

TAIT ELECTRONICS LIMITED

Software licence agreement

This legal document is an Agreement between you, (the "Licencee") and Tait Electronics Limited ("Tait"). By opening this product package and/or using the product you agree to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, do not open the product package and immediately return the unopened product package to Tait. If you open the product package that will be deemed to be acceptance of the terms of this licence agreement.

Licence

In consideration of the payment of the Licence Fee which forms part of the price you paid for products you acquired from Tait or its subsidiary or agent (the "products") and our willingness to be bound by the terms of this agreement, Tait grants to you as Licencee the non-exclusive right to use the copy of a Tait software program included in the products, (the "Software").

In particular the Licencee may use the program on a single machine and if the software is supplied on a diskette, the licensee may:

- (a) Copy the program into any machine readable or printed form for backup purposes in support of your use of the program on the single machine (Certain programs, however, may include mechanisms to limit or inhibit copying. They are marked "copy protected"), provided the copyright notice must be reproduced and included on any such copy of the Software.
- (b) Merge it into another program for your use on the single machine. (Any portion of this program merged into another program will continue to be subject to the terms and conditions of this Agreement.);

The Licencee may not duplicate, modify, reverse compile or reverse assemble the Software in whole or part.

Title to software

This agreement does not constitute a contract of sale in relation to the Software supplied to the Licencee. Notwithstanding the Licencee may own the magnetic or other physical media on which the Software was originally supplied, or has subsequently been recorded or fixed, it is a fundamental term of this Agreement that at all times title and ownership of the Software, whether on the original media or otherwise, shall remain vested in Tait or third parties who have granted licences to Tait.

Term and termination

This Licence shall be effective until terminated in accordance with the provisions of this Agreement. The Licencee may terminate this Licence at any time by destroying all copies of the Software and associated written materials. This Licence will be terminated automatically and without notice from Tait in the event that the Licencee fails to comply with any term or condition of this Agreement. The Licencee agrees to destroy all copies of the Software and associated written materials in the event of such termination.

Limited warranty

The Software is supplied by Tait and accepted by the Licencee "as is" without warranty of any kind either expressed or implied, including but not being limited to any implied warranties as to merchantability or fitness for any particular purpose. The entire risk as to the quality and performance of the Software vests in the Licencee. Should the Software prove to be defective, the Licencee (and not Licensor or any subsidiary or agent of the Licensor) shall assume the entire cost of all necessary servicing, repair or correction. Tait does not warrant that the functions contained in the Software will meet the Licencee's requirements or that the operation of the Software will be uninterrupted or error free. However Tait warrants that the diskettes if any on which the Software is supplied to the Licencee shall be free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of delivery to the Licencee.

Exclusion of liability

Tait's entire liability and the Licencee's exclusive remedy shall be:

1. The replacement of any diskette not meeting Tait "limited warranty" and which is returned to Tait or an authorised agent or subsidiary of Tait with a copy of the Licencee's purchase receipt; or
2. If a diskette is supplied and if Tait is unable to deliver a replacement diskette which is free from defects in material or workmanship, the Licencee may terminate this Agreement by returning the Software to Tait.
3. In no circumstances shall Tait be under any liability to the Licencee, or any other person whatsoever, for any direct or consequential damage arising out of or in connection with any use or inability of using the Software.
4. Tait warrants the operation of the Software only with the operating system for which it was designed. Use of the Software with an operating system other than that for which it was designed may not be supported by Tait, unless otherwise expressly agreed by Tait.

General

The Licencee confirms that it shall comply with the provisions of law in relation to the Software.

Law and jurisdiction

This Agreement shall be subject to and construed in accordance with New Zealand law and disputes between the parties concerning the provisions hereof shall be determined by the New Zealand Courts of Law. Provided however Tait may at its election bring proceedings for breach of the terms hereof or for the enforcement of any judgement in relation to a breach of the terms hereof in any jurisdiction Tait considers fit for the purpose of ensuring compliance with the terms hereof or obtaining relief for breach of the terms hereof.

No Dealings

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

No Other Terms

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

Contents

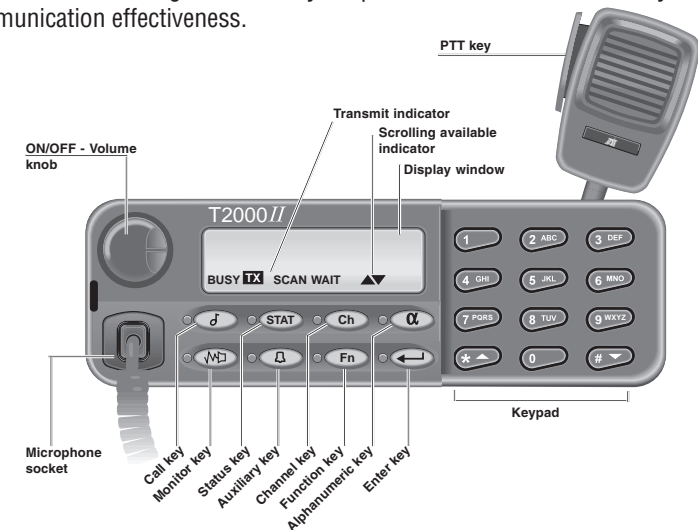
Introduction	5
Safety Warnings	5
Basic Operations	6
Key functions	6
Indicators And Display Functions	7
Display Window	8
Display Window Indicators	9
Standard Operations	9
Switching the Radio On and Off	9
Switching the Radio On	9
Switching the Radio Off	9
Selecting a Channel or a Group	9
Selecting a Channel	9
Selecting a Group	10
Receiving a Call	10
Monitor Key	10
Making a Call	11
Transmit Timer	12
Economy Mode	12
Scanning Channels	12
To Activate Scanning	12
To Stop Scanning	13
Making a Call	13
Using Selcall (Selcall Option Fitted)	14
Making a Selcall Call	13
Group Calls	15
Receiving a Selcall Call	16
Advanced User Operations	18
Alphanumeric Entry Mode	18
Repeater Talkaround	19
Sending DTMF Tones (DTMF Option Fitted)	20
User Programmable Scan	21
Call Queuing (Selcall Option Fitted)	22
Call Queue Not Empty	22
Accessing the Call Queue	22
Exiting the Call Queue	23
Queuing Calls	23
Call Queue Full	23

