

APPENDIX 5
USER'S GUIDE

FOURTEEN (14) PAGE USER GUIDE FOLLOWS THIS SHEET

USER GUIDE
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APPENDIX 5

RT800 User Guide

Draft

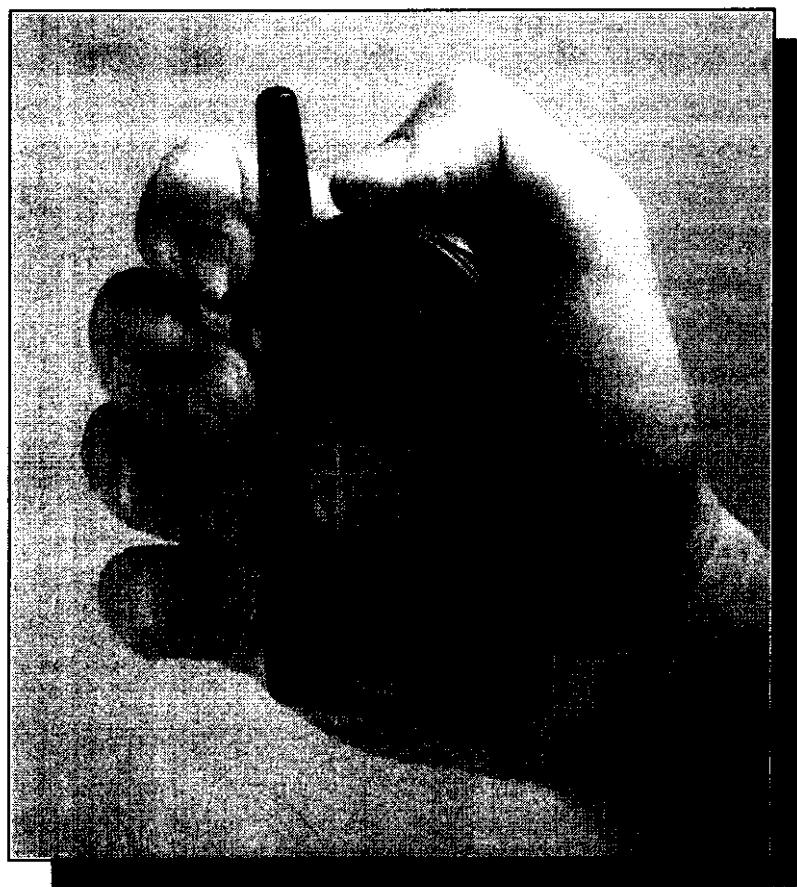


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1 Important Information

1.1 Welcome

Welcome to ReadyTalk! Your handset was created to simplify communications with your friends, family and co-workers. At any time you can receive a voice message with this handset at your side. You can record and send a reply to a message with the touch of a button. You can send messages to other ReadyTalk customers. You can record memos to yourself. You can also dial 911 in cases of emergency.

1.2 Things to Remember

A charged battery must be attached to your handset for it to operate.

Your handset must be powered on to receive and send messages or to call 911.

If your handset is powered on and you have not pressed any keys for 20 seconds your handset will "rest" to preserve battery power. While your handset is "resting" some of the icons or numbers will disappear. To "wake up" the display, press the "Function" key .

If nothing shows on your display your handset is powered off.

The antenna must be attached to your handset for it to operate.

1.3 Charging your Battery

Your handset's battery needs to be recharged every 24 hours. Connect the AC Adapter charger to the charging port on the left side of your handset.

The battery icon  on your display flashes while the battery is charging.

When the battery is charged the battery icon will disappear. Charging the battery takes approximately one hour. Other accessories are available for charging batteries and for charging your handset's battery in your car.

2 How the System Works

2.1 The Cellular Network

Your handset sends and receives messages and makes live 911 calls over the cellular network. The cellular carrier in your area can provide service to you locally or covering a larger territory.

2.2 ReadyCom VoiceMail Server (RVS)

The ReadyCom VoiceMail Server (RVS) is a computer that stores thousands of messages and routes them to ReadyTalk handsets via the cellular network. When you dial your ReadyTalk phone number, you are calling a mailbox on the RVS that is specialized for you. When a caller leaves a message in your mailbox, the RVS will contact your handset and deliver the message. A copy of the message will stay in your mailbox on the RVS.

To specialize your mailbox on the RVS, call your ReadyTalk phone number from any touch tone phone.

