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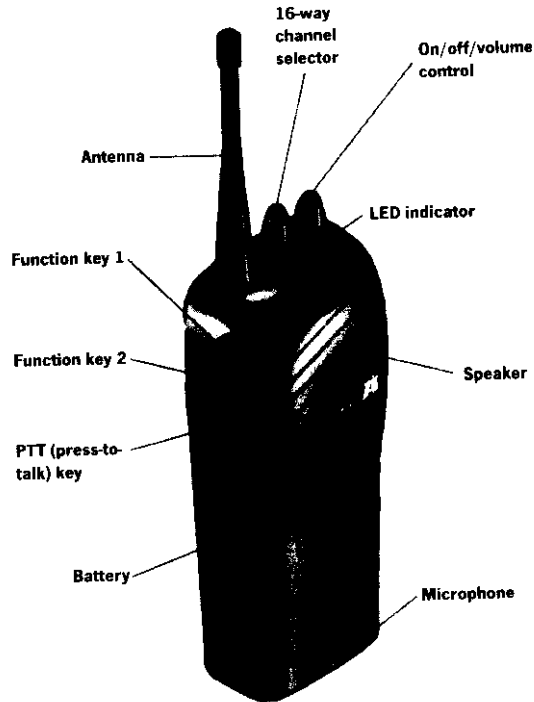
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Congratulations on your purchase of the Tait Orca handportable two-way radio.



Compact, rugged and reliable, your Tait Orca radio offers the latest state-of-the-art technology. Your radio is microprocessor controlled so that it can be customised 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.



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.
- Do not immerse your Tait Orca radio in water.



Getting started

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 as illustrated. The antenna should screw easily into the socket at the top of the radio.



Installing and removing the battery pack

Before the radio is first used, the battery pack must be fully charged, and putting the battery through a conditioning cycle will maximise the battery's initial capacity. If using the fast charger or multi-charger, the battery will fully charge within two 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 information on charging and conditioning the battery, see pages 19 to 22.

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

Note: The battery pack must be fully charged before you first use the radio. See pages 19 to 22 for charging instructions.

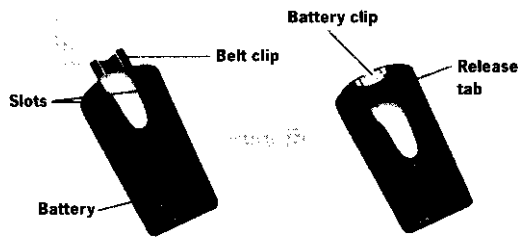


radio. Push the battery pack towards the radio. It should snap into place.

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

Installing and removing the belt clip

Slide the belt clip into the two slots on the top of the battery. Push down until the clip snaps into place.



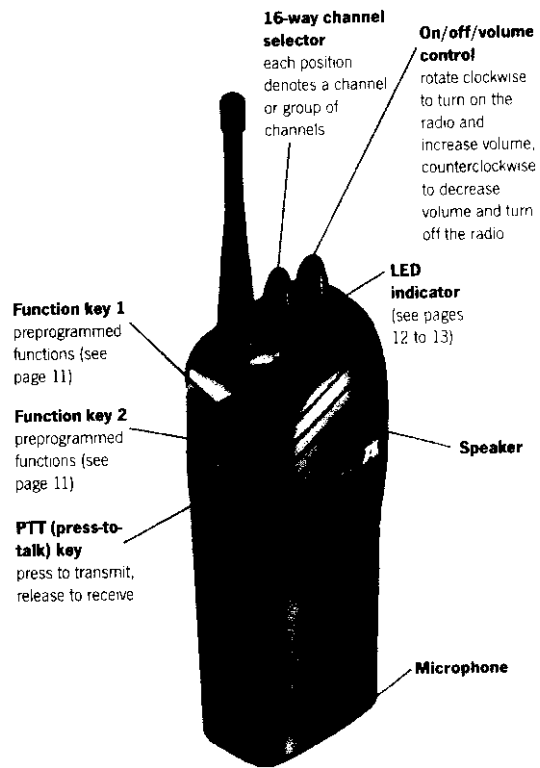
The belt clip has been designed to avoid accidental removal. However, it can be replaced if required.

