NiCd (TOPB200) | up to 2 hours | 1 1/2 hours |
| 1850 mAh NiMH (TOPB300) | up to 2 1/2 hours | 1 1/2 hours |

Conditioning Using the Fast Charger

Two conditioning functions are available on the fast charger, a short conditioning cycle and a long conditioning cycle.

The short conditioning cycle discharges the battery, then charges it. Regularly recharging a battery that has not been completely discharged will eventually affect its ability to hold a full charge. For best battery performance, short conditioning should be carried out once a week. This will take about 4 to 8 hours, depending on how much use the battery has had.

NOTE: Do not use the short conditioning cycle on a new battery without first fully charging it.

The long conditioning cycle discharges and charges the battery a number of times. Long conditioning will take about 24 hours. If the charger LED flashes red, consult your Tait dealer.

A long conditioning cycle may be necessary when:

- the battery performance has deteriorated; or
- if a battery has been stored for a long time.

To Short Condition the Battery

- Turn off the radio.
- Insert the battery/radio into the charger.
- When the charger LED glows red, press the conditioning

button until the indicator flashes amber.

- Release the conditioning button.

Once the battery has been discharged, it will charge normally. The battery is ready to be used again when the charger LED glows green.

To Long Condition the Battery

- Turn off the radio.
- Press and hold the conditioning button while inserting the battery/radio in the charger.
- Continue holding the conditioning button until the charger LED flashes amber.
- Release the conditioning button.

The battery is ready to be used again when the indicator glows green.

Using the Trickle Charger

The trickle charger is only recommended for charging NiCd batteries. NiMH batteries should be charged using a fast charger.

The battery can be charged separately or attached to the radio. If attached to the radio, the radio should be turned off while the battery is charging. The trickle charger cannot be used for conditioning batteries.

To Charge the Battery Using the Trickle Charger

- Turn off the radio.
- Insert the battery/radio into the charger.
- Make sure the charger LED glows red. The LED will continue to glow red throughout charging.
- The battery will be fully charged in about 16 hours.

You can leave the battery in the charger until you next need to use the radio. However, leaving the battery in the charger

for extended periods (longer than a weekend) is not recommended.

Preserving Battery Life

- Replace or recharge the battery as soon as the radio indicates the battery is low.
- Avoid recharging a full battery that has had little or no use. Overcharging the battery will reduce the life of the battery.
- Avoid leaving the battery in a charger for more than a few days.
- Turn the radio off when it is unattended for long periods.
- Use only a Tait-recommended charger.
- Maintain an ambient temperature of between 5°C and 40°C during recharging. Optimum battery performance will be obtained between 15°C and 25°C.
- Do not allow the battery contacts to become short-circuited. This may happen if a metallic object such as a coin or paper clip comes into contact with both battery contacts.
- The battery pack is a sealed unit and is not serviceable. Do not attempt to open it.

Disposing of Used NiCd Batteries

NiCd batteries contain a small amount of the metal cadmium, a potentially toxic substance that must be disposed of properly. When no longer in use, contact your Tait dealer for recycling details.

Troubleshooting

When inserting the battery/radio in the charger, the charger LED is not as expected.

- Make sure the battery/radio is seated properly in the charger.
- Check that the charger is properly plugged in.

- Check that the battery and charger contacts are clean.

The charger LED glows amber.

The radio is too hot or too cold for charging.

- Safe range for charging is 5°C to 40°C, and optimum battery performance will be obtained between 15°C and 25°C. The battery will start charging when the battery temperature is within the range 5°C to 40°C.

Basic Maintenance

Your Tait Orca handportable requires no regular maintenance other than ensuring that the battery has sufficient charge and that no damage has occurred to the antenna or the battery pack.

General Care

- Wipe the battery contacts, accessory connector contacts and radio display (Orca Excel only) with a dry lint-free cloth to remove any dirt, oil or grease.
- Use a cloth dampened with clean water to clean the radio's case and display lens (Orca Excel only), but do not immerse the radio in fluids.
- Do not allow the radio to come into contact with detergents, alcohol, aerosol sprays or petroleum-based products as they may permanently damage the case.
- Avoid high temperatures. If the radio overheats, it will cease to function. You will hear two short high-pitched beeps.

Troubleshooting

If you are experiencing difficulty operating your Tait Orca handportable, review “Basic Operation” on page 15 and check the following items:

- Is the battery firmly attached to the radio?
- Is the battery sufficiently charged?
- Is the battery charger working properly?
- Is the antenna damaged?

If all appears to be in order but your radio still fails to operate properly, consult your local Tait dealer for assistance.

Accessories

Tait offers a large range of accessories to increase communication efficiency with your Tait Orca handportable.

