Telario™

TC3000™ Portable Communicator

USER GUIDE

6880906Z36-O

MOTOROLA

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Introduction

Congratulations! You are about to increase your business' productivity through the use of the TC3000™ Communicator. The TC3000 Communicator is part of the Telario™ product system, a state of the art Motorola digital communications system. Your TC3000 Communicator has been designed exclusively to function with other TC3000 Communicators and TR3000™ Radios, and with the TS3000™ Control Station.

Your Communicator offers you three types of communications services:

- Phone Communication
- Group Talk Communication (up to 10 Groups)
- Person Link Communication

Your Communicator enables you to enhance your communications like no other product by integrating services. Integration of services allows you to:

- be informed of and accept an incoming Phone Call or Person Link while in a Phone Call, Group Talk, or Person Link
- make a Phone Call, Group Talk, or Person Link while in a Phone Call.

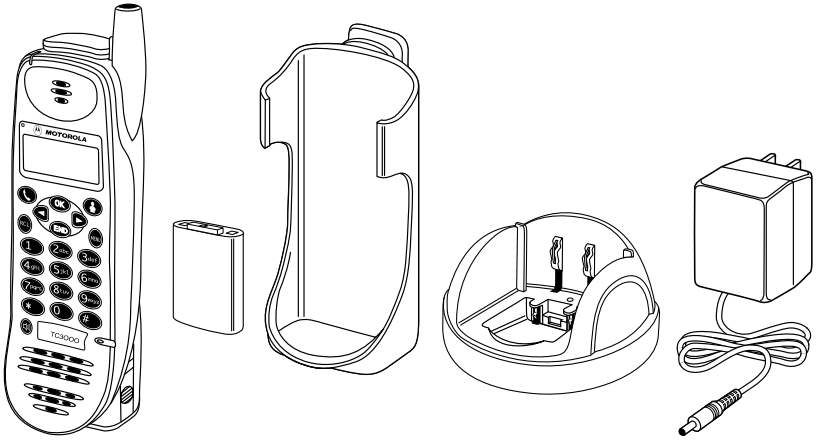
For more information on Integrating Services, refer to page 36.

UTAM Registration

Installation of this equipment is subject to notification and coordination with UTAM, Inc. Any relocation of this equipment must be coordinated through, and approved by UTAM. UTAM can be contacted at (800) 429-UTAM (800) 429-8826.

Inspection

Your Communicator ships standard with the following items:



- NiMH Battery
- Carry Holster
- Rapid Rate Charger with spare battery compartment & charging transformer
- Manual (not shown)

TC3000 Communicator Features

Controls

1. OK Button – Press to turn on, or to answer the display prompt
2. Link Button – Press to enter Person Link Service or accept a Person Link
3. Scroll Buttons – Press to select a Group, scroll a list, or to scroll the menu options
4. Menu Button – Press to enter the menu mode
5. Speaker Button – Press to route the audio from the earpiece to the loud speaker. Press again to route the audio from the loud speaker to the earpiece
6. Recall Button – Press to access a pre-stored list of names and numbers
7. Phone Button – Press to enter Phone Service or to answer a Phone Call
8. End Button – Press to:
   - exit a service
   - end a Phone Call or Person Link
   - refuse a Person Link
   - navigate back to the previous display
9. Push-To-Transmit (PTT) Button – Press and hold to transmit
10. Volume Down Button
11. Volume Up Button
12. Tap Button – Press to transfer a Phone Call or to answer call waiting
13. Accessory Connector
14. Battery Latch (located on both sides of the Communicator)

Audio Indicators

A. Low Audio (earpiece)

B. Microphone

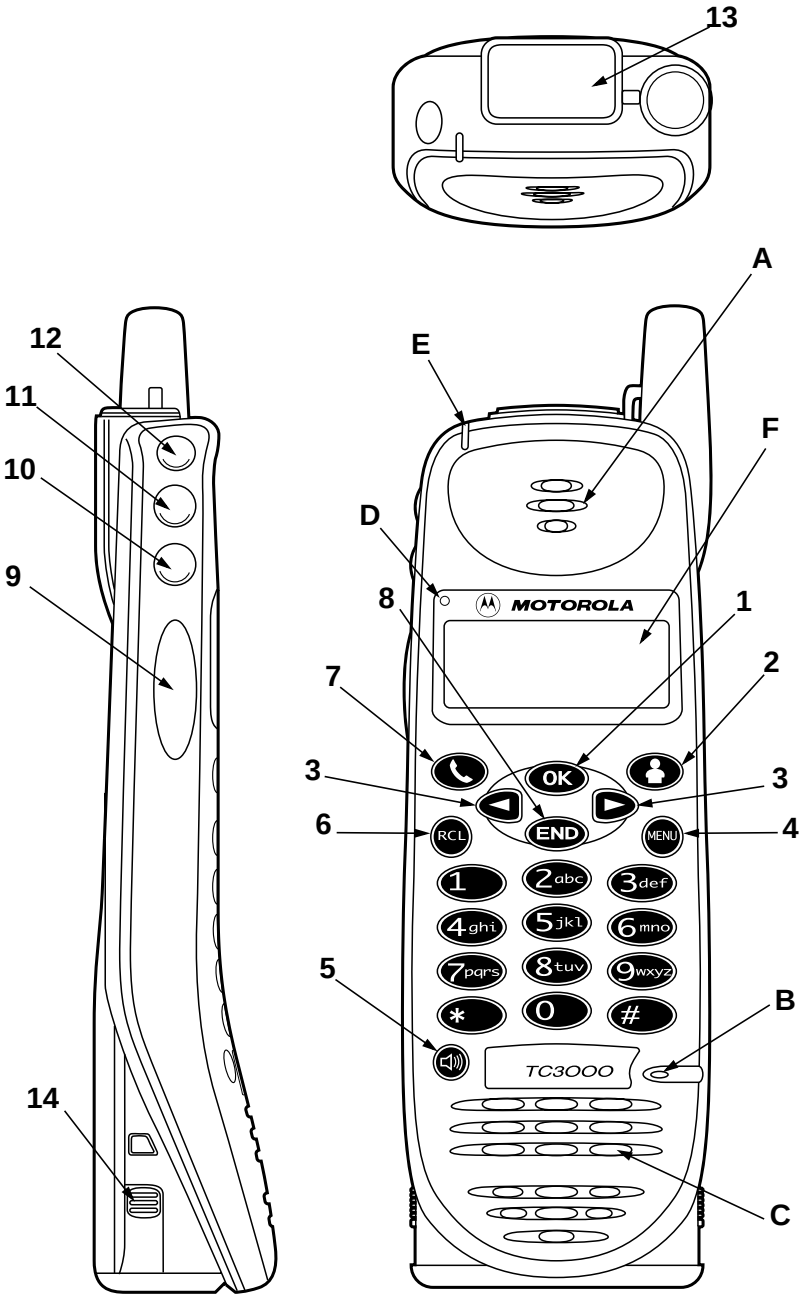
C. High Audio (loud speaker)

Visual Indicators

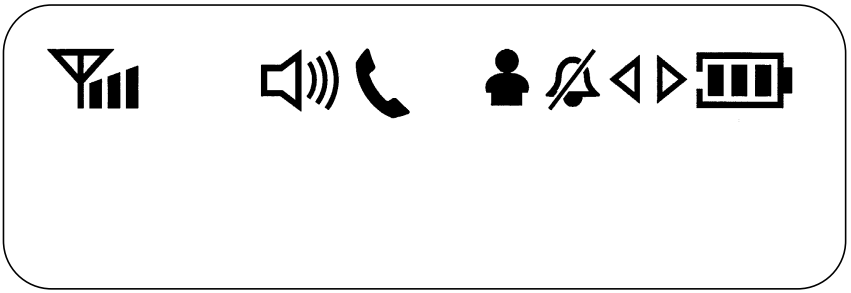
D. Battery Charging LED Indicator – Indicates charging status