Contents (continued)

Changing the Selcall Status Code (Selcall Option Fitted)	24
Diverting a Received Call (Selcall Option Fitted)	24
Activating Call Diversion Mode	24
Exiting Call Diversion Mode	25
Receiving a Call During Call Diversion	25
Making a Call to a Radio in Diversion Mode	26
Emergency Operation (Selcall Option Fitted)	26
Other Selcall Features	26
Altering User Options	27
Optional Accessories for the T2020II Radio	29
Appendix	30
Maintenance of your T2020II	30
Troubleshooting	30
Despatcher Operation	30

Introduction

The Tait T2020II radio is a state-of-the-art mobile radio that provides outstanding communication flexibility and a wide range of innovative features. The T2020II is microprocessor controlled so that it can be configured to suit your personal needs and those of your fleet, for greater communication effectiveness.



T2020II Control Head

Safety Warnings



Do not allow any part of your body to come within 20cm of the antenna for more than a few minutes while the radio is transmitting, unless there is an intervening metal screen.



Switch the radio off at petrol filling stations.



Switch the radio off in the vicinity of explosive devices (such as in a quarry that uses blasting techniques).















Use of a handheld microphone or a radio while in the act of driving could contravene the legislation that applies in your country or state. Please check the vehicle regulations in your own country.

Basic Operations

















The T2020*II* control head includes the following keys and indicators:

Key Functions

The keypad functions are as follows:

	Call	Used to activate the Selcall function, to enable you to make calls to other users.
	Status	Used to select preprogrammed status messages to indicate your own present status (such as “EN ROUTE” or “AT LUNCH”).
	Channel	Used to select a channel, a scan group, a number or a label associated with the channel name, and to access the Repeater Talkaround option.
	Alphanumeric	Used to turn on Alphanumeric mode.
	Monitor	Used to access to the signalling mute and RF squelch control of your receiver.
	Auxiliary	Used to control an auxiliary hardware option.
	Function	Used to customise the operation of your radio to suit your own requirements.
	Enter	Used to complete dialling entries. (Used for channel entry, Selcall calls, DTMF dialling, alphanumeric entry and option selections.)
0 to 9		Used for dialling numbers when the indicator beside the Alphanumeric () key is <i>not</i> illuminated.
[ABC] to [WXYZ]		Used for entering letters when the indicator beside the Alphanumeric () key is illuminated.
	Star/Up	If the “▲▼” indicator is displayed in the display window, these keys are used to scroll up and down through a list of choices.
	Hash/Down	If the “▲▼” indicator is not displayed in the display window, they act as dialling keys for Selcall and DTMF dialling.

Indicators and Display Functions

	Indicates that your radio has received a Selcall call. If the indicator is flashing, your radio received a call which you were unable to answer. Your radio may be programmed to display your caller's identity.
	Indicates that your radio is ready for you to select a status code relating to your current activity. You may use the Up and Down () scroll keys to choose a status code or description from a list.
	Indicates that your radio is ready for you to enter information to enable it to select a new channel. You may use the Up and Down () scroll keys to choose from a list, the Alphanumeric () key to enter a label, or the number keys. If the indicator is flashing, the current channel is in Repeater Talkaround mode.
	Indicates that you can enter information, such as a channel label, from the keypad, using letters or numbers.
	If this indicator is on continuously, the signalling mute (if active) is open. This may be because either the microphone is off-hook, or you have pressed the Monitor () key. If the indicator is continually flashing, the Monitor key has been pressed for long enough to open the RF squelch. Note: When the radio is operating normally, this indicator is off.
	Indicates the state of the auxiliary options switch. Depending upon the programmed configuration of the auxiliary options switch, this indicator may be either on continuously or off continuously, or may only come on while the Auxiliary () key is pressed down.
	Indicates that you can change the user programmable options. The display window shows the option last viewed. You may use the Up and Down () scroll keys to move through the options, then select one with the Enter () key.
	Indicates you have pressed the Enter () key.
CALL, STATUS, CHANNEL, ALPHANUMERIC & FUNCTION indicators all off	When these indicators are all off, the radio is in DTMF mode. It can now transmit DTMF tones, entered via the keypad.


