

Owner's  
Operating  
Instructions



150 Marcus Blvd. Hauppauge, NY 11788

CTX-4200  
CELLULAR  
CAR TELEPHONE



# TABLE OF CONTENTS

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FEATURES AND OPTIONS .....	6
GENERAL SPECIFICATIONS .....	7
TELEPHONE UNIT FUNCTIONS .....	8
BASIC OPERATION .....	10
Turning the Unit On	
To Store a Number in Memory	
To Recall a Number from Memory	
To Review the Prefix	
Last Number Review	
Display Own Telephone Number	
Repertory Memory Scroll	
Automatic Storing into a Vacant Memory Address	
Secret Memory	
To Lock the Unit	
Automatic Lock (NAM Option)	
To Unlock the Unit	
Backlighting On/Off Control	
Volume Control	
MEMORY NAME TAG .....	14
To Enter Names using Alpha (Letters)	
To Store Name with Phone Number	
To Recall from Memory with Name	
ALPHA SEARCH .....	15
PLACING TELEPHONE CALLS .....	16
To Place a Call	
If the Call Fails to Go Through	
Automatic Redial (NAM Option)	
Terminating a Call (Hanging Up)	
To Receive Calls	
To Place a Call with a Number in the Memory	
911 Emergency Call (NAM Option)	
Silent Incoming Calls	
Automatic Answering	
To Mute a Phone Conversation	
Call in Progress Protection	
VOICE ACTIVATED DIALING .....	19
ONE TOUCH DIALING .....	22
To Store a Number into One Touch Memory	
To Place a Call to a Number	
in One Touch Memory	
CALL RESTRICTIONS (NAM OPTION) .....	22
To Set Call Restricted Mode	
To Exit Call Restriction Programming Mode	
HANDS-FREE OPERATION (NAM OPTION) .....	23
END-TO-END SIGNALING .....	24
Touch Tone™ from Memory	
Link Dialing	

SCRATCH-PAD DIALING .....	26
SCRATCH-PAD DIALING WITHOUT KEYING TONES .....	26
DATA TRANSMISSION .....	27
Manual Mode	
Automatic Mode	
CALL TIME DISPLAY .....	28
To Display the Talk Time of the Last Call	
To Display the Cumulative Talk Time	
To Display the Number of Calls	
To Clear the Timer	
One Minute Beep (NAM Option)	
A/B SYSTEM SELECTION.....	29
SYSTEM INHIBIT (NAM OPTION) .....	30
MULTIPLE CITY REGISTRATION.....	30
RADIO FREQUENCY (RF)	
CHANNEL INDICATOR .....	30
15-SECOND PERSONAL	
ANSWERING MESSAGE .....	31
HORN ALERT (NAM OPTION) .....	32
CALLS IN ABSENCE INDICATOR .....	33
SAFETY TIMER (NAM OPTION) .....	33
FUNCTION REVIEW .....	34
IMPORTANT SAFETY INFORMATION .....	35
WARNING.....	35

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## AUDIOVOX CELLULAR CAR TELEPHONE

Congratulations... By choosing the Audiovox CTX-4200 cellular telephone, you have joined the thousands of satisfied customers who are enjoying the benefits and quality performance that only an Audiovox cellular telephone can provide.

Your Audiovox CTX - 4200 has been designed to meet the same standards of quality that has made Audiovox the leading supplier of cellular telephones in the United States.

This fourth generation cellular telephone combines the most advanced technology with the latest high tech design to offer you even more enhanced features than ever before.

The CTX-4200 can be converted into a transportable phone with the addition of the optional accessory TCT-400. In the transportable mode, the CTX-4200 provides longer standby time than previous models, making cellular communications even more convenient.

The styling of the CTX - 4200 is sleek and trim and features a new mini transceiver. In addition, the CTX - 4200 cellular car telephone offers an outstanding array of enhanced features such as one touch speed dialing that enables you to dial your most frequently called numbers with just one touch of a button. The one touch dialing feature eliminates the four steps normally required to make a call allowing you to concentrate on the road. Voice activated dialing that allows for up to 20 numbers to be dialed by your voice command; repertory dialing permits you to store and recall up to 99 of your frequently called numbers; a large, easy to read alpha numeric display with alpha search that allows you to retrieve telephone numbers by names or initials; and a 15 second outgoing message feature that allows you to leave a personal message to the calling party upon leaving your vehicle.