E. Communications Progress LED – Indicates transmit and receive

F. Display – 2-Line, 12-Character alphanumeric test


13
A
12
E
11
F
10
D
9
8
MOTOROLA
1
7
2
3
OK
3
6
RCL
END
MENU
4
1
2abc
3def
4ghi
5jkl
6mno
7pqrs
8tuv
9wxyz
5
*
0
#
B
TC3000
14
C

Display Icons



TC3000 Communicator Icon Indications

Icon	Description
	Signal Strength None – the icon will blink
	Signal Strength Weak
	Signal Strength Moderate
	Signal Strength Strong
	Speaker Audio High – audio is heard from the loud speaker
	Speaker Audio Low – audio is heard from the earpiece
	Phone Call
	Person Link
	Ring
	Vibrate
	Scroll
	Battery Level Low
	Battery Level Medium
	Battery Level High

Battery Installation Instructions

To Insert Battery

1. Squeeze the two bottom side battery latches in and slide the battery tray down and out of the Communicator. Refer to Figure 1.
2. Place the battery pack into the tray with the arrows facing upward. Refer to Figure 2.
3. Slide the battery tray into the Communicator until it snaps into place.

To Remove Battery

1. Squeeze the two bottom side battery latches in and slide the battery tray down and out of the Communicator. Refer to Figure 1.
2. Remove the battery pack from the tray by pushing downward on the battery and pivoting it away from the tray until the hook-latch on the battery clears the tray. Refer to Figure 3.

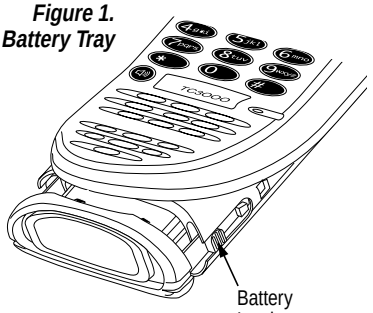


Figure 1.
Battery Tray

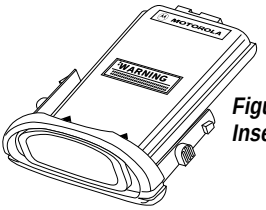


Figure 2.
Insert Battery Pack

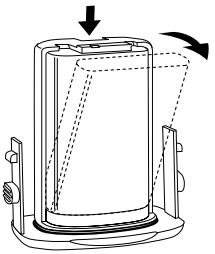


Figure 3.
Remove Battery Pack

Charging Instructions

IMPORTANT: The battery is shipped from the factory uncharged and must be charged before use.

Your battery will need to be charged using the rapid charge method before operating your Communicator for the first time. The rapid charge method fully charges your battery in 60 minutes.

Your charger has the capability of charging both a battery inside the Communicator (rapid charge method) and a spare battery (slow charge method) simultaneously.

NOTE: Do not leave the Communicator or battery in the charger for extended periods of time (1 week) so as to avoid a decrease in overall battery performance.

1. Plug the round end of the transformer cord into the socket located on the back of the charger.

2. Plug the transformer into the appropriate AC outlet.

Rapid Charge Method (battery inside Communicator)

1. Align the grooved rails of the Communicator with the guide rails of the charger and insert the Communicator, with the battery inside, into the charger pocket. Refer to Figure 4.

NOTE: Your Communicator can be left on to receive communications while charging without causing harm to the battery or battery charger. However, if the Communicator remains on while charging, it will require at least 25% more time for the battery to charge to full capacity.

2 When the Communicator is properly inserted into the charger pocket the battery charging LED indicator on the Communicator will indicate:

- *Red* while the battery is rapid charging. The battery fully charges in 60 minutes.
- *Green* when the battery is fully charged. This occurs once rapid charge is completed.
- *Yellow* if there is a charging problem.

Slow Charge Method (battery only)

1 Insert a spare battery into the charger pocket. The red LED on the charger will light when the battery is properly installed. The battery fully charges in 24 hours.

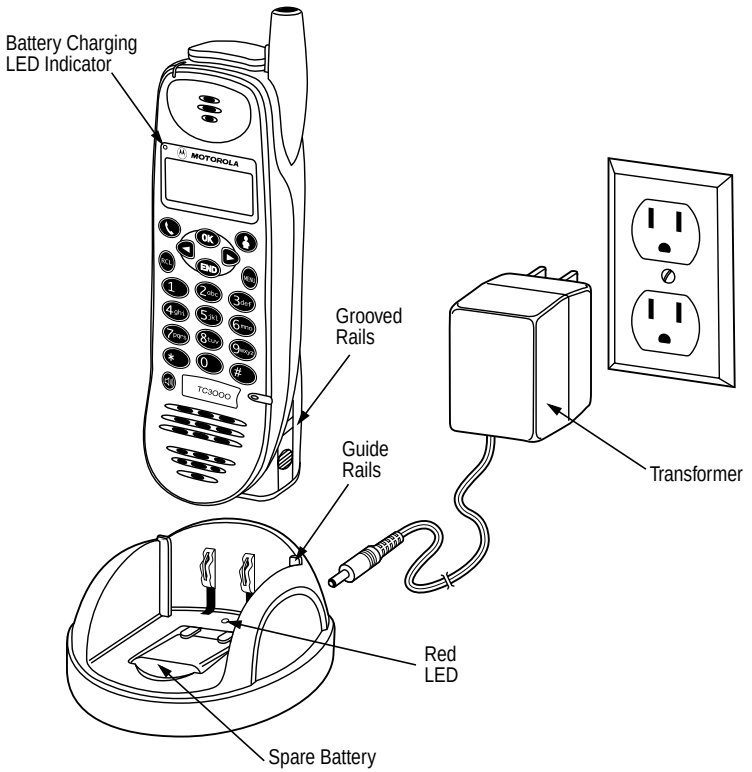


Figure 4.

Attaching and Removing the Carry Holster

To Attach the Carry Holster

1. Place the Communicator

To Remove the Carry Holster

1. Lift the Communicator

Basic Functions

Turning the TC3000 Communicator On

1. Press the OK button.

   - A short, high-pitched tone will sound, indicating successful start-up. If the Communicator is not operating properly, a continuous low-pitched tone will sound.

When turning on your Communicator for the first time, the first available Group will be your initial default Group. Afterward, when turning the communicator on, it will default to the last selected Group. Refer to page 22 to select another Group.

To preserve battery life, your Communicator will enter a “battery saver” mode after several minutes of no activity. Your Communicator will return to full operation by pressing any button or by receiving a transmission.

Your Communicator and its battery have been designed for uninterrupted use, making it unnecessary to turn it off when not in use. See Charging Instructions on page 10 for more information.

Turning the TC3000 Communicator Off

1. To enter the menu mode, press the MENU button.

2. Press the right ▶ scroll button once to view the ***“Turn Off”*** option.

   - Line 2 of the display will prompt how to turn off: ***“OK=Select”***.

3. To turn off the Communicator, press the OK button.

Setting the Volume

Press the volume up / down buttons on the side of the Communicator to adjust the volume to a comfortable listening level.

Each press of the volume up / down buttons will provide you with audio feedback of the listening level. The lowest volume level will still provide you with minimal audio.