Display Window

The LCD display window provides you with direct visual access to information and messages about the status of your calls and your radio.



Display Window Indicators

BUSY

Busy - This appears whenever there is activity on your current channel. If the signalling mute on your radio is closed (see the  function), you may not hear the traffic until you lift your microphone off-hook.

TX

Transmit - Your radio is transmitting. This message is displayed when you press the **PTT** key. It should also come on briefly when your radio makes a Selcall or DTMF call.




SCAN

Scan - Your radio is sampling each of a group of channels for any activity. When it detects activity, it pauses on that channel for as long as the channel carries traffic and then resume scanning.

WAIT

Wait - The channel you are using is busy and your call has been deferred. The radio gives you an alerting signal to indicate that the channel is now free.



Scrolling available - You are now able to use the **Up** and **Down** (/) scroll keys to move through a list of choices. Having found an appropriate choice with the keys, push the **Enter** () key to select.


Standard Operations

Switching the Radio On and Off

Switching the Radio On

Switch the radio on by rotating the volume knob clockwise to about one third of its maximum setting. The control head display then shows a power-up message.

When first switched on, the radio resumes operation on the same channel as when it was last switched off.

Press and hold the **Monitor** () key until the indicator flashes. The radio then emits two short tones. Depress the key briefly to return the radio to the quiet state. The radio then emits a short tone.

You may need to finally set the volume level when you receive your first call.

Switching the Radio Off

Switch the radio off by rotating the volume knob anticlockwise, to its primary position.

The T2020II retains some settings that are used when it is switched on again.

Selecting a Channel or a Group





Selecting a Channel

When first switched on, the radio resumes operation on the same channel as when it was last switched off.

To check the current channel:

- Select Channel mode by pressing the **Channel** () key, and the current channel name appears in the display window.

To select a new channel:

- Press the **Up** and **Down** (/) scroll keys on the keypad to move through the list of the available channels, until the display shows the identity of the required channel, or
- Use the numeric keypad to enter a new channel number, then press the **Enter** () key, or
- Use the alphanumeric keypad to enter an alphanumeric label, then press the **Enter** () key to initiate the call.

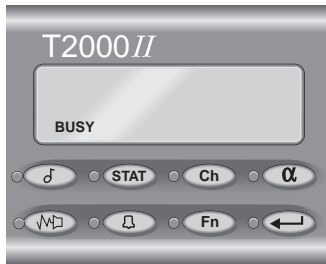
Selecting a Group

A group is simply a collection of channels grouped together for scanning or voting. Select a group the same way as a channel.

Receiving a Call

The T2020II remains muted until another user makes a call. Listen for your call-sign when you hear activity, and reply promptly by identifying yourself (for example “Mobile-9 receiving”).

The **BUSY** indicator in the display appears whenever there is any activity on the channel. Your radio may only unmute the speaker for some of this activity, depending on which signalling options are fitted to your radio. Consult your Tait dealer about the signalling options available.



Using the Monitor Key

The **Monitor** (🔊) key enables you to monitor a channel for other users, regardless of the muting controls programmed into your radio. There are three types of muting control which may screen your calls:

- RF squelch** Permits reception only if the radio's signals exceed a preset threshold. This ensures that only intelligible signals are audible.
- CTCSS or DCS mute** Permits reception only if a signal carries an inaudible tone or code specific to your fleet or group.
- Selcall mute** Permits reception only if the signal carries a special audible tone sequence at the beginning of the transmission.

Note: The RF Squelch is always programmed to operate in your radio, but the CTCSS, DCS or Selcall mutes are optional, depending on the way your radio is programmed.

The **Monitor** key may be programmed to override one or more of the mutes. Occasionally, you may find the message you are receiving is still intelligible, but is being cut off periodically by the RF squelch. In this case, you can force the radio to leave the RF squelch open continuously.

The most common configuration is as follows:

- Press the **Monitor** key briefly (less than one second) to override CTCSS/DCS or Selcall signalling mute. (If hookswitch monitoring is programmed, lifting the microphone off-hook has the same effect.)
- To also override the RF squelch, hold the **Monitor** key for more than one second, until the radio sounds two short tones, *beep beep*, and the **MONITOR** indicator flashes. Press again to restore.

Your T2020II may be fitted with the ability to hush (mute) another device, such as a car stereo, so that your speech is clearly audible to other users when you transmit a call. Consult your Tait dealer to see if this facility is active on your radio.

Making a Call

Select the desired channel, as previously described, for the party you wish to contact. If the **BUSY** indicator is on, the channel is busy and you must wait until it is free, before proceeding. If you attempt to transmit anyway, the **WAIT** indicator appears in the display, and your attempt is deferred. The radio sounds an alerting tone as soon as the channel becomes free.

- Lift the microphone off-hook and listen to check that no-one else is using the channel. You may also have to press the **Monitor** (🔊) key briefly, depending on the options fitted to your radio.
- Hold the microphone about 5cm from your mouth and press the **Press-To-Talk (PTT)** key, located on the side of the microphone (see Figure 1). Speak clearly into the microphone, identifying yourself by your call sign, and the person you wish to contact (for example - “Mobile-9 to Base”). Release the **PTT** key when you have finished talking (see Figure 2).