Your CTX - 4200 also includes a RJ11 jack that allows your phone to be interfaced with a laptop computer or facsimile machine; an auto answer feature that will automatically answer the phone after the second ring allowing you to talk to the calling party without touching the handset (in hands-free mode); and automatic number storage which elimi-

nates the problem of accidentally writing over a previously stored number, by storing numbers in the first vacant memory location.

The CTX - 4200 also has multi-city registration, which allows registration of your phone in multiple cities and saves on costly roaming charges, and 911 emergency calling, even if your phone is in the locked or restricted modes.

The flexible mounting system allows for the phone to be installed in a second vehicle with the addition of an optional second vehicle installation kit.

For all its high tech sophistication, the Audiovox CTX - 4200 Cellular Telephone is surprisingly easy to use; with its built-in function review menu, you can review at the touch of a button, what keys to use in order to access the many different features.

And the Audiovox cellular car telephone is a no nonsense, high quality instrument, rugged enough for off - road use as well as high speed freeway vibration. The following pages, which describe the unit's functions and many of its components, will help you to make the easiest and most efficient use of the Audiovox CTX - 4200 cellular car telephone.

## FEATURES AND OPTIONS

- Push Button Dialing
- Backlit Keypad and Display with ON/OFF Control
- Large Size Dot-matrix LCD Display
  - Status/Function Indicator
  - 15-Digit Dial Number
  - Receiving Signal Strength Indicator
- Pre-set Dialing up to 16 Digits (32 Digits : NAM Option)
- Extended Readability
- Last Digit Clear
- Digit Display Clear
- On-Hook Dialing
- 911 Emergency Call in all modes
- Repertory Dialing : 16/80 Digits 99 Memories
- Repertory Memory Scroll
- Automatic Storing into a Vacant Memory Address
- Secret Memory
- Memory Name Tag
- Alpha Search
- Link Pre-set Dialing
- One Touch Dialing
- Last Number Redial
- Automatic Redial (NAM Option)

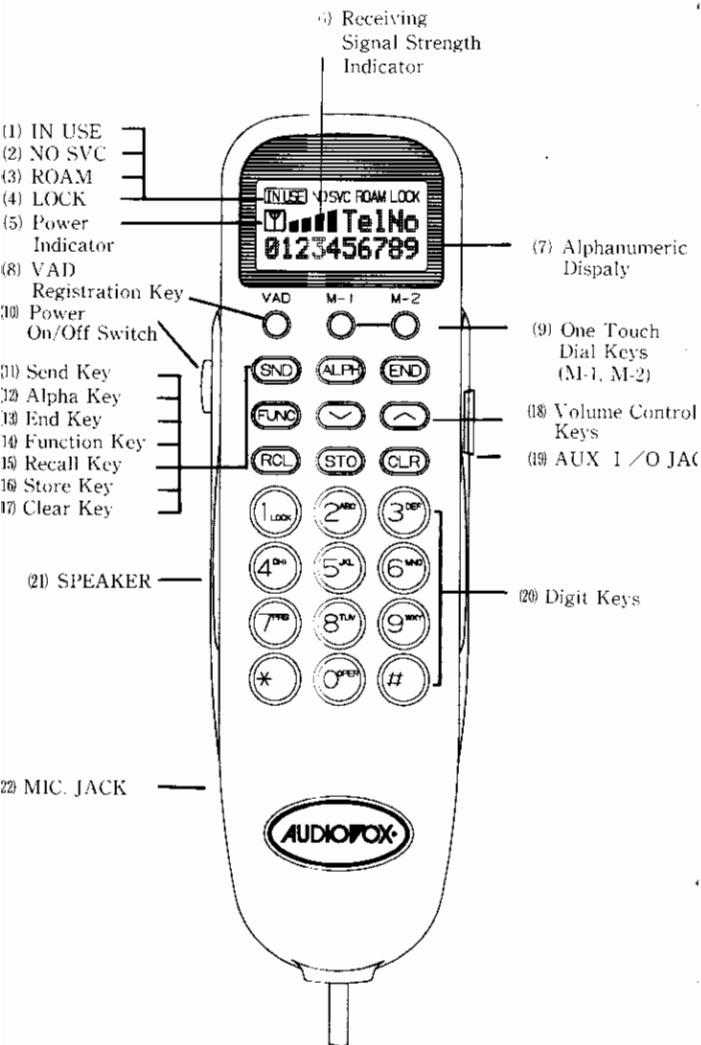
- Voice Activated Dialing
- Last Number Review
- Mute or Hold
- Call Restrictions (NAM Option)
- Silent Incoming Calls
- Scratch-Pad Dialing (with/without keying Tones)
- End-to-End Signaling
- Touch Tone™ from Memory
- Continuous DTMF from Keypad
- Call in Progress Protection
- Automatic Answering
- AUX I/O JACK for Data Transmission
- Call Time Display (Five Functions)
- Hands-free Operation (NAM Option)
- 15-second Personal Answering Message
- Horn Alert (NAM Option)
- Calls in Absence Indicator
- Safety Timer (NAM Option)
- Display Own Telephone Number
- Multiple A/B System Selection
- System Inhibit (NAM Option)
- Multiple City Registration
- RF Channel Indicator
- Electronic Lock
- Automatic Lock (NAM Option)
- Function Review
- Rear Seat Extension (Option)
- Flexible Mounting

