INSTRUCTION MANUAL

A preliminary draft copy of the Users Manual follows:

EXHIBIT 8

Introduction

Welcome

Thank you for choosing your Motorola phone from a global leader in communications technology. All Motorola digital cellular phones are designed and manufactured to meet Motorola's rigorous specifications and world-class quality standards. During development, our laboratory testing team took your cellular phone through rigorous durability tests including temperature, humidity, shock, dust, vibration, and drop tests- and the phone still worked!

We are confident that the phone you purchased will meet your own exacting standards. Enjoy your Motorola phone.

Understanding this Manual

Many of your phone options are accessed by a simple menu system. A full description of the menus and how to move around them is covered in the next section **Menu Navigation**. When the manual describes the use of each menu item, it will be assumed that you are familiar with the menu system.

Key Presses

Key presses are represented in this manual using symbols so that you may locate and use the required sequence quickly. A sequence of key presses may be shown as follows:

(FCN) (0) (7) (CLR)

This means you should press (FCN) followed by (0), (7), and then (CLR), in sequence, not simultaneously.

Prompts and Messages

Your phone responds to key presses by displaying either easy to understand prompts that guide you to the next action, or simple messages confirming that your action is complete. Prompts and messages are represented in this manual in LCD style, for example:

Enter 1st Letter or Location ___

Other Symbols

You will find the following symbols used throughout this manual:

☞ *A Note contains additional information which is relevant to the feature/item.*

❗**A Caution contains important additional information which is relevant to the efficient and/or safe usage of your phone.**

⚡ *This symbol indicates a short key sequence for the feature.*

Menu Navigation

A large number of your phone's options are accessed by using menus which use a common approach for selection, change and cancellation.

Please read this section carefully before attempting to access a menu option. When you understand the common approach to menu navigation and how the menus are shown on the page, you will be able to access and change options with ease.

Menus and Sub-menus

A menu is a simple list of options. Some of these options provide access to a further list of options called a sub-menu. When navigating through the menus you may find it is helpful to think in terms of menu levels - the 'parent' menu being on one level and its sub-menus being on a lower level.

Entering the Menus

Press Ⓕ then press ① or the Smart Button (◉) to enter the menu system.

Navigating the Menus

You can navigate through the menu system using the volume keys located on the left side of the phone and the Smart Button (◉) located on the right side of the phone. Use the upper and lower volume keys to scroll to sub-menus. Use the Smart Button to choose menus and functions.

Follow these symbols as a guide for using the keys on the side of your phone:

Press ◉ to scroll up.

Press ◉ to scroll down.

Press ◉ to select.

You can also use your phone's ◂✳ and #▸ keys to scroll through the menu system.

Leaving the Menus

Press Ⓔ to exit the menu.

Menu Options with Security Codes

Some options are protected from misuse by requiring you to enter one of the security codes. To use these options, you must enter the requested code before proceeding.

Total Customer Satisfaction

At Motorola, Total Customer Satisfaction is a top priority. If you have a question, a suggestion or a concern about your Motorola Cellular Phone, Motorola wants to hear from you.

Please contact the Motorola Cellular Response Center by calling one of the local phone numbers in the following countries:
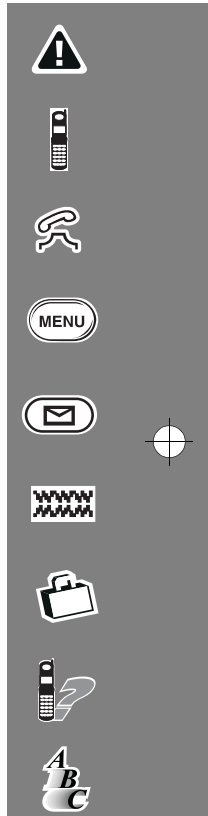
Austria	0800 297246
Belgium	0800 72 370
Czech Republic	00420 2 21 85 21 01
Denmark	4348 8005
Egypt	02 3411800
Eire	01 402 6887
Finland	0800 117 036
France	0 803 303 302
Germany	0180 35050
Greece	00800 441 28150
Italy	02 696 333 16
Jordan	06 863750
Kuwait	484 2000 Ext 1177
Lebanon	01 744156
Luxembourg	0800 21 99
Netherlands	0800 022 27 43
Norway	22 55 10 04
Oman	790925
Portugal	21 318 0051
Qatar	418999
Saudi Arabia	01 2303294
South Africa	0800 11 48 49
Spain	902 100 077
Sweden	08 445 1210
Switzerland	0800 553 109
Turkey	0212 425 9090
UK	0500 55 55 55
United Arab Emirates	04 32 11 66
Hong Kong	852 25063888
People's Republic of China	86 10 68466060
Singapore	65 4855 333
Taiwan	886 2 87731746
United States of America	1 800 331 6456
Canada	1 800 461 4575

For e-mail questions contact:mcrc@ei.css.mot.com

For Internet questions contact:http://www.motorola.com

Contents

The Manufacturer reserves the right to make changes in technical and product specifications without prior notice.

Safety

Wireless Phone Safety Tips
"Safety is your most important call!"

Your Motorola wireless telephone gives you the powerful ability to communicate by voice - almost anywhere, anytime, wherever wireless phone service is available and safe conditions allow. But an important responsibility accompanies the benefits of wireless phones, one that every user must uphold.

When driving a car, driving is your first responsibility. If you find it necessary to use your wireless phone while behind the wheel of a car, practice good common sense and remember the following tips:

1. Get to know your Motorola wireless phone and its features such as speed dial and redial. If available, these features help you to place your call without taking your attention off the road.

2. When available, use a hands-free device. If possible, add an additional layer of convenience to your wireless phone with one of the many Motorola Original hands-free accessories available today.

3. Position your wireless phone within easy reach. Be able to access your wireless phone without removing your eyes from the road. If you receive an incoming call at an inconvenient time, if possible, let your voice mail answer it for you.

4. Let the person you are speaking with know you are driving; if necessary, suspend the call in heavy traffic or hazardous weather conditions. Rain, sleet, snow, ice, and even heavy traffic can be hazardous.

5. Do not take notes or look up phone numbers while driving. Jotting down a "to do" list or going through your address book takes attention away from your primary responsibility-driving safely.

6. Dial sensibly and assess the traffic; if possible, place calls when you are not moving or before pulling into traffic. Try to plan calls when your car will be stationary. If you need to make a call while moving, dial only a few numbers, check the road and your mirrors, then continue.

7. Do not engage in stressful or emotional conversations that may be distracting. Make people you are talking with aware you are driving and suspend conversations which have the potential to divert your attention away from the road.

8. Use your wireless phone to call for help. Dial 9-1-1 or other local emergency number in the case of fire, traffic accident or medical emergencies.[1]

9. Use your wireless phone to help others in emergencies. If you see an auto accident, crime in progress or other serious emergency where lives are in danger, call 9-1-1 or other local emergency number, as you would want others to do for you.[1]

10. Call roadside assistance or a special non-emergency wireless assistance number when necessary. If you see a broken-down vehicle posing no serious hazard, a broken traffic signal, a minor traffic accident where no one appears injured, or a vehicle you know to be stolen, call roadside assistance or other special non-emergency wireless number.[1]

---

[1]. Wherever wireless phone service is available.

Safety **7**

⚠️

Check the laws and regulations on the use of wireless telephones and their accessories in the areas where you drive. Always obey them. The use of these devices may be prohibited or restricted in certain areas.

For more information, please call 1-888-901-SAFE or visit the CTIA website at www.wow-com.com ™ .

Safety Information

IMPORTANT

Read this information before using your wireless handheld phone.

Exposure To Radio Frequency Signals

Your wireless handheld portable telephone is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.

In August 1996, The Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. Those guidelines are consistent with safety standards previously set by both U.S. and international standards bodies:

- American National Standards Institute (ANSI) IEEE. C95. 1-1992
- National Council on Radiation Protection and Measurement (NCRP). Report 86
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1996
- Ministry of Health (Canada), Safety Code 6

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).

The design of your phone complies with the FCC guidelines (and those standards). For additional information concerning exposure to radio frequency signals, see the statement by the FDA at the end of this user guide.

To maintain compliance with FCC RF exposure guidelines, if you wear a handset on your body, use the Motorola-supplied or approved carrying case, holster, or other body-worn accessory. If you do not use a body-worn accessory, ensure the antenna is at least one inch (2.5 centimeters) from your body when transmitting. Use of non-Motorola accessories may violate FCC RF exposure guidelines.

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

Phone Operation

Normal Operation

Hold the phone as you would any other telephone, with the antenna pointed up and over your shoulder.

Tips on Efficient Operation

Observe the following guidelines to operate your phone most efficiently.

- Extend your antenna fully, if applicable.

- Do not touch the antenna unnecessarily when the phone is in use. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed.

Batteries

Caution: All batteries can cause property damage, injury, or burns if a conductive material, such as jewelry, keys or beaded chains, touches exposed terminals. The material may complete an electrical circuit and become quite hot. To protect against such unwanted current drain, exercise care in handling any charged battery, particularly when placing it inside your pocket, purse, or other container with metal objects. When the battery is detached from the phone, your batteries are packed with a protective battery cover; please use this cover for storing your batteries when not in use.

Driving

Check the laws and regulations on the use of wireless telephones in the areas where you drive. Always obey them. Observe the following guidelines when using your phone while driving.

- Give full attention to driving--driving safely is your first responsibility.
- Use hands-free phone operation, if available.
- Pull off the road and park before making or answering a call if driving conditions so require.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain equipment may not be shielded against the RF signals from your wireless phone.

Pacemakers

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

Persons with pacemakers:

- should ALWAYS keep the phone more than six inches from their pacemaker when the phone is turned ON
- should not carry the phone in a breast pocket
- should use the ear opposite the pacemaker to minimize the potential for interference
- should turn the phone OFF immediately if you have any reason to suspect that interference is taking place

Hearing Aids

Some digital wireless phones 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 external RF energy. Your physician may be able to assist you in obtaining this information.

Turn your phone OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted Facilities

Turn your phone OFF in any facility where posted notices so require.

Aircraft

Switch OFF your phone before boarding an aircraft.

Airline regulations prohibit using your phone while in the air. Check and comply with the policy of your airline regarding the use of your phone while the aircraft is on the ground.

Blasting Areas

To avoid interfering with blasting operations, turn your phone OFF when in a "blasting area" or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

Potentially Explosive Atmospheres

Turn your phone OFF, do not remove your battery when you are in any area with a potentially explosive atmosphere, and obey all signs and instructions. Sparks from your battery in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often but not always clearly marked. They include: fueling areas such as gasoline stations; below deck on boats; fuel or chemical transfer or storage facilities; areas where fuel odors are present (for example, if a gas/propane leak occurs in a car or home); areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you normally would be advised to turn off your vehicle engine.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. Do NOT place objects, including both installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

About Your Phone and Battery

Phone Overview

Your phone includes the following features:

Stub Antenna—Provides superior connectability.

Earpiece—Ultra-compact phone speaker.

Power Connector Port—Provides the connections for an external power supply and vehicular accessories.

Headset Jack—Provides the connection for an optional headset.

Microphone—Positioned for convenient conversation.

Alphanumeric Display—Displays your input from the keypad, information recalled from memory, and other messages.

Function Keys

Ⓞ—Turns the phone On and Off.

ⒻⒸⓃ—Acts as a "shift" key to access the secondary functions of other keys.

Ⓡ Ⓒ Ⓛ—Recalls phone numbers from memory and acts as the left soft key for MiniBrowser navigation.

Ⓢ Ⓣ Ⓞ—Stores phone numbers into memory and acts as the right soft key for MiniBrowser navigation.

Ⓒ Ⓛ Ⓡ—Clears characters from the screen.

Ⓔ Ⓝ Ⓓ—Ends phone calls.

Ⓢ Ⓝ Ⓓ—Places or answers calls.

(◄*) and (#►)—Can be used to scroll through memory entries and menu features.

✉ **Messaging Menu button**—Opens messaging menus.

◉ **Smart Button**—Use the Smart Button to place and end calls, enter menus, toggle features on and off, and select items in the display.

◉◉ **Volume Keys**—The upper and lower volume keys can adjust keypad, earpiece, and ringer volume. After pressing the Smart Button, the volume keys also scroll through memory entries and menu features.

Using the Smart Button

Use the Smart Button to place and end calls, enter menus, toggle features on and off, and select items in the display. The Smart Button is on the right hand side of the phone—easy to feel, easy to find, and easy to use.

The symbol ✦ in your display represents the Smart Button.

Selecting Items in the Display

The primary use of the Smart Button is to make selections. Whenever the phone offers you a choice, such as setting a ringer style, press ◉ to select it. You will see: Press ✦ to Select.

Toggling Features On and Off

Some of your phone's features toggle on and off. Use the upper or lower volume key to scroll to the desired feature, then press the Smart Button to select it. You will see: Press ✦ to Toggle.

Entering the Menu System

Press ⒻⒸⓃ, then press ◉ to enter the phone's menu system.

☞ *You can also enter the menu system by pressing* ⒻⒸⓃ ①.

About Your Phone and Battery **13** **English**

Placing and Ending a Call

To place a call when the number you want to call is on the display, press and hold Θ. Press and hold Θ again to end a call. See "Using Your Phone" on page 21.

Opening the Quick Menu

When your phone is idle, press Θ to display a menu containing shortcuts to your phone's most popular features. See page 24.

Opening Your Phone Book

To open the Phone Book with all your names and numbers, press Θ twice. See page 25.

Controlling Volume

Use the upper and lower volume keys to adjust earpiece, keypad, and ringer volume. When you press these keys, the phone's speaker demonstrates the current volume level.

Adjusting Earpiece and Keypad Volume

The audio feedback your phone gives you when you press a key is called keypad tones. To adjust the volume of the keypad tones, use the volume keys when your phone is idle.

☞ *To silence the keypad tones, see page 43*

To adjust the volume of your conversation (the earpiece volume) use the volume keys during a call.

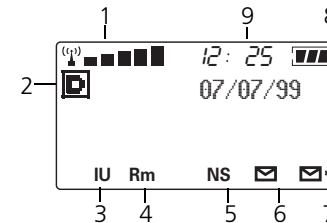Press Θ to raise the volume or press Θ to lower the volume.

Adjusting Ringer Volume

To adjust ringer volume:

Press ⊙(FCN) Θ to raise the volume or press ⊙(FCN) Θ to lower the volume.

The Display

The display on your phone can show alphanumeric characters as well as useful information symbols.The various elements of the display are as follows:

1.	ᵞ▬▬■■■	**Signal Strength**. The more segments displayed in the bar graph, the better the signal strength.
2.	D	**Digital Indicator.** If you are in a digital coverage area, the digital indicator appears. Your phone operates more efficiently in Digital mode.
3.	IU	**In Use Indicator.** Displayed when a call is in progress.
4.	Rm	**Roam.** Lights up when your phone accesses a wireless service outside of your home system. When you leave your wireless Service Area, your phone roams (seeks another wireless system).

5.   **NS**   **No Service Indicator**. If you travel beyond the range of a cellular system, the No Service Indicator appears to let you know that calls cannot be placed or received from your location.

6.   ✉   **Short Message Service***. Displayed when the phone has received a message. The symbol will flash when your message storage area is full.