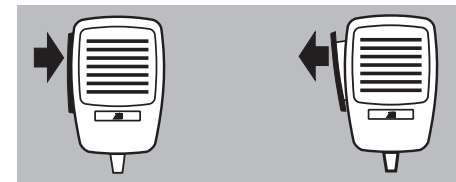


Figure 1

Figure 2

Transmit Timer

Your T2020// is fitted with a preprogrammed timer to limit the maximum length of transmissions. When the time limit is reached, the radio sounds a three tone warning, and transmission is terminated.

Economy Mode

The T2020// incorporates an Economy mode which conserves battery power by turning off some internal circuitry, and dimming the control head back-lighting. This occurs after a predetermined period of inactivity.

When Economy mode is active, the display backlighting dims or switches off.

Operating any of the control head controls, or the **PTT** key, restores the radio to full activity immediately.

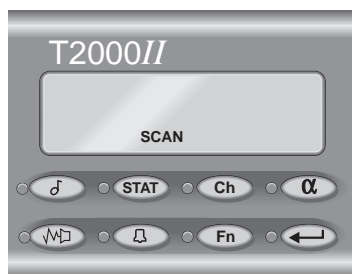
Scanning Channels

Your T2020// can be programmed with the scanning facility, which enables it to sequentially monitor a number of channels, pausing its search when it detects activity on a channel. To change the channels included in your scan group, refer to “User Programmable Scan”.

To Activate Scanning

Set the radio scanning through a list of preprogrammed channels, as follows:

- Ensure the microphone is placed on its hook. (Your radio may be programmed to scan whenever the microphone is off-hook. Consult your Tait dealer for more information on this feature.)
- Select the appropriate scan group in the same way as selecting a channel (see “Selecting a Channel”). The **SCAN** indicator appears in the display window, and scanning commences.



The T2020// now repeatedly scans through all programmed channels, searching for activity. When activity is detected on a channel, the scan is halted, and the display window shows the active channel's name. (If signalling options are active in the radio, only activity with valid signalling tones halts the scanning.) The radio pauses and unmutes on that channel, as long as the traffic remains, and the **SCAN** indicator flashes. Scanning resumes after a short delay, once the traffic disappears.

You may change channel if you wish, but this cancels Scan mode. Otherwise, converse in the normal manner and, when finished, place the microphone back on its hook to restart the scan.

To Stop Scanning

Scan mode is cancelled by selecting any non-scanning channel. The **SCAN** indicator then disappears from the display window.

Making a Call

If you wish to make a call when the radio is in Scan mode, you may lift the microphone off-hook at any time to suspend scanning. If the radio has halted scanning to monitor the traffic on a channel, it remains on that channel when you lift the microphone off-hook. If the radio has found no traffic (i.e. has not halted), it reverts to the preprogrammed home-channel.




Using Selcall (Selcall Option Fitted)

By using Selective Calling (Selcall), you can make calls to specific individuals or groups, on particular channels. To use Selcall, your T2020// must be fitted with a Selcall module, and each channel preprogrammed to provide its own Selcall identity.



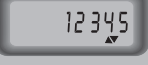



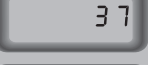

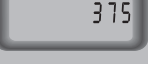

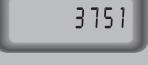

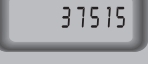

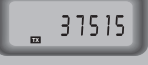






Making a Selcall Call

Call another party using Selcall, as follows:

1. Check that the radio is on the correct channel and that the channel is clear before attempting to make the call.
2. Select the appropriate channel for the party you wish to contact (see “Selecting a Channel”).
3. If your radio is programmed with the ability to make a ‘one touch’ call to one other user (usually your base or despatcher), press the **Call** (Ⓜ) key for about one second. The **TX** indicator appears in the display briefly, and your radio sounds a short *beep* as the call is transmitted.

4. If your radio is programmed with the ability to call other users with Selcall on your channel, press the **Call** () key briefly to activate Selcall mode. Use your keypad to enter the call code for the other user. Each digit appears in the display as it is entered. When you have entered all of the digits, press the **Enter** () key or the **Star** () key, to send the call.

Example: You wish to call another user on the current channel (REGION 2), with the number 37515. The sequence of keystrokes, and the corresponding display characters that appear, is as follows:

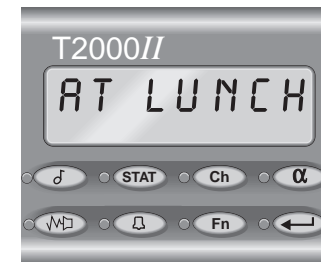
Press key	Characters displayed	Explanation
		Current channel
		Last number called
		1st digit of the new number
		2nd digit of the new number
		3rd digit of the new number
		4th digit of the new number
		5th digit of the new number
		Call placed
		
		
		
		
		
		

5. When the party you called replies, lift the microphone off-hook and press the **PTT** key to converse.

6. After the call is sent, you may hear an acknowledging tone, *beep*, or series of tones from the other user's radio, indicating that your call has been received. If you do not hear a tone, either the other user's radio is incapable of generating the acknowledging tone, or it is off, or they are out of range of your call.

