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TP9300
DMR Portable Radios
User's Guide

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AU339391, CN1031871, CN1070368, CN200930004199.5, CN200930004200.4, CN200930009301.0, EU000915475-0001, EU000915475-0002, GB2413445, US12/870840, US13/082767, US13/185498, US13/465664, US13/542062, US13/542147, US13/763531, US13/896969, US14/032876, US29/401234, US29/401235, US5745840, US640974, US640977, US7411461, US7758996, US7937661, US8301682.

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Tait Limited also complies with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive in the European Union.

In China, we comply with the Measures for Administration of the Pollution Control of Electronic Information Products. We will comply with environmental requirements in other markets as they are introduced.

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For your safety

Before using your radio, please read the following important safety and compliance information.

Radio frequency exposure information

For your own safety and to ensure you comply with the Federal Communication Commission's (FCC) radio frequency (RF) exposure guidelines, please read the following information before using this radio.

Using this radio

You should use this radio only for work-related purposes (it is not authorized for any other use) and if you are fully aware of, and can exercise control over, your exposure to RF energy. To prevent exceeding FCC RF exposure limits, you must control the amount and duration of RF that you and other people are exposed to.

It is also important that you:

- Do not remove the RF Exposure label from the radio.
- Ensure this RF exposure information accompanies the radio when it is transferred to other users.
- Do not use the radio if you do not adhere to the guidelines on controlling your exposure to RF.

Controlling your exposure to RF energy

This radio emits radio frequency (RF) energy or radio waves primarily when calls are made. RF is a form of electromagnetic energy (as is sunlight), and there are recommended levels of maximum RF exposure.

To control your exposure to RF and comply with the maximum exposure limits for occupational/controlled environments, follow these guidelines:

- Do not talk (transmit) on the radio more than the rated transmit duty cycle. This is important because the radio radiates more energy when it is transmitting than when it is receiving.
- When listening and talking on the radio, hold it upright in front of your face so that it is at least one inch (2.5 cm) away from any part of your face. Keeping the radio at the recommended distance is important because exposure to RF decreases rapidly the further away the antenna is from your body.
- Keep the antenna at least one inch (2.5 cm) from your face at all times.
- If you wear your radio, you must always put it in a carrying accessory that has been specifically approved by Tait for this radio. Using non-approved body-worn accessories may mean you expose yourself to higher levels of RF than recommended by the FCC's occupational/controlled environment RF exposure limits.
- Ensure you only use Tait-approved antennas, batteries, and accessories.

For more information on what RF energy is and how to control your exposure to it, visit the FCC website at www.fcc.gov/oet/rfsafety/rf-faqs.html.

Compliance with RF energy exposure standards

This two-way radio complies with these RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR §§ 1.1307, 1.1310, and 2.1093.
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition.

- European Directive 2004/40/EC on minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).

This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk to 50% listen.

Conformité aux normes d’exposition à l’énergie RF

Cette radio émetteur-récepteur se conforme aux normes et aux règlements d’exposition à l’énergie RF :

- La Commission fédérale de la communication des Etats-Unis, Code de règlements fédéraux (CFR) Titre 47 Sections 1.1307, 1.1310 et 2.1091 (radios mobiles) ou 2.1093 (radios portatives).
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition.
- La directive européenne 2004/40/EC concernant les prescriptions minimales de sécurité et de santé relatives à l'exposition des travailleurs aux risques dus aux agents physiques (champs électromagnétiques).

Cette radio se conforme aux limites d’exposition de l’IEEE (FCC) et ICNIRP pour les environnements d’exposition au rayonnement RF professionnel et contrôlé aux cycles de marche de 50% en mode transmission et 50% en mode réception.

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Radio frequency emissions limits in the USA

CFR Title 47 Part 15.19 (a) (1) - Receivers

Part 15 of the FCC Rules imposes RF emission limits on receivers. This radio complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

CFR Title 47 Part 15.19 (a) (3) - All other devices

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Radio frequency emissions limits in Canada

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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USA public safety bands (764–776 MHz and 794–806 MHz)

The Code of Federal Regulations (CFR) Title 47 Subpart R deals with the use of frequencies in the 764 to 776 MHz and 794 to 806 MHz bands.

Low-power channels

This radio complies with §90.531 (b) (3) and §90.531 (b) (4) of 47 CFR. These sections state that only low-power transmission is permitted on the following channels:

- Regional Planning channels, as defined in §90.531 (b) (3).
- Itinerant channels, as defined in §90.531 (b) (4).

Use of encryption

This radio complies with §90.553 (a) of 47 CFR. This states that:

- Encryption is not permitted on the nationwide Interoperability calling channels. These channels are defined in §90.531 (b) (1) (ii).
- Radios using encryption must have a readily accessible switch or control to allow the radio user to disable encryption.

EMC regulatory compliance in Australia

N46 This product meets all ACMA regulatory requirements for electromagnetic compatibility (EMC). For more information about EMC compliance, visit the ACMA website at www.acma.gov.au.

Frequency band reserved for distress beacons

Frequency band 406 to 406.1 MHz is reserved for use by distress beacons. Transmissions should not be made within this frequency band.

Health, safety and electromagnetic compatibility in Europe

In the European Community, radio and telecommunications equipment is regulated by Directive 1999/5/EC, also known as the Radio and Telecommunications Terminal Equipment (R&TTE) directive. The requirements of this directive include protection of health and safety of users, as well as electromagnetic compatibility.

Intended purpose of product

This product is an FM radio transceiver. It is intended for radiocommunication in the Private Mobile Radio (PMR) or Public Access Mobile Radio (PAMR) services, to be used in all member states of the European Union (EU) and states within the European Economic Area (EEA).

Restrictions

This product can be programmed to transmit on frequencies that are not harmonized throughout the EU/EEA, and will require a licence to operate in each member state.

This product can be programmed for frequencies or emissions that may make its use illegal. Where applicable, a license must be obtained before this product is used. All license requirements must be observed. Limitations may apply to transmitter power, operating frequency, channel spacing, and emission.

Declaration of conformity

Brief Declarations of Conformity appear on page 136 of this booklet. To download the formal declaration of conformity, go to www.taitradio.com/eudoc.

Interference with electronic devices

Warning Some electronic devices may be prone to malfunction due to the lack of protection from RF energy that is present when your radio is transmitting.

Examples of electronic devices that may be affected by RF energy are:

- aircraft electronic systems
- vehicular electronic systems such as fuel injection, anti-skid brakes, and cruise control
- medical devices such as pacemakers and hearing aids
- medical equipment in hospitals or health care facilities.

Switch off the radio before boarding an aircraft. Using your radio while in the air is not permitted.

Consult the manufacturer (or its representative) of any such electronic devices to determine whether electronic circuits in those devices will perform normally when the radio is transmitting.

Warning If you have a pacemaker:

- immediately turn off the radio if you suspect it is interfering with the pacemaker
- keep the radio at least 6 inches (15 cm) from the pacemaker while the radio is on
- use the radio on your right side to minimize interference
- never carry the radio in a breast pocket.

If there is interference between your hearing aid and the radio, please discuss an alternative solution with the hearing aid manufacturer.

Potentially explosive atmospheres and blasting areas

Warning Unless the radio is specifically certified for use in a potentially explosive atmosphere, turn off the radio before entering such an atmosphere. An explosion could cause serious injury or death. Examples of potentially explosive atmospheres include filling stations, and any environment where there are flammable liquids, gases, or dusts.

Warning Turn off the radio before approaching blasting caps, a blasting area, or any area where you are instructed to turn off a two-way radio. Obey all signs and instructions. Interference with blasting operations could cause serious injury or death.

Intrinsically Safe radios

Intrinsically Safe (IS) radios and accessories are certified by a third party to be safe to use in particular hazardous locations, or in potentially explosive atmospheres.

Warning IS certification applies only while the product is used in accordance with these instructions.

One or more of the following marks identifies a TP9300 radio as an IS radio:

- an IS circle logo on the radio's front panel
- a label on the radio, showing IS information
- a label on the radio battery, showing IS information

IS radios also have a blue front panel.

Radios with the product code “T03-22xxx-xx” have IS approval and are approved to one of the following ratings. Check the label on your radio for the exact rating.

USA/Canada	■ Class I Zone 1 AEx ib IIA T4 Gb ■ Class I Zone 1 AEx ib IIC T4 Gb
IECEx/INMETRO	■ Ex ib IIA T4 Gb ■ Ex ib IIC T4 Gb
ATEX	■ II 2G Ex ib IIA T4 Gb ■ II 2G Ex ib IIC T4 Gb

The radio battery is also approved to one of the above ratings. Check the label on your battery for the exact rating.

One or more of the following marks identifies a TP9300/TP9400 audio accessory as an IS audio accessory:

- an IS circle logo on the audio accessory
- a label on the radio, showing IS information

Intrinsically Safe audio accessories are approved to the following ratings.

USA/Canada	■ Class I Zone 1 AEx ib IIC T4 ■ Class I Zone 1 AEx ib IIIC T4
IECEx/INMETRO	■ Ex ib IIC T4 ■ Ex ib IIIC T4
ATEX	■ II 2G Ex ib IIC T4 ■ II 2G Ex ib IIIC T4

Intrinsically Safe leather carry cases are marked with an IS circle logo. Carry accessories are not specifically rated, and may be used in any area, subject to the rating restrictions of the overall radio system. See "Rating matching" on page 17 for more information.

Warning Ensure that the ratings printed on a label on the equipment will permit your IS radio and accessories to be used in your hazardous location.

The operating temperature range for IS radios and accessories in hazardous locations is –4°F to +104°F (–20°C to +40°C). In safe locations it is –4°F to +140°F (–20°C to + 60°C).

IS radios, batteries, antennas and accessories must not be engraved or modified in any way. Do not use the radio if it is cracked or damaged. Do not use the antenna if the sheathing is split or the end cap is missing. IS radios and accessories must be serviced only by an agency certified by both the approval authority and by Tait Limited. Any unauthorized repair or substitution of parts invalidates the intrinsic safety rating and the third party IS approval. To have an IS radio serviced, return it to an authorized Tait branch or subsidiary.

Warning Use only a Tait-supplied, IS-approved battery, antenna, audio accessory or carry accessory with an IS radio. Fitting a battery or accessory that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death. For an up-to-date list of approved accessories, refer to “TP9300/TP9400 IS Portable Radios Approved IS Accessories” on the Tait website, or contact your nearest Tait office.

Warning Do not charge the battery, or change the antenna, in a hazardous location. An explosion could cause serious injury or death.

Rating matching

The rating of the radio, battery and accessories must be reviewed to ensure a safe IS radio system. IS ratings must be “matched”, and the lowest approval level determines the radio system approval.

- Gas Group IIC-rated batteries and accessories may be used with IIA radios, but the combination may only be used in a IIA Gas atmosphere.

- Gas Group IIC and Dust Group IIIC-rated accessories may be used with Gas Group IIA or IIC radios, but the combination may only be used in a Gas atmosphere.

Any item approved to IIA will limit the radio system to a IIA area. For use in a IIC area, all items must be approved to IIC.

Radio installation and operation in vehicles

Warning Keep the radio away from airbags and airbag deployment areas. Do not install, charge, or place a radio near such areas. An activated airbag can propel a portable radio with sufficient force to cause serious injury to vehicle occupants. An airbag may not perform to specification if obstructed by a radio.

Warning To avoid damage to existing wiring, airbags, fuel tanks, fuel and brake lines, or battery cables, refer to the installation guide for the radio, and to the vehicle manufacturer's manual, before installing electronic equipment in the vehicle.

Using a handheld microphone or a radio while driving a vehicle may violate the laws and legislation that apply in your country or state. Please check the vehicle regulations in your area.

Vehicle charger installation and operation

For detailed instructions necessary to the safe installation and operation of the vehicle charger, please refer to the documentation supplied with the vehicle charger.

Multicharger safety information

Warning This device must be connected to an earthed mains socket-outlet.

Norsk (no): Apparatet må tilkoples jordet stikkontakt.

Suomi (fi): Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Svenska (sv): Apparaten skall anslutas till jordat uttag.

Electromagnetic compatibility in European vehicles

In the European Community, radio equipment fitted to automotive vehicles is regulated by Directive 72/245/EEC and its amendments. The requirements of this directive cover the electromagnetic compatibility of electrical or electronic equipment fitted to automotive vehicles.

Unapproved modifications or changes to radio

The radio is designed to satisfy the applicable compliance regulations. Do not make modifications or changes to the radio that are not expressly approved by Tait. Failure to do so could invalidate compliance requirements and void the user's authority to operate the radio.

Engraving and modification of intrinsically safe radios

Warning Intrinsically Safe (IS) radios and batteries must not be engraved or modified in any way.
For more information on IS radios refer to "Intrinsically Safe radios" on page 15.

Attaching of labels

Warning Do not obstruct the vent hole on the battery or the vent hole on the radio chassis label. If the vent on the battery is obstructed, the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

Caution Tait recommends that you do not affix additional labels to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery. If you must attach a customized label, use only a thin gummed paper label applied to the bottom 25% of the radio chassis label and/or to the top 25% of the battery label. Do not obstruct the vent holes (see Warning above). Do not allow the paper label to extend beyond the recessed label area or to conceal relevant product information.

Use of lithium-ion batteries

Warning A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage. To prevent personal injury and/or damage to property, read the important safety information supplied with the battery.

Short-circuiting battery contacts

Warning Do not short-circuit the battery contacts, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuiting the battery contacts can heat up the conductive material and cause personal injury and/or damage to property.

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Menu maps

This section shows the menus and submenus that may be programmed for your radio. Some features are controlled by software licenses and may not be available with your model.