## GENERAL SPECIFICATIONS

(subject to change without notice)

Frequency Range:	824 to 849 MHz Transmit 869 to 894 MHz Receive
Number of RF Channels:	832 Full Duplex
Channel Spacing:	30 kHz
Duplex Spacing:	45 MHz
Frequency Stability:	±2.5 PPM
Operating Temperature:	-30°C to +60°C
Supply Voltage:	13.7 V DC±20%, Negative Ground
Current Drain:	approx. 1.5 A in use, 0.2A standby
Size: Transceiver:	26H×210W×150D(mm) 1.02H×8.27W×5.90D(inches)
Telephone Unit:	63H×60W×200D(mm) 2.48H×2.36W×7.87D(inches)
Weight: Transceiver:	approx. 1.0kg(2.21lbs)
Telephone unit:	approx. 0.4kg(0.88lbs)
RF Power Output:	3 watts (50 ohms)

# TELEPHONE UNIT FUNCTIONS



- (1) **IN USE** indicator lights when a call is in progress.
- (2) **NO SVC** (no service) indicator lights when the unit is in a non-coverage area.
- (3) **ROAM** indicator lights when the unit is out of the home area.
- (4) **LOCK** indicator lights when the unit is locked.
- (5) **Y** is used as a POWER ON indicator which lights when the unit is ON.
- (6) RECEIVING SIGNAL STRENGTH INDICATOR : The number of shaded blocks indicates the Received Signal Strength.
- (7) 15-CHARACTER FUNCTIONAL ALPHANUMERIC DISPLAY :  
The first 5 characters indicate current function and status conditions.  
The remaining 10 characters show the last 10 digits of the dialed number.
- (8) ONE TOUCH DIAL KEYS permit you to place a call by a single key stroke.
- (9) **POWER** (Power on off switch) is used to turn the unit on/off.
- (10) **SEND** (send key) for placing or receiving a call.
- (11) **ALPH** (alpha key) shift the digit keys to the alphanumeric keys.
- (12) **END** (end key) terminates a call.
- (13) **FUNC** (function key) shift the digit keys to the functional keys.
- (14) **RCL** (recall key) recalls phone numbers from repertory memory.
- (15) **STO** (store key) stores phone numbers in repertory memory.
- (16) **CLR** (clear key) clears the digit(s) from the display.
- (17) **V** , **A** (volume control keys) control Loudspeaker and Earpiece audio level as well as Alert tone.  
**V** : Lower , **A** : Louder
- (18) AUX 1 / 10 JACK for Date Transmission.
- (19) DIGIT KEYS to enter a phone number.
- (20) Built in Loudspeaker
- (21) MICROPHONE JACK for HANDS-FREE.

# BASIC OPERATION

## Turning the Unit On

With the ignition switch at "ON" or "ACCESSORY", press **POWER**. The indicator **Y** will light (all indicators will light momentarily; display will show your phone number, and a tone will be heard).

### ● Signal Strength Indicator

The number of the shaded blocks indicates the Signal Strength in your area. Four blocks show the maximum level. The display will vary as your car moves. If the signal is not strong enough to place a call, the **NO SVC** indicator will appear on the readout.

## To Store a Number in Memory

1. Press **CLR**, then enter the phone number.
2. Press **STO**, then enter the memory address (01 through 99).

Example: Press **STO**, key **1** then **5**, the displayed number will be stored into memory address 15.

Note: A Number of more than 16 digits can be stored only into memory address 91 through 99.