Your T2020II may be programmed to display the status of the called unit, as follows:

Status displayed	Explanation
"-NO ACK-"	No acknowledge sequence was detected.
"NO STAT"	An acknowledge sequence was detected but no status information was decoded.
Status message	An acknowledge sequence was detected and the decoded status number can be identified.
Status number	An acknowledge sequence was detected and the decoded status number cannot be identified.



If any control head activity is detected before any of the above messages are displayed, the acknowledge sequence is no longer expected, and messages will therefore no longer be displayed.

Group Calls

If you wish to call a group of other users, you may do so by dialling the digits common to all members of the group and then using the # character as a substitute for all the remaining digits. If you are not sure whether this facility has been programmed into your radio, consult your Tait dealer.

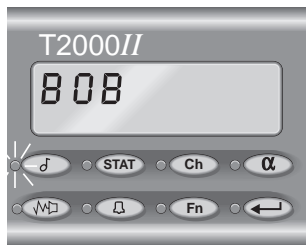
Example: You wish to call a group of users on the current channel (REGION2) with numbers which all begin with 37, and have three more digits. After you have selected channel REGION 2, the sequence of keystrokes, and the corresponding display characters that appear, is as follows:

Press key	Characters displayed	Explanation
	REGION2	Current channel
	12345	Last number called
	3	1st digit of the new number
	37	2nd digit of the new number
	37GGG	Group wild card character
	37GGG TX	Call placed to all 37??? users

When the group call has been sent, there is no acknowledging tone from any of the other users. Wait a few seconds after the **TX** indicator in the display window disappears and then broadcast your message. Phrase your message in such a way that it requires no acknowledgement, since the other users cannot all reply at once.


Receiving a Selcall Call

When you receive a Selcall call, the **CALL** indicator flashes and a ringing tone (similar to that of a telephone) sounds from the speaker.



Note: Your T2020II may be programmed to display the caller's identity when you receive a call. Consult your Tait dealer for more information on this feature.

- To answer the call, lift the microphone off-hook and identify yourself. As soon as you operate the **PTT** key, the ringing tone stops.
- If you do not answer the call within a short time, the ringing tone stops. The radio may then switch on another alerting device (e.g. the horn in your car) to attract your attention.

- Your T2020II may be programmed to queue incoming calls. If this feature is enabled, the caller's identity is put in the queue after the ringing stops. All other call indicators are cleared when the received call has been queued. (Refer to the section "Call Queuing" for more information.)
- If the call was not queued and you are still unable to answer the call, the radio indicates that a call was received in your absence by leaving the **CALL** indicator flashing.
- If you do not wish to answer a call, the ringing may be cancelled at any time by pressing any of the control head keys. (The function associated with the key you press will not be invoked.) Note that if the caller's identity was displayed and the call was still not answered, pressing the **Enter** () key clears the call and initiates an immediate call-back to the caller.
- If you are one of the recipients of a group call, your radio only sounds a single sequence of the ringing tone, *burr burr*. The caller then broadcasts a message to all members of your group.

Advanced User Operations

Most of the special features detailed below must be enabled during programming of the T2020 II. Consult your Tait dealer to find out which of these features have been enabled in your radio.

Alphanumeric Entry Mode

The T2020 II contains a number of memory locations which are able to be accessed with an alphanumeric entry or label, from the keypad. The alphanumeric label may be the same as a channel name or it may be a quite separate word, person's name or acronym which helps you find the appropriate memory location. Each location contains information which selects a channel scan group, makes a Selcall or DTMF call or selects a new Selcall status code.

Select a memory location by its alphanumeric label, as follows:

1. Press the **Alphanumeric** (α) key to enter Alphanumeric mode.
2. Locate the desired label by using the **Up** and **Down** (\blacktriangle / \blacktriangledown) keys to scroll through the list until the label is displayed. Alternatively, enter the label associated with the party you want, using the keypad.

A star appears in the display as you type each character, until you have entered enough for the radio to recognise the label. When it does, it displays the label in full. Pressing the **Enter** key causes any instructions (channel selection, send call, and so on) contained in the memory location to be carried out.

3. Press the **Channel** (Ch) key and the display changes from the label to the channel name. (The radio may be programmed to return to the channel name display after a short while, anyway.)

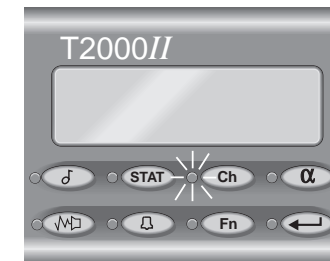
Example: You wish to call your BASE, which monitors a channel called REGION2 and has the Selcall code 24624. The sequence of keystrokes, and the corresponding display characters that appear, is as follows:

Press key	Characters displayed	Explanation
α	MARLEY6	Last label entered
\blacktriangledown	*	Unable to determine new label
2 ABC	**	Unable to determine new label
\blacktriangledown	BASE	New label identified
7 PCRS	24624	Channel REGION2 selected and Selcall code transmitted
\blacktriangle	REGION2	Channel for BASE displayed

Repeater Talkaround

Repeater Talkaround is a programmable option that allows your T2020 II to bypass the repeater, and transmit and receive calls directly on the repeater transmit frequency. This feature can be used, for example, when you are out of range of the repeater.

1. Press the **Channel** (Ch) key for longer than 1 second.



The **CHANNEL** indicator should now be flashing, indicating that the T2020 II is now in Repeater Talkaround mode.