To remove the belt clip, insert the end of a flat-bladed object (e.g. a butter knife) under the edge of the release tab without forcing it. Gently lift the release tab up, then slide the belt clip away from the battery.

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

Basic operation

Your Tait Orca handportable 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.



Turning the radio on/off and controlling 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 unattended.

Selecting a channel

Each position on the 16-way channel selector can be programmed for a channel or group of channels. If the channel selected is busy, the LED will glow green. Wait until the channel is free before transmitting.

Each channel can be programmed with signalling that segregates your group from other users. There are three types of signalling: CTCSS, DCS and Selcall. Each channel can be programmed with no signalling, CTCSS or DCS and/or Selcall.

Channel selection

If no channel or group is programmed for a particular position, the radio will give a series of beeps and the LED will flash red and green (medium). If you change to another position that has no channel or group programmed, the indicator will continue to flash red and green, but the radio will not beep again.

CTCSS (continuous tone controlled subaudible signalling) and DCS (digitally coded squelch) signalling use subaudible tones to isolate your calls so you only talk with other members of your group, even though the channel may be used by other groups. Selcall (selective calling) uses audible tones to isolate your calls and direct calls to specific individuals within a group.

When CTCSS, DCS and/or Selcall are programmed, your radio will only unmute when activity on a channel is valid; that is, when it matches your group's signalling.

Scanning and voting

When a group of channels is selected, the radio will scan through the group looking for activity. The LED will glow amber while the radio is scanning.

When a busy channel is detected and the signalling is valid, the LED will flash amber and the radio will stop on that channel. You will be able to hear the transmission. Scanning resumes 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.

Monitor

Monitor lets you override the signalling mutes that mean you only hear traffic intended for you and your group. If one of the function keys is programmed for monitor, pressing the key turns on monitor.

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. You can also turn off monitor by pressing the function key.

Monitor can be preprogrammed to override both the CTCSS/DCS mute and the Selcall mute or only the Selcall mute.

Nuisance delete

If a channel is busy, 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.

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 not be able to make calls using the PTT key. Turn on monitor to hear all traffic and make calls using the PTT key.

Your radio may be programmed so that monitor is activated when your radio is turned on or when you send some types of calls.

Squelch override

Squelch allows reception of a call when the signal is above a factory-set threshold so that only intelligible signals are made audible.

If a function key is programmed for squelch override, you can turn off squelch, which can sometimes improve reception in marginal areas. Turn squelch back on by pressing the assigned function key once again.







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






Programmable function key settings*


















When programmed for	Pressing the assigned function key
audible indicators	turns audible indicators on and off
channel's DTMF preset call	sends the DTMF call assigned to the current channel
economy mode	turns economy mode on and off
emergency	activates emergency mode
handset mode	turns handset mode on and off
low power transmit	changes the transmit power from mid or high to low; pressing the key again returns the transmit power to the preprogrammed level
monitor	turns monitor on and off so the user can hear all traffic on a channel
nuisance delete	temporarily deletes the current channel from the scanning regime
one touch	sends a preset Selcall call or DTMF call
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 the user 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
squelch override	turns the squelch override on and off so the user can hear all activity on a channel, including noise
volume control	controls volume in handset mode
























*Note that some features are not permitted in some countries.

Radio indicators

LED:
 steady red  steady green  steady amber
 flashing red  flashing green  flashing amber

Sound:
 pitch:  high  medium  low
 duration:  short  long

	LED	Sound	Meaning
Start-up	  fast	  twice	You have just turned on the radio. The power-up sequence is complete.
	  fast	  twice	You have just turned on the radio or changed channels. No channel is set for the currently selected position. Select another channel ¹ .
Transmitting and receiving			The radio is transmitting.
	 fast	ringing tone ³	A call has been received
	 fast		A call has been received but not answered.
			Activity has been detected on a channel.
			
	  		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.

	LED	Sound	Meaning
Scanning			The radio is scanning a group of channels for activity or greatest signal strength.
	 medium		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		Repeater talk around is active.
	 medium		Low power transmit is active.
	 slow		Economy mode is active.
	  slow		Handset mode is active.
		 	