Main menu (conventional mode)

- **Channels**
- **Zones**
- **Address book**
- **Individual call**
- **Local calls**
- **Set status**
- **Dial radio call**
- **Dial patch call**
- **Services**
  - Status update
  - Call alert
  - Radio check
  - Radio monitor
  - Radio inhibit
  - Radio uninhibit
- **Wireless headset**
  - Connect
  - Reconnect last
  - Disconnect
  - Connection info
  - Manage headsets
  - Find new devices
  - Options
    - Power-on option
    - Confirm connect
- **Radio settings**
  - Functions
    - Scrambler
    - Lock radio
    - Low power tx
    - Monitor
    - Squelch o'ride
    - VOX
    - VOX sensitivity
    - Repeater
    - Talkaround
  - Call settings
    - Ignore 2-tone
  - Extra features
    - Lone worker
  - Alert settings
    - Indicator level
    - Keypress tones
    - Quiet operation
    - Silent operation
  - Display settings
    - Backlighting
    - Contrast adjust
    - Talk party ID
    - RSSI
  - Radio info
    - Radio ID
    - Key settings
    - Version info
    - Customer info
    - Serial number
- **Advanced**
  - Program groups
  - Set scan key
- **GPS info**
- **Change mode**
- **Diagnostics**

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Main menu (trunked mode)

- **Preset calls**
- **Set zone**
- **Set workgroup**
- **Go to homegroup**
- **Scanning**
- **Send**
  - Status
  - Text message
    - Preset message
    - Edit message
    - New message
  - Dispatcher call
  - Broadcast call
    - Send group
    - Send to preset
    - Send to dialed
  - Conference call
    - Send group
    - Send to preset
    - Send to dialed
  - Priority call
    - Send dispatcher
    - Send to preset
    - Send to dialed
  - Emergency call
    - Send dispatcher
    - Send to preset
    - Send to dialed
- **Wireless headset**
  - Connect
  - Reconnect last
  - Disconnect
  - Connection info
  - Manage headsets
  - Find new devices
  - Options
    - Power-on option
    - Auto-connect
- **Workgroup setup***
  - My Workgroups**
  - Set homegroup
  - Subscribe all
  - Unsubscribe all
- **Radio settings**
  - Functions
    - Scrambler
    - Lock radio
    - VOX
    - VOX sensitivity
  - Call settings
    - Call queuing
    - Do not disturb
  - Extra features
    - Lone worker
  - Alert settings
    - Indicator level
    - Keypress tones
    - Quiet operation
    - Silent operation
  - Display settings
    - Backlighting
    - Contrast adjust
    - Channel display
    - RSSI
  - Radio info
    - Trunked ID
    - Key settings
    - Version info
    - Customer info
    - Serial number
- **Call groups**
- **GPS info**
- **Security**
  - Encryption
  - Zeroize key
  - Zeroize all
- **Change network**
- **Change mode**
- **Diagnostics**

*This menu item may appear as ‘Group select’

** This menu item may appear as ‘Edit groups’.

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1 About this guide

This user's guide provides information about TP9300 portable radios.

The radio behavior described in this guide applies to radios with firmware version 2.00. To check the radio's firmware version, see "Viewing radio information" on page 134. If your radio does not operate as you expect, contact your radio provider for assistance.

Safety warnings used in this guide

Please follow exactly any instruction that appears in the text as an 'alert'. An alert provides necessary safety information as well as instruction in the proper use of the product. This user's guide uses the following types of alert:

Warning This alert is used when there is a hazardous situation which, if not avoided, could result in death or serious injury.

Caution This alert is used when there is a hazardous situation which, if not avoided, could result in minor or moderate injury.

Notice This alert is used to highlight information that is required to ensure procedures are performed correctly. Incorrectly performed procedures could result in equipment damage or malfunction.

This icon is used to draw your attention to information that may improve your understanding of the equipment or procedure.

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Related documentation

The following documentation is also available for your Tait radio, which you can access from the Tait Technical Support website (http://support.taitradio.com):

- *Safety and Compliance Information*—supplied with each radio. (The same information is included in this user's guide.)
- *Li-ion Battery Safety Information*—supplied with each Li-ion battery.
- *Battery Care and Charging Guide*—supplied with each charger. (The same information is in the section "Charging and caring for batteries" on page 122.)

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2 Before using your radio

Once you have unpacked your radio, there are a few tasks you must do before you can use it. The most important of these is to charge your battery for the first time—allow 2.5 hours for this.

Warning Use only a Tait-supplied, IS-approved battery, antenna, audio accessory or carry accessory with an IS radio. Fitting a battery or accessory that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death. For an up-to-date list of approved accessories, refer to “TP9300/TP9400 IS Portable Radios Approved IS Accessories” on the Tait website, or contact your nearest Tait office. For detailed information about IS radios and how to identify them, see "Intrinsically Safe radios" on page 15.

Warning Do not charge the battery or change the antenna in a hazardous location. An explosion could cause serious injury or death.

This section covers:

- For your safety—battery warning
- Attaching labels to the radio or battery
- Charging the battery before first use
- Attaching the battery
- Removing the battery
- Attaching the antenna
- Removing the antenna
- Attaching a belt clip
- Removing a belt clip
- Installing an audio accessory

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For your safety—battery warning

Warning This radio uses a Lithium-ion battery. If the battery is damaged or handled in an unsafe manner, it can cause personal injury and/or damage to property. Read the important safety information included with your battery.

Attaching labels to the radio or battery

Warning Do not cover the battery vent hole or the vent hole on the radio chassis. If the vent on the battery is obstructed, the battery may explode, causing personal injury and/or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

Notice Tait recommends that you do not affix additional labels to the surfaces between the radio chassis and the battery. The fit between these surfaces is intentionally firm and any added thickness will damage the points of attachment between radio and battery.

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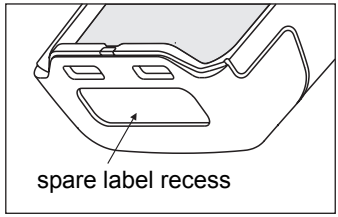
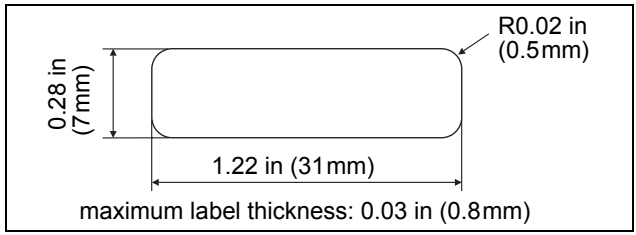
Attaching a label to the front panel

If a customer requires an additional label, attach the label in the spare label recess in the bottom edge of the radio front panel. In this position, the label is still visible while the battery is attached to the radio.



The diagram below shows the specified dimensions of the label.



Charging the battery before first use

Before using your battery for the first time, you must charge it. Follow the instructions included with your Tait charger. This information is repeated in the section "Charging and caring for batteries" on page 122.

For best charging performance, switch off the radio before placing it in the charger.

DRAFT 4

Attaching the battery

Warning Use only a Tait-supplied, IS-approved battery with an IS radio.

Notice Fit the bottom edge of the battery to the radio, then the top edge. Attempting to fit the top edge first may damage the contacts.

1. Rotate the power/volume control switch counterclockwise to turn off the radio.

   If the battery has been attached while the radio is turned on, turn the radio off and then on again before use.

2. Holding the radio firmly, align the back of the battery with the back of the chassis.
3. Place the two lugs at the bottom edge of the battery into the two slots in the bottom of the front panel.
4. Lightly press the top of the battery towards the radio until the battery catch clicks.
5. Make sure that the battery is firmly in position.

Removing the battery

The battery is secured to the radio by a battery catch in the radio's rear panel.

To remove the battery from the radio, so that the battery can be charged or replaced:

1. Rotate the power/volume control switch counterclockwise to turn off the radio.

   If the battery has been removed while the radio is turned on, turn the radio off and then on again before use.

2. Slide the battery catch up.
3. From the sides, pull the battery away from the radio.

Attaching the antenna

Before using the radio, screw the antenna clockwise into the antenna connector. The antenna should be screwed sufficiently tight so that it doesn't unscrew easily. This is important as it creates a seal.

Removing the antenna

Warning Do not change the antenna in a hazardous location. An explosion could cause serious injury or death.

Use a firm grip and turn the antenna counterclockwise half a turn. Use a lighter grip to fully unscrew the antenna, and carefully remove it.

Attaching a belt clip

To attach a belt clip to the radio:

1. Slide the belt clip into the two grooves at the top of the battery.
2. Press down on the belt clip until it snaps into place.

Removing a belt clip

The belt clip has been designed to prevent accidental removal, but you can take it off, if required.

To remove a belt clip from a battery:

1. Insert a flat screwdriver blade or similar flat object under the lip of the release lock (that is, between it and the metal slider).
2. Lift the release lock up (away from the metal slider) and hold it in position.
3. Slide the belt clip out.

DRAFT 4

Installing an audio accessory

Warning Use only Tait-supplied, IS-approved audio accessories with IS radios. Fitting an audio accessory that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death. For an up-to-date list of approved audio accessories, refer to “TP9300/TP9400 IS Portable Radios Approved IS Accessories” on the Tait website, or contact your nearest Tait office. For detailed information about IS radios and how to identify them, see "Intrinsically Safe radios" on page 15.

Audio accessories plug into the radio’s accessory connector. The accessory connector is protected by a cover, which needs to be removed before an accessory can be installed.

Notice The accessory cover protects the accessory connector from electrostatic discharge. Keep the cover in place unless the connector is in use.

To remove the accessory cover and install an audio accessory:

1. Use a coin or other blunt object to loosen the screw that secures the accessory cover to the radio.
2. Remove the accessory cover and store it in a safe place.
3. Plug the accessory into the accessory connector.
4. Tighten the screw.

DRAFT 4

3 Getting started

This section gives an overview of your DMR radio, describes the radio's controls and indicators, and explains how the radio menus are organized.

This section covers:

- About your DMR digital radio
- About the radio controls
- Understanding the radio display
- Understanding the radio indicators
- Using function keys to access frequently used features
- Navigating the radio's menus
- Using the alphanumeric keys to search a list

DRAFT 4

About your DMR digital radio

Your DMR digital radio can be programmed for DMR conventional or DMR trunked operation. Analog conventional and MPT operation is also available.

DMR and MPT trunking operation is controlled by a software license (SFE) and may not be available with your radio.

In DMR and MPT trunking operation, dual-mode networks are able to receive both digital and analog calls.

You may notice differences between digital and analog calls in terms of:

- static noise in low signal areas, and
- radio coverage in marginal reception areas.

Lack of static noise

On digital networks there is no static noise, even in low signal areas. This lack of static is because your digital radio removes the ‘noise’ from the call, so that you hear only clear voice.

Coverage

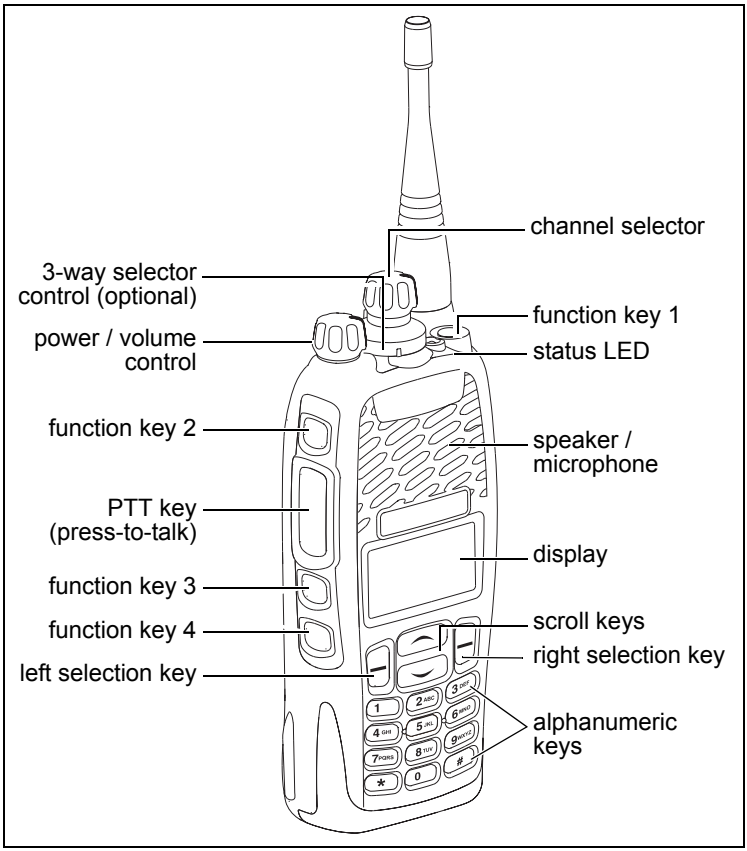
With digital networks, a call remains clear and then drops off quickly at the border of a coverage area. The reason for this is that a digital call is either received or it isn't. With analog networks, the background noise in a call gets progressively worse when you are in fringe areas or even slightly outside normal coverage areas.

About the radio controls

The radio controls are the PTT key, power/volume control, channel selector, 3-way selector control (optional), scroll keys, selection keys, and function keys. Some keys have functions assigned to both short and long key presses:

- a short key press is less than one second, and
- a long key press is more than one second.

The radio controls and their functions are described in the following sections.



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Name	Function
PTT key	Press and hold to transmit and release to listen
Power/volume control	Rotate to turn the radio on and change the speaker volume
Channel selector	Select and change channels
3-way selector (optional)	Select frequently used features
Left and right selection keys	Action determined by the text above the selection key
Scroll keys	Scroll up and down through a list of menu options, scroll left and right in messages, or select the Quick Access menu
Function keys	Programmed for frequently used options
Alphanumeric keys	Used to enter letters and numbers

DRAFT 4

Understanding the radio display

The messages and icons you see on your radio display depend on the mode in which your radio is operating and the way it is programmed.