2. Select the appropriate channel and proceed with your call in the usual manner.

Sending DTMF Tones (DTMF Option Fitted)

The keypad on the T2020// may also send Dual Tone Multiple Frequency (DTMF) tones (consult your Tait dealer to see if this option is fitted to your radio). This gives you the ability to dial telephone numbers, if your radio network has an interconnection to the Public Switched Telephone Network (PSTN), or to send tones as control codes to remote devices.

1. To enter DTMF mode, observe which of the mode key indicators is currently illuminated (i.e. Call, Status, Channel, Alphanumeric or Function) and push that key to deactivate the function. This leaves the radio in DTMF mode, with the last number dialled showing in the display window.
2. Press the **Enter** (↵) key and the radio redials the number in the display.
3. Dialling a new number may be done digit by digit or as a complete number, as follows:
 - To transmit the tone with each key-press (i.e. 'live'), press the **PTT** key on the microphone as you dial. (Your radio may be programmed so that you need only press the number key.) The **TX** indicator appears in the display as you dial.
 - To set up a complete sequence of digits, push each number key in turn without pressing the **PTT** key (although your radio may be programmed to transmit the tones live, anyway). Each number appears in the display.
 - When the sequence is complete, press the **Enter** key to transmit the digits. Even if the digits have been transmitted live, they are now retransmitted as a group.
In this mode, the transmission time of each digit is set by the radio, and is usually shorter and more efficient than sending the tones live.
4. Pressing any of the keys on the keypad causes the corresponding DTMF tone to sound, but this does not indicate whether or not the tone has actually been transmitted. Watch your radio's display to see if the **TX** indicator appears (without the **PTT** key pressed).
5. To access special DTMF tones A to D, your radio may be programmed to use the **PTT** key as a shift key, to alter the function of some of the keypad keys, as follows:

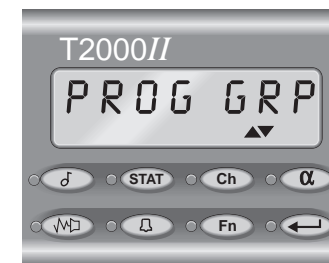
- PTT + **2** ABC gives DTMF tone A
- PTT + **5** JKL gives DTMF tone B
- PTT + **8** TUV gives DTMF tone C
- PTT + **0** gives DTMF tone D

User Programmable Scan

Depending on how your T2020// is programmed, you may be able to change the channels that are included in your scan group. Existing channels can be removed and new channels can be added, as required.

Edit the user programmable scan group, as follows:

1. Press the **Function** (Fn) key.
 2. Scroll through the items in the display window using the **Up** and **Down** (▲/▼) keys, until "PROG GRP" is displayed.
 3. Press the **Enter** (↵) key. The name of the group is displayed, and the top row of indicators is illuminated.
 4. Press the **Enter** key a second time to start the editing the group.
 5. Press the **Up** and **Down** keys to scroll through all the available channels. The **SCAN** indicator indicates those channels that are included in the user programmable scan group, and a flashing **SCAN** indicator indicates the home channel.
 6. To add or delete a channel from the scan group, select the required channel and then press the **Enter** key.
- Note:** A scan group must contain 2 to 16 channels.
- The home channel is defined by selecting a channel and then holding the **Enter** key for longer than 1 second. The **SCAN** indicator then flashes.
- Note:** You can only delete a normal channel from the scan group. If the home channel is to be deleted from the scan group, you first have to define another channel as home channel and then delete the original home channel.
7. Once the group editing is complete, press the **Function** key to return to the Function menu.
 8. Press a mode key to switch to another mode, if desired. Alternatively, the inactivity timer returns the radio to the normal operating mode if no operator activity has been detected for 10 seconds.



Call Queuing (Selcall Option Fitted)

Your T2020II can be preprogrammed to queue incoming calls. This feature enables the storage of up to 10 caller identities.

Call Queue Not Empty

Whenever there is an entry in the call queue, the Function menu is automatically active, with “CALL QUE” appearing in the display window as the current item. This means that the radio always reverts to the Function menu after a period of no-user activity, as long as there is a call queue entry. In addition, the **FUNCTION** indicator flashes whenever the Function menu is active.

Accessing the Call Queue

The Call queue can be accessed through the Function menu. This is the same mode that is used to alter user options.

1. Press the **Function** (Fn) key. The item last viewed while in this mode appears in the display window.
2. Scroll through the displayed items using the **Up** and **Down** (▲/▼) keys, and select “CALL QUE” using the **Enter** (↵) key.



You are now in Call Queue Entry mode.

Note: Call Queue Entry mode can only be accessed if there are entries in the call queue.

In Call Queue Entry mode, the display window shows the current entry number, and the total number of entries in the list. An example of the display would be “CL 01/02”, indicating that the current entry is entry number one, with a total of two entries in the queue. Use the **Up** and **Down** keys to scroll through the list of entries, and the **Zero** (0) key to delete an entry from the queue.

3. Press the **Enter** key, and the caller identity of the entry in the display window appears. Again, you can use the **Up** and **Down** keys to scroll through the list of entries, and the **Zero** key to delete the entry from the queue.
4. Press the **Enter** key again when the caller identity of the entry is being displayed, and call-back is initiated. The entry is then automatically removed from the queue. Note that the call-back sequence is based on the caller identity.