- You will hear instructions to record a greeting. The greeting is what people will hear when they call you, just like an answering machine.
- You will also hear instructions to record your name. The recording of your name will be entered into a directory so others can ReadyTalk you. Your recorded name will be sent to other ReadyTalk customer's Send Message List. The Send Message List is stored in your handset and allows you to select a message recipient by their name.
- You will also hear instructions to enter a passcode. Make sure you choose numbers or letters that you will remember easily. You will need to enter your passcode to listen to your messages if you are calling in to the RVS. You will need to enter your passcode to change any of the specializing features. You do not need your passcode to listen to messages on your handset.
- You will also hear instructions about setting up your Send Message List. Your Send Message List is a list of other ReadyTalk customers to whom you would like to send messages from your handset. Your Send Message List will be delivered to your handset from the RVS after you hang-up.

Your handset will ring or vibrate to let you know your Send Message List has arrived.

At any time, from a touch-tone phone and using your passcode, you may record over your greeting or name, change your passcode and add or delete names from your Send Message List.

The RVS has many special settings that you can choose. These special settings are called "User Options". The RVS has voice prompts to help you find your way.

2.3 Store and Forward Messaging

The ReadyTalk system is made up of three parts: your handset, the RVS, and the cellular network.

When you record a message from your handset to send to another ReadyTalk customer, your handset stores the message and calls it a "Pending Message". As soon as the display "rests", your handset will automatically call the RVS and deliver the pending message. This process takes a matter of seconds, but it is important to remember that you must leave your handset powered on until the pending message is sent.

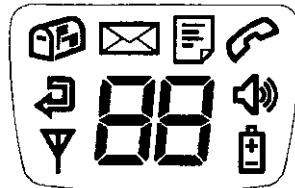
2.4 How Reply Works

If a caller using a touch-tone phone requests a reply after recording their message, they will receive a 3-digit code from the RVS. You can reply to their message from your handset or by calling into the RVS. The caller receives your reply by calling your ReadyTalk number, pressing "1" and entering the 3-digit code. The caller is then given the time their message was sent to you and your recorded reply.

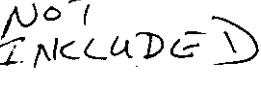
If another ReadyTalk handset is sending a message to you, it is automatically reply able. ReadyTalk handset users can send messages back and forth to each other with the touch of a button.

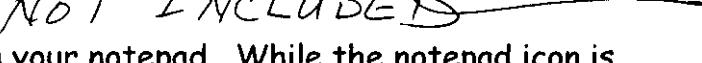
3 Icons

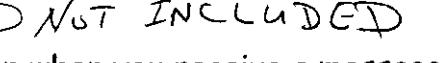
3.1 Display Icons



Some icons on your display light to signify the Mode of Operation that you selected. Other icons light to notify you of special circumstances. The middle of your display shows two digits. These numbers will indicate the message number that is active, the person to which you would like to send a message or the memo number that is active. These numbers flash to indicate new messages.

✉ Your messages are stored in your mailbox. Messages are numbered in the order they are received. The flag on the mailbox is lowered  to show that you are reviewing received messages. While the lowered flag mailbox icon is displayed, , the numeric display shows the number given to the received message. Pending messages are listed after your received messages. Pending messages are messages you have recorded that have not yet been sent. Pending messages are sent once the display "rests". Just like a mailbox on a home, the flag on the mailbox is raised, , to signify outgoing messages or pending messages. While the raised flag mailbox icon is displayed, , the numeric display shows a "P" followed by the number given to the pending message. See section 3.3.1 Reviewing Your Messages. 

✉ To send a message to another ReadyTalk customer, light up the envelope. While the envelope icon is displayed, , the numeric display shows the slot number of the ReadyTalk customer. See section 3.3.2 Recording and Sending Messages. 

✉ Your memos are stored on your notepad. While the notepad icon is displayed, , the numeric display shows the number given to the memo. See section 3.3.4 Recording and Reviewing Memos. 

🔊 To change the notification sound or vibration when you receive a message, light up the speaker icon. The sound waves, , remain on your display if you choose an audible alert setting. If you choose to have a vibrating alert, the sound waves do not remain on the display. While the speaker icon is displayed, , the numeric display shows the number of the alert choice.

To place a live call to 911, press the  key and then the "Talk" key . The display shows  and  during a live cellular call.

The reply icon, , signifies that a received message in your mailbox, , is reply able. The numeric display shows the number of the Replyable message. See section 2.4 How Reply Works and section 3.3.2 Recording and Sending Messages.

The out of range icon, , displays to warn you that the location's cellular coverage is insufficient to receive or send messages. See section 2.1 The Cellular Network.

The battery icon flashes to warn you that you need to recharge your battery. See section 1.3 Charging your Battery.