Audio Routing

The audio from the handset earpiece can be routed to the loud speaker or visa versa at any time during a conversation during a Group Talk or a Person Link. The default audio for the following services is:

- Group Talk – High Audio (loud speaker)
- Person Link – High Audio (loud speaker)
- Phone – Low Audio (earpiece)

NOTE: While audio routing is not available in Phone Service, the default is Low Audio.

1. To route the audio from the earpiece to the loud speaker, press the button. To reroute the audio from the loud speaker to the earpiece, press the button again.

Battery Life Indicator

Your Communicator has a built-in feature to alert you when your battery life is low (approximately 5-10% charge remaining):

- Two (2) short, low-pitched tones will sound every 10 minutes and upon release of the PTT button.
- The display will indicate a Battery Gauge Icon. As battery life drops, the battery gauge icon will indicate battery life in three stages. When battery life has approximately 5-10% charge remaining, the battery icon gauge will blink with one bar remaining.

Time-Out Timer

Time-Out Timer limits the amount of time you have to transmit in Group Talk or Person Link Services. Preprogrammed from 1 to 255 seconds or Off.

- When you reach the time limit, a continuous, low pitched tone will sound (until you release the PTT) and your transmission will be cut off.

Idle Timer

Your Communicator has a built-in Idle Timer that can be programmed from 0-30 seconds that will take you out of any mode or service you have entered if no action has taken place within the given amount of time.

- For example, if you enter Phone Service but do not dial a phone number, your Communicator will automatically return to Group Talk Service, so as not to tie up system resources.

NOTE: This feature is applicable to Phone and Person Link Services, and to the Menu button.

Menu Options

Within the Menu List use the ◄ or ► scroll buttons to select options.

Select Ring Type

Select from two (2) audible ring types or vibration.

1. To enter the menu mode, press the MENU button.
2. Scroll through the menu options by pressing either the ◄ or ► scroll buttons until the desired ring option appears.
   - Line 2 of the display will prompt how to select: ***"OK=Select"***.
3. To select the ring option, press the OK button.
   - You will hear the selected ring once.

Turning the TC3000 Communicator Off

1. To enter the menu mode, press the MENU button.
2. Press the right ► scroll button once to view the ***"Turn Off"*** option.
   - Line 2 of the display will prompt how to turn off: ***"OK=Select".***

3. To turn off the Communicator, press the OK button.

Phone Functions

Your Communicator offers full duplex telephone functionality and offers the capability of storing phone numbers alphanumerically.

If a phone number is to be designated with a name, it ***must*** first be preprogrammed by an authorized Motorola dealer.

Entering Phone Service

1. To enter Phone Service, press the button.

- You will hear a dial tone.

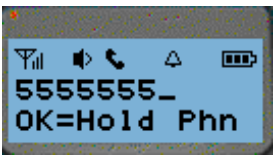
Making a Phone Call

There are three (3) different ways a Phone Call can be made on your Communicator when in Phone Service.

(1) Live Dial of a Phone Call

1. To enter Phone Service, press the button.
2. Enter the digits of the phone number to be called.

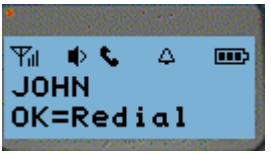
- The display will indicate the digits as they are entered.
- The phone number will be dialed automatically after the last digit is entered.



(2) Last Number Redial

1. To enter Phone Service, press the button.

- Line 1 of the display will indicate the last phone number or name dialed. Line 2 of the display will prompt how to redial: ***"OK=Redial"***.

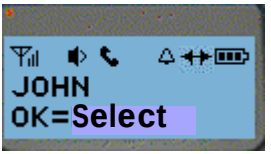


2. To redial and send, press the OK button.

(3) Recall from Phone List

1. To enter Phone Service, press the button.
2. To access the phone list, press the RCL button.
3. Scroll through the phone list of names and numbers stored by pressing either the ◀ or ▶ scroll buttons.

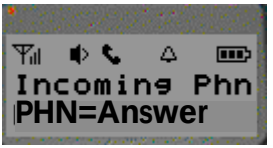
- Line 1 of the display will indicate the stored phone number or name. Line 2 of the display will prompt how to dial: ***"OK=Select"***.



4. To select and send, press the OK button.

Answering a Phone Call

- The Communicator will ring.
- Line 1 of the display will indicate ***"Incoming Phn"***. Line 2 of the display will indicate ***"PHN=Answer"***.



- The **Phone** icon will blink.

1. To answer the Phone Call, press the button.

Hanging-Up a Phone Call

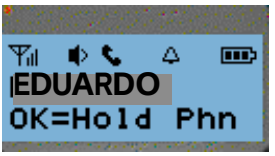
1. To hang-up a Phone Call, press the END button.

Holding a Phone Call

A Phone Call can be placed on hold to make another Phone Call, Group Talk, or Person Link. This feature is dependent upon your phone system or PBX.

Placing A Phone Call On Hold

- While a Phone Call is in progress, Line 2 of the display will prompt how to place the Phone Call on hold: ***"OK=Hold Phn"***.

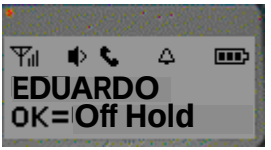


1. To place the Phone Call on hold, press the OK button.
- The **Phone** icon will blink.

Holding a Phone Call (Cont'd.)

Taking A Phone Call Off Hold

- Line 2 of the display will prompt how to take a Phone Call off hold: ***"OK=Off Hold"***.



1. To take the Phone Call off hold and resume your conversation, press the OK button.

Transferring / Conferencing a Phone Call

The **Tap** button is available to transfer a Phone Call to another phone number or to establish a conference call. This feature is dependent upon your phone system or PBX. Please reference your phone system manual for details on transferring or conference calling.

Phone Call Waiting

The **Tap** button is available for call waiting. This feature is dependent upon your phone system or PBX. Please reference your phone system manual for details on call waiting.

Voicemail

Voicemail is supported by your Communicator. This feature is dependent upon your phone system or PBX. Please reference your phone system manual for details on voicemail.

Send Call / End Ring

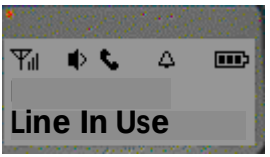
Incoming Phone Calls can be sent directly to voicemail. This feature is dependent upon your phone system or PBX. Please reference your phone system manual for details in retrieving voicemail messages.

1. To send an incoming Phone Call directly to voicemail, press the END button.

NOTE: If voicemail is not available or supported by your phone system or PBX, pressing the END button simply stops the Communicator's ringing.

Group Ringing

More than one Communicator can share the same phone number. All Communicators with the same phone number will receive notification (ringing and display indication) of an incoming Phone Call, but only one Communicator – the first to answer by pressing the button – can receive the Phone Call. Once a Phone Call has been answered, all other Communicators sharing that same phone number will display ***"Line In Use"*** and their phone lines will become inactive until the first Communicator hangs up the Phone Call.



Group Talk

Your TC3000 Communicator supports two-way Group Talk communications among TC3000 Communicators and TR3000 Radios.

A Group Talk is a transmission to a specific group of assigned members. Your Communicator always defaults to Group Talk Service.

Selecting a Group

There are two (2) ways to select a Group to initiate a Group Talk.

(1) Last Group Selected / Displayed

Once your Communicator has been turned on, it will default to the last selected Group until it is actively changed to another Group.

- Line 1 of the display will indicate the default Group. Line 2 of the display will prompt ***"Push-To-Talk"***.

(2) Scroll

1. Scroll through the Group List by pressing either the ◀ or ▶ scroll buttons.

- Line 1 of the display will indicate the Groups as you scroll through the list. Line 2 of the display will prompt ***"Push-To-Talk"***.