			Squelch override has been turned off.
	 medium		Monitor or squelch override is active.
Warnings	 slow		The battery is low. Recharge or replace the battery as soon as possible.
		 every 5 seconds	The battery is low and the radio has stopped operating. Turn off the radio and recharge or replace the battery.
		 	The temperature is too high. You should stop transmitting and allow the radio to cool down.
	 fast		The radio is stunned. Contact your dispatcher.
	  fast	  twice ¹	No channel is set for the currently selected position. Select another channel ² .

- Notes:**
- 1 If you change to another position that has no channel or group programmed, the LED will continue to flash red and green, but the radio will not beep again.
 - 2 If no channels, work, your radio may be faulty, contact your Tait dealer.
 - 3 The ringing tone is preprogrammed. The radio will give different ringing tones when different types of calls are received.

Sending and receiving calls

You can make two types of calls on your Tait Orca handportable radio: PTT calls and function key calls.

PTT calls

For PTT (press-to-talk) calls, press the PTT key to initiate the call. If the channel is busy, you will not normally be able to transmit; if so, the radio will sound a low-pitched warning beep if you try to transmit. You may not be able to hear the activity, but the LED indicator will glow green. You can turn on monitor to listen for channel activity.

When the channel is clear, hold down the PTT key and speak clearly into the radio. Identify yourself and the party you are calling using the call signs you have been assigned. The indicator will glow red while you are transmitting. Release the PTT key when you have finished talking.

Your radio will remain quiet until there is valid activity on the channel your radio is currently on. When you hear your own call sign, respond promptly by pressing the PTT key and replying.

If Selcall mute is programmed for a particular channel, you will not be able to make PTT calls on that channel until monitor is turned on and the channel is clear.

Function key calls

A range of preset calls can be programmed for your Tait Orca handportable radio. If programmed, these calls will be assigned to one of the function key settings.

Selcall calls

Selcall (selective calling) allows the radio to direct calls to certain individuals or groups within a channel. Each radio has a unique identity.

When a call is received that contains your identity, the radio will give a ringing tone* and the LED indicator will flash amber. To accept the call, press the PTT key and begin speaking.

Two preset Selcall calls can be assigned to each channel that has Selcall. These calls can be assigned to a function key. To make a preset Selcall call, change to the channel and press the function key.

Group calls

Selcall calls can also be directed to a group of users. When you receive a group call, the radio will give a ringing tone* and the LED indicator will flash amber. The caller will then start speaking.

One of the preset Selcall calls programmed for your radio may be a group call. To send the call, press the assigned function key.

Emergency call

The emergency call is a type of Selcall 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. The radio can be reset to normal operation remotely by your dispatcher or by turning the radio off then on again.

Emergency operation

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 remain unchanged.

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

Priority calls

Priority calls are another type of Selcall call. When you receive a priority call, your radio will give a ringing tone* and the LED will flash amber. Respond as you would to a normal Selcall call.

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.

A preset DTMF call can be assigned to one of the function keys. Select the channel the DTMF call is assigned to and press the function key.

One-touch call

A one-touch call can be a Selcall call or a DTMF call. A one-touch call can be assigned to one of the function keys. To make the call, press the assigned function key.

It is not necessary to change channels to send a one-touch call.

Other features*

Normal and 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.

Press the assigned function key to activate handset mode. Handset mode will automatically turn off after a preprogrammed period of inactivity. You can also turn off handset mode by pressing the function key.

Volume override

Your radio may be programmed so that the function keys are used as volume control keys while in handset mode.

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 assigned to a function key. Press the function key to activate repeater talk around. Press the function key again or change to another channel to turn off repeater talk around.

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 assigned to a function key. If assigned to a function key, pressing the key toggles economy mode on and off.

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

*Note that some features are not permitted in some countries.

Low power transmit

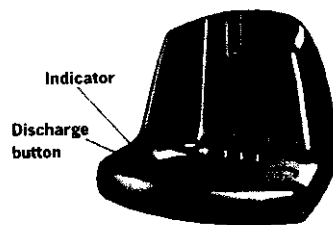
If you are using your radio in conditions where signal strength is high, you can extend battery life by transmitting at low power.

If assigned to a function key, pressing the key toggles low power transmit on and off.

Charging the battery

The battery will last about eight hours under normal usage, although this depends on the time spent transmitting and the type of battery used.

When the battery is low, the radio will emit a low-pitched beep every five seconds and the LED indicator will slowly flash red. 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 stop operating. Turn off the radio immediately.