7.   ✉•)   **Voicemail Waiting Indicator***. Displayed when you have a voice message waiting.

8.   ▭▭▭   **Battery Charge Indicator**. The more segments displayed, the greater the battery charge.

9.   12:00   **Clock*.** When your phone is using a CDMA digital network, the display shows the current local time and date. You can set your clock for 12- or 24-hour format. See page 53 for more information.

*   *The availability of this feature depends on your service provider.*

Your Battery

Installing the Batteries

New batteries are supplied uncharged and fitted within a protective battery carrier. To remove the batteries, press the release catch on the battery carrier and open the cover.

To install the batteries in your phone:

1 Press the release catch of the phone battery cover and slide the battery cover towards the bottom of the phone.

2 Align the positive and negative (+ and -) connections on the battery with the positive and negative (+ and -) connections within the phone.

3 Press the battery towards the connections and push it downwards until it clicks into place.

4 Replace the phone battery cover.
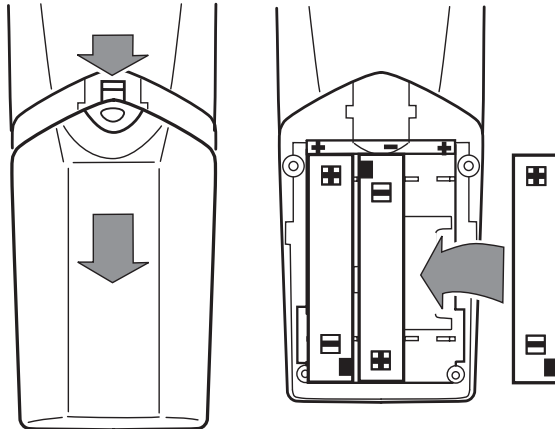
Important Battery Information

⚠ Always treat your batteries with care. See 'Batteries', at the beginning of this manual.

⚠ Never leave your battery in extremely high temperatures (over 60°C), for example behind glass in very hot, direct sunlight.

⚠ Always use Motorola approved batteries to safeguard your phone and to maximize battery life.

Charging a New Battery

New batteries are supplied in a totally uncharged state.

To ensure maximum battery performance, a new battery (or battery that has not been used for several months) should be charged for at least 14 hours before use.

☞ *A new battery will require several full charge/discharge cycles in order to achieve its optimum performance.*

⚠ Your batteries will not charge if they are not matched properly to the phone connection markings (+ and -). Please ensure that you have installed the batteries properly before initiating a charge.

To ensure that you enjoy maximum battery life and use your battery to its fullest capacity:

- The battery should be at or near room temperature when charging.

## *Battery Performance and Maintenance*

- Best battery performance will be achieved when you regularly charge and discharge batteries as instructed in this manual.
- Battery performance is greatly affected by network coverage.
- If left unused, a fully charged battery will discharge itself in approximately one month.
- When not in use, store your battery uncharged in a cool, dark and dry place.

Removing Your Batteries

⚠ *Switch off your phone before removing batteries. Failure to do so may damage your phone memory.*

1 Press the release catch of the phone battery cover and slide the battery cover towards the bottom of the phone.

2 Remove the batteries.

☞ *There is a finger space opening at the bottom left hand side of the phone that will allow for easier removal of the batteries.*
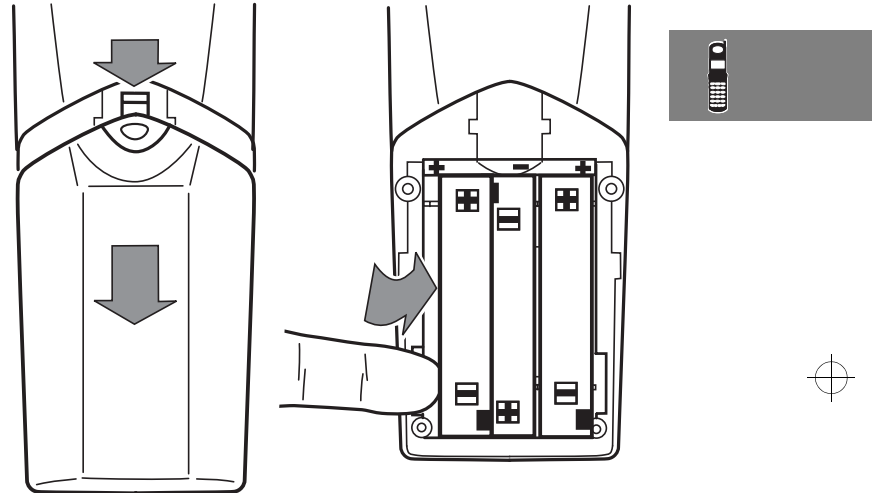
Charging Your Battery Using the Travel Charger

☞ *Your phone's internal charger is intended only for charging batteries. It does not provide power directly to your phone. You can still place and answer calls while using the internal charger, as long as the phones batteries have at least a small charge. Remember that charging takes more time when you are actively using the phone. To place the phone in charger-only mode, press ⊙ once.*

⚠ Ensure that the local main voltage at your location matches that of your travel charger.

Install the batteries into your phone (see 'Installing the Batteries').

To charge your battery:

1 Attach the correct adapter plug to the travel charger.

☞ *Charging will not occur if batteries are not installed properly, or if the charger is not fully inserted.*

2 Connect the travel charger to the phone.

3 Insert the travel charger plug into a suitable main power socket.

The phone can be charged in the powered on or powered off positions. A beep tone is heard and the battery icon flashes when charging begins.

☞ *When you begin a charge it is recommended that the phone is fully powered on or powered off before inserting the charger.*

☞ *The backlight will time out after 15 seconds when your phone is connected to an external power supply, like a charger or vehicle accessory.*
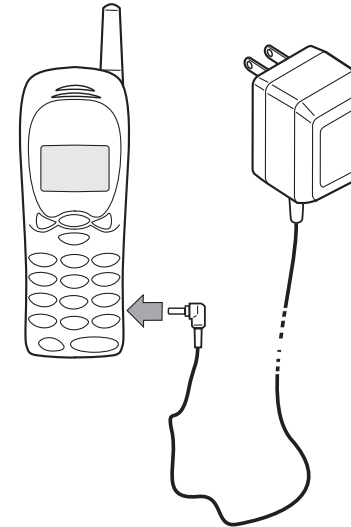
☞ *When charging, only the battery icon flashes. The phone will beep on/off when the charger is connected or removed.*

☞ *The beep-tone on the phone will not occur if the batteries are installed improperly. The beep-tone may take two minutes to occur with new or fully drained batteries.*

The state of charging is monitored and displayed by your phone. See 'Battery Meter Indicators' later in this section for details.

Low Battery Warning

When the battery level is low and only a few minutes of talk time remain, a warning signal (two double beeps) will sound, and Low Battery will be displayed.

For a detailed battery level reading: Press (FCN) (4).

The more segments filled on the battery gauge (⬜▬▪◼◼), the greater the charge.

When the battery is completely discharged, your phone will turn off.

Battery Indicators

Your phone monitors and displays information about your battery. The following message will appear on the display, as the condition occurs:

Low Battery	The battery charge is low. The battery should be recharged.

Battery Meter Indicators

The battery meter displays different messages depending on whether or not there is an external power source.

Charging Battery	The battery is being charged.
Charging Complete	Charging is complete.

☞ *When the battery is completely discharged, you must charge the battery for one minute or longer before you can make or accept a phone call.*

☞ *For optimal charging do not disconnect the charger until* Charging Complete *is displayed on the phone.*

About Your Phone and Battery **19**   **English**

Using Your Phone

Placing and Receiving Calls

This section explains how to:

- turn your phone ON and OFF
- place calls, end calls, and receive calls
- redial phone numbers
- mute your phone

Turning Your Phone On and Off

To turn the phone on:

Turn ON Phone	Press and hold ⊙ until the display appears and you hear an audible alert.

To turn the phone off, press and hold ⊙ again. Powering off will be displayed, and you will hear an audible alert.

What You Will See

When you turn on your phone, it performs a self-test to let you know it is operational and then it scans for a service. While the phone scans, the display reads: Searching.

When your phone finds a CDMA digital system, you will see the time and date and the 🔲 icon.

Power Save Mode

If you travel outside the range of available networks, your phone continues to search for a signal. To save power, it stops searching every couple of minutes.

Your phone will automatically begin searching again in a minute or two – if you would like it to start searching immediately, just press any key.

Standby Mode

To conserve energy, your phone enters standby mode and turns off the backlight when you have not touched a key for a few seconds. The backlight will come back on as soon as you press a key.

Placing a Call

To place a call:

1	**Turn Phone On**	If necessary, press ⊙ to turn the phone ON. Wait until you have a service available.
2	**Enter Number**	Enter the number you want to call, for example: 555-1212.
	Correct Errors	Press ⊙CLR to erase one digit at a time if you make a mistake. Press and hold ⊙CLR to erase the entire entry and start again.
3	**Place Call**	Press ⌕SND to place the call. **or** Press and hold ◉ until you hear a high tone. You will see: Calling 555-1212.

☞*You can also recall a previously dialed or stored number. (See "Using Phone Memory" on page 25 for details on storing or recalling.)*

Press ⊙RCL to see the entire phone number.

Your phone will display the first 1 to 8 characters if the number has more than 24 digits then you will see the last 24 digits.

Ending a Call

There are two ways to end a call:

	Press Key	Press (END).
or	**Hold Smart Button**	Press and hold ⊖ until you hear a high tone. You will see: Press ✳ to End Call. Press ⊖ again to end the call.

Receiving a Call

Your phone must be powered on to receive calls.

To answer a call:

Press Key	Press (SND).

Caller ID

☞*Network and subscription dependant feature. Not available in all areas.*

If Caller ID is active on your phone, you will be able to see who is calling before you answer. The display will show either your caller's name (if in your Phone Book) or your caller's number. If you prefer to always see your caller's number, see page 35 to turn Number Preference ON.

```
 ⌘▪▪■■   12:25 ▦       ⌘▪▪■■   12:25 ▦
Smith, Jane          Call From
                     312-555-1212
```
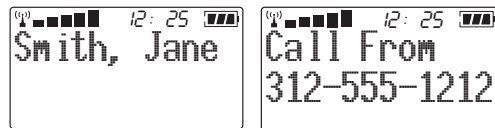
The Caller IDs for your last 16 callers will be saved. See page 58 to learn how to view your stored Caller IDs.

Unanswered Call Indicator

Even with the latest wireless technology, sometimes you are unavailable to answer calls. If your phone is ON, it keeps a count of unanswered calls. For example, if you miss two calls, your display will show: 2 Calls Unanswered.

Clear Display	Press (←CLR) or press (END) to clear the display, and you can begin placing calls again.

If you subscribe to Caller ID service, you can easily return the calls that you missed. See page 58 to learn how to return the calls you missed.

Call Waiting

☞*Network and subscription dependant feature. Not available in all areas.*

If you subscribe to Call Waiting through your Service Provider, you may hear a tone while on a call, indicating that you are receiving a second call.

	Answer Call	Press (SND) to answer the call and automatically place the current call on hold.
or	**End Current Call**	Press (END) to end the current call. Your phone will then ring as usual. Press (SND) to answer the call.

Redialing a Number

Automatic Redial

The wireless system may at times be too busy to handle your call. If this is the case, you may hear a fast busy signal and see Call Failed and Press SND to Redial. With Automatic Redial, your phone will repeat the call attempt over the next four minutes. When the call succeeds, your phone will ring until the person you are calling answers.

To use Automatic Redial:

Press (SND) or press and hold ⊙ until you hear a high tone. You will see: Redialing.

To make this feature even easier, turn Instant Redial ON. Your phone will instantly redial after a fast busy signal, and you will not have to push a button. To find out more, see page 51.

Redial

If you hear an ordinary busy signal:

1	**Hang Up**	Press (END) to hang up.
2	**Redial**	Press (SND) to redial. **or** Press and hold ⊙. You will see: Calling.

Display Last Ten Numbers Dialed

Your phone keeps track of the last ten numbers you have dialed.

1	**Enter List**	Press (RCL) then press (0), (0). The display will show the last number you dialed.
2	**Review List**	Press ⊙ or ⊙ to scroll through the last calls made, including the time, date, and number.
3	**Call Number**	Press (SND) or press and hold ⊙ to call the number in your display. You will see: Calling.

Muting the Microphone

For privacy during a call, mute the microphone. You can hear the person on the other end, but he or she cannot hear you.

Mute Phone	Press (FCN) then press (6) during a call to mute the microphone. You will see: Muted.
Unmute Phone	Press (FCN) then press (6) again to resume your conversation.

Using the Quick Menu

Throughout this guide you will see shortcuts that point out simple ways to reach some of your phone's features. If you have owned a Motorola phone before, some of these shortcuts will already be familiar to you.

The Quick Menu

Press the Smart Button and the Quick Menu opens on the display.

The Quick Menu contains shortcuts to your phone's most popular features. Press the volume keys to scroll through the options shown below and press the Smart Button to choose one.

Phone Book	The Phone Book is the place to find all your personal names and numbers. See page 34.
Messaging	If you subscribe to messaging, you can use this shortcut or the one on page 57.
Last 10 Dialed	Your phone remembers the last ten numbers you dialed. Turn to page 23 to learn more.
Main Menu	Select this option to access your phone's menu system. See page 31 to find out more.
Set System Mode	When not currently in a call. See page 55 for more information
Exit	Select this option or press (END) to exit the Quick Menu at any time.

☞*The Quick Menu is only available if activated via the Display Options submenu of the Phone Options in the main menu. See page 52 for more information.*

The Usual Shortcuts

The words "menu," "batt," "lock," and "mute" appear on the ①, ④, ⑤, and ⑥ buttons. Press the (FCN) key first, then any one of these buttons, and your phone will perform that function.

Enter Menu	Press (FCN) then press ① to enter the main menu system.
Display Meter	Press (FCN) then press ④ to display the battery meter.
Lock Phone	Press (FCN) then press ⑤. You will see: Lock? Press ⑩STO to lock.
Mute Phone	Press (FCN) then press ⑥ to toggle mute ON and OFF during a conversation.

☞*You can only mute your microphone during a call.*

Using Phone Memory

Use your phone's internal Phone Book to store up to 99 names and numbers for easy access.

In this section you will learn how to:

- store names and numbers into the Phone Book
- recall phone numbers from memory
- clear names and numbers
- dial a number with Speed Dial and Turbo Dial™
- make notes on the scratchpad
- store numbers with pause dialing
- store calling card sequences for easy access

Using Your Phone's Built-in Phone Book

Each phone number in your phone book is stored in a *memory location* numbered 01-99.

Arrange numbers for easy recall by storing related numbers in groups. If you store the numbers you call most in locations 01-09, then you can use Turbo Dial™ to call those numbers with a single key. (See "Using the Turbo Dial™ Function" on page 27 for details.) You could store business contacts in locations 10-19, family in 20-29, friends in 30-39, and so on.

You can also store names to identify phone numbers. Later, you can recall a number by the name that corresponds to it.

Storing Names and Numbers

Each memory location can store up to four numbers. For a single contact, you can store every number you need, such as home, mobile, office, and more.

☞*The option for fax capability is not available on this phone.*

Keep in mind: When you store an entry, it will select the next available position in your phone book.