Initiating a Group Talk

1. Select the desired Group.
2. Press and hold the PTT button to initiate a Group Talk.

- Two (2) medium-pitched access tones and one (1) high-pitched permit tone will sound, indicating that you may begin speaking.

- Line 1 of the display will indicate the Group. Line 2 of the display will indicate ***"Group Talk"***.

3. Release the PTT button to listen.

- The progress LED will light continuously while transmitting and blink while receiving.

Group Busy Signal

If a continuous, low-pitched tone is heard while attempting a Group Talk, it indicates that someone else is talking on that Group.

User Out of Range

If a continuous, low-pitched tone is heard while attempting a Group Talk, it indicates that you are out of range or the Control Station is inoperable.

- Line 1 of the display will indicate the Group. Line 2 of the display will indicate ***"No Service"***.
- The signal strength icon bars will not be present and the icon will blink.

System Busy Signal

If fast, low-pitched busy tones are heard while attempting a Group Talk, it indicates that all system resources are busy.

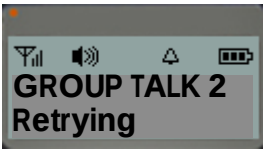
- Line 1 of the display will indicate the Group. Line 2 of the display will indicate ***"System Busy"***.

System Busy Auto Retry

Your Communicator has a built-in system busy auto retry when initiating a Group Talk. When your Group Talk is unable to be connected because the system is busy, your Communicator will automatically retry for 20 seconds. When the system is available you will be alerted and can retry your Group Talk.

1. Line 1 of the display will indicate the Group. Line 2 of the display will indicate ***"System Busy"***.

- Line 2 of the display will indicate ***"Retrying"*** for 20 seconds.



- When the system is available, three (3) short, high-pitched tones will sound. Line 2 of the display will indicate ***"Push-To-Talk"***.

1. Press and hold the PTT button to retry your Group Talk.

NOTE: Any keypress or incoming communication will terminate the system busy audio retry.

Receiving a Group Talk

A Group Talk can be received ***only*** on your selected Group.

1. Select the desired Group.

2. Listen for voice activity. Make sure the PTT button is released.

   - Line 1 of the display will indicate the Group. Line 2 of the display will indicate ***"Receive Talk"*** when voice activity is heard.

3. Press and hold the PTT button to respond and release to listen.

   - The progress LED will blink while receiving.

   - If a low-pitched tone is heard while attempting to respond, it indicates that you cannot transmit at this time. Refer to "Group Busy Signal" on page 23.

Person Link

Your TC3000 Communicator supports Person Link Service. A Person Link is a private two-way communication between two people. A Person Link can be made between two TC3000 Communicators or between a TC3000 Communicator and a TR3000 Radio.

Your Communicator also offers you the capability of storing Link ID numbers alphanumerically.

To initiate a Person Link, you can either enter the Link ID directly or select the Link ID or name from the Link list.

A Link ID or name ***must*** first be preprogrammed into a Link list by a Motorola authorized dealer.

Link ID Recognition

Your Communicator will display an incoming Link ID or name if it is stored in the Person Link memory list.

- Line 1 of the display will indicate the Link ID or name of another Communicator or Radio.

Entering Person Link Service

1. To enter Person Link Service, press the button.

Initiating a Person Link

There are three (3) different ways a Person Link can be initiated on your Communicator when in Person Link Service.

(1) Direct Entry of Link ID

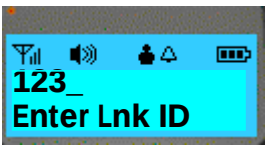
If the desired Link ID is not stored in your Link list, you can manually enter the Link ID digits.

1. To enter Person Link Service, press the button.

- Line 1 of the display will indicate the last Link ID or name called. Line 2 of the display will prompt ***"Push-To-Link"***.

2. Enter the 5-digit Link ID of the Communicator or Radio to be called.

- Line 1 of the display will indicate the Link ID digits as they are entered. Line 2 of the display will prompt ***"Enter Lnk ID"***.



NOTE: If you enter less than 5 digits and press the OK button, a short, low-pitched tone will sound. Pressing the PTT will sound a continuous, low-pitched tone until you release the PTT.

NOTE: If an error is made when entering a digit, press the left scroll button to clear a single digit at a time.

(1) Direct Entry of Link ID (Cont'd.)

- After the 5th digit has been entered, Line 2 of the display will prompt how to dial: ***"OK=Accept"***.

3. Press the OK button to accept. ***Or***, you can use the optional short cut by pressing the PTT button to accept and send the Person Link. Go directly to Step 4.

- Line 2 of the display will prompt ***"Push-To-Link"***.

4. Press and hold the PTT button to send your Person Link.

- Two (2) medium-pitched access tones and one (1) high-pitched permit tone will sound, indicating that you may begin speaking. Line 2 of the display will indicate ***"Trying..."*** until the other person either accepts or declines the Person Link.

- When the Person Link is accepted by the other person, line 2 of the display will indicate ***"Person Link"***.

5. Release the PTT button to listen.

- The progress LED will light continuously while transmitting.
- Upon release of the PTT button, line 2 will prompt ***"Push-To-Link"***.

Initiating a Person Link (Cont'd.)

(2) Recall From Link List

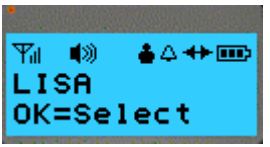
1. To enter Person Link Service, press the button.

- Line 1 of the display will indicate the last selected Link ID or name. Line 2 of the display will prompt ***"Push-To-Link"***.

2. To access the Link list, press the RCL button.

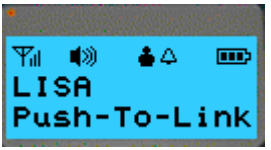
3. Scroll through the Link list by pressing either the or scroll buttons. To view the Link ID of a name stored in the Link list, press the RCL button again. The Link ID will remain on the display for three (3) seconds and then revert back to the name.

- Line 1 of the display will indicate the stored Link ID or name. Line 2 of the display will prompt how to dial: ***"OK=Select"***.



4. To select, press the OK button. ***Or***, you can use the optional short cut by pressing the PTT button to select and send the Person Link. Go directly to Step 5.

- Line 2 of the display will prompt ***"Push-To-Link"***.



(2) Recall From Link List (Cont'd.)

5 Press and hold the PTT button to send your Person Link.

- Two (2) medium-pitched access tones and one (1) high-pitched permit tone will sound, indicating that you may begin speaking. Line 2 of the display will indicate ***"Trying..."*** until the other person either accepts or declines the Person Link.

- When the Person Link is accepted by the other person, line 2 of the display will indicate ***"Person Link"***.

6 Release the PTT button to listen.

- The progress LED will light continuously while transmitting.
- Upon release of the PTT button, line 2 will prompt ***"Push-To-Link"***.

Initiating a Person Link (Cont'd.)

(3) Link ID ReLink

1. To enter Person Link Service, press the button.

- Line 1 of the display will indicate the last Link ID or name called. Line 2 of the display will prompt ***"Push-To-Link"***.

2. Press and hold the PTT button to send your Person Link.

- Two (2) medium-pitched access tones and one (1) high-pitched permit tone will sound, indicating that you may begin speaking. Line 2 of the display will indicate ***"Trying..."*** until the other person either accepts or declines the Person Link.

- When the Person Link is accepted by the other person, line 2 of the display will indicate ***"Person Link"***.

3. Release the PTT button to listen.

- The progress LED will light continuously while transmitting.
- Upon release of the PTT button, line 2 will prompt ***"Push-To-Link"***.