Radio display icons

These are some of the icons you may see on your radio display:

Icon	Meaning
	Battery indicator: shows how much charge is available in the battery
	Scanning: your radio is monitoring a group of channels or workgroups for activity
	Silent operation: your radio's audible tones have been turned off
	Low-power transmit: your radio is set to transmit on low power
	Transmit: your radio is transmitting
	Headset connected: there is a wireless headset connected to your radio Flashing: your radio is attempting to connect to a headset, or the headset connection has been lost
	Scrambler: the voice-inversion scrambler is turned on (analog channels only)
	Signal strength indicator: the more bars, the stronger the signal being received by the radio
	Scrolling: you can use ⌒ or ⌣ to move through a list, or access a Quick Reference menu
Trunked mode icons	
	Scanning: scanning has been turned off
	Homegroup: your radio has been returned to the homegroup using the homegroup toggle function key
	Call queuing: call queuing is turned on
	Call queuing: there are calls in the call queue

DRAFT 4

Icon	Meaning
	Network (flashing): your radio is registered on a DMR or MPT trunked network
GO	Trunking: your radio has established a call and you are now able to speak to the other party
Conventional mode icons	
	Monitor or squelch override: monitor or squelch override is turned on
	Scanning: your radio is monitoring a group of channels for activity, and the currently selected channel is a member of the scan group.
	Repeater talkaround: your radio is operating in repeater talkaround mode, or you are on a simplex channel
	Text message: there is no text message in the call queue
	Text message: there is a text message in the call queue
K	Zone: this letter represents the zone in which your radio is operating, where A is zone 1, Z is zone 26 (for example, K represents zone 11)

DRAFT 4

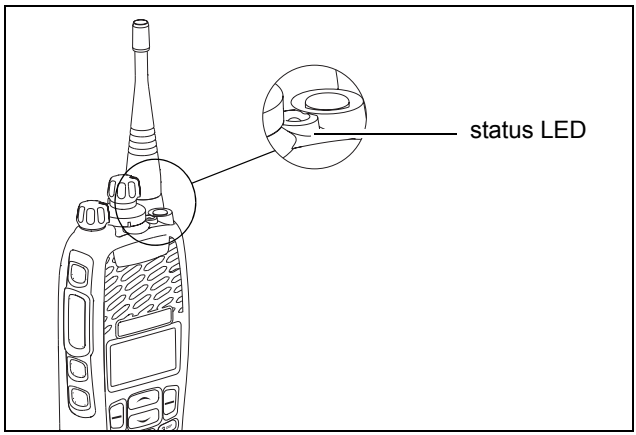
Understanding the radio indicators

The status LED indicator and the radio's audible tones—together with the radio display—all combine to give you information about the state of your radio.

The most common way the indicators work is described in the following sections.

The way these indicators behave may be affected by the way your radio is programmed.

Status indicators



Color	Meaning
Red (transmit)	Glowing: your radio is transmitting
Green (receive)	Glowing: the current channel is busy Flashing: you have received a call
Orange (network)	Flashing: you are registered on a trunked network
All LEDs off	Trunked: network not available, or your radio is attempting to register on a trunked network Conventional: receive standby

Audible tones

The radio uses audible tones to alert you to its status:

- Radio controls and keypress tones—the tones and beeps you hear when you press your radio's keys or use the controls.
- Incoming call tone—when the radio is receiving a call.
- Warning tones—when there is an error, or the battery is low, for example.

Warning If quiet or silent mode is turned on, you will not hear any alert tones.

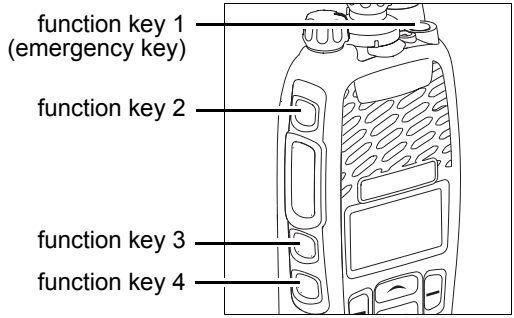
Some of the more common audible tones are described below:

Tone	Meaning
One short beep	■ Valid keypress: the action you have attempted is permitted ■ Function activated: a function has been turned on (using either the Main menu or a function key)
One long, low-pitched beep	■ Invalid keypress: the action you have attempted is not permitted ■ Transmission inhibited: you have attempted to transmit, but for some reason you cannot make a call at this time
One short, low-pitched beep	Function deactivated: a function has been turned off (using either the Main menu or a function key)
Two short beeps	Radio turned on: the radio is powered on and ready to use

DRAFT 4

Using function keys to access frequently used features

The function keys provide access to some of the features you will use most often. These features are assigned to the function keys when the radio is programmed. Some keys may have a feature associated with both a short key press and a long key press.



Viewing the function key settings

Use the Main menu to check the features assigned to your radio's function keys:

1 Press **Menu** and select **Radio settings** > **Radio info** > **Key settings**.

2 In the Key Settings menu, scroll through the list of function keys.

3 Press **Select** to view details of the function associated with a particular function key.

The example shown is for a function key programmed to turn backlighting on and off.

4 Press **Back** to return to the Key Settings menu.

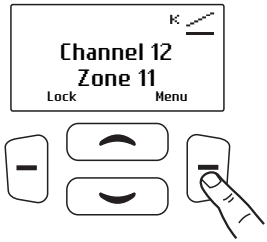
DRAFT 4

Navigating the radio's menus

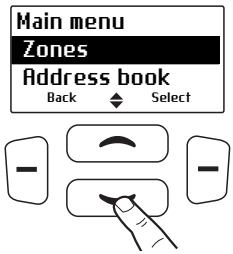
Your radio has a number of menus, each containing lists or submenus. The menus available depend on the way your radio is programmed.

Using the Main menu

To access the Main menu, press the right selection key whenever **Menu** appears above it.



Use the scroll keys to move through the menu list.



When the menu you want is highlighted, press **Select** to open the menu you have chosen.

To quickly exit the menu system, press and hold the left selection key when the word **Cancel** or **Back** appears above it.

Accessing frequently used menus

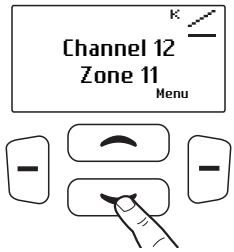
Depending on how your radio is programmed, you may have two different Quick Access menus. One Quick Access menu is displayed when you press a scroll key, and the other when you press the left selection key. These give you easy access to the menus you use most often.

Using the scroll key Quick Access menu

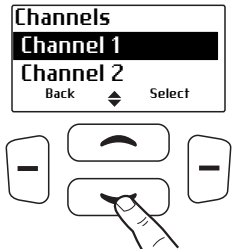
There are two ways to use this Quick Access menu:

- Use the scroll keys to scroll through a list of zones or channels.
- Press the scroll keys and the Quick Access menu appears.

  In this example, the Channels menu is the Quick Access menu. Use the scroll keys to go directly to the Channels menu.



The Channels menu, with a list of your available channels, is now displayed.

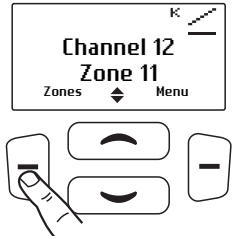


Using the left selection key Quick Access menu

The text above the left selection key corresponds to the Quick Access menu, for example, Zones.

To use this Quick Access menu:

- Press the left selection key and the associated menu appears.



Using the alphanumeric keys to search a list

This feature is only available for radios with alphanumeric keys.

If a blinking cursor appears when you select a list, you are able to search for the menu item you want using the alphanumeric keys. This is of particular benefit if you have a large number of items in a list.

Lists that you may be able to search are channels, zones, workgroups, and preset calls.

- To search a list, enter the required name using the keypad.

DRAFT 4

4 Basic operation

This section describes the basic operation of your radio.

This section covers:

- Turning the radio on and off
- Adjusting the speaker volume
- Locking and unlocking the keypad
- Using a wireless headset
- Changing the radio's operating mode

Turning the radio on and off

Rotate the power/volume control switch clockwise to turn the radio on. Rotate the switch counterclockwise to turn the radio off.

When the radio is first turned on, the status LED briefly glows red, and the radio gives two short beeps.

Your radio may not turn on if your battery is very low. (See "Low battery warning" on page 127.)

Security lock on power-up feature

Your radio may be automatically locked each time it is powered-up. If the message **Enter PIN** appears on the display, enter your assigned PIN (personal identification number). See “Unlocking the radio” below.

Locking the radio

1 Press **Menu** and select **Radio settings** > **Functions** > **Lock radio**. (Depending on how your radio is programmed, you may be able to press a function key to turn radio lock on and off.)

2 Scroll to either **On** or **Off** and press **Select**. (The current setting is highlighted.)

The radio is now locked, and the message **Enter PIN** appears on the display.

The radio remains locked until the correct sequence of keys is pressed. If you forget the unlock sequence or you do not know it, contact your radio provider for assistance.

Unlocking the radio

- To unlock your radio, use the unlock sequence you have been given. (This is a pre-programmed sequence of four keys.)

Adjusting the speaker volume

Rotate the power/volume control clockwise to increase the speaker volume and counterclockwise to decrease the volume.

The volume control also changes the volume level of the radio's audible indicators.

Locking and unlocking the keypad

The keypad lock feature prevents you from pressing a key accidentally. The number of keys that are locked depends on the way your radio is programmed.

If you receive a call while the keypad is locked, press any key to answer.

To lock the keypad:

- Press and hold the right selection key for about one second.

  (Depending on your radio model and the way it is programmed, your radio may have a 3-way selector that can be used to lock the keypad.)

  The message **Keypad locked** briefly appears on the display, and **Unlock** appears above the right selection key, in place of **Menu**.

  When any of the locked keys are pressed, the message **Keypad lock active** appears.

To unlock the keypad:

- Press and hold the right selection key for about one second.

DRAFT 4

Using a wireless headset

This feature is controlled by a software license (SFE) and may not be available with your radio.

You may be able to connect a Bluetooth® wireless headset to your radio, using the Wireless Headset menu or a function key.

When you have selected a menu option in the Wireless Headset menu, you can still receive and reply to calls without interrupting the selected operation.

Headset compatibility with Tait radios

Bluetooth wireless headsets may operate with Tait radios, provided the headset:

- Is compatible with the Bluetooth Specification Version 2.0 or higher. Tait recommends Bluetooth Specification Version 2.1 or higher.
- Includes Bluetooth Headset Profile (HSP) adopted version 1.1 or 1.2, or Bluetooth Handsfree Profile (HFP) version 1.5 or 1.6.

Wearing the headset

Place the headset on your ear. Depending on which ear you are going to wear the headset, simply adjust the ear hook accordingly.

To get the best performance from your headset:

1. Do not block the device's internal antenna (see the device's user documentation). The human body can interfere with a Bluetooth signal.
2. If you usually use your radio with your right hand, wear the headset on your right ear.
3. Avoid coming in contact with the internal antenna of a headset or radio.

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Pairing a wireless headset with the radio

Before attempting to connect a wireless headset, Tait recommends that the headset is fully charged. Refer to the headset installation instructions for charging instructions.

Pairing creates a unique and encrypted wireless link between the Bluetooth-capable radio, and the Bluetooth headset. To use a headset with your radio, the devices must first be paired.

When you connect to a wireless headset for the first time, you need to instruct the radio to search for compatible headsets using Bluetooth wireless technology. The search should take less than one minute.

To pair a wireless headset with the radio:

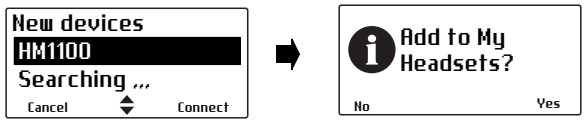
1 Turn on the radio.

2 Put the wireless headset into pairing mode. Refer to the headset installation instructions for instructions on how to do this.

3 Press **Menu** and select **Wireless headset** > **Find new devices**.

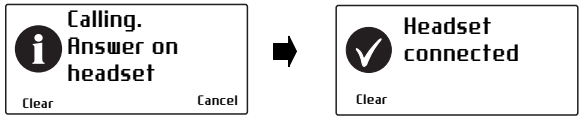
The New Devices menu opens, and while the radio searches for the new device, the message **Searching ...** appears.

4 Select **Connect** when the required headset appears in the list of new devices, then **Yes** to add the headset to My Headsets.



The message **Connecting** appears, while the radio attempts to pair with the headset.

5 When the message **Calling. Answer on headset** appears, press the **Answer** button on the headset to confirm the connection.



6 Repeat the previous steps to add other headsets.

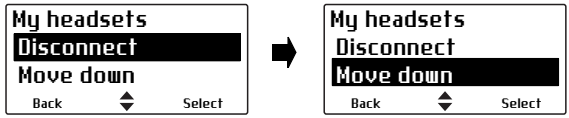
While the wireless headset is connected, the wireless headset icon appears on the display.

Managing your headsets

Once a headset has been added to My Headsets, the Manage Headsets menu item appears under the Wireless Headsets menu. The Manage Headsets menu shows the headsets currently in My Headsets, along with the following information:

- **+** This headset is currently connected.
- **a** This headset will be automatically connected.
- **c** The radio will ask you for confirmation before connecting this headset.

Press **Options** to disconnect or connect a headset (**Disconnect**, **Connect**), change the priority order of the headsets (**Move down**), or remove a headset from My Headsets (**Remove**, **Remove all**).



Disconnecting the headset

To disconnect the headset from your radio:

- Press **Menu** and select **Wireless headset** > **Disconnect**.

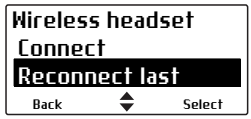
  Alternatively, in the My Headsets menu select **Options** > **Disconnect**.

Reconnecting the headset

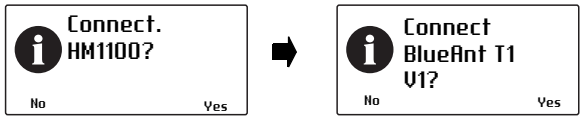
Your radio may be programmed so that each time the headset is turned on, it will automatically reconnect to the radio.

If the radio does not automatically reconnect to the headset:

1 On the radio, press **Menu** and select **Wireless headset** > **Reconnect last**.



The radio then prompts you to connect to the headsets in My Headsets, in priority order.



2 Select **Yes** to connect, or **No** to choose another headset.

DRAFT 4

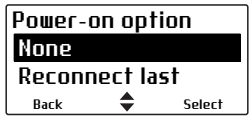
Changing the way your headset reconnects

You can use the **Power-on Option** menu to change the way your radio reconnects with a headset when the radio is first turned on. The choices are:

- None: The radio does not connect to any headsets, and you will need to manually connect or reconnect to your headset.
- Reconnect last: The radio connects to the previously connected headset.
- Connect: The radio will attempt to connect to the headsets in My Headsets, in priority order.

To change the power-on option:

1 Press **Menu** and select **Wireless headset** > **Options** > **Power-on option**, and change to the required option.



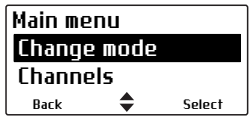
Changing the radio's operating mode

The way your radio performs basic functions, such as sending and receiving calls, depends on the operating mode of your network. The two operating modes that may be available on your radio are:

- conventional mode (see "Operating in conventional mode" on page 52), and
- trunked mode (see "Operating in trunked mode" on page 79).

To change your operating mode:

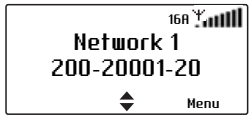
1 Press **Menu** and select **Change mode**.