How to Store Phone Numbers

1	**Enter Number**	Enter the phone number you want to store. You can store up to 32 digits per phone number entry.
2	**Begin Storing**	Press ⓜ🅂🅃🅾 to begin storing. You will see: Location xx?. 'XX' is the number of the lowest available location.
3	**Accept Location**	Press ⓜ🅂🅃🅾 or ◀✱ to store the sequence in the displayed location.
or	**Enter New**	Press ⬅🅲🅻🆁 to erase the location number and enter a new two-digit location number.
or	**Select Range of Ten**	Enter the first digit of the memory location, then press ◀✱ to store the sequence in the first available location beginning with that digit. For example, if you store personal numbers in the twenties, press ②◀✱.
4	**Select Phone Tag**	Select phone tag and press ⓜ🅂🅃🅾.
5	**Another Number**	Enter another number for the same location or press ⬅🅲🅻🆁.
6	**Enter Name**	Enter a name to identify the phone number. (See the following section for details on entering names.) Press ◉ or ⓜ🅂🅃🅾 when finished. Your phone will confirm the entry by displaying the information stored.

Using Your Phone **25** English

How to Enter Names

When the display shows Alpha Or *, you can press the numeric keys one or more times to produce any letter or number in the alphabet. Use the letters printed on each key as a guide. For example, press ② to enter "A," "B," "C," or "2" as shown:

press **1** time to insert an **"A"**
press **2** times to insert a **"B"**
press **3** times to insert a **"C"**

2 ABC

press **4** times to insert a **"2"**
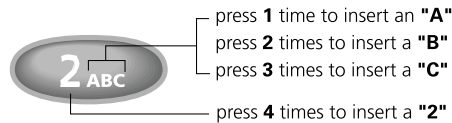
1	**Enter Letter**	Press a key as many times as necessary to enter a letter. The next letter on the key will appear with each press.
	Toggle Case	Press ⊕ or ⊖ to switch between upper and lowercase.
2	**Advance Cursor**	After each character, press ⏭ to advance the cursor to the next space.
	Clear Letter	Press ⟵CLR to erase a letter if you make a mistake.
	Back Space	Press ⟨* to move the cursor backward if you would like to insert a letter earlier in the sequence.
3	**Choose Label**	Press ⓪ to scroll through the available labels. After 0, you will see Home, Mobile, Pager, or Work.
4	**Enter Marks**	Press ① to scroll through the available punctuation marks: <space> 1 . @ / : ´ , ? ! − _ # * " $ % & + ; = \ ( ) < > [ ]

5	**Finish Storing**	Phone can support 24 letters. Press ⊕ when you are finished. Your phone will confirm the entry by displaying the information stored.

Recalling an Entry by Name

After storing names and numbers, you can recall them alphabetically and immediately place calls.

1	**Enter**	Press ⊕ twice to enter your name directory.
2	**Scroll to Name**	Press ⊕ or ⊖ to scroll to the name you are looking for.
or	**Search for Name**	Enter the first letter of the name. The display will show the name and memory location of the first entry beginning with that letter, and an icon for each number stored in the entry (up to four).
3	**Select Entry**	Press ⊕ to select the entry for the displayed name. You will see the first number stored in the location.
4	**Choose numbers**	Press ⊕ or ⊖ to scroll through the numbers stored in that location. The selected icon will be highlighted.
5	**Place Call**	Press and hold ⊕ or press SND to call the number. You will see: Calling.
6	**End Call**	Press END. **or** Press and hold ⊕ until you hear a high tone. You will see: Press * to End Call. **then** Press ⊕ again.

Recalling an Entry by Memory Location

Each name and number you store is placed in a memory location numbered 01-99. Once you have stored names and numbers, you can recall them by memory location:

1 **Begin** Press (RCL) to begin recalling.

2 **Enter Location** Enter the two-digit memory location of the phone number you are looking for.

3 **Place Call** Press and hold ◉ or press (SND) to call the number. You will see: Calling.

4 **End Call** Press (END).
or
Press and hold ◉ until you hear a high tone. You will see: Press ✳ to End Call.
then
Press ◉ again.

Clearing a Phone Memory Entry

To erase a memory entry:

1 **Recall Entry** Press ◉ twice and then press ◉ or ◉ to scroll to the name you are looking for.

or

Press (RCL) and the two digit location number of the entry.

2 **Clear Entry** Press (CLR) to clear the entry.
You will see: To Delete Press STO.

3 **Confirm Erase** Press (STO) to confirm that you want to erase the entry.

Shortcuts for Recalling Phone Book Entries

Using Super Speed Dial

If you know the memory location of the number you want to call, try the Super Speed Dial function:

Keep in mind: If more than one number is stored in the location, your phone will dial the first number. To change which number is dialed with Super Speed Dial, see "Changing Dialing Shortcuts" on page 28.

1 **Enter Location** Enter the two-digit memory location of the phone number you are looking for.

2 **Place Call** Press and hold ◉ or press (SND) to call the number. You will see: Calling.

Using the Turbo Dial™ Function

The Turbo Dial™ function enables you to dial numbers stored in locations 01-09 with the push of a single button:

Turbo Dial Press and hold the memory location number of the entry you want to call, (1) through (9), and your call is placed. You will see: Calling.

Your phone's Priority Call feature gives you fast access to any number stored in location 01. To learn more about this feature, see "Priority Call" on page 46.

Changing Dialing Shortcuts

If you have more than one number in a memory location, you can choose which number you would like to use with the dialing shortcuts, including the Turbo Dial® Keys and Super Speed Dial feature.

1	**Enter**	Press ◉ twice to enter your name directory.
2	**Scroll to Name**	Press ◉ or ◉ to scroll to the name you are looking for and press ◉ to select.
3	**Select Number**	Press ◉ or ◉ to scroll to the number you want to make the dialing shortcut for that location and press ⓈTO to select. You will see: Edit Number
4	**Select Set**	Press ←CLR. You will see: Set Speed Dial.
5	**Set**	Press ⓈTO to set that number as the dialing shortcut. You will see: Set.

Making Notes on the Scratchpad

In addition to your internal phone book, you also have a built-in scratchpad for making quick notes. The scratchpad remembers the last phone number shown on your display.

Entering a Number in the Scratchpad

If you are on the phone and your party gives you another number to call, enter the number on the scratchpad so you can place the call later.

1	**Enter Number**	Enter the number with the keypad. (The person on the line will hear tones as you dial.)
2	**Store Number**	Press ⓈTO, enter a two-digit location, enter a name with the keypad, and press ⓈTO to finish. See page 25 for more details.
or	**End Call**	Press END to end your current call if necessary.
and	**Place Call**	Press SND to call the number in the Scratchpad.

Pause Dialing

When you call automated systems like Voice Mail or bank by phone, a recorded message prompts you for PIN numbers, account numbers, etc. Pause Dialing can make using automated systems easy by allowing you to store these numbers in the same memory location as the automated system's access number. Separate each set of numbers with a "pause"– a special character that tells your phone to wait before sending additional numbers.

Storing a Number with Pause Dialing

The pause occupies a one-digit space in your phone's memory. Once you have entered a string of numbers and pauses, store the string in the same way you store other entries.

You can store up to 32 digits, including pauses.

1	**Enter Number**	Enter the phone number you use to access the automated system.
2	**Insert Pause**	Press FCN and press SND. You will see: Insert Pause o. Press ◉. You will see a pause circle o inserted into the number entry.
3	**Enter PIN**	Enter the next group of numbers, for example, your PIN number. If the automated system requires a * or #, enter those symbols, too.
4	**Insert More Pauses**	Repeat steps 2 and 3 as many times as necessary.
5	**Store Sequence**	Press ⓈTO. Enter a two-digit location, select a label, enter a name if you like, and press ⓈTO or ◉ when finished. Your phone will confirm the entry by displaying the information you stored.

Using Pause Dialing

Once stored, you may recall the entry and place the call. All of the digits you have stored will be recalled, but your phone will only send the tones for the set of numbers before the first pause.

1	**Place Call**	Enter the two-digit memory location of the Pause Dialing number and press and hold Ⓞ or press ⓈⓃⒹ . Your phone will dial the access number and wait for your input when it reaches the first pause.
2	**Send More Numbers**	When the automated system prompts you for information, press Ⓞ or ⓈⓃⒹ to send the next group of numbers. Repeat this step to send each group of numbers that you have stored.
3	**End Call**	Press ⒺⓃⒹ, or press and hold Ⓞ until you hear a high tone and press Ⓞ again.

Using Memory Linking

Each memory location holds up to 32 digits, including pauses. Some automated systems, however, may require you to enter more than 32 digits. If this is required, split the numbers into two memory locations and recall the second set of digits as you need them.

| **1** | **Recall 2nd Location** | Once you have sent the tones from the first location, press Ⓡⓒⓛ and the 2 digit memory location where you stored the 2nd set of digits. |
| **2** | **Send Tones** | Press Ⓡⓒⓛ and ⓈⓃⒹ to send the tones in the second location. If you have stored a pause in the second location, your phone will pause as usual when it reaches the pause character. |

Using Calling Cards

Storing Calling Card Numbers

Number Characters are another way your phone can save you time in dialing. The Number Character saves a place in the memory sequence for whatever number you are calling when you use your calling card. For best results, you may use the Number Character along with Pause Dialing.

1	**Enter Access Number**	Enter the phone number you use to access the calling card system, usually a 1-800 phone number. Skip this step if you only dial 0.
2	**Insert Pause**	Press ⒻⒸⓃ then press ⓈⓃⒹ . You will see: Insert Pause o. Press Ⓞ.
3	**Insert Number Character**	Press ⒻⒸⓃ then press ⓈⓃⒹ. Press Ⓞ or Ⓥ to scroll to Insert Number ʻN. Press Ⓞ. You will see the number character ʻN inserted into the sequence. This special character saves a place for the number you will be calling when you use your calling card.
4	**Insert Pause**	Press ⒻⒸⓃ then press ⓈⓃⒹ then Ⓞ as in step 2.
5	**Enter Code**	When you use your calling card, the system prompts you for an access code, usually a PIN code. Enter this number. Repeat steps 4 & 5 if your card requires more access codes.
6	**Store Sequence**	Press Ⓢⓣⓞ. Enter a two-digit location, select a label, enter a name if you like, and press Ⓢⓣⓞ or Ⓞ when finished. Your phone will confirm the entry by displaying the information you stored.

☞ *You can protect your calling card information with your phone's call restriction features. See page 50 for details.*

Placing a Calling Card Call

Once you have stored your calling card information, recall the information and place the call whenever you want to use your calling card. Before your phone begins dialing, it will prompt you for the number you want to call. Once you have entered the number, your phone will automatically insert the number in place of the Number Character you stored.

1	**Recall Entry**	Press ⓐRCL then enter the location number where your calling card sequence is stored.
2	**Enter Number**	Press ⓢⓝⓓ. You will see: Enter Number. Enter the phone number you are calling. You may enter the number manually or recall it by location.
3	**Place Call**	Press and hold ◉ to place the call. Your phone will dial the number to access your long distance provider, then wait for your input when it reaches the first pause.
4	**Send More Numbers**	Press ◉ or press ⓢⓝⓓ to send the next group of numbers when the recording prompts you. The phone will automatically insert the number to call at the appropriate spot in the sequence. Press ◉ to send each set of numbers until finished.
5	**End Call**	Press ⓔⓝⓓ, or press and hold ◉ until you hear a high tone, and press ◉ again to end the call.

# *Using the Menu Features*

Using the Menu System

Your cellular phone includes many features that can help make life easier and more productive. The phone's user-friendly menu system helps you find what you need quickly and easily.

In this section you will learn:

- what are the main menu features
- how to navigate through the menus
- how to read a menu road map

Introducing the Menu Features

As you scroll through the menu system, you will see the following icons, each representing a high-level menu.

Phone Book

Lock/Secure

Timers

Phone Options

Tone Control
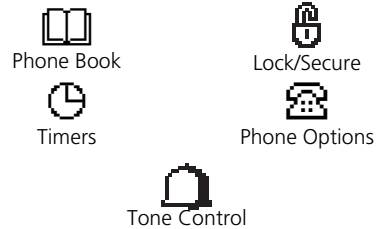
Navigating the Menu

You can navigate through the menu system using the volume keys located on the left side of the phone and the Smart Button located on the right side of the phone. Use the upper and lower volume keys to scroll to sub-menus and to control volume. Use the Smart Button to choose menus and functions.

Follow these symbols as a guide for using the keys on the side of your phone:

Press Ø to scroll up.

Press Ø to scroll down.

Press Ø to select.

You can also use your phone's ◄✱ and #► keys to scroll through the menu system.

Road Maps

To help you navigate through the phone's menu system, each section begins with an easy-to-follow visual "road map." To enter the menu features:

1	**Enter Menu**	Press ꞏFCNꞏ, then press Ø.
		or
		Press ꞏFCNꞏ ①. "menu" is printed on the ① key as a reminder.
2	**Scroll through Menu**	Press Ø or Ø to scroll through the menu's top level.
3	**Exit Menu**	Press ꞏENDꞏ to exit the menu.

Detailed instructions within each section describe how each feature works.

MENU

FCN 1 → **Phone Book** → Timers → **Tone Control** → **Lock Secure** → **Phone Options**
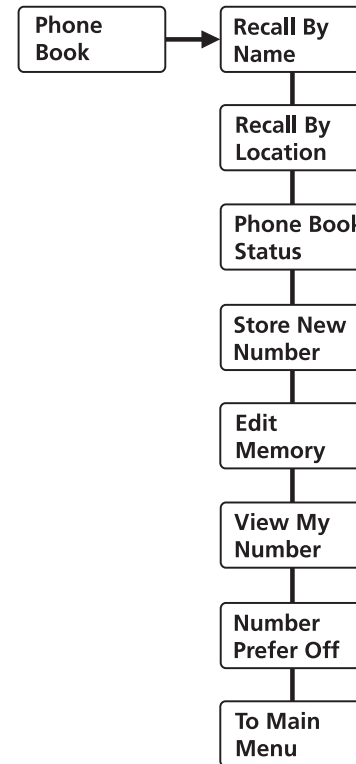
Managing the Phone Book 📖

In "Using Phone Memory" you learned how to store and recall phone numbers with the internal Phone Book. You can access the same features, along with several advanced features, using your phone's convenient menu system.

In this section you will learn how to:

- recall and store phone numbers using the menu system
- edit your memory information
- add numbers to existing entries
- view your own phone number

☞*You can also recall phone numbers without using the Phone Book. See "Recalling an Entry by Name" on page 26 or "Recalling an Entry by Memory Location" on page 27.*

Start:

Phone Book →

Recall By Name

Recall By Location

Phone Book Status

Store New Number

Edit Memory

View My Number

Number Prefer Off

To Main Menu

MENU

FCN 1 — **Phone Book** → Timers → Tone Control → Lock Secure → Phone Options

MENU

Recalling an Entry by Name

Once you have stored entries, you can recall them alphabetically with the Phone Book menu. Find the name, choose the number, and instantly place a call.

1 Begin Recalling
Press ◉ to select Recall By Name.
You will see: Enter 1st Letter.

2 Enter First Letter
Press the appropriate digit key as many times as necessary to enter the first letter of the name. (See page 26 for help entering letters.) You will see the first entry with that letter.