3.2 Keypad Icons and Functionality

The "Function" key  powers your handset on or off. You must press it for 1 and a half seconds. Press the "Function" key  to cycle through the Modes of Operation. Each Mode of Operation is signified by an icon on your display , , , . Press the "Function" key  to escape any operation you are involved in. The "Function" key  also "wakes up" your handset if your display is "resting".

The "Play/Pause" key  alternates between playing and pausing the displayed message or memo. The "Play/Pause" key  skips through the voice prompt day and time information announced at the beginning of a message.

The "Play/Pause" key  replays the name of the displayed slot number in the send message list .

The "Seek Forward" key  scrolls forwards through the slot numbers of your send message list  and the messages in your mailbox  and on your notepad . The "Seek Forward" key  begins accelerated playback while the button is pressed and held. If a displayed message or memo is paused, pressing the "Seek Forward" key  scrolls to the next message or memo.

The "Seek Backward" key  scrolls backwards through the slot numbers of your send message list  and the messages in your mailbox  and on your notepad . The "Seek Backward" key  begins accelerated scrolling backwards through lists while the button is pressed and held. If a displayed message or memo is paused, pressing the "Seek Backward" key  resets to the beginning of the message. A second press of the "Seek Backward" key  causes a reset to the beginning of the previous message.

A double press of the "Erase" key causes the displayed message or memo to be erased. If the "Erase" key is not pressed a second time within three (3) seconds, the erase process is cancelled. The "Erase" key erases all messages or all memos when pressed and held for 1 and a half seconds and pressed again. If the "Erase" key is not pressed a second time within three (3) seconds, the erase process is cancelled. The "Erase" key also changes the alert ring/vibrate status in Alert Mode .

The "Talk" key  both initiates and terminates the recording process for a send message, reply, or memo. The "Talk" key  also initiates and terminates the full-duplex emergency call.

The "Volume" key  controls the volume. Quickly pressing the key increases the volume one level. Pressing and holding the "Volume" key  causes the sound to ramp to the maximum, to skip immediately to the minimum, and then to ramp to the maximum again. Release the button when the volume is at the setting you desire. The volume selection remains as set unless you change it. The volume setting remains set even after your handset is powered off. Voice prompts announce "One" (lowest setting) through "Eight" (highest setting) for each associated volume change if you are not playing a message, memo or conversing.

Pressing the  key starts the process for a full duplex call with an emergency operator. The "Talk" key  must be pressed within (8) seconds of pressing the  key to initiate the emergency call. The  key returns the unit to an active state from "rest" and starts the process for a full duplex call with an emergency operator.

4 Modes of Operation

4.1 Reviewing Your Messages

The messages you receive are numbered and listed in your mailbox. Your mailbox appears first when you power on or wake up your handset. If another icon is lighted, you can press the "Function" key  to cycle around to the mailbox.

When you record messages to send (pending messages) they are listed in your mailbox following your received messages. Your pending messages are numbered with a "P" prefix and they automatically disappear from your mailbox when they are sent.

To scroll through your messages press either Seek Backward  or Seek Forward  keys. To rapidly scroll through your messages press and hold either key.

To play a message, press the "Play/Pause" key . You will hear a recording of the time and day the message was recorded and then the message. If you want to skip the time and day recording then press the "Play/Pause" key  again.

To stop a message that is playing, press the "Play/Pause" key . The message is paused. You can erase the message, play the message again, scroll to other messages or move to another Mode of Operation.

To erase a message, scroll until the message number you want to erase is displayed. Press the "erase" key twice. If you only press "erase" once, you will hear a voice prompt to help you remember. When you erase a message, subsequent messages in your mailbox are renumbered.

To erase all of your messages, make sure the mailbox is lighted  and press and hold the "erase" key. You will hear a voice prompt to remind you to "Press erase again to delete all messages." Press "erase" again and your mailbox will be empty.

You have to erase messages and memos separately.

4.2 Recording and Sending Messages or

Read Section 2.2 How Reply Works

Read Section 2.3 Store and Forward Messaging

You can record a reply for a message in your mailbox, . If a message in your mailbox is reply able, you will hear a voice prompt after you play the message and your display will show the "reply" icon, . When the reply able message number is showing on the display, press the "Talk" key  to record a reply. You will hear a tone that lets you know recording has started. Press the "Talk" key  again to end your recording. Your recorded reply is now a pending message in your mailbox .

Read Section 2.1 ReadyCom VoiceMail Server

You can record a message for someone in your Send Message List. Press the "Function" key  until you see the envelope icon, . The numbers on the display show the slot number for the ReadyTalk customers you want in your list. A voice prompt announces the name of the person when the slot number is displayed. If you want to repeat this voice prompt press the "Play/Pause" key . To scroll through your list press either Seek Backward  or Seek Forward  keys. To rapidly scroll through your messages press and hold either key.