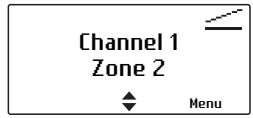
(Depending on how your radio is programmed, you may be able to press a function key to change mode.)

2 Select **Yes** to confirm your selection, and your radio now shows the default display for either trunked or conventional.

The following examples show typical default displays for trunked and conventional modes.



trunked mode



conventional mode

DRAFT 4

5 Operating in conventional mode

This section explains how to operate your radio on a conventional network (digital and analog). This includes how to make and receive different types of calls, use your radio in different repeater areas, and scan a group of channels for activity.

This section covers:

- Selecting a zone
- Selecting a channel
- Selecting a group
- Understanding talkgroups
- Checking that a channel is clear
- Making a call
- Making an individual call
- Making a call using the address book
- Making a local call
- Connecting to a telephone network
- Making an emergency call
- Sending a status message
- Transmitting at low power
- Ending active calls
- Activating the repeater before a call
- Communicating directly with other radios
- Receiving a call
- Hearing faint and noisy signals
- Using the radio in different repeater areas
- Scanning a group of channels

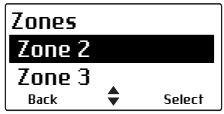
Selecting a zone

A zone is a collection of channels and groups. When you select a zone, only the channels and groups assigned to that zone are available.

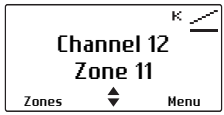
1 Press **Menu** and select **Zones**.

(Depending on how your radio is programmed, you may be able to use the scroll keys or left selection key to select the Zones menu.)

2 In the Zones menu, scroll through the list of zones until the one you want appears.



3 Press **Select**, and the zone indication appears either below the channel information, beside the RSSI icon, or in both positions.



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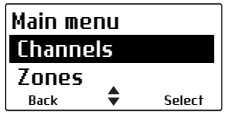
Selecting a channel

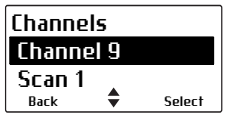
For digital channels, a talkgroup is assigned to each channel. For more information, see "Understanding talkgroups" on page 56.

1 Press **Menu** and select **Channels**.



(Depending on how your radio is programmed, you may be able to use the scroll keys or left selection key to select the Channels menu.)

2 In the Channels menu, scroll through the list of channels until the channel you want appears.



3 Press **Select**, and the programmed channel is now shown on the display.

Using the channel selector

For channels 1 to 16, rotate the channel selector to the channel you want. For all other channels, use the Main menu to select a channel.

Dialing a channel

This feature is only available for radios with alphanumeric keys.

1 Dial the number associated with the channel using the alphanumeric keys.

2 Press **Select**, and the programmed channel is now shown on the display.

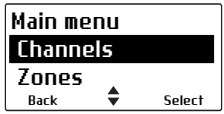
Selecting a group

A group is a collection of channels that are grouped together for either scanning or voting. In the Channels menu, the group is shown as being a single channel item, e.g. “Scan1”.

The sections "Using the radio in different repeater areas" on page 71 and "Scanning a group of channels" on page 72 explain how your radio operates once a scan group or voting group has been selected.

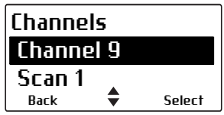
Using the Main menu

1 Press **Menu** and select **Channels**.

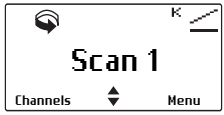


(Depending on how your radio is programmed, you may be able to use a function key, the scroll keys or left selection key to select a group.)

2 In the Channels menu, scroll through the list of channels and groups until the group you want appears.



3 Press **Select**, and the programmed group is now shown on the display. The scanning icon appears on the display.



Dialing a group

This feature is only available for radios with alphanumeric keys.

To dial the group number from the default display:

1 Dial the number associated with the group using the alphanumeric keys.

2 Press **Select**, and the programmed group is now shown on the display. The scanning icon appears on the display.

Understanding talkgroups

This feature is available for digital channels only.

A talkgroup is a collection of radio users with whom you want to have private conversations. For example, a state's public safety agencies could have the following talkgroups:

- Local talkgroups—used by a specific agency to communicate within their own local agency. It may even be made up of a county of public safety officers.
- Regional talkgroups—used by large state agencies that have regional divisions.
- Statewide talkgroups—used by an agency to communicate with a public safety member in another region. Statewide talkgroups, as their name suggests, enable public safety agencies to communicate with each other from one end of the state to the other.
- Special event talkgroups—may be used to manage emergencies encompassing a large area, or even events such as visits by heads of state.

Making a talkgroup call

To make a call to the currently selected talkgroup

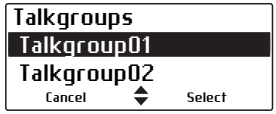
- Press the PTT key.

Changing a talkgroup

1 Press **Menu** and select **Talkgroups**.

(Depending on how your radio is programmed, you may be able to use a Quick Access menu to go to the Talkgroup menu.)

2 Scroll through the list of talkgroups to the one you want and press **Select**.



3 Press the PTT key to make a call to the currently selected talkgroup.

Checking that a channel is clear

For analog channels, Monitor allows you to override some or all of the radio's mutes, and hear if there is any traffic on a channel before you make a call.

Turning monitor on and off

1 Press **Menu** and select **Radio settings** > **Functions** > **Monitor**.

(Depending on how your radio is programmed, you may be able to press a function key to toggle monitor on and off.)

2 Scroll to **On** (or **Off**) and press **Select**.

While monitor is on, the LED slowly flashes green and the monitor icon ◁ appears in the display.

Your radio may be programmed so that monitor turns off automatically after a short time.

Making a call

1 Select the required channel or scan group.

You may need to select the zone you want first, then select the channel or group from that zone.

2 Check that the channel is clear. If the LED is glowing green, the channel is busy and you may not be able to transmit.

3 Once the channel is clear (the green LED is off), hold the radio so that the microphone is about one inch (2.5cm) from your mouth and press the PTT key to transmit.

4 Speak clearly into the microphone and release the PTT key when you have finished talking.

While you are transmitting, the LED glows red and the transmit icon appears on the display.

Limiting call time

Your radio may limit the amount of time you can talk (transmit) continuously. This is known as the ‘transmit timer’ or ‘time-out timer’ and allows other radio users to make calls on that channel.

The message **Transmit Timeout Imminent** appears on the display.

If the transmit timer has timed out, you must release the PTT before you can transmit again.

Your radio may be unable to transmit for a short time after the transmit timer has expired.

Making an individual call

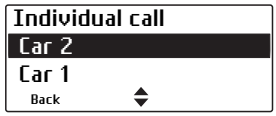
This feature is available for digital channels only.

To make a call to one person rather than a group of people:

1 Press **Menu** and select **Individual call**.
(The person to whom you last made an individual call is highlighted.)

(Depending on how your radio is programmed, you may be able to press a function key or use your Quick Access menu to select individual calls.)

2 Scroll to the person you want to call and press the PTT key to make the call immediately.

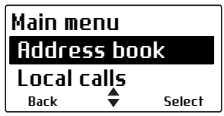


Making a call using the address book

The Address Book menu has a programmed list of calls, which can be made from any channel or zone. Address-book calls may also be used to send status information, such as “at lunch” or “on site”, or to change to a channel or group.

Using the Main menu

1 Press **Menu** and select **Address book**.



(Depending on how your radio is programmed, you may be able to use the scroll keys, left selection key or a function key to select the Address Book menu.)

2 In the Address Book menu, scroll through the list of calls until the call you want appears.

3 Press **Send**.

The call details appear on the display, the LED glows red, and appears on the display.

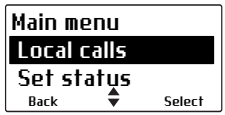
Making a local call

For analog channels, each channel on your radio may have one or more local calls programmed.

Using the Main menu

1 Select the required channel.

2 Press **Menu** and select **Local calls**.



3 In the Local Calls menu, scroll through the list of local calls until the call you want appears.

4 Press **Send**.

The call details appear on the display, the LED glows red, and appears on the display.

Using the Quick Access menu

1 Select the required channel.

2 Press one of the scroll keys or the left selection key to open the Local Calls menu.

3 Scroll through the list of local calls until the call you want appears.

4 Press **Send**.

The call details appear on the display, the LED glows red, and appears on the display.

Dialing a local call

This feature is only available for radios with alphanumeric keys.

To make a local call to another radio or group of radios:

1 Select the required channel.

2 Press **Menu** and select **Dial radio call**.

Alternatively, your radio may be programmed so a local call can be dialed directly from the default display. In this case, you can start dialing the call without selecting the menu option.

A series of **X** and **S** characters may appear, prompting you to dial over them.

3 Dial the number using the alphanumeric keys.

Your radio may be programmed so you can dial group tones using the * and # keys. Dial * to fill one **X**. Dial # to fill the current **X** and all subsequent **X** characters in the current burst.

4 Press **Send** (if the Send option appears).

The call details appear on the display, the LED glows red, and appears on the display.

When the called party receives your call, the message **Ack received** may appear on the display.

Connecting to a telephone network

For analog channels, you may be able to use your radio to connect to a telephone network. This type of call is known as a DTMF patch call.

To make a DTMF patch call, you may be able to either:

- use a programmed function key,

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- use the Main menu to dial the call,
- make a local call (see "Making a local call" on page 60), or
- use your address book (see "Making a call using the address book" on page 59).

Using a function key

Depending on how DTMF patch calls are programmed, some or the following steps may not be necessary.

1. Select the required channel.
2. Press the function key programmed for DTMF patch call.

   Your radio may send tones to capture the line.
3. Press **Send**, or press the function key a second time, to send the preset number.

   You may hear telephone dialing and ringing tones.
4. Proceed with your call.
5. Press **End**, or give a long press on the function key, to end the call.

   Your radio may send tones to release the line.

Using the Main menu

This feature is only available for radios with alphanumeric keys.

To dial a DTMF patch call by using the Main menu:

Depending on how DTMF patch calls are programmed, some or the following steps may not be necessary.

1. Select the required channel.
2. Press **Menu** and select **Dial patch call**.
3. Dial the required number using the alphanumeric keys.
4. Press **Send**.

Your radio may send tones to capture the line.

5 Press **Send** to send the number dialed in step 3.

You may hear telephone dialing and ringing tones.

6 Proceed with your call.

7 Once the call has finished, press **End**.

Your radio may send tones to release the line.

Making an emergency call

You may be able to activate emergency mode by using a programmed function key.

1 Press the function key programmed for Emergency Mode and an emergency call is sent to your dispatcher, or some other predetermined location.

While emergency mode is active, your radio may cycle between receive and transmit, so that your dispatcher can hear any activity near the radio. Alternatively, your radio may appear to turn off but will actually remain in emergency mode.

2 Reset the radio to normal operation at any time by turning the radio off and then on.

Emergency mode may be programmed to end after a fixed period of time. In this case, there is no need to turn the radio off and then on in order to return the radio to normal operation.

Sending a status message

For analog channels, your radio may be able to maintain a record of your current status. This status may be sent with outgoing calls programmed to contain status information. If the radio receiving your message has been programmed with the same status messages, it will decode and display your message. The message indicates your current activity or location, such as “en route” or “at lunch”.

To change you current status:

1 Press **Menu** and select **Set status**.

2 In the Set Status menu, scroll through the list of status messages until the message you want appears.

3 Press **Select**. The message **Status updated** appears on the display.

Transmitting at low power

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

When low power transmit is turned on, appears in the display and calls are made at low power rather than at the programmed power setting.

Some channels may always transmit at low power.

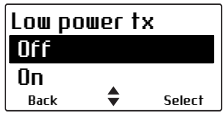
To turn low power transmit on or off for all channels:

Using the Main Menu

1 Press **Menu** and select **Radio settings** > **Functions** > **Low power tx**.

(Depending on how your radio is programmed, you may be able to press a function key to turn low power transmit on or off.)

2 Scroll to **On** (or **Off**) and press **Select**. (The current setting is highlighted.)



The message **Low power tx activated** (or **deactivated**) appears in the display.

Using a function key

1 Press the function key programmed for low-power transmit to transmit at low power on your current channel.

The message **Low power tx activated** appears briefly, and the low-power transmit icon appears on the display.

2 Press the low-power transmit function key again to turn low-power transmit off, and the message **Low power tx deactivated** appears on the display.

Ending active calls

For analog channels, you may have a function key programmed to either end the current call, or end the current call and all other active calls in your group. This can be done either by:

- using the function key programmed for reset monitor to end your current call,
- using the function key programmed for call cleardown to end your current call and all other calls in your group, or
- using the function key programmed for both reset monitor and call cleardown.

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Using a function key to end your current call

- Press the function key programmed for reset monitor. The radio's monitor is turned off, ending your current call.

  The LED stops flashing green, and the monitor icon ◁ disappears from the display.

Using a function key to end all active calls

- Press the function key programmed for call cleardown and monitor is turned off for all radios in your radio group.

  The LED stops flashing green, and the monitor icon ◁ disappears from the display.

Using the function key programmed for reset monitor/call cleardown to end active calls

The function key programmed for reset monitor may be programmed so that a short key press ends your current call, and a long key press ends all active calls in your group.

Activating the repeater before a call

For analog channels, it may be required to send a repeater-access tone to activate the repeater before a call is made, so that the start of the call is not lost.

To send a repeater-access tone, you may be able to either use the PTT key, or use a programmed function key.

For DMR channels, the repeater is activated as part of the standard call signaling.

Using the PTT key

1. Press the PTT key and the repeater-access tone for the current channel is sent.

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The call details appear on the display, the LED glows red, and appears on the display. You may also hear signaling tones.

2 Press and hold the PTT and proceed with your call.

Using a function key

1 Press the function key programmed for sending a repeater-access tone, and the repeater-access tone for the current channel is sent.

The call details appear on the display, the LED glows red, and appears on the display. You may also hear signaling tones.

2 Press and hold the PTT and proceed with your call.

Communicating directly with other radios

For analog channels, you can bypass the radio repeater and communicate directly with another radio. This feature is known as repeater talkaround. You can do this, for example, when you are out of range of the repeater, or if the repeater is busy or stops working. While repeater talkaround is active, all transmissions are made on the receive frequency of the channel you are on.

To activate repeater talkaround, you may be able to either use a programmed function key, or use the Main menu.