Target User Busy Signal

If two (2) medium-pitched access tones and one (1) low pitched tone is heard while attempting a Person Link, it indicates that the other person is on another call and either declined or ignored your Person Link.

- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"Unavailable"***.

User Out of Range

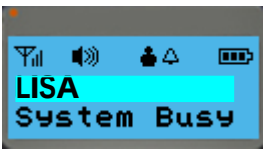
If a continuous, low-pitched tone is heard while attempting a Person Link, it indicates that you are out of range or the Control Station is inoperable.

- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"No Service"***.
- The signal strength icon bars will not be present and the icon will blink.

System Busy Signal

If fast, low-pitched busy tones are heard while attempting a Person Link, it indicates that all system resources are busy.

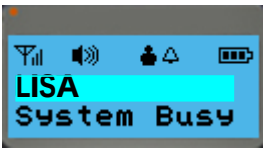
- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"System Busy"***.



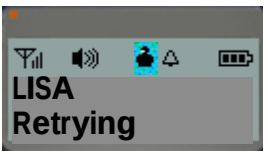
System Busy Auto Retry

Your Communicator has a built-in system busy auto retry when initiating a Person Link. When your Person Link is unable to be connected because the system is busy, your Communicator will automatically retry for 20 seconds. When the system is available you will be alerted and can retry your Person Link.

- Line 2 of the display will indicate ***"System Busy"***.



- Line 2 of the display will indicate ***"Retrying"*** for 20 seconds.



- When the system is available, three (3) short, high-pitched tones will sound. Line 1 of the display will indicate the Person Link and Line 2 of the display will indicate ***"Push-To-Link"***.

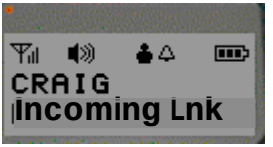
1. Press the PTT button to retry your Person Link.

NOTE: Any keypress or incoming communication will terminate the system busy audio retry.

Receiving a Person Link

The following indicators occur when receiving an incoming Person Link:

- Four (4) short, medium-pitched alert tones will sound.
- Blinking **Link** icon.
- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate: ***"Incoming Lnk"***.



1. To accept the Person Link, press the button within 10 seconds.

- Once the Person Link is accepted, line 2 of the display will indicate ***"Receive Link"*** and the **Link** icon will stop blinking.

- The progress LED will blink while receiving.

Disconnecting a Person Link

1. To disconnect a Person Link, press the END button.

Integrated Services

Your Communicator enables you to enhance your communications like no other product by integrating services. Integration of services allows you to:

- be informed of and accept an incoming Phone Call or Person Link while in a Group Talk, Phone Call, or Person Link

- make a Phone Call, Group Talk, or Person Link while in a Phone Call.

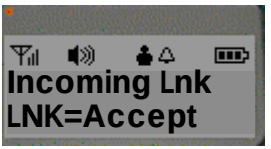
You will hear two (2) short, medium-pitched tones when receiving another incoming Phone Call or Person Link. These tones are referred to as an “Other Incoming Communication Tone”.

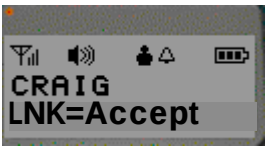
Person Link Notification During Group Talk Receive

You can receive an incoming Person Link while receiving in a Group.

- Two (2) short, medium-pitched tones will sound.

- Line 1 of the display alternates between ***"Incoming Lnk"*** and the incoming name ***or*** when name is not available line 1 will indicate ***"Incoming Lnk"***. Line 2 of the display will prompt how to answer: ***"LNK=Accept"***.





1. To accept the incoming Person Link, press the button within 10 seconds of notification.

- Your Group Talk will terminate.

- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"Receive Link"***.

2. Press the PTT to speak and release to listen.

3. To decline the incoming Person Link and continue with your Group Talk, press the END button.

Person Link Notification During Group Talk Transmit

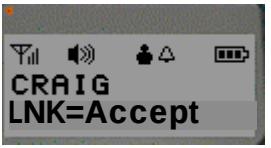
You can receive an incoming Person Link while transmitting in a Group.

- Two (2) short, medium-pitched tones will sound.

- Line 1 of the display alternates between ***"Incoming Lnk"*** and the incoming name ***or*** when name is not available line 1 will indicate ***"Incoming Lnk"***. Line 2 of the display will indicate ***"Group Talk"***.

1. Release the PTT button.

- Line 1 of the display will indicate the incoming Link ID or name. Line 2 of the display will prompt how to answer: ***"LNK=Accept"***.



2. To accept the incoming Person Link, press the button within 10 seconds of notification.

- Your Group Talk will terminate.

- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"Receive Link"***.

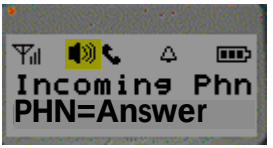
3. Press the PTT to speak and release to listen.

4. To decline the incoming Person Link and continue with your Group Talk, press the END button.

Phone Call Notification During Group Talk Receive

You can answer an incoming Phone Call while receiving in a Group.

- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display will indicate ***"Incoming Phn"***. Line 2 of the display will prompt how to answer: ***"PHN=Answer"***.



1. To answer the incoming Phone Call, press the button.
   - Your Group Talk will terminate.
2. To decline the incoming Phone Call and continue with your Group Talk, press the END button.

Phone Call Notification During Group Talk Transmit

You can answer an incoming Phone Call while transmitting in a Group.

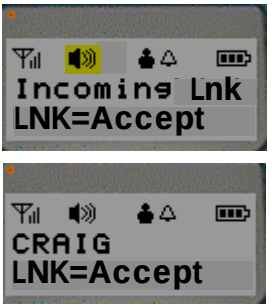
- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display will indicate ***"Incoming Phn"***. Line 2 of the display will indicate ***"Group Talk"***.

1. Release the PTT button.
2. To answer the incoming Phone Call, press the button.
   - Your Group Talk will terminate.
3. To decline the incoming Phone Call and continue with your Group Talk, press the END button.

Person Link Notification During Person Link Receive

You can receive another incoming Person Link while receiving in a Link.

- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display alternates between ***"Incoming Lnk"*** and the incoming name ***or*** when name is not available line 1 will indicate ***"Incoming Lnk"***. Line 2 of the display will prompt how to answer: ***"LNK=Accept"***.



1. To accept the incoming Person Link, press the button within 10 seconds of notification.

- Your first Person Link will terminate.
- Line 1 of the display will indicate the incoming Link ID or name. Line 2 of the display will indicate ***"Receive Link"***.

2. Press the PTT to speak and release to listen.
3. To decline the incoming Person Link and continue with your first Person Link, press the END button.

Person Link Notification During Person Link Transmit

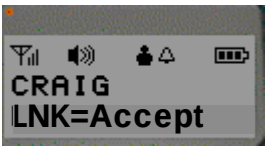
You can receive another incoming Person Link while transmitting in a Link.

- Two (2) short, medium-pitched tones will sound.

- Line 1 of the display alternates between ***"Incoming Lnk"*** and the incoming name ***or*** when name is not available line 1 will indicate ***"Incoming Lnk"***. Line 2 of the display will indicate ***"Person Link"***.

1. Release the PTT button.

- Line 2 of the display will prompt how to answer: ***"LNK=Accept"***.



2. To accept the incoming Person Link, press the button within 10 seconds of notification.

- Your first Person Link will terminate.

- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"Receive Link"***.

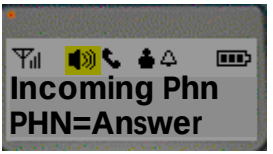
3. Press the PTT to speak and release to listen.