3 Find Name
If necessary, press ◉ or ◉ to scroll to the name you are looking for.

4 Select Number
Press ◉ to select the entry, then press ◉ or ◉ to scroll through the numbers stored in that location.

5 Place Call
Press and hold ◉ or press (SND) to call the number. You will see: Calling.

6 End Call
Press (END).
or
Press and hold ◉ until you hear a high tone. You will see: Press ✱ to End Call.
then
Press ◉ again.

☞ *Press ◉ while scrolling through the icons to go to another entry.*

Recalling an Entry by Location

Each entry you store is placed in a memory location numbered 01-99. Once you have stored the entry, you can use this feature to recall it by the number of the location.

1 Begin Recalling
Press ◉ or ◉ to scroll to Recall By Location and press ◉ to select. You will see Location__

2 Enter Location
Enter the two-digit memory location of the number you are looking for. You will see the name, location number, and an icon for each number stored in the entry.

3 Select Number
Press ◉ to select the entry, then press ◉ or ◉ to scroll through the numbers stored in that location.

4 Place Call
Press and hold ◉ or press (SND) to call the number. You will see: Calling.

5 End Call
Press (END).
or
Press and hold ◉ until you hear a high tone. You will see: Press ✱ to End Call.
then
Press ◉ again.

☞ *To place a quick call just enter the two-digit location and press (SND).*

☞ *Press ◉ while scrolling through the icons to go to another entry.*

■ ⒡⒞⒩ ① → **Phone Book** ━ Timers ━ Tone Control ━ Lock Secure ━ Phone Options

Phone Book Status

You can use this feature to see how many of your Phone Book's 99 locations have been used.

1 **Select Feature** — Press ⓐ or ⓥ to scroll to Phone Book Status and press ⓥ to select. You will see: XX In Use XX Empty.

2 **Exit Menu** — Press ⒠⒩⒟ to exit menu, or you may scroll to other features.

⒨⒠⒩⒰ ### *Storing a New Number*

This feature allows you to create a new entry in the internal Phone Book. To add a number to an existing entry, turn to Editing a Memory Location on page 35.

☞*Always store your Voice Mail number in location 98.*

1 **Begin Storing** — Press ⓐ or ⓥ to scroll to Store New Number and press ⓥ to select. You will see: Enter Number.

2 **Enter Number** — Enter the number you want to store and press ⓥ. You will see: Location XX?.

3 **Enter Location** — Press ⓢⓣⓞ or ⟨◄✳⟩ to store the number in the displayed location or enter a new two-digit location and press ⓢⓣⓞ.

or **Select Range of Ten** — Enter the first digit of the memory location and press ⟨◄✳⟩ to store it in the first available location beginning with that digit.

4 **Choose Label** — Press ⓐ or ⓥ to scroll through the icons. From left to right: Work, Home, Mobile, Pager, Fax, or Other. Press ⓥ or ⓢⓣⓞ to select the highlighted icon.

5 **Store More** — You will see: Enter Next Number. Enter up to four numbers per location. Press ⓢⓣⓞ when finished.

6 **Enter Name** — Enter a name to identify the phone number(s) or continue with step 7. See page 26 for details on entering names.

7 **Store Number** — Press ⓢⓣⓞ or ⓥ. Your phone will confirm the entry by displaying: `N` Numbers Saved At `XXX`.

If the name or number is already in your Phone Book, you will see: Duplicate Name or Number.

8 **Exit Menu** — Press ⒠⒩⒟ to exit menu, or you may scroll to other features.

Viewing Your Number

⚡ *Press ⓡⓒⓛ #▸.*

Use this feature to view your phone's currently active number.

1 **View Number** — Press ⓐ or ⓥ to scroll to View My Number and press ⓥ to select. The display will show the currently active number.

2 **Exit Menu** — Press ⒠⒩⒟ to exit the menu, or you may scroll to other features.

Number Preference

When Placing Calls:

If you prefer to see the number (Calling 555-1212) instead of the name (Calling Jane Smith) when you place a call from the internal Phone Book, turn Number Preference ON.

When Receiving Calls:

If you subscribe to Caller ID, your phone automatically looks up callers in your Phone Book and displays the name stored in the entry. If you prefer to see the caller's number (555-1212), then turn Number Preference ON.

1	**Enter menu**	Press Ⓕⓒ➤, and ①️ or Ⓕⓒ➤, and ◉ to enter the menu.
2	**Find Feature**	Press ◉ when you see Phone Book. Then press ◉ or ◔ volume keys to scroll to Number Prefer.
3	**Toggle Feature**	Press ◉ to toggle the feature On or Off.
4	**Exit Menu**	Press Ⓔ➤ⓝⓓ to exit the menu, or you may scroll to other features.

Editing a Memory Location

You can use this feature to add a number to an entry, change an old number, or duplicate an entry to make a similar one.

1	**Begin Editing**	Press ◉ or ◔ to scroll to Edit Memory and press ◉ to select.
2	**Find by Location**	Press ◉ or ◔ to scroll to Edit By Location and press ◉ to select. You will see: Location__. Enter the two-digit memory location of the phone number you want to edit. Press ◉ or Ⓜ➤ⓢⓣⓞ and continue with Step 3.
or	**Find by Name**	Press ◉ or ◔ to scroll to Edit By Name and press ◉ to select. You will see: Enter 1st Letter. Enter the first letter of the name you want to edit. (See page 26 for information on entering letters. You will see the first entry beginning with that letter. Press ◉ or ◔ to scroll to the name you are looking for. Press ◉ or Ⓜ➤ⓢⓣⓞ and continue with Step 3.
3	**Edit /Add Phone Number**	Enter digits. Press ⇐ⓒⓛⓡ to erase a digit at a time, or press and hold ⇐ⓒⓛⓡ to erase the entire number. Press ◀✳ to move the cursor backward.
4	**Finish Number**	Press ◉ or Ⓜ➤ⓢⓣⓞ when you finish the phone number.
5	**Change Original**	If you would like to save your changes in the same location, then press ◉ or Ⓜ➤ⓢⓣⓞ. You will see the name associated with the entry.

MENU

━ (FCN)(1) ━━━━ **Phone Book** ━━ **Timers** ━━ **Tone Control** ━━ **Lock Secure** ━━ **Phone Options**

or	**Copy Entry**	If you would like to move the entry to a new location and keep the original entry, then press and hold (←CLR) to erase the location and enter a new two-digit location. You will see the name associated with the entry.
6	**Edit Name**	Press (←CLR) to erase one letter at a time, or press and hold (←CLR) to erase the entire name. Press (◄ ✳) to move the cursor backward. (See page 26 for details on entering names.) Skip this step to leave the name unchanged.
7	**Confirm Changes**	Press ◊ or (▥STO) when you finish editing the name. You will see: Location XX is Full. The display will then show the new information and you will see: Change? Press ◊ or (▥STO) again to save your changes. You will see: Stored At XX.
8	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

(MENU)

FCN 1

| Phone Book | Timers | Tone Control | Lock Secure | Phone Options |

Timing Your Calls ⏲

Your phone is equipped with three visual and three audible call timers. You can monitor or record the length of individual calls, set a timer to track monthly usage, or have the phone alert you at intervals that you specify.

In this section you will learn how to:

- monitor the length of your calls
- set and view the resettable timer for long-term monitoring
- program audible timers for your individual needs

Start:

| Timers | → | Individual 00:00:00 |

Resettable Time 00000

Cumulative Time 00000

Reset Timer

Individual Timer Off

One Minute Timer Off

Repeating Timer Off

Single Timer Off

To Main Menu

MENU

FCN 1 ━━ **Phone Book** ━━ **Timers** ━━ **Tone Control** ━━ **Lock Secure** ━━ **Phone Options**
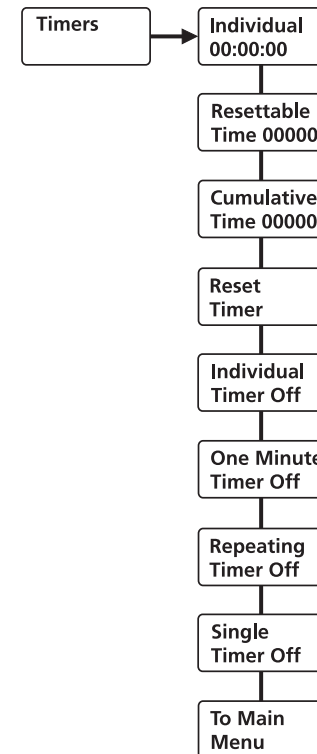
Viewing the Individual Timer

⚡ *1) Press ⓡⓒⓛ then #▸ two times.*
or 2) Press FCN, ◊ then 4, 5.

The individual timer records the air-time of your most recent call in hours, minutes, and seconds. It resets before you place the next call. You can have the timer display automatically while calls are in progress. See "Auto Display Individual Timer" on page 39.

1	View Timer	When you enter the Call Timers menu, you will see: Individual XX:XX:XX.
2	Exit Menu	Press END to exit the menu, or you may scroll to other features.

Viewing the Resettable Timer

⚡ *1) Press ⓡⓒⓛ then #▸ three times.*
or 2) Press FCN, ◊ then 4, 6.

You can track how much air-time you have accumulated during any time period you choose. For example, reset this timer at the beginning of each billing period to know where you stand at any given moment. Use this feature to view the time elapsed, and follow the instructions on page 38 to reset the timer.

1	View Timer	Press ◊ or ◊ to scroll to Resettable Time. You will see the air-time in minutes since you last reset the timer.
2	Exit Menu	Press END to exit the menu, or you may scroll to other features.

Viewing the Cumulative Timer

⚡ *1) Press ⓡⓒⓛ then #▸ four times.*
or 2) Press FCN, ◊ then 4, 7.

This is a non-resettable timer that keeps track of your phone's total air-time (in minutes) since your phone was activated.

1	View Timer	Press ◊ or ◊ to scroll to Cumulative Time. You will see the total air-time in minutes.
2	Exit Menu	Press END to exit the menu, or you may scroll to other features.

Resetting the Timer

⚡ *Press FCN, ◊ then 4, 3 and continue with step 2.*

This feature allows you to monitor elapsed air-time over a period of time that you choose. After you reset the timer, it will continue to keep track of your air-time (in minutes) until you reset it again.

1	Find Feature	Press ◊ or ◊ to scroll to Reset Timer.
2	Reset Timer	Press ◊ to reset. You will see: Resettable Time 00000.
3	Exit Menu	Press END to exit the menu, or you may scroll to other features.

MENU

(FCN) (1) ━ **Phone Book** ▶ **Timers** ▶ **Tone Control** ▶ **Lock Secure** ▶ **Phone Options**

Auto Display Individual Timer

⚡ *Press* (FCN)*,* ◊ *then* (4)*,* (8) *and continue with step 2.*

When you turn this feature ON, your phone will automatically display your air-time in minutes and seconds during and after each call.

☞ *Activating the Auto Display Timer may reduce standby-time and talk-time.*

1 **Find Feature** — Press ◊ or ◊ to scroll to Individual Timer.

2 **Toggle Display** — Press ◊ to toggle On or Off the automatic display of the individual timer.

3 **Exit Menu** — Press (END) to exit the menu, or you may scroll to other features.

One Minute Audible Timer

⚡ *Press* (FCN)*,* ◊ *then* (4)*,* (4) *and continue with step 2.*

Turn this feature ON to hear an audible beep 10 seconds before the end of every minute during a call. The party on the other end will not hear the beeps.

1 **Find Feature** — Press ◊ or ◊ to scroll to One Minute Timer.

2 **Toggle Timer** — Press ◊ to toggle the timer On or Off.

3 **Exit Menu** — Press (END) to exit the menu, or you may scroll to other features.

Repeating Audible Timer

⚡ *Press* (FCN)*,* ◊ *then* (4)*,* (1) *and continue with step 2.*

You can set this timer to beep during your calls at an interval that you select—from 11-999 seconds. Like the One Minute Timer, you will hear the beep 10 seconds before the end of each interval, and the party on the other end will not hear the beeps.

1 **Find Feature** — Press ◊ or ◊ to scroll to Repeating Timer.

2 **Toggle Timer** — Press ◊ to toggle the timer On or Off.

3 **Enter Seconds** — If you toggle the timer ON, you will see: Enter Seconds. Enter the number of seconds you would like between beeps and press ◊ to set the timer. You will see: Set At XXX Secs.

4 **Exit Menu** — Press (END) to exit the menu, or you may scroll to other features.

MENU

FCN 1 ⟶ **Phone Book** ⟶ **Timers** ⟶ **Tone Control** ⟶ **Lock Secure** ⟶ **Phone Options**

Single Audible Timer

⚡ *Press* FCN, ◊ *then* 4, 2 *and continue with step 2.*

You can set the Single Timer to beep during your calls at a time that you select–from 11-999 seconds. It will beep once during each call, 10 seconds before the end of the preset time. The party on the other end will not hear the beeps.

MENU

1	**Find Feature**	Press ◊ or ◊ to scroll to Single Timer.
2	**Toggle Timer**	Press ◊ to toggle the timer On or Off.
3	**Enter Seconds**	If you toggle the timer ON, you will see: Enter Seconds. Enter the number of seconds you would like before the beep and press ◊ to set the timer. You will see: Set At XXX Secs.
4	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

Adjusting Tone Controls

Use these features to personalize your phone's ringer styles, or set the phone to remind you of new messages.

In this section you will learn how to:

- choose from nine different ringer styles
- silence the keypad
- silence all your phone's tones with one convenient feature
- set the Message Reminder

Start:

Tone Control →

Silent Mode Off

Ringer On/Off

Roam Ring

Ringer Style 1

Setup Msg Tones

Reminder TonesSetup

Keypad Tones On

DTMF Select

Service Tones Off

To Main Menu

MENU

FCN 1 ───────▶ **Phone Book** ▶ **Timers** ─── **Tone Control** ─── **Lock Secure** **Phone Options**
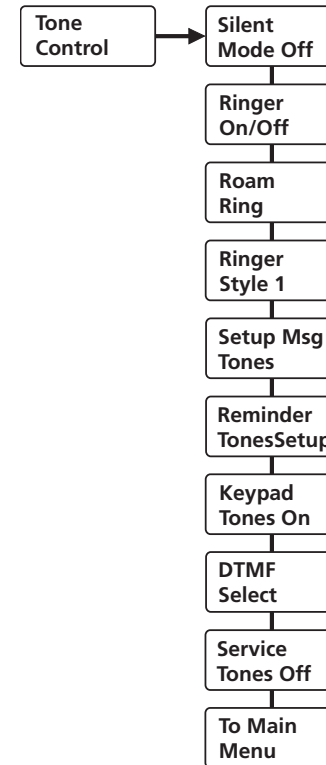
Silent Mode

For complete discretion, turn Silent Mode ON. All tones will be silenced. You can dial silently and the ringer will be turned off.

Activate Silent Mode

To activate, press ⓕⓒⓝ and then press and hold ⑧.

De-activate Silent Mode

Press ⓕⓒⓝ, and hold ⑧, to turn Silent Mode OFF.
Your phone will return to ring only.

Turning Ringer On and Off

Press ◉ to toggle the ringer on or off.