Exiting the Call Queue

Exit Call Queue Entry mode by pressing any mode key, including the **Function** (Fn) key.

The radio automatically exits from Call Queue Entry mode, and reverts to the Function menu, if the last entry in the call queue is deleted. This can be done either by using the **Zero** key, or making a call-back.

Queuing Calls

The caller identity and the channel of the received call is put in the call queue when:

- The internal alert (ringing) of the received call stops
- Another call is received before the previous one is queued.

Note: After the incoming call has been queued, it is automatically cleared or answered, and the radio resumes what it was doing prior to receiving the call. This includes the resumption of scanning, if the radio was scanning prior to receiving the call.

Call Queue Full

Whenever the queue is full, the radio continues to receive calls, but does not resume what it was doing prior to receiving the call (e.g. scanning). This allows calls to be received only on the held channel. Subsequent calls that are received overwrite the information about the previous call.

Changing the Selcall Status Code (Selcall Option Fitted)

If your radio is fitted with Selcall, you may also be able to choose from a number of activity codes to be sent with each call you make, indicating your current status. Each code's description and number (0 to 99) is set when the radio is programmed. Typical descriptions might be "AT LUNCH", "EN ROUTE", and so on.

1. Press the **Status** (**STAT**) key to enter Status mode. How status codes are displayed by your radio depends on which status display function is active (see the later section, "Altering User Options").
2. If 'normal display' (**STAT NRM**) is active, the complete eight character word for the currently selected status is displayed.

Scroll through the choices using the **Up** and **Down** (**▲**/**▼**) keys, until you find one appropriate for your present activity. Alternatively, type the number for your new status directly using the keypad. The new status description appears in the display (you may need to press the **Enter** (**↵**) key first).

3. If 'fixed display' (**STAT FIX**) is active, your own status is displayed as a code at the right of the display (along with the channel name, truncated to six characters).

Scroll through the choices using the **Up** and **Down** keys. Again, you may enter the number for your new status directly using the keypad. The new status code appears in the display (you may need to press the **Enter** key first).

4. The status code is sent when your radio acknowledges another user's call.

Diverting a Received Call (Selcall Option Fitted)

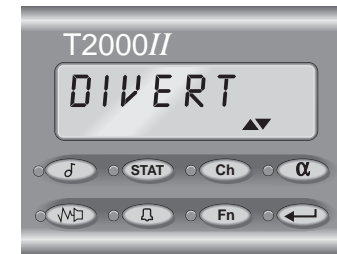
This feature enables the radio to be put into Call Diversion mode, where any valid incoming Selcall sequence causes the radio to transmit another user defined Selcall or DTMF sequence on the programmed call diversion channel. The sequence (number) to be transmitted and the call type (Selcall or DTMF) can be entered by the user while in Call Diversion Setup mode.

Activating Call Diversion Setup Mode

Call Diversion Setup mode can be accessed through the Function menu.

1. Press the **Function** (**Fn**) key. The item last viewed while in this mode appears in the display window.
2. Scroll through the displayed items using the **Up** and **Down** (**▲**/**▼**) keys, and select "DIVERT", using the **Enter** (**↵**) key.

The call diversion setup process has now been initiated.



3. On entry into the setup process, the display flashes the last selected diversion call type, either Selcall or DTMF. Use the **Up** and **Down** keys to toggle between the two options. Note that if the DTMF option has not been fitted on the radio, the DTMF call type will not be an option.
4. Press the **Enter** key to confirm the call type selected, and the last selected sequence is displayed, if still valid. If the last selected sequence is no longer valid, the default sequence is displayed.
5. If another sequence is required, use the numeric keypad to enter the new diversion sequence. Note that the correct sequence length must be entered (consult your Tait dealer for more information on this).
6. Press the **Enter** key to confirm the diversion sequence and to put the radio into Call Diversion mode.

Exiting Call Diversion Mode

At any stage of the call diversion setup process, any mode key-press initialises that mode, and therefore takes the radio out of the Call Diversion Setup process or Call Diversion mode. This includes the **Function** (**Fn**) key.

Receiving a Call During Call Diversion

When a standard incoming call is received by the radio in Call Diversion mode, the programmed auto-acknowledge sequence is transmitted, as for a normal call. However the programmed diversion status is transmitted instead of the normal acknowledge status, to inform the caller that the call has been diverted.

The radio then switches to the programmed call diversion channel and transmits the sequence that has been set up for the call diversion, without indicating to the user that an incoming call has been received (no ringing). After executing the diversion transmission, the radio reverts to the channel it was on prior to the call diversion.

Making a Call to a Radio In Diversion Mode

Your T2020II can be programmed to respond to a diversion status report when making a call. When it detects the diversion status in the acknowledge from the radio it has called, it displays “DIVERT”, to indicate that the call has been diverted. It then proceeds to switch to the programmed diversion channel.

Emergency Operation (Selcall Option Fitted)

Your T2020II can be set to make emergency calls to a preprogrammed party (usually your base or your despatcher). To use this capability, the radio must be fitted with the Selcall option, and be connected to a hidden emergency switch. Alternatively, the **Auxiliary** (🔔) key on the control head may be preprogrammed to send an emergency call.