When you find the slot for the person to whom you would like to send a message, press the "Talk" key . You will hear a tone that lets you know recording has started. Press the "Talk" key  again to end your recording. Your recorded message is now a pending message and is stored in your mailbox, .

Your Send Message List is modified by calling from a touch tone phone to the RVS.

4.3 Live Calls

To place a 911 emergency call, press the **911** key and then press the "Talk" key **0**. The display shows  and **911**. A voice prompt will remind you to "Press the red 'Talk' key **0** to dial 911" in case you only press the **911** key. The voice prompt will repeat for 8 seconds before the process is cancelled.

After pressing **911** and "Talk" **0**, your handset calls 911 and connects you live to an emergency call operator. When you are finished with the call, press the "Talk" key **0**.

4.4 Recording and Reviewing Memos

Memos are recorded and stored on your notepad, . A few presses of the "Function" key  will light the notepad icon, . To record a memo, press the "Talk" key **0**. You will hear a tone that lets you know recording has started. Press the "Talk" key **0** again to end your recording. Your recorded memo is stored on your notepad, , and is given a number.

To scroll through your memos press either the Seek Backward  or Seek Forward key . To rapidly scroll through your memos press and hold either key.

To play a memo, press the "Play/Pause" key . To stop a memo that is playing, press the "Play/Pause" key . The memo is now paused. You can erase the memo, play the memo again, scroll to other memos or move to another Mode of Operation.

To erase a memo, scroll until the memo number you want to erase is displayed. Press the "erase" key twice. If you only press "erase" once, you will hear a voice prompt to help you remember. When you erase a memo, subsequent memos on your notepad are renumbered.

To erase all of your memos, make sure the notepad is lighted , press and hold the erase key. You will hear a voice prompt to remind you that you will

be erasing all of your memos if you press **erase** again. Press "**erase**" again and your notepad will be empty.

Memos are never sent to the RVS or other handsets.

4.5 Ring or Vibrating Alert

When your handset receives a message it will ring or vibrate to notify you. You have a variety of alert rings to choose from as well as a vibrating alert. Alert choices are found with a few presses of the "Function" key  to light the speaker icon, . Pressing the erase key toggles between ring and vibration. The speaker icon's sound waves disappear to show you have selected vibration, . If you choose to have a ringing alert, , the numeric display shows the alert choices. You can play a sample of the alert by pressing the "Play/Pause" key . To scroll through the alert choices press either the Seek Backward  or Seek Forward key . To change the volume of your selected ring, press the "Volume" key . To set your selection, make sure the number of your alert choice shows on the display as you press the "Function" key  to leave or time-out. If you choose a ring alert, the sound wave icon  remains on the display.



5 Advanced Features

5.1 User Menu

6 Accessories

AC Charger The charger consists of an adapter, cord and a jack. The charger adapts and delivers current from a wall outlet to the port in the side of Echo. The AC charger rapidly charges the battery connected to the handset in one (1) hour. The AC charger is included in the standard package and is sold separately as an accessory.

DC Charger The charger consists of an adapter, cord and a jack. The charger delivers current from an automobile's cigarette lighter outlet to the port in the side of Echo. The DC charger rapidly charges the battery connected to the handset in one (1) hour. The DC charger is sold separately as an accessory.

Dual Port Charger The dual port charger consists of an adapter, cord, circuit board and plastic port for an Echo with a battery attached and an additional battery. The charger delivers current from a wall outlet to the battery contacts on the bottom of the batteries. The charger rapid charges the battery connected to the Echo in one (1) hour first and then the stand-alone battery in one (1) hour. The dual port charger is sold separately as an accessory.

Plastic Holster The holster consists of a plastic piece and a clip. The holster protects the handset and provides several ways to wear the handset. The holster allows access to Echo's side charging port. The plastic holster is included in the standard package and is sold separately as an accessory.

Dash Mount The dash mount consists of a plastic piece and adhesive for mounting. The dash mount attaches to an automobile's dashboard, a wall, etc. The plastic holster clip slips into the dash mount to provide a stationary holder for Echo while it is charging or not being worn by the user. The dash mount would ~~be~~ sold separately as an accessory.

Lanyard Strap? The strap for the lanyard consists of a synthetic material in the shape of a loop. The strap fits around the lanyard and to provide a way to carry the handset. Other options for straps include a chain with a clasp on both ends, a portion of hiking rope or bungee cord with a clasp on both ends. The lanyard strap options would be sold separately as accessories.