## To Recall a Number from Memory

Press **RCL**, then enter the memory address (01 through 99).

Example: Press **RCL**, key **1** then **5**, the number stored in memory address 15 will be displayed on the readout.

## To Review the Prefix

(Number Longer than 10 digits)

After pressing **RCL**, hold down the second digit of the memory address.

Note: When a set of linked numbers is recalled, you can review only the last linked number with this feature. To review Link 1 to Link 5, use **FUNC**, **RCL** then key **X** (X is 1 to 5). See "Link Dialing".

## Last Number Review

Press **RCL**, key **0** then **0** again, the last number used will be displayed.

## Display Own Telephone Number

You can see your own phone number on the readout. Press **RCL**, key **X** then **X** again.

## Repertory Memory Scroll

This feature is useful in finding a certain phone number by scrolling the repertory memory from one of the designated starting addresses.

1. Press **RCL**, key **X** then **#**.

**X** is the digit used to assign the starting address as follows.

X	Starting address
0	01
1	11
2	21
.	.
.	.
.	.
8	81
9	91

2. Press **#** or **X**.

**#**: Scroll upward (with roll back to 01)

**X**: Scroll downward (with roll up to 99)

Memory address and the last 7 digits of the stored number will be displayed on the readout as follows.

Example: 

3	1	-	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---	---	---

  
Address-No.      Tel. No.

Note: In this scroll feature, any vacant memory address(es) will be skipped.

## Automatic Storing into a Vacant Memory Address

This feature allows automatic storing into a vacant repertory memory address. This ends the possible problem of writing over a previously stored number.

1. Enter the phone number.
2. Press **STO**.
3. Enter a memory address group number in which you want to store a number.

<b>0</b>	: From 01 to 10
<b>1</b>	: From 11 to 20
<b>2</b>	: From 21 to 30
.	.
.	.
.	.
<b>8</b>	: From 81 to 90
<b>9</b>	: From 91 to 99
<b>#</b>	: From 01 to 99

4. Press **#**.

The memory address and the last 7 digits of the stored phone number will be displayed on the readout as follows.

Example: **3 1 - 1 2 3 4 5 6 7**

Note(1): If there is no vacant address in the assigned area, the phone number will not be stored in the memory.

Note(2): It is recommended that memory address 71 through 90 should be reserved for Voice Activated Dialing Program Memory.

## Secret Memory

This feature allows you to store ID codes, telephone credit card numbers, etc. in secret memory locations. For security purposes, you must enter your three-digit security code to display the secret number. For practical use of the secret memory, refer to "END-TO-END SIGNALING".

### To Store the Secret Number

1. Press **CLR**, then enter Secret Number.
2. Press **FUNC**, **STO**, then enter the memory address (01 through 99).

**SECRET** will be displayed on the readout.

Example: To store the secret number 9876 into memory address 41 or automatically store this number into a vacant memory address of 40's.

1. Press **CLR**.
2. Enter secret number **9 8 7 6**
3. Press **FUNC**, **STO**. (secret memory store)
4. Press Keys **4**, **1**. (address number)

or  
press keys **4**, **#**. (to store in to a vacant memory address of 40's)

**4 1 - S E C R E T**

### To Confirm the Secret Number

1. Enter the three-digit security code.
2. Press **RCL**, then enter the memory address (01 through 99). The last 10 digits of the secret number will be displayed on the readout.

Example: To confirm the secret number stored into memory address 41.

1. Enter the three-digit security code

**1 2 3**.

**SECRET**

2. Press **RCL**, key **4** then **1**.

**SECRET**

Note: If you try to recall the secret memory without the three-digit security code, the secret number will not be displayed. The call will not be placed. The display will read as follows.

Press **RCL**, key **4** then **1**.

**SECRET**

or

Press **RCL**, key **4** then **#**.

**4 1 - S E C R E T**

## To Lock the Unit

Press **FUNC**, then key **1** (LOCK).

The **LOCK** indicator lights. The unit will remain locked until unlocked, even if the power is turned off.

## Automatic Lock (NAM Option)

If you request the feature of Automatic Lock, your NAM can be programmed so that your unit will automatically go into the lock mode when the power of the unit is turned "off". When **POWER** is turned "on", the unlock code is required to operate the unit.

## To Unlock the Unit

Enter the three-digit unlock code. The **LOCK** indicator will go out when the three-digit code is the same as the code registered in the NAM.