4. To decline the incoming Person Link and continue with your first Person Link, press the END button.

Phone Call Notification During Person Link Receive

You can answer an incoming Phone Call while receiving in a Link.

- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display will indicate ***"Incoming Phn"***. Line 2 of the display will prompt how to answer: ***"PHN=Answer"***.

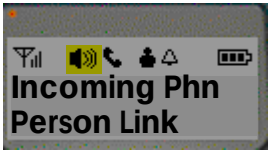


1. To answer the incoming Phone Call, press the button.
   - Your Person Link will terminate.
2. To decline the incoming Phone Call and continue with your Person Link, press the END button.

Phone Call Notification During Person Link Transmit

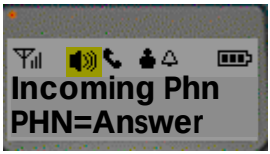
You can answer an incoming Phone Call while transmitting in a Link.

- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display will indicate ***"Incoming Phn"***. Line 2 of the display will indicate ***"Person Link"***.



1. Release the PTT button.

- Line 2 of the display will prompt how to answer: ***"PHN=Answer"***.



2. To answer the incoming Phone Call, press the button.

- Your Person Link will terminate.

3. To decline the incoming Phone Call and continue with your Person Link, press the END button.

Person Link Notification During a Phone Call

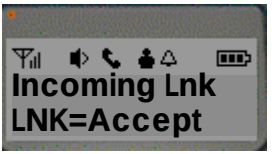
You can receive an incoming Person Link while on a Phone Call.

- Two (2) short, medium-pitched tones will sound.
- Line 1 of the display alternates between ***"Incoming Lnk*** and the incoming Link ID or name. Line 2 of the display will prompt how to place the Phone Call on hold: ***"OK=Hold Phn"***.

1. To place the Phone Call on hold, press the OK button.

NOTE: If the button is pressed accidently instead of the OK button, you will disconnect your Phone Call and enter Person Link Service.

- Line 1 of the display alternates between ***"Incoming Lnk"*** and the incoming Link ID or name. Line 2 of the display will prompt how to answer: ***"LNK=Accept"***.



2. To accept the incoming Person Link, press the button.

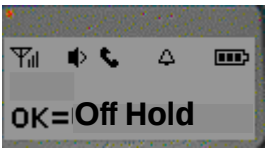
- Line 1 of the display will indicate the Link ID or name. Line 2 of the display will indicate ***"Receive Link"***.

3. Press the PTT button to speak and release to listen.

Person Link Notification During a Phone Call (Cont'd.)

4. To resume your Phone Call, press the button to enter Phone Service.

- Line 2 of the display will prompt how to take the Phone Call off hold: ***"OK=Off Hold"***.



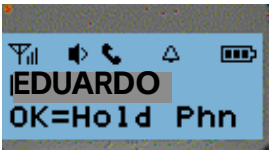
5. To take the Phone Call off hold, press the OK button.

6. To decline the incoming Person Link and continue with your Phone Call, press the END button.

Initiating a Group Talk During a Phone Call

You can place a Phone Call on hold to initiate a Group Talk.

- Line 2 of the display will prompt how to place a Phone Call on hold: ***"OK=Hold Phn"***.



1. To place the Phone Call on hold, press the OK button.

2. Press and release the PTT button.

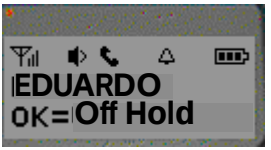
3. Scroll through the Group List by pressing the or scroll buttons.

- Line 1 of the display will indicate the Groups as you scroll through the list. Line 2 of the display will prompt ***"Push-To-Talk"***.

4. Press the PTT button to speak and release to listen.

5. To resume your Phone Call, press the button to enter Phone Service

- Line 2 of the display will prompt how to take the Phone Call off hold: ***"OK=Off Hold"***.

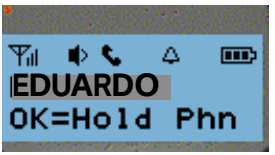


6. To take the Phone Call off hold and resume your conversation, press the OK button.

Initiating a Person Link During a Phone Call

You can place a Phone Call on hold to initiate a Person Link.

- Line 2 of the display will prompt how to place a Phone Call on hold: ***"OK=Hold Phn"***.



1. To place the Phone Call on hold, press the OK button.

2. To enter Person Link Service, press the button.

- Line 1 of the display will indicate the last Link ID or name called. Line 2 of the display will prompt ***"Push-To-Link"***.

3. Use one of the three (3) different ways a Person Link can be initiated. Refer to pages 32 through 30.

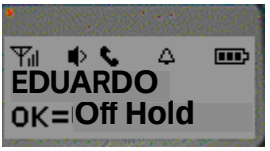
Initiating a Person Link During a Phone Call (Cont'd.)

4. Press the PTT button to speak and release to listen.

- Line 1 of the display will indicate the Link ID or name called. Line 2 of the display will prompt ***"Push-To-Link"***.

5. To resume your Phone Call, press the button to enter Phone Service.

- Line 2 of the display will prompt how to take the Phone Call off hold: ***"OK=Off Hold"***.



6. To take the Phone Call off hold and resume your conversation, press the OK button.

Integrated Services Quick Reference Table

Initial State	Second State	Alert	Display Alert	Action to Accept	Result of Accept	Action to Ignore	New Display
Group Talk Receive	Incoming Person Link	*	Line 1: Incoming Lnk/ Incoming Name (when avail.) Line 2: LNK=Accept	Press the button within 10 seconds	Group Talk terminates	END	Line 1: Link ID or name Line 2: Receive Link
Group Talk Transmit	Incoming Person Link	*	Line 1: Incoming Lnk/ Incoming Name (when avail.) Line 2: LNK=Accept	Release the PTT button and press the button within 10 seconds	Group Talk terminates	END	Line 1: Link ID or name Line 2: Receive Link
Group Talk Receive	Incoming Phone Call	*	Line 1: Incoming Phn Line 2: PHN=Answer	Press the button	Group Talk terminates	END	Line 1: Incoming Phn Line 2: OK=Hold
Group Talk Transmit	Incoming Phone Call	*	Line 1: Incoming Phn Line 2: Group Talk	Release the PTT button and press the button	Group Talk terminates	END	Line 1: Incoming Phn Line 2: OK=Hold
Person Link Receive	Incoming Person Link	*	Line 1: Incoming Lnk/ Incoming Name (when avail.) Line 2: LNK=Accept	Press the button within 10 seconds	First Person Link terminates	END	Line 1: Link ID or name Line 2: Receive Link
Person Link Transmit	Incoming Person Link	*	Line 1: Incoming Lnk/ Incoming Name (when avail.) Line 2: LNK=Accept	Release the PTT button and press the button within 10 seconds	First Person Link terminates	END	Line 1: Link ID or name Line 2: Receive Link

* = 2 Short, Medium-Pitched Tones.