Using the Main menu

1 Select the required channel.

2 Press **Menu** and select **Radio settings** > **Functions** > **Talkaround**.

3 In the Talkaround menu, choose **On**.

4 Press **Select**. The message **Talkaround activated** appears briefly, and the repeater talkaround icon appears on the display.

5 Proceed with your call.

6 To turn repeater talkaround off, either change the channel, or choose **Off** in the Talkaround menu.

Using a function key

1 Select the required channel.

2 Press the programmed function key to turn repeater talkaround on. The message **Talkaround activated** appears briefly, and the repeater talkaround icon appears on the display.

3 Proceed with your call.

4 To turn repeater talkaround off, either change the channel, or press the function key again.

Receiving a call

When there is valid activity on your radio's currently selected channel or group, the radio then unmutes and you can hear the call.

If the incoming call contains special signaling that matches the signaling programmed for your radio, the LED flashes green and your radio may give a ringing tone.

Receiving a text message

Your radio may be able to display received text messages in conventional mode. If programmed, the queuing icon (empty queue) or (message in queue) is always shown in the default display while in conventional mode.

Viewing a text message

When a text message is received, the radio sounds two short high-pitched beeps. If the radio is currently showing the default display, the message appears immediately.

To view a message that does not appear immediately:

1 Navigate to the default display.

2 Press **Queue**.

To delete the message, press **Delete**. The message **Queue empty** appears on the display.

If you want to leave the message in the queue, press **Back**.

The conventional call queue only retains one message. If a new message is received while there is an old message left in the queue, the old message will be replaced.

Hearing faint and noisy signals

For analog channels, your radio's squelch allows the radio to unmute only when the strength of the incoming signal is above a predetermined threshold. This means that only signals of reasonable intelligibility are made audible. To make faint and noisy signals audible, use the squelch override function to unmute the radio.

To activate squelch override, you may be able to either use the Main menu, or a programmed function key.

Using the Main menu

1 Press **Menu** and select **Radio Settings** > **Functions** > **Squelch o'ride**.

2 In the Squelch Override menu, choose **On**.

3 Press **Select**.

The message **Squelch override activated** appears on the display.

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While squelch override is on, the LED flashes green, and the squelch override icon ◁ appears on the display.

Using a function key

1 Press the function key programmed for squelch override to unmute the radio.

   The message **Squelch override activated** appears on the display.

   While squelch override is on, the LED flashes green, and the squelch override icon ◁ appears on the display.

2 To turn squelch override off, press the squelch override function key again.

Using the function key programmed for monitor

The function key programmed for monitor may be programmed so that a short key press turns monitor on, and a long key press turns squelch override on.

To activate squelch override:

- Press and hold the function key programmed for monitor to override the radio's squelch.

  The message **Squelch override activated** appears on the display.

  While squelch override is on, the LED flashes green, and the squelch override icon ◁ appears on the display.

  Squelch override remains on until there is a further long key press.

Using the radio in different repeater areas

Your radio may have a group of channels programmed as a voting group. The channels in the voting group all carry the same traffic, but from different repeaters. As your radio moves in and out of different repeater coverage areas, the best communication channel is automatically selected for you to use, until a better communications channel is selected.

This channel is known as the ‘home’ channel, and will be the channel you make and receive calls on. While voting is active, the scanning icon appears on the display.

The section "Selecting a group" on page 55 explains how to select a group. A group can be either a voting or a scanning group.

Suspending a channel from a voting group

You may be able to use the function key programmed for nuisance delete to temporarily delete one of the channels from the voting group.

When that voting group is next selected, or after the radio has been turned off and then on, the deleted channel is again part of the voting group.

Alternatively, the function key programmed for voting may be programmed so that a short key press turns on voting, and a long key press activates nuisance delete.

- Press and hold the function key programmed for voting to remove the current channel from the voting group.

  If the operation has been successful, the message **Channel nuisance deleted** appears on the display.

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Scanning a group of channels

The scan function is used to monitor a programmed group of channels, looking for activity. While the radio is scanning for activity, the orange LED glows and the scanning icon appears on the display. When activity is detected on a channel in the scan group, the radio stops on that channel. The orange LED begins flashing, the radio unmutes and you can hear the call. Scanning resumes once the channel is no longer busy.

The section "Selecting a group" on page 55 explains how to activate scanning.

Standard and background scanning

The two types of scanning that may be available on your radio are standard scanning, and background scanning. Background scan can only be activated by using a function key programmed for background scan. It differs from standard scanning in that the channel that was selected when background scan was activated is also included as a scan-group member.

Making a call while scanning

If you wish to make a call while your radio is scanning:

1. Lift the microphone off the microphone clip.
2. Press the PTT key to transmit. If the orange LED is flashing, or background scan is active, your radio will now call the currently selected channel.
3. If standard scan is active and there has been no recent activity on the channel (the orange LED is glowing rather than flashing), then the channel that is called depends on the way your radio has been programmed. The possible options are:

   —your radio calls a predetermined channel e.g. your dispatcher,

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—your radio calls the channel where activity was last detected, or

— your radio calls the last free channel.

4 When the called party responds, proceed with your conversation.

Changing the background scan group assigned to a function key

You can change the background scan group assigned to the function key programmed for group scanning or for scanning/nuisance delete.

1 Press **Menu** and select **Advanced** > **Set scan key**.

2 In the Set Scan Key menu, scroll through the list of background scan groups until the group you want appears.

3 Press **Select**.

The message **Scan key scans new group** appears on the display.

The next time you activate background scan, the new group will be your background scan group.

Suspending a channel from a scanning group

If a member channel of a scan group is busy for a long time and you do not wish to hear the conversation, you may be able to use the function key programmed for nuisance delete to temporarily delete it from the scan group.

When the scan group is next selected, or after the radio has been turned off and then on, the deleted channel is again part of the scan group.

Alternatively, the function key programmed for scanning may be programmed so that a short key press turns on scanning, and a long key press activates nuisance delete.

- Press and hold the function key programmed for scanning to remove the current channel from the scanning group.

If the operation has been successful, the message **Channel deleted from group** appears on the display.

Adding or deleting member channels of a group

Your radio may be programmed so you can add or delete channels in a voting or scanning group. Changes made are permanent, and will remain after restarting the radio.

1. Select the group. See "Selecting a group" on page 55.
2. Press **Edit**.

   If there is no edit option for the left selection key, the group cannot be changed.

   Alternatively, you may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group you wish to edit.
3. In the Edit Group menu, choose **Add channel** or **Delete channel**.
4. Press **Select**.
5. Press the scroll keys to select the channel that you want to add or delete.
6. Press **OK**.

   If successful, the message **Channel added** or **Channel deleted** appears.

   To check the new group details, press **Back** and select the **Group members** menu option.

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Changing a group's transmit channel

You may be able to change the transmit channel of a standard scanning group. The transmit channel is identified by the Tx icon.

1 Select the group. See "Selecting a group" on page 55.

2 Press **Edit**.

   If there is no edit option for the left selection key, the group cannot be changed.

   Alternatively, you may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group you wish to edit.

3 In the Edit Group menu, choose **Change tx**.

4 Press **Select**.

5 Press the scroll keys to select the new transmit channel.

6 Press **OK**.

   If successful, the message **Tx channel changed** appears.

To check the new group details, press **Back** and select the **Group members** menu option. The new transmit channel has the Tx icon next to it.

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Changing a group's first or second priority channel

You may be able to change the priority channels of a scanning group. Priority channels are scanned more frequently than other channels in the group. If valid activity is found on another channel, the radio continues to scan the priority channel or channels at regular intervals. The first priority channel is identified by the P_1 icon, and the second priority channel is identified by the P_2 icon.

1. Select the group. See "Selecting a group" on page 55.
2. Press **Edit**.

   If there is no edit option for the left selection key, the group cannot be changed.

   Alternatively, you may be able to edit groups by pressing **Menu** and selecting **Advanced** > **Program groups**, then select the group you wish to edit.
3. In the Edit Group menu, choose **Change P1** or **Change P2**.
4. Press **Select**.
5. Press the scroll keys to select the new priority channel.
6. Press **OK**.

If successful, the message **P1 channel changed** or **P2 channel changed** appears.

To check the new group details, press **Back** and select the **Group members** menu option. The new priority channel has the P_1 or P_2 icon next to it.

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Icon and messages that may appear when changing group details

The following icons may appear when viewing group membership details, adding or deleting channels from a group, or changing a group's transmit or priority channels.

Icon	Meaning
T_X	This channel is used to transmit on when there has been no recent activity. You cannot delete this channel (it will not appear under **Delete channel**).
P_1	This channel is the group's first priority channel. You cannot delete this channel (it will not appear under **Delete channel**).
P_2	This channel is the group's second priority channel. You cannot delete this channel (it will not appear under **Delete channel**).
+	There is more than one instance of this channel in the group (the channel will be scanned more often). If you delete this channel, the radio will attempt to delete all instances of the channel.

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The following messages may appear when using nuisance delete to temporarily delete a channel from a group, when adding or deleting channels from a group, or changing a group's transmit or priority channels.

Message	Meaning
Scanning not on	You cannot use nuisance delete to temporarily delete a channel from a group, as there is no group currently selected.
No channel captured	You cannot use nuisance delete to temporarily delete a channel from the group, as there is no channel currently captured (the orange LED is glowing and not flashing).
Not enough channels in group	You cannot use nuisance delete to temporarily delete the channel from the group, as the captured channel is the last remaining group member.
Cannot delete channel	You cannot use nuisance delete to temporarily delete the channel from the group. The captured channel may be the selected channel in a background scan group.
Cannot delete priority chan	You cannot use nuisance delete to temporarily delete the channel from the group, as the captured channel is a priority channel.
Only two channels in group	You cannot delete a channel from the group, as there would be only one group member left.
No items in list	The action you are attempting is not allowed. Either: ■ the group does not have a preset transmit channel or priority channels programmed, or ■ you have added all the channels in the zone to the current group.
Group full	You cannot add any more channels to the group, as the maximum number of members (50) has been reached.

DRAFT 4

6 Operating in trunked mode

This section explains how your radio operates on a DMR (digital), MPT (analog) or dual-mode trunked network.

These features are controlled by software licenses (SFE) and may not be available with your radio.

Your radio must have trunking functionality programmed before it can operate in DMR or MPT trunked mode.

This section covers:

- Checking that your network is available
- Changing your network
- Making a preset call
- About trunked zones and workgroups
- About emergency operation
- Dialing a PABX number
- Dialing a PSTN number
- Receiving a call
- Re-establishing a call
- Checking missed calls
- About status messages
- About trunked text messages
- Placing the radio in do-not-disturb mode
- Calls to conventional channels or conventional groups

DRAFT 4

Checking that your network is available

Check that the orange LED is flashing and the network icon appears on the display. These are the indications that your radio has access to a trunked network.

If the network icon is flashing and **No service** appears on the display, your radio is attempting to access the trunked network. If this icon remains flashing, your radio may be out of the network coverage area.

If **Limited service** appears on the display, one of the network sites or the connection between the network sites has been interrupted. You can still make calls to radios covered by the same site but not to radios to other sites.

Changing your network

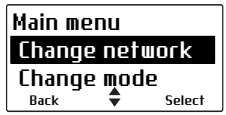
Your radio may be programmed to operate in up to four completely separate trunking networks, either DMR (digital), MPT (analog) or both (dual mode). You may wish to change networks because you are out of the network coverage area, or you need to have access to another trunking network.

To change your radio's operating network, you may be able to either use the Main menu or dial the new network using the alphanumeric keys.

Changing your radio's workgroup may also change the network in which you are operating. See "Selecting a workgroup" on page 84.

Using the Main menu

1 Press **Menu** and select **Change network**.



2 In the Change Network menu, scroll through the list of networks until the network you want appears.

3 Press **Select**.

The radio will restart and display the name of the new network.

Dialing a new network

This feature is only available for radios with alphanumeric keys.

1 Dial ***700#** to display the name of the current trunked network.

2 Dial ***70n#** to change to a new network, where **n** is the number of the new network (1 to 4).

The radio will restart and display name of the new network.

Making a preset call

The preset calls programmed for your radio may be to other radios, to PABX extensions or to PSTN numbers.

1 Press **Menu** and select **Preset calls**.

(Depending on how your radio is programmed, you may be able to use a function key, or left selection key to select the Preset Calls menu.)

2 In the Preset Calls menu, scroll through the list of calls until the call you want appears, then press **Send**.

While the call is being setup, you can cancel the call by pressing **Clear**.

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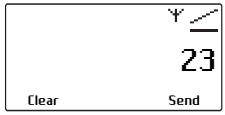
Dialing a preset call

This feature is only available for radios with alphanumeric keys.

The preset calls programmed for your radio can be dialed if you know the number associated with the preset call.

1 Dial **p**, where **p** is the number of the preset call.

If your preset call number is the same as a call to another radio, then you need to dial a leading **0**. For example, dial **23#** to call radio 23 and dial **023#** for preset call number 23.



2 Press **Send** or the **#** or PTT key.

While the call is being setup, you can cancel the call by pressing **Clear**.

About trunked zones and workgroups

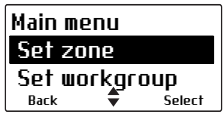
Trunked zones and workgroups are used to manage the calls on the trunked system. Zones typically define geographic areas (towns, suburbs or counties), or branches of an organization. Workgroups span multiple zones, and typically define functions, work areas or job roles.

When your radio belongs to a workgroup, it is said to be ‘subscribed’, and you receive all calls directed to that group of users. A group’s members are dynamic, in that a group only contains radios that are currently registered on the system and subscribed to the same group.

Your radio may be programmed to use different names for a ‘zone’ and ‘workgroup’. For example, ‘district’ or ‘area’ may be used in place of zone, and ‘role’ or ‘group’ may be used in place of workgroup.

Selecting a zone

1 Press **Menu** and select **Set zone**.



(Depending on how your radio is programmed, you may be able to use the scroll keys, left selection key or channel selector to select a zone.)

2 In the Set Zone menu, scroll through the list of zones until the zone you want appears.

3 Press **Select**.

4 Check that the network icon appears on the display.

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Selecting a workgroup

1 Press **Menu** and select **Set workgroup**.

(Depending on how your radio is programmed, you may be able to use the scroll keys, left selection key or channel selector to select a workgroup.)