## Backlighting On/Off Control

LCD display and the keypad are backlit automatically after the Power-On. If needed, backlighting can be turned off by pressing **RCL**, key **X** then **5**.

Even if the unit is in the backlighting "Off" mode, the backlighting will be turned on again automatically for 10 seconds when any key operation is performed or a call is received.

To return to the backlighting "On" mode, press **RCL**, key **X** then **5** again.

## Volume Control

The audio level of the loudspeaker, earpiece and the alert tone can be adjusted by the Volume Control keys (**A** and **V**).

- **Loudspeaker:** Leave the handset on the cradle:  
To increase—Keep pressing **[▲]** key until you get the desired sound level.  
To decrease—Keep pressing **[▼]** key until you get the desired sound level.

Sound level will be displayed on the readout digitally during the level adjustment and the sample tone will indicate the sound level when you are not engaged in a telephone conversation. The display format is as follows:

SPK   (1 to 10)

- **Handset:** Lift the handset and perform the same manner as above.

In this case, the display format is as follows:

H.S   (1 to 10)

- **Alert Tone:** Press **[RCL]**, key **[\*]** then **[6]**.

Then adjust the alert tone level in the same manner as above. Your telephone will ring at the new level. In this case, the display format is as follows:

ALT   (1 to 10)

## MEMORY NAME TAG

This feature permits you to tag an identifying name (up to 5 characters) to each phone number in the memory address. The name will be displayed each time you recall a number from memory address.

### To Enter Names using Alpha (Letters)

1. Press **[ALPH]**, **[Alpha]** will appear on the readout to indicate Alpha Mode is active.
2. Press digit keys repeatedly until the character you need appears. The following table shows which character is assigned to each digit key.

KEY	ASSIGNED ALPHA CHARACTERS				
1	(Blank)	.	—	1	
2 (A B C)	A	B	C	2	
3 (D E F)	D	E	F	3	
4 (G H I)	G	H	I	4	
5 (J K L)	J	K	L	5	
6 (M N O)	M	N	O	6	
7 (P R S)	P	Q	R	S	7
8 (T U V)	T	U	V	8	
9 (W X Y)	W	X	Y	Z	9
0	0				
*	*				
#	#				

3. When the character you need is displayed, press **[ALPH]** to move to the next space.
4. Go back to step 2, and repeat the same procedures until the complete character name is displayed.
5. When an entry error is made, press **[CLR]** momentarily to erase the last character. If you press **[CLR]** more than a second, all characters on the readout will be erased.

### To Store Name with Phone Number

1. Enter the phone number.
2. Press **[ALPH]** to set Alpha Mode.
3. Enter the name you need. (Refer to “To Enter Names using Alpha”.)
4. Press **[STO]**, then enter the memory address (01 through 99), to store the number with the name into memory.

Note: If you enter the phone number after entering the name, the name will be erased.

Example: To store the phone number 123-4567 with the name JOHN into memory address 15.

1. Enter the phone number ; **[1] [2] [3] [4] [5] [6] [7]**
2. Set Alpha Mode; **[ALPH]**
3. Enter the Name; **[5] [ALPH] [6] [6] [6] [ALPH]**  
(J) (O)  
**[4] [4] [ALPH] [6] [6] [ALPH]**  
(H) (N)
4. Store the Number; **[STO] [1] [5]**

### To Recall from Memory with Name

Recalling from the repertory memory with name is identical to standard repertory recall. When the number is recalled, the display will show the Alpha Name Tag as well as the stored phone number.

## ALPHA SEARCH

This feature permits you to find a phone number stored in the memory by the first character of the Alpha Name Tag. This Search can retrieve all entries beginning with the assigned initial character.

1. Press **[ALPH]** to set Alpha Mode.
2. Enter the initial character, by which you need to search the phone number. Then press **[ALPH]**.
3. Press **[RCL]**, then **[#]**.  
The display will show the first entry whose Name Tag begins with the assigned initial character, and which is stored in the lowest memory address.



Display shows Name Tag, Memory address and Phone Number.