Selecting a Ringer Style

Your new phone offers nine different ringer styles. After you choose a style, the phone will give you a brief sample of your new alert sound.

1	**Enter Feature**	Press ◉ or ◉ to scroll to Ringer Style and press ◉ to select.
2	**Select Ringer**	Press ◉ or ◉ to scroll through the ringer styles. As you scroll, your phone will give an audible sample of the currently displayed style. Press ◉ to select the displayed option.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

Setup Message Tones

When you receive a new Voice Mail or alphanumeric message, your phone beeps three times. To change the number of beeps or to turn them OFF, use this feature.

1	**Enter Feature**	Press ◉ or ◉ to scroll to Setup Msg Tones and press ◉ to select.
2	**Select Msg Type**	Press ◉ or ◉ to scroll to Text Msg Tone or Voicemail Tone and press ◉ to select.
3	**Toggle Tone**	Press ◉ to toggle between 3Beep, 1Beep, or Off. To make new messages easy to recognize, try making the number of beeps unique to each message type.
4	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

Reminder Tones Setup

If you subscribe to messaging services, this feature can help you remember to check your messages.

Selecting Call or Message Reminder Tones

Turn Message Reminder Tones ON and your phone will remind you of unread messages by beeping every two minutes. This feature is especially helpful if you are busy or away from your phone.

1 **Find Feature** Press ◊ or ◊ to scroll to Reminder TonesSetup and press ◊ to select. You will see: Call Remind Tone.

2 **Toggle Feature** Press ◊ to toggle the feature On or Off.

3 **Exit Menu** Press END to exit the menu, or you may scroll to other features.

Keypad Tones

⚡ *Press* FCN, ◊ *then* 3, 2 *and continue with step 2.*

Keypad Tones are the sounds you hear when you press any key on the phone. If you want to be discreet, use this feature to silence the audio feedback from the keypad.

☞ *Turning Keypad Tones OFF does not silence the tones your phone sends across the line. See "Transmit Tones" on page 43 for more information.*

1 **Find Feature** Press ◊ or ◊ to scroll to Keypad Tones.

2 **Toggle Feature** Press ◊ to toggle the feature On or Off.

3 **Exit Menu** Press END to exit the menu, or you may scroll to other features.

Transmit Tones

⚡ *Press* FCN, ◊ *then* 3, 3 *and continue with step 2.*

Your phone transmits tones to communicate with automated calling systems like Voice Mail or bank by phone. These tones are called DTMF tones (Dual Tone Multi-Frequency tones), and this feature allows you to control the length of the tone your phone sends. For most systems, you should use the default setting of short tones, which sends the tones for a preset length of time. If you choose long tones, your phone will transmit the tones for as long as you press and hold the key. To silence the tones during conversations, turn the tones OFF.

1 **Enter Feature** Press ◊ or ◊ to scroll to DTMF Select and press ◊ to select.

2 **Select Setting** Press ◊ or ◊ to scroll to Transmit DTMF Long, Transmit DTMF Short, or Transmit DTMF Off and press ◊ to select.

3 **Exit Menu** Press END to exit the menu, or you may scroll to other features.

MENU

(FCN) (1) ──── **Phone Book** ──▶ **Timers** ──▶ **Tone Control** ──▶ **Lock Secure** ──▶ **Phone Options**

☞ *If you turned the DTMF tones OFF, but you want to access a tone-activated system like Voice Mail, place your call, enter the numbers you need to transmit and:*

Send Tones Press (⌐RCL) then press (SND) to send the tones if DTMF tones are OFF.

Service Tones

When Service Tones are ON, you will be instantly alerted to any change in your wireless service. You will hear two short beeps when your phone (1) starts to roam, (2) returns to a home system after roaming, (3) loses service, or (4) finds service.

MENU

1 **Find Feature** Press (●) or (●) to scroll to Service Tones.

2 **Toggle Feature** Press (●) to toggle the feature On or Off.

3 **Exit Menu** Press (END) to exit the menu, or you may scroll to other features.

☞ *Your phone will always beep if a call is dropped.*

FCN 1 | Phone Book | Timers | Tone Control | **Lock Secure** | Phone Options

Using Lock/Security Features

While you probably would not want to leave your phone unattended, your phone has a number of built-in security features to prevent unauthorized use.

In this section you will learn how to:

- lock and unlock your phone
- place priority calls
- view and change your lock code
- restrict call placement and memory access
- reset or clear your phone's settings

Start:

Lock Secure → Auto Lock Off

Priority Call On

Secure Options → Secure Code_____

To Main Menu

View Lock Code

Change Lock Code

Change SecureCode

Service Level 4

Master Reset

Master Clear

To Main Menu

MENU

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**
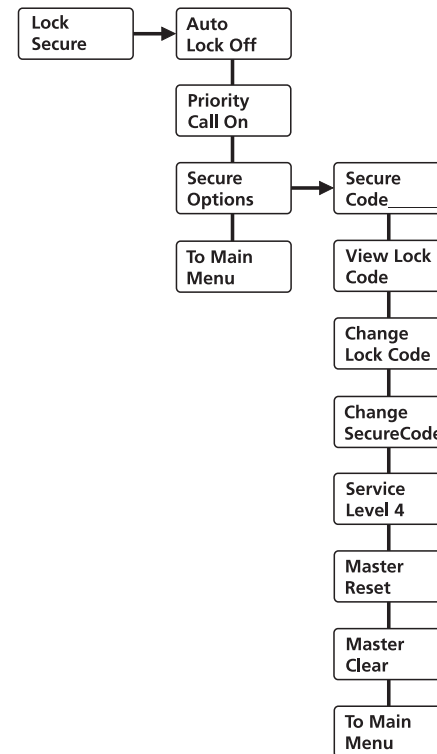
Auto Lock

Turn this feature ON and your phone will automatically lock itself each time the phone is turned OFF.

1	**Find Feature**	Press 🔼 or 🔽 to scroll to Auto Lock.
2	**Toggle Lock**	Press 🔽 to toggle the feature On or Off.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Locking the Phone

You can lock your phone manually at any time to help prevent unwanted use. Once locked, you can leave the phone ON or turn it OFF and the phone will remain locked.

1	**Lock Phone**	Press (FCN) and then press and hold (5). You will see: Lock?
2	**Confirm**	Press 🔽 or (STO). You will see: Locked.

Unlocking the Phone

Unlocking your phone is quick and easy. Once your phone is ON, just enter your four-digit unlock code. Your factory programmed unlock code is 0123. If you have changed this code and cannot remember what it is, see Viewing the Lock Code on page 47.

☞*You can still receive calls when the phone is locked. Follow these steps to answer an incoming call:*

	Unlock and Answer	Enter your four-digit code and press 🔽 or (SND) to answer.

Priority Call

⚡ *Press (FCN), 🔽 then (2), (9) and continue with step 2.*

Your phone's priority call feature allows you to instantly place a call from location 01 – even when your phone is locked.

1	**Find Feature**	Press 🔼 or 🔽 to scroll to Priority Call.
2	**Toggle**	Press 🔽 to toggle the feature On or Off.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

☞*Some wireless systems only allow access to their own emergency numbers. Check with your Service Provider for more information.*

Storing a Priority Call Number

You should reserve memory location 01 for an emergency number or the number of a family member or close friend. To store your priority number, follow these steps:

1	**Enter Number**	Enter your priority number.
2	**Save Number**	Press (STO) and (0), (1) to choose location 01.
3	**Enter Name**	Select a label, enter a name if you like, and press 🔽 when finished. Your phone will confirm the entry by displaying the stored information.

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

Placing a Priority Call

Place Call — When Priority Call is ON, press and hold ① at any time.

☞ *If call restriction Service Level 1 is enabled, the Turbo Dial® Keys will not be active. To override the restriction and place a priority call, press RCL, ①, SND. See page 48 for information on your phone's service levels.*

☞ *If you store more than one number in location 01, the first number that was stored will be dialed.*

Secure Options Submenu

For your protection, you must enter a six-digit secure code in order to access the features in the Secure Options submenu. The factory programmed secure code is 000000.

Viewing the Lock Code

⚡ *Press FCN, ⓪, enter six-digit secure code, then RCL.*

To view the four-digit lock code:

1 View Code — Press ◉ to select View Lock Code. You will see: `Lock Code XXX.`

2 Exit Menu — Press END to exit the menu, or you may scroll to other features.

Changing the Lock Code

⚡ *Press FCN, ⓪, enter six-digit secure code, enter a new lock code, then STO.*

To change the four-digit lock code:

1 Begin Change — Press ◉ or ◉ to scroll to Change Lock Code and press ◉ to select. You will see: `Enter New Code__.`

2 Enter New Code — Enter a new four-digit lock code. You will see: `New Lock Code XXX.`

3 Exit Menu — Press END to exit the menu, or you may scroll to other features.

Changing the Secure Code

The Secure Code is a six-digit number factory set to 000000. You will probably want to change it to something unique and easy to remember.

1 Select Feature — Press ◉ or ◉ to scroll to `Change Secure Code` and press ◉ to select. You will see: `New Code __.`

2 Enter New Code — Enter a new six-digit Secure Code. Your phone will briefly display the new code.

3 Exit Menu — Press END to exit the menu, or you may scroll to other features.

MENU

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

MENU

Service Level

When loaning your phone to others, you may want to restrict call placement or protect memory information. Your phone has two service levels that allow you to control the types of outgoing calls that can be made from your phone.

1	**Select Feature**	Press ◊ or ◊ to scroll to Service Level and press ◊ to select.
2	**Choose Level**	Press ◊ or ◊ to scroll through service level settings and press ◊ to select the setting. (See the chart below for descriptions.)
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Your phone has two service levels:

Level 1: Calls can be placed from memory locations 1-10 only. • No dialing from keypad. • No memory edit or storage. • No access to name directory.	1 Memory 1-10 Only 🔒
Level 4: This is the **default setting.** • No restrictions.	4 Standard Setting 🔒

Master Reset

Use this feature to reset all user-selectable options back to their original factory settings.

☞ *Once you select this feature, the process cannot be canceled or reversed.*

1	**Reset Features**	Press ◊ or ◊ to scroll to Master Reset and press ◊ to select. You will see: Reset?
2	**Confirm Reset**	Press ◊ to confirm. You will see: Standard Setting.
or	**Exit**	Press (END) to exit without resetting.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Master Clear

Use Master Clear to clear all user-selectable options, the resettable timer, the Phone Book, and the Messaging memory.

☞ *Once you select this feature, the process cannot be canceled or reversed.*

1	**Clear Settings**	Press ◊ or ◊ to scroll to Master Clear and press ◊ to select. You will see: Clear?
2	**Confirm Clear**	Press ◊ to confirm. You will see: Busy. It will take a few seconds to reset all of your phone's options back to their factory settings.
or	**Exit**	Press (END) to exit without resetting.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Phone Book ➡ **Timers** ➡ **Tone Control** ➡ **Lock Secure** ➡ **Phone Options**

Customizing Phone Options ☎

The Phone Options menu lets you customise the way your phone sends and receives calls.

You can tune your phone for optimal performance, view information about the phone, and choose from a number of convenient features.

In this section you will learn how to:

- switch phone numbers
- review your phone's settings
- select a variety of system specific settings

Start:

Phone Options

Change Number *

Roam List Version	←	Phone Info

To Main Menu		Feature Review

		Call Options

		Display Options

		MiniBrowser Options

		System Options	→	Display System ID

		To Main Menu		Select SystemMode

				To Main Menu

Multi Key Answer Off

Auto Answer Off

Instant Redial Off

To Main Menu

Quick Menu On

Change Language

Change Banner

Backlight Select

Auto Hyphen On

24 Hour Clock Off

Contrast Control

To Main Menu

Launch MiniBrowser #

Power Up Mode

To Main Menu

MENU

*   If 'Dual Nam' is enabled, Menu displays 'Change Number' before 'Phone Info'.

\#   Network and subscription dependant feature. Not available in all areas.

Using the Menu Features **49**   **English**

FCN 1 ▬▬▬ **Phone Book** ▬ **Timers** ▬ **Tone Control** ▬ **Lock Secure** **Phone Options**

Displaying Phone Information

This feature allows you to view information about your phone. If you require technical assistance, you may be asked to check here.

1	**Find Feature**	Press ◊ or ◊ to scroll to Phone Info then press ◊ to select.
2	**Scroll**	Press ◊ or ◊ to scroll through the the information.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

Feature Review

⚡ *Press* FCN, *then* 0, 9, RCL.

After you have spent some time adjusting your phone's settings, use this feature to review the changes you have made. When you enter Feature Review, your phone will display any features that you have changed from their default factory settings.

☞ *Feature Review is simply an opportunity to review – but not change – your current settings.*

1	**Begin Review**	Press ◊ or ◊ to scroll to Feature Review and press ◊ to enter.
2	**Browse Features**	Press ◊ or ◊ to scroll through any features you have changed from their default settings. If all features are set to their default factory settings, the display will show: Standard Setting.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

Call Options Submenu

This submenu gives you control over the way your phone places and receives calls.

Multiple Key Answer

With Multiple Key Answer ON, you can answer calls by pressing ◊ or any key in the center of the keypad, 1 through #▸.

1	**Find Feature**	Press ◊ or ◊ to scroll to Multi Key Answer.
2	**Toggle Feature**	Press ◊ to toggle the feature On or Off.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

☞ *If there are any digits in your Scratchpad or if your phone is locked, this feature will not work.*

MENU

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

Automatic Answer

Press FCN, ◊ then 2, 6 and continue with step 2.

Turn Auto Answer ON to have your phone automatically answer incoming calls after two ring cycles.

1	**Find Feature**	Press ◊ or ◊ to scroll to Auto Answer.
2	**Toggle Feature**	Press ◊ to toggle the feature On or Off.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

☞*We recommend you use this feature only with vehicle accessories and with your phone's ringer active. See page 69. Otherwise, your phone may answer a call in your absence.*

Instant Redial

When placing calls, you may hear a fast busy signal and see Press SND to Redial. This probably means the network is temporarily busy. If you turn Instant Redial ON, your phone will redial for the next four minutes or until the call goes through.

1	**Find Feature**	Press ◊ or ◊ to scroll to Instant Redial.
2	**Toggle Feature**	Press ◊ to toggle the feature On or Off.
3	**Exit Menu**	Press END to exit the menu, or you may scroll to other features.

MENU

☞*This feature redials only when the network is busy. If you hear a normal busy signal, this feature will not work. See page 23 for more redialing options.*

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

MENU

Display Options Submenu

This submenu allows you to customize your phone's display.

Activating the Quick Menu

When Quick Menu is enabled, pressing the ⊙ button once results in the display of the Quick Menu, offering shortcuts to the most popular features. This feature of the Display Options submenu turns the Quick Menu off if you would rather use the ⊙ button to go straight into the phonebook. See page 24 for more information.

| 1 | **Toggle Feature** | When you enter Display Options, you will see: Quick Menu. Press ⊙ to toggle the feature On or Off. |
| 2 | **Exit Menu** | Press (END) to exit the menu, or you may scroll to other features. |

Changing the Language

This feature allows you to select the language in the display.

1	**Begin Selection**	Press ⊙ or ⊙ to scroll to Change Language and press ⊙ to select.
2	**Choose Option**	Press ⊙ or ⊙ to scroll through the available languages and press ⊙ to select.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Changing the Banner

You may create your own message banner for the phone to display when it is idle. Your banner can be up to 12 characters long.