2 In the Set Workgroup menu, scroll through the list of workgroups until the workgroup you want appears.

3 Press **Select**.

4 Check that the network icon appears on the display.

Making a call to a workgroup

Different types of calls may be associated with your workgroups. These calls can be individual calls, preset calls, broadcast calls (no response permitted), or conference calls.

To make a call to a workgroup:

1 Select the required zone. See "Selecting a zone" on page 83.

2 Select the required workgroup. See "Selecting a workgroup" on page 84.

3 Press the PTT key, and a call to that workgroup is made.

Selecting the homegroup

Your ‘homegroup’ is the workgroup in which your radio usually operates. To return to your homegroup at any time, you may be able to use the main menu, or use a function key.

Using the Main menu

1 Press **Menu** and select **Go to homegroup**.

2 Press **Select**, and the radio now shows your homegroup in the default display.

Using a function key

You may be able to use a function key to toggle between your homegroup, and the currently selected zone and workgroup.

- Press the function key programmed for your homegroup.

  The radio now shows your homegroup in the default display, along with the homegroup icon .

The homegroup icon only appears if you use a function key to select your homegroup.

Scanning workgroups

The ‘My Workgroups’ list comprises the current workgroup, the homegroup, and other programmed groups. When scanning is active, the radio will receive activity from any subscribed groups in the My Workgroups list.

To activate scanning:

1 Press **Menu** and select **Scanning**.

(Depending on how your radio is programmed, you may be able to use a function key to select scanning.)

2 Scroll to **On** (or **Off**) and press **Select**.

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About emergency operation

In an emergency you may be able to summon help by sending an emergency call. After making the call, your radio may be programmed to enter emergency mode. While emergency mode is active, your radio may cycle between receive and transmit, so that your dispatcher or the called party can hear any activity near your radio.

On most networks, an emergency call takes precedence over other call types, and existing calls are cleared down so that the emergency call can proceed.

To make an emergency call from your radio, you may be able to either:

- make a preset emergency call,
- dial the emergency call using the alphanumeric keys, or
- use a function key programmed for emergency mode.

Making a preset emergency call

To make a preset emergency call from your radio, you may be able to either use a programmed function key, use the main menu, or use your quick access menu.

1 Select your preset emergency call.

   See "Making a preset call" on page 81.

2 Press **Send**.

   An emergency call is now sent to the emergency location that has been programmed for your radio.

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Dialing an emergency call

This feature is only available for radios with alphanumeric keys.

1 Dial ***9**.

2 Press Send or the # or PTT key.

An emergency call is now sent to the emergency location that has been programmed for your radio.

If you wish to send an emergency call to another radio, you may be able to dial ***9*n** then press the # or PTT key. In this case, **n** is the radio unit number you wish to send the emergency call to and may be a two- or three-digit number.

Activating emergency mode

You can activate emergency mode using a function key programmed for emergency mode. Alternatively, you may be able to activate emergency mode using a hidden switch or panic button. Once emergency mode is activated, your radio makes an emergency call to your dispatcher or some other predetermined location. The radio then enters emergency mode.

While emergency mode is active, your radio may cycle between receive and transmit, so that your dispatcher can hear any activity near the radio.

Cancelling emergency mode

Reset the radio to normal operation at any time by turning the radio off and then on.

Emergency mode may be programmed to end after a fixed period of time. In this case, there is no need to turn the radio off and then on in order to return the radio to normal operation.

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Dialing a PABX number

This feature is only available for radios with alphanumeric keys.

To dial a PABX extension:

1 Dial **n**, where **n** is the PABX extension you wish to call.

2 Press **Send** or the # or PTT key.

The call details appear on the display. While the call is being setup, you can cancel the call by pressing Clear.

Dialing a PSTN number

This feature is only available for radios with alphanumeric keys.

To dial a PSTN number:

1 Dial **0n**, where **n** is the PSTN number you wish to call.

The numbers you dial before the 0 depend on the way your network operates.

2 Press **Send** or the # or PTT key.

The call details appear on the display. While the call is being setup, you can cancel the call by pressing Clear.

Receiving a call

When you receive a call, your radio displays the caller's identity and responds in one of two ways, depending on the way it was programmed and the way your network operates.

- On-air call setup: The radio gives a ring and automatically accepts the call. The GO icon appears in the display.
- Full off-air call setup (FOACSU): When a call is received, the radio rings like a telephone.

  To accept the call, press **Answer**. The radio gives a beep and the GO icon appears in the display. You may also be able to accept the call if you briefly press the PTT key or lift the microphone off the microphone clip.

Once the GO icon appears, you can proceed with the call, as follows:

1. Hold the microphone about 5cm (2 inches) from your mouth.
2. Press and hold the PTT key to transmit.
3. Speak clearly into the microphone and release the PTT key when you have finished talking.

   While you are transmitting, the LED glows red and appears in the display.
4. End the call by placing your microphone back onto its hook or by pressing Clear. The network may also end the call if neither you nor the other party transmits for a predetermined time or if your call time limit is exceeded.

Call time limit

In trunked mode, the length of your call may be limited by the network or by your radio. Your radio may be programmed to display the time remaining for your call.

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Re-establishing a call

The last number recall, unanswered call and callback functions allow you to re-establish calls using the PTT key.

Last number recall

When an outgoing call has ended, the message **Last call to** and the called unit's identity may appear on the display.

To make a call to that person again, briefly press the PTT key.

Unanswered call

When an incoming call is missed, the message **Missed call** and the caller's identity may appear in the display.

To return the call, briefly press the PTT key.

Callback

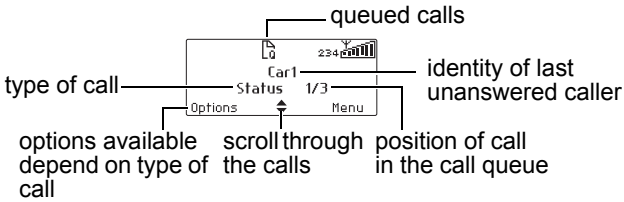
When an incoming call has been ended, the message **Last call from** and the caller's identity may appear in the display.

To make a call to that person, briefly press the PTT key.

Checking missed calls

If you have missed an incoming call, it may be stored in the call queue, so that you can return the call later. Information about the last missed call is shown on the display and the queued call icon appears.

In the example below, the last call received was a status message from Car 1. This call is the first of three calls stored in the call queue.



Accessing the call queue

1 Use the scroll keys to move through the calls in the call queue until the call you want appears.

2 Press **Options** to open the call options menu.

The options available for the call depend on the type of call it is. If the call is a voice call, select **Call** to return the call or **Delete** to delete the call.

If the call is a status message or a text message, then select **View** to read the message.

Changing your call queuing setting

Your radio may be programmed so that you are able to change call queuing to ‘unanswered’. Unanswered call queuing means that all status and text messages are immediately queued. Incoming voice calls are only queued if they are unanswered.

If your radio has alphanumeric keys, you may be able to change your call queuing setting using the keypad.

To activate call queuing:

- press **Menu** and select **Radio settings** > **Call settings** > **Call queuing** and choose **On**,
- press the function key programmed for Call queuing, or
- dial ***48** then press the # or PTT key.

The message **Call queuing activated** appears.

To change call queuing to unanswered call queuing:

- press **Menu** and select **Radio settings** > **Call settings** > **Call queuing** and choose **Off**,
- press the function key programmed for Call queuing, or
- dial **#48** then press the # or PTT key.

The message **Call queuing deactivated** appears.

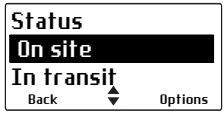
About status messages

A status message is sent to another party to indicate your current activity or location, such as “en route” or “at lunch”. If the radio receiving your message has been programmed with the same status messages, it will decode and display your message. If you receive a status message, the message is automatically queued, since a response is not expected.

Selecting a status message

1 Press **Menu** and select **Send** > **Status**.

2 In the Status menu, scroll through the list of status messages until the message you want appears.



Sending a status message

1 When you have chosen a message, press **Options** and the Send To menu opens.

2 In the Send To menu, scroll through the list of options until the choice you want appears.

If your radio has alphanumeric keys, you can choose the option **Dialed**, then dial the number of the party you wish to call.

3 Press **Send**.

The call details appear on the display. While the call is being setup, you can cancel the call by pressing Clear.

DRAFT 4

Dialing a status message

If your radio has alphanumeric keys, the status messages programmed for your radio can be dialed. To dial the message, you need to know the number associated with the status message.

To dial a status message:

1. Dial ***0s*n**, where **s** is the number of the status message and **n** is the radio unit number you wish to send the message to.
2. Alternatively, dial ***0s*p**, where **p** is the number of a preset call. See "Dialing a preset call" on page 82 for more information.
3. Press **Send** or the **#** or PTT key.

   The call details appear on the display. While the call is being setup, you can cancel the call by pressing Clear.

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About trunked text messages

Your radio may be programmed so that you can send text messages. The three options for creating text messages are selecting a preset text message, editing a draft text message, or creating a new text message.

To either edit or enter a text message, your radio must have alphanumeric keys.

Using the alphanumeric keys to enter text

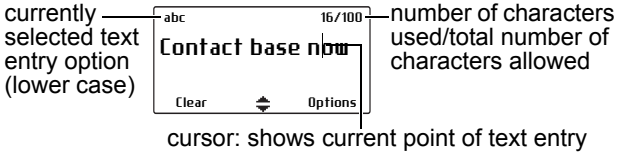
When the alphanumeric keys are used to enter a text message, they have special functions.

- Use the **#** key to select the type of text entry: upper and lower case characters (**ABC**, **abc**), initial capitals (**Abc**), or numbers (**123**).
- Use the left selection key (**Clear**) to delete a character from the display.
- Use the scroll keys to move through a message.

Repeated presses of these keys will give you the characters shown in the following table.

Key	Characters	Key	Characters
1	. , ? ! - / 1	7 PQRS	P Q R S 7
2 ABC	A B C 2	8 TUV	T U V 8
3 DEF	D E F 3	9 WXYZ	W X Y Z 9
4 GHI	G H I 4	0	space 0
5 JKL	J K L 5		
6 MNO	M N O 6		

In the example below, a preset text message has been selected, and is being edited.



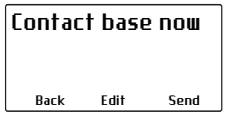
Sending a preset text message

1 Press **Menu** and select **Send** > **Text message** > **Preset message**.

In the Preset Message menu, a short label representing each message is displayed.

2 Scroll through the list of preset message labels until the one you want appears.

3 Press **Select**, and the text message you have chosen is now displayed.



4 Press **Send** to send the message, or **Edit** to change the message.

Editing a draft text message

1 Press **Menu** and select **Send** > **Text message** > **Edit message**.

In the Edit Message menu, a short label representing a message is displayed.

2 Use the scroll keys to move through the characters. Use the alphanumeric keys to add characters and the **Clear** key to delete them.

3 When the message is complete, press **Options** and select **Send**.

Creating a new text message

1 Press **Menu** and select **Send** > **Text message** > **New message**.

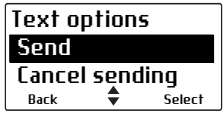
The last text message you sent may be displayed.

2 In the New Message menu, modify the last text message you sent, or enter the new text message using the alphanumeric keys.

3 When the message is complete, press **Options** and select **Send**.

Sending a text message

1 When you have chosen or entered a message, press **Options** and the Text Options menu opens.



2 In the Text Options menu, scroll through the list of options until the choice you want appears.

(If your radio has alphanumeric keys, you may be able to dial the number of the party you wish to call.)

3 Press **Select**.

The call details appear on the display. While the call is being setup, you can cancel the call by pressing **Clear**.

DRAFT 4

Placing the radio in do-not-disturb mode

If you do not want calls for a while, you can place the radio in do-not-disturb mode, so that incoming calls can be ignored. You can make outgoing calls in the usual way.

While do-not-disturb mode is active, incoming calls cannot be stored in the call queue.

Using a function key

1 Press the function key programmed for do not disturb, to activate the do-not-disturb function.

   The message **Do not disturb activated** appears on the display. Your radio will now ignore all incoming calls.

2 To deactivate the do-not-disturb function, press the do-not-disturb function key again.

   The message **Do not disturb deactivated** appears on the display.

Using the Main menu

1 Press **Menu** and select **Radio Settings** > **Call Settings** > **Do not disturb**.

2 In the Do Not Disturb menu, choose **On**.

3 Press **Select**.

   The message **Do not disturb activated** appears on the display. Your radio will now ignore all incoming calls.

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Calls to conventional channels or conventional groups

You may be able to dial conventional channels or groups, using **101** to **110**. The channels or groups called using these numbers are programmed for your radio.

To call a conventional channel or group:

1. Dial the number for the channel or group you wish to call.
2. Press **Send** or the # or PTT key.

   Your radio switches to the conventional channel programmed for that number.

DRAFT 4

7 Dialing calls in trunked mode

If your radio has alphanumeric keys, you can make dialed calls from your radio. The numbers you dial and dialing features available depend on the way your radio is programmed and the way your network operates. Contact your radio provider for further assistance.

This section covers:

- MPT 1343 dialing
- Nokia ANN fleet calls
- Accessing common trunking functions

DRAFT 4

MPT 1343 dialing

If your MPT or DMR trunked network uses the MPT 1343 dialing scheme, your radio's unique number on the network consists of:

- a three-digit prefix,
- a four-digit fleet number, and
- a two- or three-digit radio unit number.

You may also be part of a group, with a two- or three-digit group number.

Finding your radio's MPT number

To find your radio's full MPT number:

1. Dial ***700**.
2. Press the **#** or PTT key.

   The name associated with your network and your radio's full MPT number appears.

   The number is in the form:

Prefix	Fleet	Radio unit number
300	3078	234

DRAFT 4

MPT 1343 dialed calls

The following table summarizes the way you dial calls to other radios and groups of radios and gives an example of each type of call.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

Call to	Dialing code and example
Radio **23** in the same fleet as you	Radio unit number 23 **#**
Radio **234** in the same fleet as you	Radio unit number 234 **#**
Radio **23** in fleet **3078** with the same prefix as you	Fleet 3078 Radio unit number 23 **#**
Radio **234** in fleet **3078** with the same prefix as you	Fleet 3078 Radio unit number 234 **#**
Radio **234** in fleet **3078** with a different prefix to you (**300**)	Prefix 300 Fleet 3078 Radio unit number 234 **#**
Group **92** in the same fleet as you	Group 92 **#**
Group **923** in the same fleet as you	Group 923 **#**

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Nokia ANN fleet calls

If your trunked network uses Nokia ANN dialing, the numbers you dial depend on your fleet size. Fleets are defined as either large, small or mini. Your radio's unique number on the network consists of:

- a lead number **7**, **8** or **9**, depending on the fleet size,
- a zero-, one-, two- or three-digit prefix,
- a one- or two-digit fleet number, and
- a two- or three-digit radio unit number.