4. Press **#** or **\*X**.

**#**: Scroll memory address upward.

**\*X**: Scroll memory address downward.

Example :

Operation	Display
<b>ALPH</b>	A l p h a
<b>5 ALPH</b>	J -
<b>RCL #</b>	J O H N
	0 1 - 4 5 6 7 8 9 0
<b>#</b>	J A C K
	0 5 - 7 6 5 4 3 2 1
<b>#</b>	J A M E S
	1 5 - 9 8 7 6 5 4 3
↓	↓
<b>#</b>	J I M
	9 9 - 8 7 6 5 4 3 2
<b>#</b>	J O H N
	0 1 - 4 5 6 7 8 9 0
<b>*X</b>	J I M
	9 9 - 8 7 6 5 4 3 2

## PLACING TELEPHONE CALLS

### To Place a Call

1. Enter the phone number with the handset on or off the cradle. The last 15 digits of the dialed number are displayed on the readout.

Note: After 120 sec., display will return to the 10-digit display mode.

2. If a dialing error is made, press **CLR**, then enter the phone number again. Pressing **CLR** momentarily (less than approx. 0.5 sec.) clears only the last digit.
3. Press **SND**. The **IN USE** indicator will light. You may lift the handset either before or after the called party answers to proceed with your conversation.

Note: If assigned in NAM, the phone number can be pre-set up to 32 digits. However, in this case it is necessary to confirm with system operator whether such service is available or not.

### If the Call Fails to Go Through

1. If you hear the "reorder" signal, press **END**, then if there were no dialing errors, press **SND** for redial. (Redialing with digit keys is not necessary.)
2. If the "intercept" signal is heard, press **END**, then redial the correct number.

### Automatic Redial (NAM Option)

If the feature of Automatic Redial (NAM Option) is selected, your unit will automatically make five attempts to reach the cell site if the first try is not successful. The **IN USE** indicator will stay on, but the speaker will be muted for twenty seconds.

This is done so that you do not hear the reorder signals from the loudspeaker. If you need to terminate the automatic redial, press **END**.

### Terminating a Call (Hanging Up)

Press **END**, or replace the handset on the cradle.

The **IN USE** indicator will go out.

If Hands-free is activated in NAM, you have to press **END** to terminate a call.

### To Receive Calls

1. When the telephone rings, lift the handset or press **SND** to answer the call. The **IN USE** indicator will light.
2. If the handset is off the cradle when ringing starts, press **SND** to answer a call.

### To Place a Call with a Number in the Memory

1. Press **RCL**, then enter the memory address (01 through 99). The last 10 digits of the number will appear on the readout. If the number is longer than 10 digits, hold down the second digit of the memory address (after pressing **RCL**) to see the prefix.

Note: Refer to "To Recall a Number from Memory" and "To Review the Prefix" for more details.

2. Press **SND**. The **IN USE** indicator will light as the call is placed.

## 911 Emergency Call (NAM Option)

This feature permits you to place an emergency call (911) even if your telephone unit has been set to the Lock Mode or Call Restricted Mode.

### Operation in Lock Mode

1. Enter the emergency call number (911); **[9][1][1]** ("911" is not indicated, but the **[LOCK]** indicator will light.)
2. Press **[SND]**, the **[IN USE]** indicator will light.
3. To terminate the call, press **[END]**. (The **[IN USE]** indicator will go out.)

### Operation in Call Restriction Mode

The operation and display are the same as in the normal mode.

## Silent Incoming Calls

This feature alerts you visually of an incoming call by flashing **[CALL]** on the readout instead of hearing the Alert Tone.

1. Press **[RCL]**, key **[X]** then **[7]**. The **[S. ALT]** will appear on the readout.
2. When a call is received, the unit indicates it by flashing **[CALL]** on the readout without Alert Tone.
3. Press **[SND]** to answer the call. **[CALL]** on the readout will go out.
4. This mode is deactivated by pressing **[RCL]**, key **[X]** then **[7]** again.

## Automatic Answering

With this feature, the incoming call will be automatically connected for operation after two alert tones, and the **[IN USE]** indicator will light on the readout. Then the unit is ready for Hands-free operation.

1. To activate this mode, press **[FUNC]** and then key **[5]**. **[A.Ans]** will appear on the readout.
2. This mode is deactivated when **[FUNC]** and then key **[5]** are pressed again.
3. This feature will not function if the unit is in the following modes or the handset is off the cradle. Lock, Horn Alert, Calls in Absence Indicator, 15-second Personal Answering Message, Automatic mode of Date Transmission and Silent Incoming Calls.

## To Mute a Phone Conversation

1. Press **[FUNC]**, then key **[8]**. **[Mute]** will appear on the readout. Then the transmit audio will be muted and the receive audio will be heard from

the loudspeaker. You may converse privately with a passenger during a call with the handset on or off the cradle.