Initial State	Second State	Alert	Display Alert	Action to Accept	Result of Accept	Action to Ignore	New Display	Additional Action
Person Link Receive	Incoming Phone Call	*	Line 1: Incoming Phn Line 2: PHN=Answer	Press the button	Person Link terminates	END	Line 1: Incoming Phn Line 2: OK=Hold	
Person Link Transmit	Incoming Phone Call	*	Line 1: Incoming Phn Line 2: Person Link	Release the PTT button. Display line 2 will indicate PHN=Answer. Press the button	Person Link terminates	END	Line 1: Incoming Phn Line 2: OK=Hold	
Phone Call	Incoming Person Link	*	Line 1: Incoming Link/Link ID or name Line 2: OK=Hold Phn	Press the OK button ***or*** press the button	The OK button will place the Phone Call on hold. The button will terminate the Phone Call and enter Person Link Service.	END	Line1: Incoming Lnk/Link ID or name Line 2: LNK=Accept	To return to Phone Call, press the button followed by the OK button to take the Phone Call off hold
Phone Call	Initiate a Group Talk	N/A	Line 2: Hold Phn	Press the OK button followed by a quick press and release of the PTT. Select from the Group list if needed.	Phone Call is on hold and you are in Group standby mode.	N/A	Line 1: Group Name Line 2: Push-To-Talk	To return to Phone Call, press the button followed by the OK button to take the Phone Call off hold
Phone Call	Initiate a Person Link	N/A	Line 2: Hold Phn	Press the OK button followed by the button. Select the Link ID or name.	Phone Call is on hold. The button will enter Person Link Service.	N/A	Line 1: Link ID or name Line 2: Push-To-Link	To return to Phone Call, press the button followed by the OK button to take the Phone Call off hold

* = 2 Short, Medium-Pitched Tones.

Accessories

Carrying Accessories:

HLN9767	Wrist Strap
HLN9776	Plastic Carry Case Holster w/Swivel Belt Clip
HLN9777	Soft Leather Carry Case w/Open Keypad
HLN9782	Nylon Carry Case w/Belt Loop
HLN9786	Soft Leather Carry Case w/Protected Keypad

Battery Chargers:

HTN9018	120 V Desktop Rapid Charger w/Spare Battery Compartment
HTN9019	120 V Multi-Unit Rapid Charger

Batteries:

HNN9021	650 mAH NiMH Battery

Audio Accessories:

HMN9065	Lightweight Headset w/Swivel Boom Microphone
HMN9066	Flexible Ear Receiver – Mickey Microphone
HMN9067	Remote Speaker Microphone
HMN9068	Earbud w/Clip Microphone
HMN9069	Two-Piece Surveillance Microphone
HLN9070	Earpiece w/Volume Control
HLN9787	Earpiece without Volume Control
HLN9788	Earbud

LED Indications & Alert Tones

LED Indications

Radio Condition	LED Color(s)
Group Talk Transmit	Continuous Red
Group Talk Receive	Blinking Red
Person Link Transmit	Continuous Red
Person Link Receive	Blinking Red
Battery Charging Indicator LED: Rapid Charging Fully Charged Unsuccessful Charge	 Continuous Red Continuous Green Continuous Yellow

Alert Tones

Radio Condition	Alert Tone(s)
Successful Power-Up	Short, High-Pitched Tone
Unsuccessful Power-Up	Continuous, Low-Pitched Tone
Group Talk Permit	Two (2) Short, Medium-Pitched Access Tones followed by One (1) High-Pitched Permit Tone
Group Talk Busy Signal	Continuous, Low-Pitched Tone
Person Link Receive	Four (4) Short, Medium-Pitched Tones
Person Link Talk Permit	Two (2) Medium-Pitched Access Tones followed by One (1) High-Pitched Permit Tone
Person Link Target User Busy Signal	Two (2) Medium-Pitched Access Tones followed by One (1) Low-Pitched Tone
Valid (Good) Button Press	Short, High-Pitched Tone
Invalid Button Press	Short, Low-Pitched Tone
User Out of Range	Continuous, Low-Pitched Tone
System Busy Signal	Fast, Low-Pitched Tones
System Busy Auto Retry	Three (3) Short, High-Pitched Tones
Low Battery (approx. 5-10% charge remaining)	Two (2) Short, Low-Pitched Tones every ten (10) minutes
Time-Out Timer Expired	Continuous, Low-Pitched Tone
Other Incoming Communications	Two (2) Short, Medium-Pitched Tones

Troubleshooting

Symptom	Problem	Solution
1.	1a. 1b.	1a. 1b.
2.	2a.	2a.
3.	3a.	3a.
4.	4a. 4b. 4c. 4d.	4a. 4b. 4c. 4d.
5.	5a. 5b.	5a. 5b.
6.	6.	6a. 6b.
7. .	7.	7.
8.	8a. 8b.	8a. 8b.

Symptom	Problem	Solution

Symptom	Problem	Solution

Important Safety Information

Read this information before using your Communicator. For safe and efficient operation, observe these guidelines.

- Privacy of communications may not be ensured when using your Communicator. Your Motorola dealer may enable encryption for sensitive communications.

- Your Communicator complies with Part 15 of the U.S. FCC Rules and Industry Canada RSS-213. 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.

Scope

This document provides information and instructions for the safe and efficient operation of Motorola Portable Two-Way Radios.

The information provided in this document supersedes the general safety information contained in user guides published prior to 1st April 1999. For information regarding radio use in a hazardous atmosphere please refer to the Factory Mututal (FM) Approval Manual Supplement or Instruction Card which is included with radio models that offer this capability.

Exposure to Radio Frequency Energy

National and International Standards and Guidelines

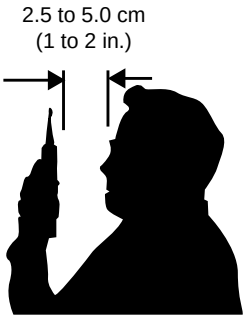
Your Motorola Two-Way Radio, which generates and radiates radio frequency (RF) electromagnetic energy (EME), is designed to comply with the following National and International Standards and Guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- Federal Communications Commission Report and Order No. FCC 96-326 (August 1996)
- American National Standards Institute (C95-1-1992)
- National Council on Radiation Protection and Measurements (NCRP - 1986)
- International Commission on Non-Ionizing Radiation Protection (ICNIRP - 1988)
- National Radiological Protection Board of the United Kingdom (GS11 - 1998)
- Verband Deutscher Elektrotechniker (VDE) DIN-0848
- Department of Health and Welfare Canada, Safety Code 6
- European Committee for Electrotechnical Standardization (CENELEC)
  - Env. 50166 - 1 1995E - Human Exposure to Electromagnetic Fields Low Frequency (0 Hz to 10 kHz)
  - Env. 50166 - 2 1995E - Human Exposure to Electromagnetic Fields High Frequency (10k Hz to 300 GHz)
  - Proceedings of SC211/8 1996 - Safety Considerations for Human Exposure to E.M.Fs from Mobile Telecommunications Equipment (M.T.E.) in the Frequency Range 30 MHz - 6 GHz (E.M.F - Electromagnetic Fields)

To assure optimal performance and that human exposure to radio frequency electromagnetic energy is within the guidelines set forth in the above standards, always adhere to the following procedures:

Portable Communicator Operation and EME Exposure

- When placing or receiving a Phone Call, hold the Communicator as you would a telephone. Speak directly into the mouthpiece and position the antenna up and over your shoulder.
- When using the Communicator as a two-way radio, hold the device in a vertical position with the microphone 1 to 2 inches (2.5 to 5.0 centimeters) away from your mouth. Keep the antenna at least 1 inch (2.5 centimeters) from your head and body.



- For body-worn operation, the antenna should be kept at least 1 inch (2.5 centimeters) from the body when transmitting.
- DO NOT hold the antenna when the Communicator is “IN USE.” Holding the antenna affects call quality and may cause the Communicator to operate at a higher power level than needed.

Electromagnetic Interference / Compatibility

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility.

Facilities

To avoid electromagnetic interference and/or compatibility conflicts, turn off your Communicator in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Medical Devices

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of 6 inches (15 centimeters) be maintained between a handheld wireless phone and a pacemaker. These recommendations are consistent with the independent research by, and recommendations of, Wireless Technology Research.