1. To send an emergency call, operate the hidden switch, or press the **Auxiliary** (🔔) key. There is no change in the T2020II control head indicators, but the radio sends a Selcall emergency code to the preprogrammed party every few seconds, until it receives an acknowledging Selcall code.

Note: The emergency cycling option is controlled at the time of programming. If emergency cycling is disabled, then the emergency sequence is sent only once, and no transmit/receive cycling occurs.

2. The radio then adopts a transmit/receive cycle, which allows the base or despatcher to monitor activity in the vicinity of the radio.

The radio can be removed from this mode either by receiving a reset code from the base or despatcher, during one of its receive periods, or by turning the radio off and back on, without operating the emergency switch.

A trailing alarm tone can be sent with the emergency sequence, if the alarm tone was enabled when the radio was programmed.

Other Selcall Features

Your T2020II may be programmed with other Selcall functions. Consult your Tait dealer for more information on the following functions:

- Quiet Status Interrogation (QSI)
- Automatic Numbering Identification (ANI)
- Stun
- Deferred Calling
- Cancel call indicators on remote reset

Altering User Options

While most of the features available on the T2020II are able to be customised with the Tait programming software, some may be directly accessible to you, to alter according to your own requirements. This is done via the Function menu, as follows:

1. Press the **Function** (Fn) key, and the item last viewed while in this mode appears in the display window.
2. Scroll through the items in the display window, by pressing the **Up** and **Down** (▲/▼) keys.
3. Most Function menu items have an ‘on’ and ‘off’ setting. To change the current setting, press the **Enter** (↵) key.
4. To exit the Function menu, press any of the other function keys. The radio may also be programmed to return to one of the other modes after a short while, anyway.

The following table shows Function menu options that can be changed in this way.

Option	Description
“A-TX ON”/“A-TX OFF”	Selects whether or not the radio automatically transmits when DTMF digits are dialled.
“BEEP ON”/“BEEP OFF”	Selects whether or not your radio sounds key-press confidence tones (<i>beeps</i>).
“BEEP HI”/“BEEP LOW”	Alters the loudness of the confidence tones (<i>beeps</i>).
“ELIT DIM”/“ELIT OFF”	Adjusts the display’s economy mode backlighting level between dimmed and off.
“HUSH ON”/“HUSH OFF”	Selects whether the radio is able to mute an external device, such as a car stereo, when you transmit or receive a call. (This function also requires the radio to be equipped with the necessary hardware interface.)
“HORN ON”/“HORN OFF”	Selects whether the radio sounds a vehicle horn, or similar device, when a received call is unanswered. (This function also requires the radio to be equipped with the necessary hardware interface.)
“LITE FUL”/“LITE DIM”	Adjusts the display’s normal backlighting level between full and dimmed.
“STAT NRM”/“STAT FIX”	Selects whether your Selcall status is displayed as a full word or a number.

The Call Diversion Setup, Call Queue Setup and User Programmable Scan modes are also accessed from the Function menu. Refer to the sections “Diverting a Received Call”, “Call Queuing” and “User Programmable Scan” for details.

Signalling options can be altered in the Function menu item “**PROG SIG**”. For more information on this, contact your Tait dealer.

Optional Accessories for the T2020II Radio

The following accessories are available for use with your T2020II radio:

- Handsfree Microphone with Remote or Voice-activated PTT key
- Desktop Microphone
- Remote Speaker
- DTMF Microphone
- Six Metre Remote Mounting Kit
- Desktop Mains Power Supply (T2008)
- 600 Ohm Line Interface Kit
- Computer Controlled Interface (CCI) Kit
- DTMF Tone Kit
- Selcall Kit
- Scrambler Kit

See your Tait dealer for more details.

Appendix

Maintenance of your T2020II

The T2020II requires no regular maintenance, other than ensuring that all cables and connections are secure, and that no damage has occurred to the antenna or wiring.

Troubleshooting

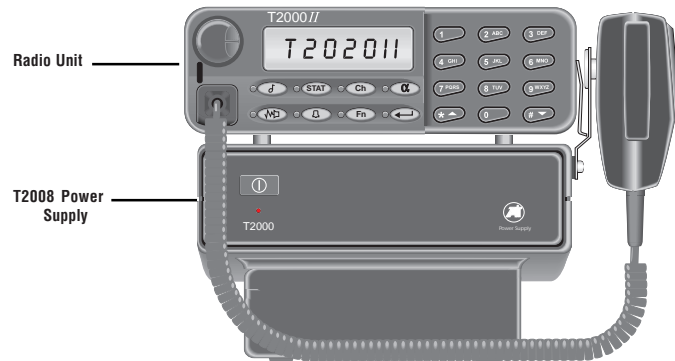
If the front panel indicators do not light up when you turn the radio on, it is likely that no power is reaching the T2020II. Check the following:

- Is the power connector firmly plugged into the rear of the T2020II?
- Are the in-line fuses in good condition?
- Is the power cable securely connected to the vehicle battery or power supply?

If all appears to be in order, then contact your Tait dealer for further assistance.

Despatcher Operation

The T2020II can also be used for despatcher operation, mounted on top of its companion T2008 power supply, which is available separately. Consult your Tait dealer for more information.



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