- Antennas
- Audio accessories
 - Lapel speaker microphones
 - Headsets
- Carrying accessories
 - 38mm belt clip
 - 55mm spring loaded belt clip
 - Heavy duty carry case
 - Heavy duty holster
- Batteries
 - 1100 mAh NiCd battery pack
 - 1500 mAh NiCd battery pack
 - 1850 mAh NiMH battery pack
- Battery chargers
 - Desktop fast charger
 - Desktop trickle charger
 - Multi-charger
 - Vehicle kit

Contact your local Tait dealer for more information.

To fit some accessories to the radio, you will need to remove the rear accessory cover. Remove the battery, then insert the end of a key underneath the bottom edge of the accessory cover. Lift to remove the cover.

When attaching or removing an accessory, ensure that the lever is in the upright position. Once the accessory is in position, rotate the lever 90 degrees counterclockwise to lock it in place.

Specifications

Size L x W x H
(including 1100 mAh
NiCd battery) 44 mm x 62 mm x 153 mm

Typical weight
(including 1100 mAh
NiCd battery) 495 g (Orca Elan)
520 g (Orca Excel)

Battery voltage 7.5 V nominal

Transmitter power 136-174 MHz: 5 W
174-530 MHz: 4 W

Receive sensitivity better than -117 dBm

Audio power >0.5 W into 16 ohms

Antenna connector SMA

For full details of the technical specifications of the radio, refer to the *Service Manual* or to your nearest Tait dealer.

Tait Electronics Ltd

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No Dealings

The Licencee may not sublicense, assign or transfer the licence or the program except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign or transfer any of the rights, duties or obligations hereunder is void.

No Other Terms

The Licencee acknowledges that it has read this agreement, understand it and agree to be bound by its terms and conditions. The Licencee further agrees that this is the complete and exclusive statement of the agreement between it and Tait in relation to the Software which supersedes any proposal or prior agreement, oral or written and any other communications between the Licencee and Tait relating to the Software (LS-589).

My Custom Settings

Function Key Settings

Short Press

Long Press

F1: _____

F2: _____

Handset Mode Volume Keys

Volume Up: _____

Volume Down: _____

Selcall Settings

Your Selcall ID: _____

Commonly Used Channels/Groups

Position

Settings

Radio Indicators

LED:

 steady











































 flashing

Sound:

pitch:  high  medium  low

duration:  short  long ... repeating

Display messages (Orca Excel only) are shown in ALLCAPS, e.g. CALL

| | Display | Sound | Meaning |
|--------------------------|--|---|---|
| Start-up/basic operation |   + message such as TAIT ORCA RADIO |  x 2 | You have just turned on the radio. The power-up sequence is complete. |
| |  +  flashing | | The radio is transmitting. |
| |  +  flashing | | The radio is transmitting at low power. |
| |  fast + CALL flashing | ringing tone* | A call has been received. |
| |  fast + CALL flashing | | A call has been received but not answered. |
| |  +  | | Activity has been detected on a channel. |
| | |  | You cannot transmit because the channel is busy or transmission is inhibited by Selcall muting. Wait until it is free to transmit or use a channel that is clear. |
| | |  x 3 | The transmit timer is about to expire. In 10 seconds, the radio will stop transmitting. Release the PTT key before transmitting again. |
| |  for 1.5 seconds | The radio has stopped transmitting because the transmit timer has expired. Release the PTT key before transmitting again. | |
| Scanning |  +  | | The radio is scanning a group of channels for activity or greatest signal strength. |
| |  medium +  flashing | | The radio has detected activity on one of a group of channels being scanned. |
| Functions | |  | A function has been turned on. |
| | |  | A function has been turned off. |
| |  slow + RTA | | Repeater talk around is active. |
| |  medium +  | | Low power transmit is active. |
| |  slow | | Economy mode is active. |
| |   slow +  | | Handset mode is active. |
| | |  x 2 | Squelch override has been turned on. |
| | |  | Squelch override has been turned off. |
| |  medium +  | | Monitor or squelch override is active. |
| Warnings |  slow +  flashing + BATTERY IS FLAT |  every 5 seconds | The battery is low. Recharge or replace the battery as soon as possible. |
| | |  | The battery is too low to operate the radio. Turn off the radio and recharge or replace the battery. |
| | |  x 2 | The temperature is too high. You should stop transmitting and allow the radio to cool down. |
| |  fast + RADIO DISABLED |  | The radio is stunned. Contact your dispatcher. |
| |   fast |   x 2 | The radio has been programmed incorrectly or is faulty. Contact your Tait dealer. |

*The ringing tone is preprogrammed. The radio will give different ringing tones when different types of calls are received.