Persons with pacemakers should:

- ALWAYS keep the Communicator more than 6 inches (15 centimeters) from their pacemaker when the radio is turned on.
- NOT carry the Communicator in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference,
- Turn the Communicator OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some digital radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. your physician may be able to assist you in obtaining this information.

Operational Warnings

Potentially Explosive Atmospheres

Turn off your Communicator when you are in any area with a potentially explosive atmosphere, unless it is a type especially qualified for use in such areas (for example, Factory Mutual Approved). Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

NOTE: The areas with potentially explosive atmospheres referred to include fueling areas such as: below decks on boats; fuel or chemical transfer or storage facilities; areas where the air contains chemicals or particles, such as grain, dust or metal powders; and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

Batteries

Do not replace or charge batteries in a potentially explosive atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion.

Blasting Caps and Areas

To avoid possible interference with blasting operations, turn off your Communicator when you are near electrical blasting caps, in a blasting area, or in areas posted: “Turn off two-way radio”. Obey all signs and instructions.

Operational Cautions

Batteries

All batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewelry, keys, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Communicator Care

- Avoid physical abuse of your Communicator such as carrying it by the antenna or remote microphone.
- Wipe the battery contacts with a lint-free cloth to remove dirt, grease, or other material which may prevent good electrical connections.
- When not in use, keep the accessory jack covered with the protective cap.
- Clean the Communicator exterior using a cloth moistened with water.

CAUTION: Use of chemicals such as detergents, alcohol, aerosol spray, and/or petroleum products may be harmful and damage the housing and cover.

Batteries and Chargers

IMPORTANT: The battery is shipped from the factory uncharged and must be charged before use.

Charging Batteries

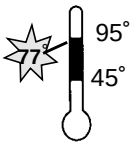
To ensure peak performance, batteries should be fully charged before use and periodically thereafter. The battery lasts approximately 40 hours when fully charged. Standard use has a 5-5-90 duty cycle. This means during normal use, the average

user transmits 5%, receives 5%, and remains in battery conservation mode 90% of the time. If the unit is continuously transmitting and receiving, battery life will be approximately 5 hours. A battery conversation time of up to 300 hours is achievable between charging cycles.

Please observe the following precautions while handling and charging batteries:

Charging Temperatures

Charging batteries in cold temperatures (below 45° F) can result in electrolyte leakage and may destroy the battery. Charging in hot temperatures (above 95° F) will not damage the battery, but will reduce charge capacity. Charge batteries at approximately 77° F.



WARNING: To reduce risk of injury, charge only Motorola NiMH type rechargeable batteries listed. Other types of batteries may burst, causing personal injury and damage.

Recharging NiMH Batteries

Recharge the battery before use to ensure optimum capacity and performance. Your battery was designed to be used only with a Motorola charger, specifically designed for your Communicator. Charging in non-Motorola equipment may lead to battery damage and void the battery warranty.

IMPORTANT: While charging a battery that is inside your Communicator, turn the device off to ensure a proper charge.

Recycling / Disposal of Batteries

WARNING: Batteries contain hazardous substances. do not dispose of any batteries in a fire as they may explode!

The U.S. Environmental Protection Agency (EPA) classifies used NiMH batteries as hazardous waste, unless certain exemptions apply.

At the end of your battery's useful life, it can be recycled. However, recycling facilities may not be available in all areas. Under various state or local laws, such batteries must be recycled or disposed of properly, and cannot be dumped in landfills or incinerators.

Motorola fully endorses and encourages the recycling of NiMH batteries. In the United States, you can ship your NiMH batteries to the following address post paid to be recycled:

INMETCO
P.O. Box 720
245 Porteville Road
Ellwood City, PA 16117
Tel: (412) 758-5515
Fax: (412) 758-9311

You should consider the methods of collecting, labeling, and shipping used NiMH batteries. Consult your federal, state, or local EPA for specific legal requirements and for recycling options in your area.

Motorola, as a responsible corporate citizen, has always been concerned with the protection of the environment. Please feel free to call our toll-free number,1-800-422-4210, for further battery information.

Battery Charger

- To reduce risk of injury, charge only the rechargeable Motorola authorized batteries. Other batteries may explode, causing personal injury and damage.
- Use of accessories not recommended by Motorola may result in risk of fire, electric shock, or injury.
- To reduce the risk of damage to the electric plug and cord, pull by the plug rather than the cord when disconnecting the charger.
- An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in risk of fire and electric shock. If an extension cord must be used, make sure that the cord size is 18AWG for lengths up to 15 feet (4.62mm).
- To reduce risk of fire, electric shock, or injury, do not operate the charger if it has been broken or damaged in any way. Take it to a qualified Motorola service representative.
- Do not disassemble the charger; it is not repairable and replacement parts are not available. Disassembly of the charger may result in risk of electrical shock or fire.
- To reduce risk of electric shock, unplug the charger from the ac outlet before attempting any maintenance or cleaning.
- This equipment is not suitable for outdoor use. Use only in dry locations/conditions.
- Connect equipment only to an appropriately fused and wired supply of the correct voltage (as specified on the product).
- When not in use, disconnect the transformer from the ac outlet.
- The socket outlet to which the transformer is connected should be close by and easily accessible.
- In equipment using fuses, replacements must comply with the type and rating specified in the equipment instructions.
- Maximum ambient temperature around the transformer unit must not exceed 40˚C (104˚F).
- Output power from the transformer unit must not exceed the ratings stated on the product label located on the bottom of the charger.
- Make sure the cord is located where it will not be stepped on, tripped over, or subjected to water, damage, or stress.

Licensing

This system operates in the 1.9 GHz Unlicensed Personal Communications Services (UPCS) band. The protocol is a derivative of the Personal Handyphone System (PHS) called Personal Advanced Communications Systems (PACS) that meets the FCC Part 15 Rules and Etiquette. The access method used is Time Division Multiple Access (TDMA) also managed and coordinated by UTAM, Inc. as designated by FCC Part 15 Rules.

Your Communicator operates on FM radio communication frequencies and is subject to the rules and regulations of the local communications governing agencies.

The following is a list of communications agencies in various countries:

United States
Federal Communications Commission
Consumer Assistance
Branch License Division
Gettysburg, PA 17326
Tel (717) 337-1212

Canada
Contact your regional industry Canada licensing office.

Mexico
Secretaria De Comunicaciones Y Transportes
Direccion General De Politicas
Y Normas De Comunicaciones
Av. Eugenia No. 197-5o. Piso
Mexico, D.F. 06700

If your country is not listed, contact your local Motorola dealer for licensing information.

Service

Because this unit contains a radio transmitter, most local governments prohibit anyone from making internal adjustments to the transmitter unless specifically licensed to do so by government regulations. If your Communicator fails to operate or any operational difficulties arise, contact your local Motorola dealer.

Proper repair and maintenance procedures assure efficient operation and long life for your Communicator. Frequency, power and deviation must be checked at least once yearly.

Computer Software Copyrights

The Motorola products described in this manual may include copyrighted Motorola computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted computer programs, including the exclusive right to copy or reproduce in any form, the copyrighted computer program. Accordingly, any copyrighted Motorola computer programs contained in the Motorola products described in this manual may not be copied or reproduced in any manner without the express written permission of Motorola. Futhermore, the purchase of Motorola products shall not be deemed to grant, either directly or by implication, estoppel or otherwise, any license under the copyrights, patents or patent applications of Motorola, except for the normal non-exclusive royalty-free license to use that arises by operation of law in the sale of a product.