1	**Enter Feature**	Press ⊙ or ⊙ to scroll to Change Banner and press ⊙ to select. You will see the current banner or Alpha or Press *.
2	**Enter Message**	Enter your message using the alphanumeric keypad. Press ⊙ when your message is complete.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Customizing the Backlight

Your phone's backlight illuminates when you press a key, or your phone receives an incoming call signal. This feature allows you to choose how long it remains ON.

1	**Find Feature**	Press ⊙ or ⊙ to scroll to Backlight Select and press ⊙ to select.
2	**Toggle Feature**	Press ⊙ or ⊙ to scroll to Backlight 15 Seconds or Backlight 30 Seconds and press ⊙ to select the displayed option.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

☞ *The backlight will time out after 15 seconds when your phone is connected to an external power supply, like a charger or vehicle accessory.*

Auto Hyphen

Just turn Auto Hyphen ON to have all phone numbers automatically hyphenated on the display. This allows you to easily distinguish between area codes, call prefixes, and other numbers.

1	**Find Feature**	Press ◊ or ◊ to scroll to Auto Hyphen.
2	**Toggle Feature**	Press ◊ to toggle the feature On or Off.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Displaying the 24-Hour Clock

Your phone can display the current time in 12-hour or 24-hour format. Use this feature to turn the 24-hour clock On or Off.

1	**Find Feature**	Press ◊ or ◊ to scroll to 24 Hour Clock.
2	**Toggle Feature**	Press ◊ to toggle the feature On or Off.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Contrast Control

This option is used to adjust the screen contrast.

The contrast is displayed as follows:
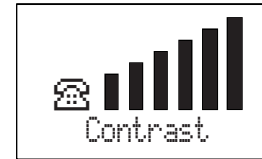
1	**Find Feature**	Press ◊ or ◊ to scroll to contrast control and press ◊.
2	**Adjust Contrast**	Adjust the contrast by pressing the (◄✱) or (#►).
3	**Save Settings**	Press (STO) or ◊ to save contrast settings or (END) to exit.

MENU

FCN 1 → **Phone Book** → **Timers** → **Tone Control** → **Lock Secure** → **Phone Options**

MiniBrowser Options

☞*Network and subscription dependant feature. Not available in all areas.*

This submenu offers several options for customizing the way your phone accesses information with the MiniBrowser.

Launching the MiniBrowser

Select this feature to launch the MiniBrowser and access sports scores, stock reports, weather reports, and more.

☞*You can also launch the MiniBrowser with the Quick Menu. See page 24.*

MENU

1	**Find Feature**	Press ◔ or ◕ to scroll to Launch MiniBrowser.
2	**Select**	Press and hold ◉ to select.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Power Up Mode

When you turn ON your phone, you can begin with the MiniBrowser or the regular phone features.

1	**Find Feature**	Press ◔ or ◕ to scroll to Power Up Mode. and press ◉ to select.
2	**Select Option**	Press ◔ or ◕ to scroll to Power Up Phone or Power Up MiniBrowse and press ◉ to select.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

Confirm at Start-up

Your phone can display reminders when you launch the MiniBrowser to indicate that your time browsing may be charged. This feature toggles the reminder ON or OFF.

1	**Find Feature**	Press ◔ or ◕ to scroll to Confirm at Start.
2	**Toggle**	Press ◉ to toggle between On and Off.
3	**Exit Menu**	Press (END) to exit the menu, or you may scroll to other features.

```
■ ⒻⒸⓃ ①  ──▶  Phone   ──▶  Timers  ──▶  Tone     ──▶  Lock    ──▶  Phone
                 Book                    Control        Secure       Options
```

System Options Submenu

The System Options submenu offers a couple features that will help you use your phone and wireless network.

Displaying the System ID

Use this feature to determine the unique System ID for your wireless phone.

1	**View SID**	Press ◉ to select `Display System ID`. You will see the System ID for your phone.
2	**Exit Menu**	Press ⒺⓃⒹ to exit the menu, or you may scroll to other features.

Selecting a System Mode

⚡ *Press ⓡⓒⓛ then ◀✳ and continue with step 2.*

Your Service Provider configures Select System Mode when you receive your phone. This feature allows you to select the type of system your phone will attempt to access. See below for a chart of available settings.

1	**Begin Selection**	Press ◉ or ◉ to scroll to Select `SystemMode` and press ◉ to enter. The display will show your phone's current System Mode setting.
2	**Choose Mode**	Press ◉ or ◉ to scroll through the System Mode settings (see chart on next page). Press ◉ to select the displayed setting.
3	**Exit Menu**	Press ⒺⓃⒹ to exit the menu, or you may scroll to other features.

Standard Mode: Your phone first seeks a home type system, then a non-home type system.	`Standard` `Scan    ☎`
Home Only Mode: Phone will not operate outside its home system.	`Home` `Only    ☎`

Displaying the Roam List Version

This feature displays the Roam List Version used by your phone. If you require technical assistance, you may be asked to check this feature.

[MENU]

1	**View Roam List**	Press ◉ or ◉ to scroll to `Roam List Version` then press ◉ to select. You will see: `Version XXXX`.
2	**Exit Menu**	Press ⒺⓃⒹ to exit the menu, or you may scroll to other features.

Using the Messaging Menu

☞ *Network and subscription dependant feature. Not available in all areas.*

The dedicated Message Key provides access to your phone's new and easy Messaging Menu. Through this menu, you can check your Voice Mail, read your pager-like alphanumeric Messages, access MiniBrowser alerts, and view the Caller IDs of your most recent callers.

In this section you will learn how to:

- view your Caller IDs
- check your Voice Mail
- read your Messages
- explore your options with the Function Menus

Receiving Messages

If your phone is ON and you receive a Voice Mail, MiniBrowser alert, or alphanumeric message: an indicator appears on the display:

- ✉ Appears on the lower line of the display when you receive an alphanumeric message. It will stay on the display until you have read the message.

- Urgent ✉ Appears in the main display when you receive an urgent message and your phone is in idle mode. After a few seconds, the screen will change to Press ✉ and begin flashing.

- Msg Mem Low Appears when your phone's message memory is almost full (at approximately 85% capacity).

- Msg Mem Full Appears in the main display when the message memory is completely full and your phone is in idle mode.

☞ *Your Service Provider holds your messages and will forward them after you have made room. See "Message Options" to learn how to delete messages.*

- ✉‹›**)** Appears on the lower line of the display when you receive a Voice Mail message. It will stay on the display until you have listened to the message. Your Service Provider will then signal your phone to turn the indicator OFF.

☞ *For information on MiniBrowser alerts, see page 63.*

Press ✉ to open the Messaging Menu:

When you open the Messaging Menu, the icon of the message type you received will be flashing.
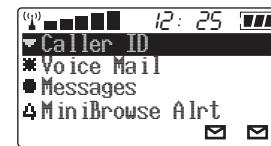
```
┌─────────────────────────┐
│(T)▪▪▪▪▪▪   12:25  ▦▦▦   │
│▼Caller ID               │
│✳Voice Mail              │
│●Messages                │
│♫MiniBrowse Alrt         │
│           ✉   ✉‹› ─ Voice Mail Indicator
└─────────────────────────┘
        Message Indicator
```

Viewing Your Caller IDs

☞ *Network and subscription dependant feature. Not available in all areas.*

Your phone supports Caller ID service, which lets you see who is calling before you answer. The Caller IDs for the last 16 different callers are stored so they can be viewed at any time.

1	**Enter Messaging**	Press ✉ to open the Messaging Menu.
2	**Select Caller ID**	Press ⊕ or ⊖ to scroll to Caller ID and press a to select.

You will see a Caller ID icon 🎯 for each stored Caller ID. Flashing icons represent Caller IDs that have not been viewed. Below the icons you will see information for the latest Caller ID:

```
(ⁱ)▪▪▪██  12:25 ▐▓▓▌
▼▼▼▼▼▼▼▼✚          ─── selected Caller ID
12:10pm 08/02/99   ─── time & date of call
   1-312-555-1212  ─── your caller's
            ✉  ✉»      phone number
```
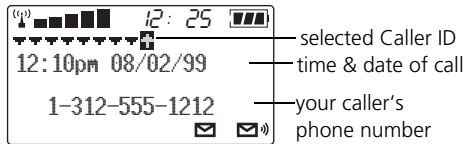
3	**Select Caller**	Press ⊕ or ⊖ to highlight a Caller ID to view and press ⊖ to view complete information for that call:

```
              (ⁱ)▪▪▪██  12:25 ▐▓▓▌
number       ┃02 Smith J        ─── your caller's
of times     ┃   Home                name
they called
                 1-312-555-1212 ─── your caller's
                       ✉  ✉»          phone number
```

Keep in mind: You will see the caller's name only if it is stored in your Phone Book.

☑ A check mark will appear in the corner if you have answered or returned the call. Press ⓢⓃⒹ to return the call of the displayed caller. Press ⓈⓉⓄ to store the information.

Caller ID Options

When viewing Caller IDs, press the Message Key to see the options available for the highlighted Caller ID.

1	**Enter Messaging**	Press ✉ to open the Messaging Menu.
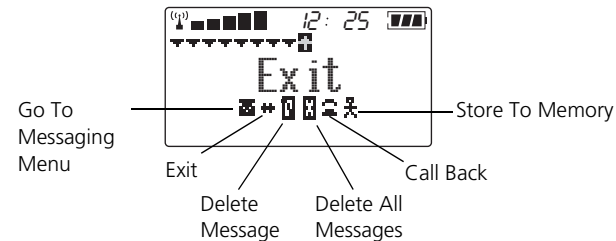
```
          (ⁱ)▪▪▪██  12:25 ▐▓▓▌
          ▼▼▼▼▼▼▼▼✚
              Exit
Go To   ───  ✉↔ 🔟 📋📞 ✂  ─── Store To Memory
Messaging
Menu        Exit        Call Back
          Delete    Delete All
          Message   Messages
```

2	**Choose Function**	Press ⊕ or ⊖ to scroll to one of the following:

	Go To Msg Menu	Press ◉ to return your phone to the Messaging Menu.
	Exit	Press ◉ to exit Messaging to idle mode.
	Delete Message	Press ◉ to delete the currently selected Caller ID. Press ◉ again to confirm.
	Delete AllMsgs	Press ◉ to delete all your Caller IDs. Press ◉ again to confirm.
	CallBack	Press ◉ to return the call.
	Store To Mem	Press ◉ to begin storing the number. Enter a two-digit location, select a label, enter a name, and press ⬛STO again.

Checking Your Voice Mail

☞ *Network and subscription dependant feature. Not available in all areas.*

When you receive Voice Mail, your Service Provider sends a notification to your phone and your phone displays an indicator. That way, you will be able to check for new Voice Mail simply by glancing at your phone's display.

1	**Enter Messaging**	Press ✉ to open the Messaging Menu.
2	**Select Voice Mail**	Press ◉ or ◉ to scroll to Voice Mail and press ◉ to select.

If you have one or more Voice Mail messages, you will see:

```
(ϓ)▪▪▪██  12:25 ▥▥
   You Have
 Voice Mail
              ✉·)
```
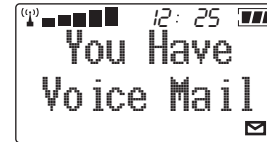
To listen to your messages, dial your access number. Your phone will do this automatically with one key press.

Dial Number	When viewing notifications, press SND or press and hold ◉ to call your Voice Mail box.

See the following page for more options.

☞ *Some Service Providers send the Voice Mailbox number to your phone automatically. If the number has not been sent, then store it in location 98 of your Phone Book. To learn how, see Pause Dialing on page 28.*

⚡ *Press and hold ✉ to call your Voice Mail number.*

If you have no new messages, you will see:

```
(ϓ)▪▪▪██  12:25 ▥▥
      No
  Voice Mail
```
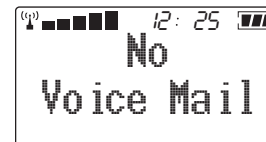
Voice Mail Options

When checking Voice Mail, press the Message Key to see options for the highlighted Voice Mail notification.

1   **Access Options**   Press ✉ to open the Voice Mail Function Menu.

```
(ᵀᵖ)▪▪▪▪▪   12:25  ▰▰▰
         Exit
         ☒ ✛ 🔲 ☎
```
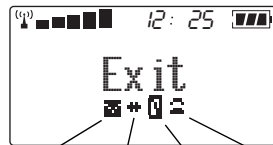
Go To Messaging Menu   Exit   Delete Message   Call Back

2   **Choose Function**   Press ⊕ or ⊖ to scroll to one of the following:

☒   **Go To Msg Menu**   Press ⊙ to return your phone to the Messaging Menu.

✛   **Exit**   Press ⊙ to exit Messaging to idle mode.

🔲   **Delete Message**   Press ⊙ to delete the currently selected Voice Mail notification. Press ⊙ to confirm.

☎   **CallBack**   Press ⊙ to dial your Voice Mail box number.

Reading Your Messages

☞*Network and subscription dependant feature. Not available in all areas.*

Your phone can receive alphanumeric messages like a pager. The message memory stores up to 60 messages, depending on the size of each.

1   **Enter Messaging**   Press ✉ to open the Messaging Menu.

2   **Select Messages**   Press ⊕ or ⊖ to scroll to Messages and press ⊙ to select.

urgent message   selected message

```
(ᵀᵖ)▪▪▪▪▪   12:25  ▰▰▰
◀▲⬛❢●●●●●⬛●●●●●▶
12:34pm 07/07/99
1: F:8475551212
M: Happy B-day!
```

more messages (left)

locked message
message number

more messages (right)

time and date of message

sender's number

text of message   more text
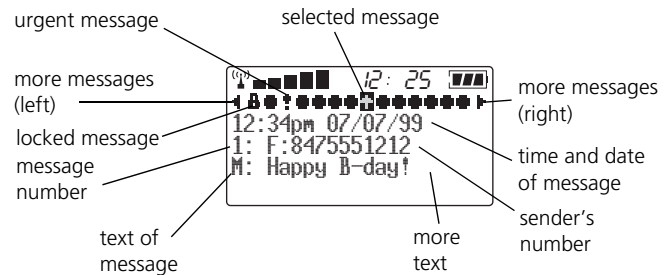
Flashing icons represent messages that have not been viewed.

Select a Message   Press ⊕ or ⊖ to highlight a message to read and press ⊙ to select the message.

Once a message is selected, the following keys will help you read through your messages:

Scroll   Press ⊕ or ⊖ to scroll through the selected message.

Previous Message	Press ⊙ or ◄✳ to go to the previous message.	
Next Message	Press #► to go to the next message.	

If the message includes a number in parentheses (a Call Back number) you can use the following shortcuts:

Call Back	Press ⓢⓝⓓ to dial the Call Back number (in parentheses if included).
	If the Call Back number matches one in your Phone book, you will see the name of the caller when you view the message.
Store	Press ⓜⓢⓣⓞ to store the Call Back number (in parentheses if included) in your Phone Book.

Message Options

When reading your messages, press the Message Key to see the options available for the highlighted message.