Case Glove Design The case consists of leather or nylon, a zipper closure, a clip and a metal ring for a strap. This design is tight fitting, but has clear plastic cover for the buttons and display. The case protects the handset and provides a way to carry the handset. The leather case is black or brown in color. The cordura synthetic cases come in a variety of colors. The cases would ~~be~~ sold separately as an accessory.

~~be sold~~

Slimline Battery The slimline battery is a 4.8 V, 880 mAh and NiMH. The slimline battery is in the standard package and is sold separately as an accessory.

High Capacity Battery The high capacity battery is a 4.8 V, 1250 mAh and NiMH. The high capacity battery is sold separately as an accessory.

7 Technical Specifications

Number of Channels:	832
Frequency Range:	TX: 824.040 - 848.970 MHz RX: 869.040 - 893.970 MHz
Nominal Temperature:	-10°C to 50°C
Protocol:	AMPS Cellular with the ReadyTalk Voice Communication System
RF Output Power:	600 mW nominal
Battery (standard):	4.8V 880 mAh Ni-MH
Battery Life:	
Individual or Group Send Ids:	30
Message Storage Time:	10-14 minutes of messages and memos
Dimensions (WxHxD):	58 mm x 91 mm x 29 mm
Weight:	5.3 ounces / 148 grams

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APPENDIX 6
TRANSCEIVER ALIGNMENTTransmitter Tune-up Procedure

1. Power on the radio.
2. Put the radio in standby state. Lock the local oscillator to cellular channels.
3. Put the radio in transmit setup state. The transmit modulator is a voltage-controlled oscillator and its frequency is tuned to oscillate at 90 MHz by a phase-lock loop synthesizer. It takes less than 40 milliseconds for the frequency to settle down. The transmit frequency can be adjusted by varying the value in DAC #2. During transmit setup state, the power detector, the exciter, and the negative DC/DC converter are powered on. The mixer up-converter is keyed off so that no RF signal will be generated. The FET switch is turned off and the power supply is shut down to the power amplifier in order to guarantee less than -60 dBm spurious power output.
4. Put the radio in full duplex state. The power amplifier is keyed on by turning on the FET switch. The mixer up-converter is also keyed on to let RF signal go to the exciter and be amplified by the power amplifier.

APPENDIX 7

CIRCUITS FOR ESTABLISHING AND STABILIZING
CARRIER FREQUENCY

The RF frequency of a voltage-controlled oscillator is divided by a prescalor in ACE9020 and fed into the synthesizer in ACE9030. A temperature-compensated crystal oscillator (TCXO) feeds clock signal into the same synthesizer in ACE9030. The temperature stability of the TCXO is ± 2.5 ppm from -30 to 60 degree C. The synthesizer compares the divided RF frequency and the divided TCXO clock frequency and generates a clean DC voltage to control the voltage-controlled oscillator. Because the temperature stability if the TCXO meets the specifications and the RF frequency is controlled by the TCXO and synthesizer, the RF frequency will be stabilized over specified temperature variation range.

The crystal oscillator consists of a crystal element, transistor oscillation circuitry, and a temperature compensation network. The network provides the equivalent capacitance deviation for temperature change.

CIRCUITS FOR ESTABLISHING
AND STABILIZING ETC.
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APPENDIX 8

CIRCUITS TO SUPPRESS SPURIOUS EMISSIONS, LIMIT
MODULATION AND ESTABLISH OUTPUT POWER LEVELA. TRANSMITTER SPURIOUS SUPPRESSION

A duplexer, employed between the power amplifier and the antenna, attenuates spurious emissions.

B. CIRCUITS OR DEVICES EMPLOYED FOR LIMITING MODULATION:

There are two limiters in the circuit: a soft limiter and a hard limiter. The soft limiter operates as an AGC system, controlled by the signal amplitude at the compressor input and the hard limiter output. If the signal is too large at either of these points the soft limiter forward gain is reduced. To ensure compliance with the peak deviation specification for cellular telephone system, a hard limiter follows the pre-emphasis filter to remove any transient level changes that have pass through the soft limiter. This limiter will also handle large signals and has symmetrical clipping levels close to the supply rails VDD and VSS. an 8 dB attenuator follows the limiter to prevent any further clipping of the signal in the following transmit lowpass filter.

C. DIGITAL MODULATION

Transmitted data is a 10 kHz Manchester encoded data stream. It passes a 4th order Butterworth low-pass filter with a 20 kHz 3 dB cut-off frequency to filter out sharp transitions and is fed to the FSK modulator.

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APPENDIX 9
SAR TEST DATA

(To Be Submitted As An Amendment)

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