Your radio comes with a choice of three chargers: a desktop fast charger (left), a desktop trickle charger or a multi-charger. The trickle

charger does not have a discharge 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.

The battery can be recharged attached to the radio or as a separate unit.

Charging the battery using the fast charger

The fast charger will charge the battery when the radio is on, but the battery will charge faster if the radio is turned off.

Insert the battery/radio into the charger. The indicator will glow amber for three seconds, then red. If the indicator does not glow red, make sure the battery/radio is seated properly and the charger is properly plugged in. If the battery is too hot or too cold, the indicator will remain amber until the battery temperature is within the safe range for recharging (5°C to 40°C).

Charge times are:

- up to 1 1/2 hours for the standard NiCd battery;
- up to 2 hours for the heavy duty NiCd battery; and
- up to 2 1/2 hours for the NiMH battery.

Once the battery is fully charged, the indicator will change from red to green. Leaving the battery in the charger once it is fully charged does not damage the battery.

Fast charger indicators

Indicator	Meaning
steady red	battery charging
steady green	battery charged
steady amber	charge suspended until battery temperature is within correct range
flashing red	battery not seated properly in the charger, contacts dirty or battery faulty
flashing green	battery being discharged
flashing amber	battery below optimum capacity

Charging the battery using the trickle charger

The trickle charger is not recommended for NiMH battery packs as they can take up to 24 hours to charge fully and the overall lifetime of your battery may be reduced. Use a fast charger instead.

To charge the battery pack using the trickle charger, make sure the radio is turned off. Insert the battery/radio into the charger. Make sure the indicator on the charger glows red. If the indicator does not glow red, make sure the battery/radio is seated properly and the charger is properly plugged in. The indicator will remain red until the radio is removed from the charger.

The battery will be fully charged in about 16 hours. Leave the battery in the charger until you next need to use the

radio; however, leaving the battery in the charger for longer than 24 hours is not recommended.

Preserving battery life

- Condition your battery weekly using the Tait Orca fast charger.
- Avoid storing the battery for extended periods without first fully recharging it. For best results, store the battery detached from the radio.
- Avoid repeatedly recharging the battery when it has only had a small amount of use.
- 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 pack contacts to become short-circuited.

Conditioning the battery with the fast charger

For best performance, the battery should be conditioned weekly using the fast charger. Conditioning the battery takes about eight hours, depending on how much use it has had.

To condition the battery, turn off the radio. Insert the battery/radio into the fast charger then press the discharge button until the indicator flashes green. The indicator will flash green while the battery is being discharged. Once the battery is discharged, it will charge normally.

Conditioning/analysing the battery with the fast charger

Conditioning/analysing the battery with the fast charger will put the battery through a number of conditioning cycles and will check the battery's capacity on the last cycle.

To condition/analyse the battery, turn off the radio. Press and hold the discharge button while inserting the battery/radio. Continue holding the discharge button; the indicator will glow amber for three seconds, and then will flash green. When the indicator flashes green, release the discharge button.

The condition/analyse cycle will take approximately 16 hours.

Once charged, the charger's indicator will glow green if the battery is in good condition. The indicator will flash amber if the battery is below its optimum capacity; consult your Tait dealer.

Disposing of used nickel-cadmium batteries

NiCd batteries contain a small amount of the metal cadmium, which can produce potentially toxic waste if not disposed of properly. When no longer in use, contact your Tait dealer for recycling details.

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 and accessory connector contacts 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, 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 (pages 7 to 13) and check the following items:

- Is the battery firmly attached to the back of your 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. Most of the accessories available are listed below, and you can contact your nearest Tait dealer for a more detailed list.

- Antennas
- Audio accessories
 - Lapel speaker microphones
- Carrying accessories
 - Belt clip
 - Heavy duty carry case
 - Heavy duty holster
- Batteries
 - Standard NiCd battery pack
 - Heavy duty NiCd battery pack
 - High capacity NiMH battery pack
- Battery chargers
 - Desktop fast charger
 - Desktop trickle charger
 - Multi-charger

Fitting an accessory

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 standard NiCd battery)	44 mm x 62 mm x 150 mm
Typical weight (including standard NiCd battery and belt clip)	495 g
Number of channels	16
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.

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