3	**Access Options**	Press ⊠ to open the Message Function Menu.
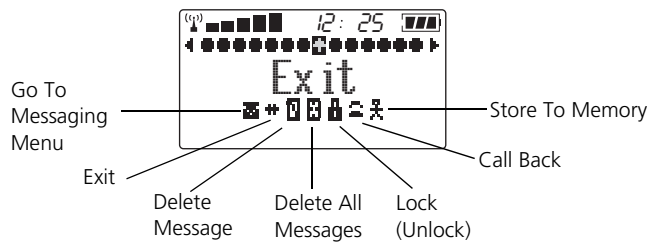
Go To Messaging Menu — Exit — Delete Message — Delete All Messages — Lock (Unlock) — Call Back — Store To Memory

4	**Choose Function**	Press ⊙ or ⊙ to scroll to one of the following:
	Go To Msg Menu	Press ⊙ to return your phone to the Messaging Menu.
	Exit	Press ⊙ to exit Messaging to idle mode.
	Delete Message	Press ⊙ to delete the currently selected message. Press ⊙ again to confirm.
	Delete AllMsgs	Press ⊙ to delete all messages. Press ⊙ again to confirm.
	Lock Message	Press ⊙ to lock or unlock the message. Lock important messages to protect them from accidental deletion.
	Unlock Message	Messages must be unlocked before they can be deleted.

If the message contains a Call Back number (in parentheses), you will also see these options:

	CallBack	Press ⊙ to dial the sender's number.
	Store To Mem	Press ⊙ to begin storing the number. Enter a two-digit location, select a label, enter a name, and press ⓜⓢⓣⓞ again.

Using the Messaging Menu **61**   **English**

Using the MiniBrowser

☞ *Network and subscription dependant feature. Not available in all areas.*

Your phone can give you instant access to valuable resources. With a subscription and wireless service, you can retrieve sports scores, weather and traffic reports, stock prices, and more.

In this section you will learn how to:

- launch the MiniBrowser
- navigate using your phone
- bookmark your favorite sites

Follow these symbols as a guide for using the MiniBrowser.

Press Ⓐ to scroll up.

Press Ⓥ to scroll down.

Press ⊙RCL for the left Soft Key.

Press ⊞STO for the right Soft Key.

Press ⊙CLR to go back or stop, hold to return to home page.

Press END to exit.

Getting Started Browsing

☞ *To enable 'MiniBrowser' options, you must subscribe for this service. Contact your Service Provider*

To get started with your MiniBrowser, you will need an IP address for your phone. The IP address is the location of a server provided by your Service Provider, and it will be loaded into your phone by your Service Provider when you subscribe to this service. Contact your Service Provider for more information.

Launching the MiniBrowser

If your IP address is already set, then you are ready to go.
Just follow these simple steps:

1 **Open Quick Menu**   Press ⊙ to open the Quick Menu.

```
(ᵗ)▪▪▪▪█    12:25  ▐▌▌
Phone Book
Messaging
Launch Browser
Last 10 Dialed
                    ✉
```
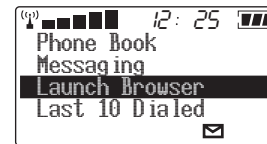
2 **Select Browser**   Press Ⓐ or Ⓥ to scroll to Launch Browser and press ⊙ to select.

When you launch the MiniBrowser, you will see the last page accessed with the MiniBrowser. If this is your first time, you will see your home page.

For more setup options and another way to launch the browser, turn to page 54.

MiniBrowser Navigation

If you know the keys to navigate your phone's other features, then you already have a head start at navigating with the MiniBrowser.

Scrolling and Selecting

When browsing, you will see a list of options on the phone's display. Each of the items on the list is assigned a number. Just press the matching numeric key to select that item. Or you can scroll to the item with the volume keys and use the Smart Button to select.

Scroll bar (more options up and down)

Options
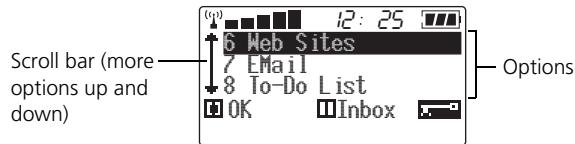
Select Item	Press the key matching the number of the list item. In the above example, press ⑦ for Email.
Scroll	Press Ⓞ or Ⓞ to scroll up and down the page. You can also use ◄✱ or #►. Above, press Ⓞ once to scroll to Email, twice to scroll to To-Do List.
Select	Press Ⓞ or the left soft key (see the next page) to select the highlighted item. Above, press Ⓞ to select Web Sites.
Go Back One Page	While navigating, press ←CLR to return to the previous page.
Stop	When sending and receiving data, press ←CLR to interrupt transmission.

Return to Home	Press and hold ←CLR to return to your home page.

MiniBrowser Navigation

Soft Keys

In addition to the familiar keys for scrolling and selecting, the MiniBrowser uses "soft keys." Soft keys are keys that change their function according to the screen. Read the lower line of the display (above the indicators) to find out what the soft keys can do on that screen.

You will see two functions, one on the left and one on the right, each with an icon:

Press ▣RCL for left soft key

Press ▣STO for right soft key
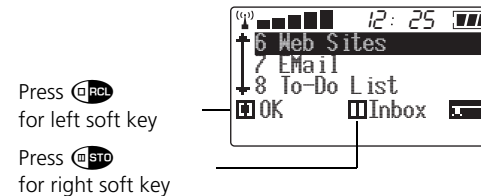
Left Soft Key	Press ▣RCL to choose the option on the left. In the above example, press ▣RCL to select OK and accept the highlighted option: Web Sites. You can also press Ⓞ to select the left option.
Right Soft Key	Press ▣STO to choose the option on the right. In the above example, press ▣STO to select Inbox.

Display Messages

While you navigate, the lower line of the display will show you messages to let you know what your phone is doing. You will see: Sending))))), Receiving(((((, or Waiting.....

Bookmarks

Bookmarks make it easy to quickly jump to the sites you use most often. You can assign up to nine bookmarks, one for each of the numeric keys on the keypad. See page 66 to learn how to make a bookmark. Once you bookmark the site, press and hold the key and you will automatically jump to the page.

☞*Bookmarks are only available while browsing.*

MiniBrowser Alerts

To stay current with changing information, like stock prices or sports scores, you can subscribe to MiniBrowser alerts through your Service Provider.

If your phone is ON and you receive a MiniBrowser alert:

- **An alert sounds**: Your phone will beep three times.

  See Setup Message Tones on page 42 to set your phone's alert. See page 43 to learn about Reminder Tones.

- **An indicator appears:** ☑ Appears on the lower line of the display. It will stay on the display until you have checked the alert.

1	**Check Message**	Press ⌧ to open the messaging menu. The icon of the message type received will be flashing.
2	**Select Alert**	Press ◊ or ◊ to scroll to MiniBrowse Alrt and press ◊ to select.

Receiving Calls

Most of the time, while browsing you will not be able to receive calls (depending on your service, callers will probably get your Voice Mail).

☞*Look for the IU indicator on the lower line of the display. If you see it, your phone is online and you will not be able to receive calls.*

Occasionally, when you access a page that you have recently visited and the information on the page has not changed, your phone may use a version of the page stored in its memory. When this is the case and you receive a call, your phone's alerts will sound and the display will show the Caller ID (if available).

Answer Call	Press ⌧ to answer the call. Your browsing session will be put on hold while the call lasts. Once the call is complete, your phone will return to the same site.

Entering Words

At times you may need to enter information while browsing, like a keyword for searching or a message. If you see a flashing cursor, you can use the keypad to enter letters and punctuation in the same way you do for the internal Phone Book. See page 26 for more information.

Security

To find out if the information you are sending is secure, just look at the lower line of the display. A key icon denotes a secure transmission. If the key has a slash through it, then the transmission is not secure.
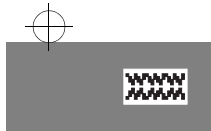
Secure

Non-Secure

The MiniBrowser Menu

After the MiniBrowser has been launched, the MiniBrowser menu can be activated by pressing (FCN) followed by (1). Through this menu, you can set Bookmarks, read MiniBrowser alerts, refresh the display, and other advanced features.

☞*This menu is only available while browsing.*

Help

If you need assistance while browsing, select this option.

Select   Press ◉ to select Help. You will see a help screen specific to the site.

☞*Some sites do not have help available.*

Home

Select this option to return to the home page set up by your Service Provider.

Select   Press ◉ to select Home. You will see the home screen of your Service Provider.

Mark Site

To add a page to your bookmark list, choose this feature. Once bookmarked, press and hold the corresponding key to jump to the bookmarked page. There are nine bookmarks available so your favorites are never more than a keypress away.

1 **Select**   Press ◉ to select Mark Site. You will see: Select Number.

2 **Select Number** Press a key, (1) through (9), to choose the bookmark number.

Show URL

To see the address of the current page, choose this feature.

Select   Press ◉ to select Show URL. You will see the address of the current page.

Reset UP

This features relaunches the MiniBrowser.

Refresh Display Press ◉ to select Reset UP. You will see the start-up screen and then the first menu.

About UP

This feature offers information on the company that helps to provide the web browsing service.

View Page Press ◉ to select About UP. You will see a page with information.

Advanced Settings

This submenu contains features for advanced users, like security
and technical settings.

1   **Select**   Press ◉ to select Advanced.

2   **Scroll**   Press ◉ or ◉ to scroll to Set.UP Link or
                        Security and press ◉ to select.

Accessories

The following accessories have been designed to work with your phone. Additional accessories may be available and are packaged separately. Please refer to your local service provider or retail outlet for more information.

☞*The use of wireless devices and their accessories ("devices") may be prohibited or restricted in certain areas. Always obey the laws and regulations on the use of these devices.*

☞*Please ensure that when using any external connector with your phone that you are certain that it is fully inserted.*

Travel Charger

The Power Adapter (charger) connects to the phone. When connected directly to the phone, it charges the battery.

Vehicular Power Adapter

The Vehicular Power Adapter connects to your phone and allows you to charge your phone's battery while driving. When the phone is in use, the adapter overrides the battery therefore preserving battery life. The adapter also provides dead battery operation.

☞*In some cars, the engine must be running in order for the Vehicular Power Adapter to operate.*

Personal Handsfree System

The convenient headset provides both an earphone and microphone for simple handsfree and private telephone conversations. The headset plugs directly into the jack on the top left side of your phone, so that you can wear your phone and move freely. Place the foam cover on the earpiece for a more comfortable fit.

Zero Install Car Kit

For the quickest and easiest mobile solution, use the Zero Install Car Kit. Just plug it in, attach the microphone, and you are ready to go.

Belt Clip

The Belt Clip holds the phone while being worn on your belt.

☞*The belt clip has been designed for your convenience and is not meant to secure your phone under all circumstances.*

Headset

The convenient headset provides both an earphone and microphone in one small accessory for simple handsfree and private telephone conversations. The headset plugs directly into the jack on the top left side of your phone, so that you can wear your phone and move freely.

Accessory Limited Warranty Information

We recommend that you use Motorola original batteries and accessories. Under its limited cellular telephone warranty, Motorola specifically disclaims any responsibility for damage caused by the use of portable cellular telephone accessories not manufactured by Motorola.

For details on the complete line of Motorola cellular accessories, see your dealer or visit our Web site at

`http://www.mot.com/`

Hands-Free Accessories...

The following hands-free wireless phone accessories are available today

- Hands-Free - Zero Installation Kit

- Hands-Free - Integrated Installation

- Hands-Free Headset

For information call 1-800-331-6456 or write

Motorola
Personal Communications Sector
600 North US Highway 45
Libertyville, Illinois 60048

What to do if...

I pressed the power button, but nothing happened. What's wrong with my phone?	Make sure that you press and hold the power button until the display appears and you hear an audible alert. If nothing still happens, then check that you have installed the batteries and that the batteries are charged. For more information about batteries and charging see "Your Battery" on page 16.
The battery won't charge	Check the alignment of the batteries to ensure that they are installed properly. Make sure that the positive (+) and negative (-) marks on the batteries match the markings on the phone.
	Check the charger. Is it properly connected? Is it fully inserted? Are its contacts clean and dry? The phone should provide a beep-tone and the display should read "Charging Battery" within two minutes from the transformer being installed. See 'Your Battery'.
	Check the battery contacts. Are they clean and dry?
	Check the battery temperature. If it is warm, let it cool before recharging.
	Is it an old battery? Battery performance will decline after several years use. Replace the battery.
	Are you using a *Motorola* original battery? See **'Your Battery'**.
The battery drains faster than normal	Are you in an area of variable coverage? This uses extra battery power.
	Is it a new battery? A new battery will need two to three charge/discharge cycles to attain normal performance. See 'Charging a New Battery'.
	Is it an old battery? Battery performance will decline after several years use. Replace the battery.
	Is it a battery that hasn't been completely discharged? Allow the battery to fully discharge (until the phone turns itself off) and then charge the battery overnight.
	Are you using your phone in extreme temperatures? At extreme hot or cold temperatures, battery performance is significantly reduced.
The display says, "Locked." How do I unlock my phone?	Enter the last three digits of your cellular number. If that doesn't work, use the factory preset lock code: 123. If all else fails, call your service provider (the company that sends you your monthly cellular bill) for assistance. (See "Using Lock/Security Features" on page 45 for more information on Security Features.)
I tried to place a call and received a fast busy signal.	This sound means that the cellular system did not process your call. For example, the cellular system may be overloaded with call attempts. To redial the number, press (SND) before ending your call attempt, or press (END) and try the call again later. (See "Redialing a Number" on page 23 for more information on redialing.)

I tried to place a call and received an alternating high/low tone.	This sound means your call did not reach the cellular system. You may have dialed the number too soon after turning the phone on. Wait until the "NS" light stops blinking before placing a call.
	An alternating tone may also indicate that your phone's signal is blocked. Make sure you are clear of any obstructions such as bridges, parking garages, or tall buildings.
My phone was stolen. What should I report and to whom?	Report a stolen phone to the police and to your service provider (the company that sends you your monthly cellular service bills).
I tried to listen to my Voice Mail (or use a paging service, a calling card, etc.) but nothing happened.	You have probably turned off the transmit tones. Place your call, enter the access numbers when prompted by the recording, then press ▣ RCL SND . To avoid this problem in the future, follow the directions in "Transmit Tones" on page 43 to turn the transmit tones on.
I tried to place a calling card call using the internal Phone Book, but it didn't work.	You may have turned off your transmit tones. Follow the directions in "Transmit Tones" on page 43 to turn the transmit tones on.
	Check that you stored your calling card information in the correct order, and make sure the groups of numbers are separated by pauses. The easiest way to correct the sequence may be to start from scratch. Follow the instructions on "Storing Calling Card Numbers" on page 29, enter your calling card information again, and store it in the same memory location as your previous attempt.
	Also keep in mind that when using your calling card, you must enter the number you are calling with the area code, but without the initial "1." Check with your long distance carrier for details on using your calling card.
My phone started beeping, and the display says: 1 Call Unanswered. What happened?	Someone tried to call you while you were in an area where the signal was weak. Press ◄● CLR to clear your display, and avoid obstructions like tunnels, parking garages and tall buildings whenever possible.
I launched the MiniBrowser but the display says: Service Not Available. What is wrong?	You are in an area without service. If you have wireless service, look in the display for the Digital indicator. If you don't see it you may have only Analog service or no service at all. If you do see the Digital indicator, you may be connected to digital network that does not support Internet access.
I launched the MiniBrowser but the display says: Data Server Unavailable. What is wrong?	Try again in a few minutes. The servers may be temporarily busy.