See your radio provider or network administrator for Nokia ANN call details.

Finding your radio's Nokia ANN number

To find your radio's full Nokia ANN number:

1. Dial ***700**.
2. Press the **#** or PTT key.

   The name associated with your network and your radio's full Nokia ANN number appears.

   The number is in the form:

Lead	Prefix	Fleet	Radio unit number
7	34	2	209

DRAFT 4

Nokia ANN dialed calls

The following table summarizes the way you dial calls to other radios and gives an example of each type of call.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

Call to	Dialing code and example
Radio **23** in the same fleet as you	Radio unit number 23 **#**
Group **923** in the same fleet as you	Group 923 **#**
Large fleet:	
Call to radio **234** in fleet **1** with the same prefix as you	Lead 7 Fleet 1 Radio unit number 234 **#**
Call to radio **235** in fleet **2** with a different prefix to you (**32**)	Lead 7 Prefix 32 Fleet 2 Radio unit number 235 **#**
Call to radio **236** in fleet **2** with the same lead and prefix[1]	Fleet 2 Radio unit number 236 **#**
Small fleet:	
Call to radio **23** in fleet **51** with the same prefix as you	Lead 7 Fleet 51 Radio unit number 23 **#**
Call to radio **24** in fleet **52** with a different prefix to you (**126**)	Lead 7 Prefix 126 Fleet 52 Radio unit number 24 **#**
Call to radio **25** in fleet **53** with the same lead and prefix[1]	Fleet 53 Radio unit number 25 **#**
Mini fleet:	
Call to radio **23** in fleet **80** with the same prefix as you	Lead 7, 8 or 9 Fleet 80 Radio unit number 23 **#**
Call to radio **24** in fleet **81** with a different prefix to you (**3**)	Lead 7, 8 or 9 Prefix 3 Fleet 81 Radio unit number 24 **#**
Call to radio **25** in fleet **81** with the same lead and prefix[1]	Fleet 81 Radio unit number 25 **#**

1. If 4-digit-dialing is configured in the programming application.

DRAFT 4

Accessing common trunking functions

The following tables explain how you can access special MPT or DMR trunking functions using the * and **#** keys. The availability of these functions is dependant on the way your radio is programmed and the way your network operates.

In the following examples, the final **#** may be replaced by a short press of the PTT key.

***... # functions**

Dialing code	Functions	Example
#	Accept an incoming FOACSU call	
***#**	Clear call or displayed item, or decline an incoming FOACSU call	
***0#** **#0#**	Request base dispatcher to call you back Cancel request	
***0*n#** **#0*n#**	Request another dispatcher to call you back Cancel request	***0*234#** **#0*234#**
***0s*n#** ***0s#**	Status call to radio **n** (**s** = status 0 to 31, MPT, or 0 to 127, DMR) Status call to dispatcher	***015*23#** ***015#**
g#	Conference call to group **g**	**92#**
***11*g#**	Broadcast call to group **g**	***11*92#**
***41*n#** **#41#**	Divert own calls to radio **n** Cancel divert	***41*23#**
***41*0n#** **#41#**	Divert own calls to PSTN **n** Cancel divert	***41*03456798#**
***44*n*m#** [1] **44*n#** [1]	Divert 3rd party calls **n** to **m** Cancel divert of 3rd party calls	***44*23*21#** **#44*23#**
***441*m#** **#441#**	Divert of speech calls to **m** Cancel divert of speech calls	***441*21#** **#441#**
***442*m#** **#442#**	Divert of packet data calls to **m** Cancel divert of packet data calls	***441*21#** **#441#**
***451#**	Cancel incoming call diversions (speech only)	
***452#**	Cancel incoming call diversions (packet data only)	
***453#** [2]	Cancel incoming call diversions (SDM only)	
***454#** [2]	Cancel incoming call diversions (status only)	
***48#** **#48#**	Queue incoming calls Cancel queue	

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***... # functions**

Dialing code	Functions	Example
***49#**	Do not disturb	
#49#	Cancel do not disturb	
***491#**	DMR: Do not disturb (SDM calls) MPT: Do not disturb (voice calls only)	
#491#	DMR: Cancel do not disturb (SDM calls) MPT: Cancel do not disturb (voice calls only)	
***492#**	Do not disturb—data calls only	
#492#	Cancel do not disturb—data calls only	
***50*n#**	Select channel **n** (site-select diagnostic function, enabled during programming)	
#50#	Resume normal channel hunting (site-select diagnostic function, enabled during programming)	
***700#**	Display the current network and your full radio number	
***70n#**	Change to network **n** (1 to 4)	***702#**
***8*n#** [3]	Priority call (highest) to radio **n**	***8*23#**
***8*g#** [3]	Priority conference call (highest) to group **g**	***8*923#**
***81*n#** [3]	Priority call (highest) to radio **n**	***81*23#**
***81*g#** [3]	Priority conference call (highest) to group **g**	***81*923#**
***82*n#** [3]	Priority call (high) to radio **n**	***82*23#**
***82*g#** [3]	Priority conference call (high) to group **g**	***82*923#**
***83*n#** [3]	Priority call (medium) to radio **n**	***83*23#**
***83*g#** [3]	Priority conference call (medium) to group **g**	***83*923#**
***9*n#**	Emergency call to radio **n**	***9*23#**
***9*g#**	Emergency conference call to group **g**	***9*923#**
****n#**	Abbreviated dialed codes (1-49) (MPT only)	****3#**

1. MPT only.
2. DMR only.
3. DMR has three priority levels and MPT has one priority level.
   *8 and *81 are interchangeable. Dialing *82 or *83 in MPT mode has the same effect as dialing *8 or *81.

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8 GPS location services

This section explains how to use the GPS location services that may be available on your radio.

This feature is controlled by a software license (SFE) and may not be available with your radio.

This section covers:

- About GPS location information
- About GPS status information
- Viewing GPS information

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About GPS location information

If the built-in GPS is enabled or your radio is connected to an external GPS receiver, you can view GPS location information such as latitude and longitude, true course, speed, and coordinated universal time. Your radio can also display universal transverse mercator (UTM) information such as the UTM zone, and northing and easting coordinates.

Your radio may also be set up to send GPS information.

About GPS status information

In the GPS Info menu, GPS status information appears at the top right of the display.

The following GPS status information appears at the top right of the display.

- **tracking**: the GPS receiver is displaying up-to-date satellite information.
- **stored**: the GPS receiver is having trouble connecting to satellites and the radio is displaying stored information that may not be current.
- **lost cnx**: the radio has lost serial communications with the GPS receiver.

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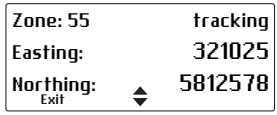
Viewing GPS information

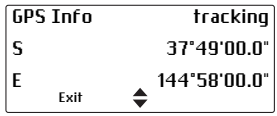
1 Press **Menu** and select **Location Svs** > **GPS Info**.

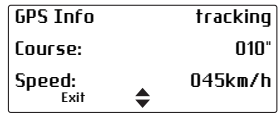
(Depending on how your radio is programmed, you may be able to press a function key to access the GPS Info menu.)

GPS information is now shown on the display, if it is available.

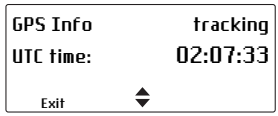


2 Use the scroll keys to view more GPS information.





3 Press **Exit** to exit the GPS display.



In certain situations, your radio may automatically exit the GPS display.

9 Loneworker monitoring

Loneworker monitoring is a safety feature for people who work alone. Loneworker monitoring may be programmed to be on or off at all times, or can be switched on and off by the user using a programmed function key or the menu.

A loneworker alarm is activated if for a predetermined period of time:

- the radio has been tilted by more than 60 degrees (man down)
- the radio has not moved
- there has been no user activity

Your radio may be programmed to respond to a combination of these events.

When the predetermined time has expired, an audible warning is given and you have a predetermined time to respond to the loneworker situation.

If you are unable to respond, the radio either enters emergency mode or (in trunked mode) sends a status update to a predetermined person or talkgroup.

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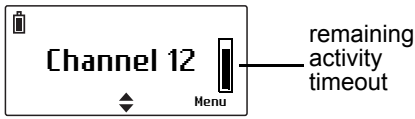
Activating loneworker monitoring

1 Press **Menu** and select **Radio Settings** > **Extra features** > **Loneworker**. (Depending on how your radio is programmed, you may be able to press a function key to turn loneworker monitoring on and off.)

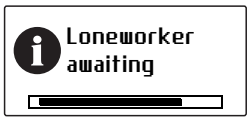
2 In the Loneworker menu, choose **On**.

A vertical scroll bar on the right-hand side of the display indicates the remaining activity timeout.



Responding to a loneworker alarm

If you hear a beep to indicate that the radio is expecting a response from you to acknowledge that you are safe. The message “Loneworker awaiting” and a horizontal scroll bar appear indicating the remaining time until an emergency action is triggered.



- Press any key.
- If using the man down feature, restore the radio to an upright position.

Otherwise the radio will activate emergency mode or (in trunked mode) send a status update.

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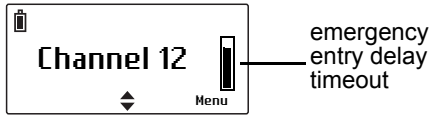
Delaying the emergency action (conventional mode only)

In conventional mode, an additional emergency entry delay may be programmed which allows you to press a scroll key within a programmed time (usually 10 seconds) after the response time expires to delay the emergency action.



You now have the opportunity to turn the radio off and one to cancel the loneworker alarm.

The emergency action can be delayed only once.

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10 Encryption

This section describes how to use encryption to make your communications completely private.

This feature is controlled by a software license (SFE) and may not be available with your radio.

This section covers:

- About encryption
- Encrypting calls
- Making an encrypted call
- Receiving an encrypted call
- Removing encryption keys from the radio

About encryption

The encryption feature is available for digital and dual-mode networks only.

To make communications with other users on your system completely private, your radio may be able to encrypt outgoing calls, using a confidential encryption key. The radio receiving your call must have the same encryption key installed before it can hear your encrypted call.

Encrypting calls

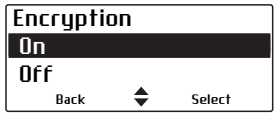
Your radio may be able to turn encryption on and off. While encryption is on, your outgoing calls are encrypted on networks programmed for encryption, and the encryption icon remains in the display.

This setting only affects outgoing calls. Incoming calls will still be decoded by your radio so long as the key required to decode the call is stored in your radio.

To turn encryption on or off:

1 Press **Menu** and select **Security** > **Encryption**. (Depending on how your radio is programmed, you may be able to press a function key to turn encryption on and off.)

2 Scroll to **On** (or **Off**) and press **Select**.



The message **Encryption activated** (or **deactivated**) appears in the display.

If you attempt to transmit with encryption turned on but don't have any keys loaded, the message **Key fail** appears.

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Making an encrypted call

1 Select the network you wish to operate on.

2 Check that encryption is on (is showing in the display).

3 Press and hold the PTT key to transmit.

While you are transmitting, the LED glows red and appears in the display.

If you transmit or receive an unencrypted call on an encrypted network, the disappears and your radio may be programmed to issue an audible alert.

Receiving an encrypted call

When you receive an encrypted call, your radio unmutes and you can hear clear speech, so long as the key required to decode the call is stored in your radio.

If the key required to decode the call is not stored in your radio, then your radio remains muted and the message **Key fail** appears.

If you transmit or receive an unencrypted call on an encrypted network, the disappears and your radio may be programmed to issue an audible alert.

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Removing encryption keys from the radio

It may be possible for you to delete encryption keys from your radio.

Warning When emergency mode is activated, or when your radio is immobilized (‘inhibited’), your encryption keys may be automatically deleted from your radio.

If you attempt to transmit with encryption turned on but don’t have any keys loaded, the message **Key fail** appears.

Deleting an encryption key

1 Press **Menu** and select **Security** > **Zeroize key**.

2 Scroll to the key you want and press **Select**.

The message **Single key zeroized** briefly appears in the display.

Deleting all encryption keys

1 Press **Menu** and select **Security** > **Zeroize all**.

The message **Zeroize all keys?** appears in the display.

2 Press **OK** and the message **All keys zeroized** briefly appears in the display and no longer appears.

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11 Customizing radio settings

This section describes the ways in which you can customize your radio.

These features are common to radios operating in either trunked or conventional mode.

This section covers:

- Changing the volume of all audible indicators
- Changing the volume of keypress tones
- Changing to quiet operation
- Changing to silent operation
- Turning on backlighting
- Adjusting the display contrast

Changing the volume of all audible indicators

You can set the volume of all the audible indicators to either high or low. Audible tones include incoming call tones, warning tones and confirmation tones.

To change the volume of your radio's audible tones:

1 Press **Menu** and select **Radio settings** > **Alert settings** > **Indicator level**.

(Depending on how your radio is programmed, you may be able to press a function key to change the level of indicators.)

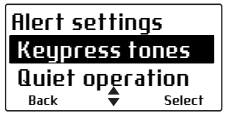
2 Scroll to **High** (or **Low**) and press **Select**.

Changing the volume of keypress tones

Whenever you press the radio keys, the keypress tones give you an audible indication as to whether or not your action is allowed. A short, medium-pitched beep indicates that an action is allowed. A long, low-pitched beep indicates that the action is not allowed.

To change the volume of your radio's keypress tones:

1 Press **Menu** and select **Radio settings**> **Alert settings** > **Keypress tones**.



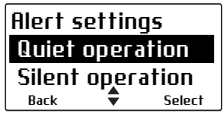
2 Scroll to either **Off**, **Low** or **High** and press **Select**.

Changing to quiet operation

When quiet operation is on, keypress tones and confirmation tones are turned off. Incoming call tones, signaling tones and warning tones all remain audible.

To turn quiet operation on or off:

1 Press **Menu** and select **Radio settings** > **Alert settings** > **Quiet operation**.



(Depending on how your radio is programmed, you may be able to press a function key to toggle quiet operation on and off.)