U.S. Food and Drug Administration (FDA)

The U.S. Food and Drug Administration's Center for Devices and Radiological Health Consumer Update on Mobile Phones

FDA has been receiving inquiries about the safety of mobile phones, including cellular phones and PCS phones. The following summarizes what is known--and what remains unknown--about whether these products can pose a hazard to health, and what can be done to minimize any potential risk. This information may be used to respond to questions.

Why the concern?

Mobile phones emit low levels of radiofrequency energy (i.e., radiofrequency radiation) in the microwave range while being used. They also emit very low levels of radiofrequency energy (RF), considered non-significant, when in the stand-by mode. It is well known that high levels of RF can produce biological damage through heating effects (this is how your microwave oven is able to cook food). However, it is not known whether, to what extent, or through what mechanism, lower levels of RF might cause adverse health effects as well. Although some research has been done to address these questions, no clear picture of the biological effects of this type of radiation has emerged to date. Thus, the available science does not allow us to conclude that mobile phones are absolutely safe, or that they are unsafe. However, the available scientific evidence does not demonstrate any adverse health effects associated with the use of mobile phones.

What kinds of phones are in question?

Questions have been raised about hand-held mobile phones, the kind that have a built-in antenna that is positioned close to the user's head during normal telephone conversation. These types of mobile phones are of concern because of the short distance between the phone's antenna--the primary source of the RF--and the person's head. The exposure to RF from mobile phones in which the antenna is located at greater distances from the user (on the outside of a car, for example) is drastically lower than that from hand-held phones, because a person's RF exposure decreases rapidly with distance from the source. The safety of so-called "cordless phones," which have a base unit connected to the telephone wiring in a house and which operate at far lower power levels and frequencies, has not been questioned.

How much evidence is there that hand-held mobile phones might be harmful?

Briefly, there is not enough evidence to know for sure, either way; however, research efforts are on-going. The existing scientific evidence is conflicting and many of the studies that have been done to date have suffered from flaws in their research methods. Animal experiments investigating the effects of RF exposures characteristic of mobile phones have yielded conflicting results. A few animal studies, however, have suggested that low levels of RF could accelerate the development of cancer in laboratory animals. In one study, mice genetically altered to be predisposed to developing one type of cancer developed more than twice as many such cancers when they were exposed to RF energy compared to controls. There is much uncertainty among scientists about whether results obtained from animal studies apply to the use of mobile phones. First, it is uncertain how to apply the results obtained in rats and mice to humans. Second, many of the studies that showed increased tumor development used animals that had already been treated with cancer-causing chemicals, and other studies exposed the animals to the RF virtually continuously--up to 22 hours per day.

For the past five years in the United States, the mobile phone industry has supported research into the safety of mobile phones. This research has resulted in two findings in particular that merit additional study:

1 In a hospital-based, case-control study, researchers looked for an association between mobile phone use and either glioma (a type of brain cancer) or acoustic neuroma (a benign tumor of the nerve sheath). No statistically significant association was found between mobile phone use and acoustic neuroma. There was also no association between mobile phone use and gliomas when all types of types of gliomas were considered

together. It should be noted that the average length of mobile phone exposure in this study was less than three years.

When 20 types of glioma were considered separately, however, an association was found between mobile phone use and one rare type of glioma, neuroepithelliomatous tumors. It is possible with multiple comparisons of the same sample that this association occurred by chance. Moreover, the risk did not increase with how often the mobile phone was used, or the length of the calls. In fact, the risk actually *decreased* with cumulative hours of mobile phone use. Most cancer causing agents increase risk with increased exposure. An ongoing study of brain cancers by the National Cancer Institute is expected to bear on the accuracy and repeatability of these results.[1]

2 Researchers conducted a large battery of laboratory tests to assess the effects of exposure to mobile phone RF on genetic material. These included tests for several kinds of abnormalities, including mutations, chromosomal aberrations, DNA strand breaks, and structural changes in the genetic material of blood cells called lymphocytes. None of the tests showed any effect of the RF except for the micronucleus assay, which detects structural effects on the genetic material. The cells in this assay showed changes after exposure to simulated cell phone radiation, but only after 24 hours of exposure. It is possible that exposing the test cells to radiation for this long resulted in heating. Since this assay is known to be sensitive to heating, heat alone could have caused the abnormalities to occur. The data already in the literature on the response of the micronucleus assay to RF are conflicting. Thus, follow-up research is necessary.[2]

FDA is currently working with government, industry, and academic groups to ensure the proper follow-up to these industry-funded research findings. Collaboration with the Cellular Telecommunications Industry Association (CTIA) in particular is expected to lead to FDA providing research recommendations and scientific oversight of new CTIA-funded research based on such recommendations.

Two other studies of interest have been reported recently in the literature:

1 Two groups of 18 people were exposed to simulated mobile phone signals under laboratory conditions while they performed cognitive function tests. There were no changes in the subjects' ability to recall words, numbers, or pictures, or in their spatial memory, but they were able to make choices more quickly in one visual test when they were exposed to simulated mobile phone signals. This was the only change noted among more than 20 variables compared.[3]

2 In a study of 209 brain tumor cases and 425 matched controls, there was no increased risk of brain tumors associated with mobile phone use. When tumors did exist in certain locations, however, they were more likely to be on the side of the head where the mobile phone was used. Because this occurred in only a small number of cases, the increased likelihood was too small to be statistically significant.[4]

In summary, we do not have enough information at this point to assure the public that there are, or are not, any low incident health problems associated with use of mobile phones. FDA continues to work with all parties, including other federal agencies and industry, to assure that research is undertaken to provide the necessary answers to the outstanding questions about the safety of mobile phones.

What is known about cases of human cancer that have been reported in users of hand-held mobile phones?

Some people who have used mobile phones have been diagnosed with brain cancer. But it is important to understand that this type of cancer also occurs among people who have not used mobile phones. In fact, brain cancer occurs in the U.S. population at a rate of about 6 new cases per 100,000 people each year. At that rate, assuming 80 million users of mobile phones (a number increasing at a rate of about 1 million per month), about 4800 cases of brain cancer would be expected each year among those 80 million people, whether or not they used their phones. Thus it is not possible to tell whether any individual's cancer arose because of the phone, or whether it would have happened anyway. A key question is whether the risk of getting a particular form of cancer is greater among people who use mobile phones than among the rest of the population. One way to answer that question is to compare the usage of mobile phones among people with brain cancer with the use of mobile phones among appropriately matched people without brain cancer. This is called a case-control study. The current case-control study of brain cancers by the National Cancer Institute, as well as the follow-up research to be sponsored by industry, will begin to generate this type of information.

What is FDA's role concerning the safety of mobile phones?

Under the law, FDA does not review the safety of radiation-emitting consumer products such as mobile phones before marketing, as it does with new drugs or medical devices. However, the agency has authority to take action if mobile phones are shown to emit radiation at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of mobile phones to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.

Although the existing scientific data do not justify FDA regulatory actions at this time, FDA has urged the mobile phone industry to take a number of steps to assure public safety. The agency has recommended that the industry:

• support needed research into possible biological effects of RF of the type emitted by mobile phones;

• design mobile phones in a way that minimizes any RF exposure to the user that is not necessary for device function; and

• cooperate in providing mobile phone users with the best possible information on what is known about possible effects of mobile phone use on human health.

At the same time, FDA belongs to an interagency working group of the federal agencies that have responsibility for different aspects of mobile phone safety to ensure a coordinated effort at the federal level. These agencies are:

• National Institute for Occupational Safety and Health

• Environmental Protection Agency

• Federal Communications Commission

• Occupational Health and Safety Administration

• National Telecommunications and Information Administration

The National Institutes of Health also participates in this group.

In the absence of conclusive information about any possible risk, what can concerned individuals do?

If there is a risk from these products--and at this point we do not know that there is--it is probably very small. But if people are concerned about avoiding even potential risks, there are simple steps they can take to do so. For example, time is a key factor in how much exposure a person receives. Those persons who spend long periods of time on their hand-held mobile phones could consider holding lengthy conversations on conventional phones and reserving the hand-held models for shorter conversations or for situations when other types of phones are not available.

People who must conduct extended conversations in their cars every day could switch to a type of mobile phone that places more distance between their bodies and the source of the RF, since the exposure level drops off dramatically with distance. For example, they could switch to:

• a mobile phone in which the antenna is located outside the vehicle,

• a hand-held phone with a built-in antenna connected to a different antenna mounted on the outside of the car or built into a separate package, or

• a headset with a remote antenna to a mobile phone carried at the waist.

Again, the scientific data <u>do not</u> demonstrate that mobile phones are harmful. But if people are concerned about the radiofrequency energy from these products, taking the simple precautions outlined above can reduce any possible risk.

Where can I find additional information?

For additional information, see the following websites:

Federal Communications Commission (FCC) RF Safety Program (select "Information on Human Exposure to RF Fields from Cellular and PCS Radio Transmitters"): http://www.fcc.gov/oet/rfsafety

World Health Organization (WHO) International Commission on Non-Ionizing Radiation Protection (select Qs & As): http://www.who.int/emf

United Kingdom, National Radiological Protection Board: http://www.nrpb.org.uk

Cellular Telecommunications Industry Association (CTIA): http://www.wow-com.com

U.S. Food and Drug Administration (FDA) Center for Devices and Radiological Health: http://www.fda.gov/cdrh/consumer/

---

1 Muscat et al. Epidemiological Study of Cellular Telephone Use and Malignant Brain Tumors. In: State of the Science Symposium;1999 June 20; Long Beach, California.
2 Tice et al. Tests of mobile phone signals for activity in genotoxicity and other laboratory assays. In: Annual Meeting of the Environmental Mutagen Society; March 29, 1999, Washington, D.C.; and personal communication, unpublished results.
3 Preece, AW, Iwi, G, Davies-Smith, A, Wesnes, K, Butler, S, Lim, E, and Varey, A. Effect of a 915-MHz simulated mobile phone signal on cognitive function in man. Int. J. Radiat. Biol., April 8, 1999.
4 Hardell, L, Nasman, A, Pahlson, A, Hallquist, A and Mild, KH. Use of cellular telephones and the risk for brain tumors: a case-control study. Int. J. Oncol., 15: 113-116, 1999.

Patent Information

Manufactured under one or more of the following patents:

4121218	4127824	4128740	4138681	4193036	4254382
4302845	4312074	4327319	4329666	4369516	4369522
4378603	4390963	4398265	4400584	Re.31470	4431977
4434461	4455534	4462098	4484153	4485486	4486624
4491972	4504834	D278708	4523155	4546329	4549311
4550426	4551696	4564821	D282169	4571595	4573017
4574243	4585957	4602218	D284759	4616314	4617520
4626309	4628529	4629829	4630304	4630305	4633141
4636593	4636741	4644351	D288432	4648125	4649543
D288683	4654655	4654867	4662691	4667333	4668917
4670747	4672502	4692726	4704588	D292578	4706036
D292920	4710724	4711361	4715063	4716319	4716391
4723305	D294257	4727306	4727583	4730195	4734635
4737976	4740794	4741018	4741034	4742562	D295627
D295975	4751737	4761621	4764737	D297734	D297735
D297736	4777564	Re.32768	4783697	D299232	4797929
4798975	4800348	4802236	4803726	4809356	4811377
4811404	4816774	4817157	4823098	D300742	D300827
4827226	4827507	4829274	4829543	4837534	4843621
4845772	4851966	4868576	4872196	4873683	4876552
4876740	D304189	4879533	4885553	4887050	4890199
D305427	4896124	4896361	4897873	D305717	4903327
D306163	4904549	4905288	4905301	D306299	4910470
4912602	4916262	4918403	4918732	4922209	4924194
4930126	D309301	D309451	4945570	4954796	4956854

4963812	4963843	4965537	4970475	4972355	4972432
4972455	4975808	4982108	4984219	4989230	D314173
4992753	4998289	D315330	D315543	5004992	5008925
5010309	5010570	5014294	5014346	D316859	5017856
5018188	5020076	5020091	5020092	5020093	5023580
5023866	5023911	5025387	5028859	5029233	5036532
5040127	5042071	5045824	5053924	5055800	5055802
5055803	5057762	5058136	5059885	5060264	5060294
5063340	5065408	5067139	5068625	5070310	5077757
5081674	5083304	5093632	D325028	5107487	5109536
5111162	5113400	5113436	5117441	5117449	5121047
5121288	5121412	5122722	D327062	5124889	5127040
5127042	5128834	5130682	5130683	5133010	5136135
5140286	5142551	5142696	5148471	5150075	5150359
5150384	5152006	5152007	5153590	5157693	5159283
5160898	5163159	5164652	5166596	5166642	5170173
5170492	5173672	5175759	5175874	5177458	5182749
5185566	5187640	5187809	5192924	5193223	5195106
5195108	5198887	5200655	5201069	5202654	5203009
D334746	5204977	5205751	5208566	5210793	5211581
5212815	5212826	5214675	5214774	5220290	5222078
5222104	5222251	5224122	5230007	5230093	5233506
5233633	5235492	5237257	5237570	5239127	5239294
5241545	5241548	5241592	5241650	5241688	5241693
D338887	5242767	D339127	D339335	D339336	D339337
5247544	D339578	5249302	5250916	5251331	5253292

5255292	5257414	5259005	5260170	5260988	5261119
5262710	5263052	5263055	5265219	D341589	5271042
D342248	5276685	5276707	5276913	5278527	5278832
5278994	5280637	5280644	D343615	D343616	D343834
D343835	5287553	5287555	5287556	5289505	D344512
5297142	5299232	5301364	5301365	5308716	5312705
5321847	5323421	5325429	D348250	D348427	5327642
D348665	D348666	D348668	5331123	D349273	5336984
5338909	D350113	D350348	D350349	D350350	5349588
5351245	D351375	5359696	5361400	5363071	5365549
D352503	5366826	5367538	5367558	5371791	D353131
5373101	D353361	5375143	5375258	D353587	D353588
5379324	5384825	5392000	5392023	5396654	D356309
5402447	5404120	5404582	5406146	5406562	D357224
D357457	5410275	5414711	D358148	5420759	5424689
5428820	5428836	5430416	5432017	5434947	5436589
5436802	5438684	D361070	5444764	5446763	5448763
5448770	5448771	5453997	D362840	D362852	5461643
5463628	5465412	5469177	5475752	D365094	5477192
D365817	5486843	5487184	5488335	5490177	5493198
5493700	5493714	5495206	5497126	5497383	D367640
5499273	5504812	5506490	D368696	5508709	5510693
5511235	5513078	5513382	D369359	5513996	D369598
D369797	5519303	5519346	5519506	5519777	D370016
D370463	5526398	D370672	5530922	5539360	5542103
5542106	5544250	D372481	5546380	D372896	5551078
5555550	5559471	D374013	5561436	D374227	D374424

5565881	5570453	5572223	5572224	5577267	5577268
D375932	D375952				

Other patents pending

Index

A
B
C