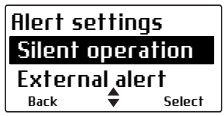
2 Scroll to **On** (or **Off**) and press **Select**.

Changing to silent operation

When silent operation is on, all the radio's audible tones are turned off, and only channel traffic can be heard.

To turn silent operation on or off:

1 Press **Menu** and select **Radio settings** > **Alert settings** > **Silent operation**.



2 In the Silent Operation menu, scroll to either **On** or **Off** and press **Select**.

(Depending on how your radio is programmed, you may be able to press a function key to toggle silent operation on and off.)

While silent operation in on, the icon appears in the display.

Turning on backlighting

Whenever a key is pressed or a call is received, the keypad and display light up automatically. Backlighting only remains on for a few seconds, unless there is further radio activity. When backlighting is turned on, it remains on until the setting is changed to **Off**, regardless of radio activity.

To turn backlighting on or off:

1 Press **Menu** and select **Radio settings** > **Display settings** > **Backlighting**.

(Depending on how your radio is programmed, you may be able to press a function key to toggle backlighting on and off.)

2 Scroll to either **On** or **Off** and press **Select.**

Turning backlighting on momentarily

You may be able to use a programmed function key to turn backlighting on momentarily.

- Press the assigned function key to turn backlighting on. Backlighting remains on for a few seconds, and then turns off.

Alternatively, the function key may be programmed so that:

- a short key press turns backlighting on momentarily, and
- a long key press turns backlighting on, and it remains on until there is a further long key press.

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Adjusting the display contrast

To change the contrast of your radio display to suit the lighting conditions that you are working in:

1 Press **Menu** and select **Radio settings** > **Display settings** > **Contrast adjust**.

2 Use the scroll keys to adjust the display contrast to the level you want.

3 Press **Save** to save this setting.

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12 Charging and caring for batteries

This section describes how to charge your Tait radio battery as well as care for it, to ensure safe operation, maximum performance and prolonged battery life.

This section covers:

- About the chargers
- Special conditions when using IS radios
- Before using the charger
- Charging the battery
- Maintaining battery life and performance
- Storing batteries
- Disposing of batteries

DRAFT 4

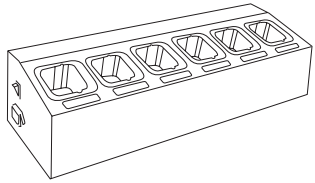
About the chargers

Unless otherwise indicated, the charging advice and instructions in this chapter apply to all chargers.

There are three types of charger available for your Tait radio battery:

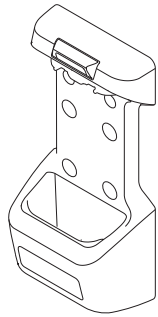
- Desktop charger: Small enough to fit on a desk, it charges one battery at a time.

- Multicharger: Charges up to six batteries. It can be mounted on a desk, on a wall, or in an equipment rack.



Warning The multi-charger must be connected to an earthed mains socket-outlet.

- Vehicle charger: Charges one battery at a time while installed in a vehicle.



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Special conditions when using IS radios

Warning Use only a Tait-supplied, IS-approved battery with an IS radio. Fitting a battery that is not IS-approved exposes the customer to a risk of explosion which could cause serious injury or death. Do not charge the battery in a hazardous location. An explosion could cause serious injury or death. For detailed information about IS radios and how to identify them, see "Intrinsically Safe radios" on page 15.

Before using the charger

Warning Do not use the charger in a hazardous location. An explosion could cause serious injury or death.

Notice Turn the radio off before removing the battery, and turn it on again after attaching the battery. This ensures that the radio powers down and up correctly. Failing to follow this procedure may require the radio to be turned off then on again to operate correctly.

Handle the battery safely

Warning Handle the battery safely. Failure to observe the following handling recommendations could result in personal injury and/or equipment damage.

- Before using a Li-ion battery, please read the Li-ion Battery Safety Information (MPC-00006-xx) included with your battery, and follow the instructions it provides. Incorrect use of a Li-ion battery can cause explosion or fire.
- Do not short-circuit the battery contacts, neither intentionally nor accidentally, e.g. by placing the battery with conductive materials such as keys or jewelry inside a pocket or container. Short-circuit-

ing the battery contacts can heat up the conductive material.

Attaching of labels

Warning Do not obstruct the vent hole on the battery or the vent hole on the radio chassis label. If the vent on the battery is obstructed the battery may explode, causing personal injury and/ or damage to property. If the vent on the radio is obstructed, audio quality and/or key function may deteriorate and radio seals may be damaged.

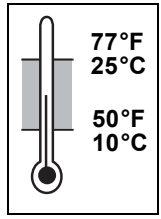
For detailed information about attaching labels safely, see "Attaching labels to the radio or battery" on page 26.

Charging temperatures

Notice Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the usable life (‘service life’) of the battery.

To achieve the best results when charging your battery:

- Before you begin to charge your battery, make sure that the battery temperature is close to the room temperature in which the battery is to be charged.
- If possible, charge the battery in temperatures between 50 °F and 77 °F (between 10 °C and 25 °C). This temperature range is the optimal charging range.



Charging only starts when the battery is between 32 °F to 104 °F (0 °C to 40 °C).

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Temperature indications

○○● When the battery temperature is outside the normal charging range, the orange LED on the charger is lit. Charging will start or resume once the temperature is within normal limits, and no action is required by you.

Leaving the battery on charge

You can leave a battery/radio in the charger once charging is complete. Leaving a battery in the charger will not overcharge or damage it.

You can remove a battery/radio from the charger at any time without harming the battery, the radio, or the charger. When you return the battery/radio to the charger, charging is automatically resumed.

Vehicle charger only

It is safe to switch off the ignition while there is still a battery in the charger. However, if the vehicle will not be used again for some time, check whether charging will continue while the ignition is off, and consider what effect this might have on the vehicle battery.

To check, place the battery in the charger, and switch off the vehicle ignition:

- If no charger LED stays lit, the charger will resume charging only when the ignition is switched on again. Minimal charger standby power will be drawn from the vehicle battery until then.
- If a charger LED stays lit, the charger will continue to charge the radio battery even while the ignition is off, and will continue to draw power from the vehicle battery. Once the battery is charged, the charger draws minimal current and has little effect on a healthy vehicle battery.

Receiving calls while charging

ⓘ Applies to desktop charger and multicharger only.

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Notice For best charging performance, switch off the radio before placing it in the charger.

You can receive a call while the radio is in the charger, but your radio performance may be degraded. If you do remove the radio from the charger to answer a call, the call will not be disrupted.

Removing the radio from the charger to make or receive a call ends the charging process. Charging safely recommences when the radio is reinserted into the charger.

If a radio was turned on while being charged, the battery indicator may not be accurate when the radio is initially removed from the charger. After a few seconds, the battery indicator is updated to display the amount of charge available in the battery.

Low battery warning

Notice Do not allow a radio battery to fully discharge every time you use it, or you will shorten the service life of the battery.

When the battery is low, your radio warns you in the following ways:

- The battery icon ▯ on the radio display looks empty.
- The status LED on the radio slowly flashes red.
- A high-pitched beep sounds.

You should recharge or replace the battery as soon as possible. When the battery is completely empty, the message **Battery is flat** appears on the display. The radio emits a long, low-pitched beep and then stops working. Turn off the radio immediately.

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Charging the battery

Fully charge a battery before using it for the first time. This will take up to 2.5 hours.

○●○ The red LED stays lit while the battery charges.

To charge the battery:

1 Desktop charger: Connect the charger to the correct Tait power adaptor.

Multicharger and vehicle charger: Power on the charger.

●●● Initially, all three LEDs are lit for two seconds.

2 Place just a battery in the charger, or a radio with a battery attached (desktop charger or multicharger only). There is no need to remove a belt clip, antenna, or any accessory that is attached to the accessory connector.

○●○ The red LED lights up, and stays lit while the battery charges. For a battery that is almost completely discharged, allow two hours.

●○○ When charging is complete, the green LED stays lit.

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LED behavior

If there is a battery in the charger when power is supplied to the charger, the LEDs behave as follows:

LED	Meaning
●●● briefly	The charger has been connected to a power supply.
○●○ steady	The battery is charging.
●○○ steady	Charging complete. Remove the battery, or leave it in the charger.
○○● steady	■ The battery temperature is outside the normal charging range. Charging will start or resume once the temperature is within normal limits. No action is required. ■ There is a fault. Contact your local regional Tait office.
○○✳ or ○✹✳ flashing	If the LEDs for all charger slots continuously flash orange, or red then orange, the multicharger itself may be faulty (e.g. the fan may be jammed or faulty). Consult your radio provider for advice.
○○○ all off	There is a fault. Contact your local regional Tait office.

If the charger does not behave as expected:

- Make sure the radio or battery is seated properly in the charger.
- Check that the charger is properly plugged in.
- Check that the battery and charger contacts are clean. To clean, wipe the contacts with a dry lint-free cloth to remove any dirt, oil or grease.

DRAFT 4

Removing the battery from the charger

- Desktop charger and multicharger: Lift the battery/radio out of the charger.
- Vehicle charger: Pull the release bar up, and then lift out the battery.

You can remove a battery/radio from the charger at any time without harming the battery, the radio, or the charger. When you return the battery/radio to the charger, charging is automatically resumed. You can also leave a battery/radio in the charger once charging is complete.

Maintaining battery life and performance

With proper care and maintenance you will maintain the performance and life of the battery. It is recommended that you:

- Use only Tait batteries and chargers.
- Do not expose a battery to very high or very low temperatures for extended periods of time. Doing so will shorten the service life of the battery.

  Very high: above 140°F (60°C)
  Very low: less than –4°F (–20°C)

Warning The operating temperature range for IS radios in hazardous locations is –4°F to +104°F (–20°C to +40°C).

- Charge the battery at a room temperature of between 50°F and 77°F (between 10°C and 25°C). This temperature range is the optimal charging range.
- Store batteries properly when not in use. See "Storing batteries" on page 131.

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Cleaning the contacts of the battery

Notice Do not scratch or scrape the contacts of the battery. If necessary, wipe the contacts of the battery with a dry, lint-free cloth to remove any dirt, oil or grease.

Storing batteries

When not in use for a month or more, batteries should be stored correctly to prolong their life.

- Remove the battery from the radio before storage.
- Fully charge the battery if storing for less than one month.
- Charge the battery to about 30% if storing for longer than one month.
- Store the battery in a cool dry place.

Using batteries after storage

Batteries that have been stored for any length of time must be charged before being used. See "Charging the battery" on page 128.

Disposing of batteries

Run the battery flat before disposing of it. When disposing of the battery, be sure to do so in an environmentally sensitive manner. Please contact your radio provider for information on recycling programs in your area. See "Environmental responsibilities" on page 7 for more information.

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13 Troubleshooting

This section describes troubleshooting procedures, and basic maintenance.

This section covers:

- About troubleshooting
- When your radio won't turn on
- Identifying the radio's audible tones
- Viewing radio information
- General care

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About troubleshooting

If you are experiencing difficulty operating your radio, you may find the following sections helpful. Consult your radio provider for assistance, if necessary.

When your radio won't turn on

If the LED on your radio does not glow red when the radio is turned on, it is probable that power is not reaching the radio. Check the following:

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

If all appears to be in order, but your radio still fails to operate properly, contact your radio provider for further assistance.

Identifying the radio's audible tones

The radio's audible tones can help you identify a potential problem:

Audible tone	Meaning
One short, high-pitched beep	The radio has been made inoperable ('stunned' or 'inhibited') by your service provider.
Two short beeps	The radio has been made operable ('revived' or 'uninhibited') by your service provider.
Two low-pitched beeps	The radio's temperature is high. (The radio will continue to operate.)

Audible tone	Meaning
Two high-pitched beeps	The radio's temperature is in the very high range; all calls will now be at low power. If the radio's temperature rises above this range, calls will be inhibited. Turn off the radio and allow it to cool down.
Continuous low-pitched tone	Radio system error: a system error has occurred and the radio may be inoperable. Contact your radio provider.

Viewing radio information

Your radio provider may ask you for the hardware and firmware version of your radio, for troubleshooting purposes.

Use the Radio info menu to view information such as the hardware and firmware version of your radio, function key settings, the radio serial number, and various radio identities.

1 Press **Menu** and select **Radio settings** > **Radio info**.

2 Scroll to the radio information you want to view and press **Select**.

Checking the version of your radio using the PTT key

1 Turn off the radio.

2 Hold down the PTT key and turn on the radio.

The firmware and hardware versions, and your radio's frequency band is briefly displayed.

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General care

Your radio 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.

Notice To prevent permanent damage to the radio case, do not allow the radio to come into contact with detergents, alcohol, aerosol sprays, or petroleum-based products.

For general battery care, see "Maintaining battery life and performance".

Cleaning the contacts of the battery

Notice Do not scratch or scrape the contacts of the battery. If necessary, wipe the contacts of the battery with a dry, lint-free cloth to remove any dirt, oil or grease.

Cleaning the radio

If you need to clean the radio case, use a cloth dampened with clean water.

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Directive 1999/5/CE Declaration of Conformity

da Dansk
Undertegnede Tait Limited erklærer herved, at følgende udstyr TPDB1A, TPDH5A & TPDH7A overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Se endvidere: www.taitradio.com/eudoc/

de Deutsch
Hiermit erklärt Tait Limited die Übereinstimmung der Geräte TPDB1A, TPDH5A & TPDH7A mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.
Siehe auch: www.taitradio.com/eudoc/

el Ελληνικά
Η Tait Limited δηλώνει ότι το TPDB1A, TPDH5A & TPDH7A συμμορφώνεται προς τις ουσιώδεις απαιτήσεις και τις λοιπές σχετικές διατάξεις της Οδηγίας 1999/5/ΕΚ.
Βλέπε επίσης: www.taitradio.com/eudoc/

en English
Tait Limited declares that this TPDB1A, TPDH5A & TPDH7A complies with the essential requirements and other relevant provisions of Directive 1999/5/EC.
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es Español
Por medio de la presente Tait Limited declara que las radios TPDB1A, TPDH5A & TPDH7A cumplen con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE. Véase también: www.taitradio.com/eudoc/

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Voir aussi: www.taitradio.com/eudoc/

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Vedi anche: www.taitradio.com/eudoc/

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Zie ook: www.taitradio.com/eudoc/

pt Português
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Veja também: www.taitradio.com/eudoc/

sv Svensk
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