2. To return to normal conversation, press **[FUNC]**, then key **[8]** again or lift the handset.
3. Mute is reset when call is terminated.

## Call in Progress Protection

Phone conversation will continue until call is terminated, even after ignition switch is turned off.

## VOICE ACTIVATED DIALING

This feature allows the user to dial frequently called numbers by voice command. Once you pre-program the names and phone numbers you frequently call, all you do is press any digit key on the keypad until you hear a change in tone.

Then, simply say the name of the person you wish to call. The Voice Activated Dialing System recognizes the name, repeats the name and then automatically dials the phone number. Voice recognition occurs either through the handset or through the hands-free microphone.

**For best results when using voice activated dialing, remember that pronunciation and the lowest level background noise possible are of extreme importance.**

PLEASE READ THE FOLLOWING PAGES. CAREFULLY TO ASSURE OPTIMUM PERFORMANCE OF THIS ATTRACTIVE FEATURE.

### 1. Pronunciation

To accurately recall a particular name or word, the name or word must be spoken as closely to the way it was recorded as possible. There are many variables in the way a word is pronounced. Even if you believe you say a word exactly the same way twice, an analysis by an electronic ear shows there are actually many differences such as pronouncing speed, tone quality, pitch, intonation, etc. The user's control of these factors can vastly increase the recognition capability. Therefore, it takes a certain amount of practice to use the voice activated dialing system efficiently.

Here are some hints to help control the factors just mentioned:

- 1) Relax and speak clearly in a "normal" tone.
- 2) When using hands-free, it may be necessary to speak a little louder than you would when using the handset.
- 3) Don't speak too quickly or too slowly. For accurate recognition, use words that are approximately 1 second in duration.
- 4) When making a call, try to speak the same way as when you programmed the system to recognize your voice (see next paragraph).
- 5) When using the handset, keep your mouth about one inch from the mouthpiece. With hands-free microphone, use 5 to 8 inches for better recognition.

## 2. Refining the Programming (for better recognition)

Refining the Programming is the technique for teaching the system to recognize your voice during the "NAME" part of the phone number programming procedure.

- 1) A beep tone after your "NAME" pronunciation for programming indicates that your pronunciation level or speed is not acceptable to the system. Try changing your voice level or speed slightly. If a beep tone is still heard, try replacing the word with another.
- 2) Some words may be more easily recognized than others. If you have significant difficulty programming a word with the system, try changing the word to another one.
- 3) If there is a short pause between two words, the system may recognize them as two separate words rather than one word. If this happens, you will hear beep tones before finishing your registration. Either say the words together so the system recognizes it as only one word, or change it to a single word.
- 4) When you complete the programming procedure, try the recognition of each registered word several times with the handset. In case the recognition is poor, try the programming procedure for that particular memory address again.

The performance of this system may be somewhat influenced by surrounding background noise. It is recommended that you close the windows, switch off the radio, turn off windshield wipers(if possible), etc.. Relatively loud noises picked up by either the handset or the hands-free microphone can have an adverse effect on the recognition capabilities of this system.

## 3. To Program the Names

- 1) Enter the phone number by using digit keys or recalling from memory. The phone number will be displayed on the readout.
- 2) Press **VAD**.  
You will hear a "One-second beep tone" after releasing **VAD**.  
After the tone, you say the "NAME".
- 3) Enter the "NAME".  
You will hear a one short beep tone after saying the "NAME".

After the short tone, you repeat the "NAME".

If your pronunciation is identified properly, you will hear a one second beep tone and the "NAME" repeated in your voice.

The display shows the stored memory address (71 through 90) and phone number. The "NAME" and phone number is stored automatically in the lowest vacant memory address(71 through 90).

Press **END** to deactivate the "NAME Programming" mode.

Note(1): You can enter up to twenty names by repeating steps 1 to 3.

Note(2): If you have already entered twenty names, you will hear two short beep tones and **MemoryFull** will be displayed on the readout.

## 4. To Clear the Memory

Press **CLR**, then **STO** and memory address to be cleared.

## 5. To Make a Voice Activated Call

- 1) To set the Voice Activated Mode.  
Press any digit key for about one second, the DTMF tone changes to a beep tone.
- 2) Say the "NAME" you wish to call into the hands-free microphone or handset.  
You will hear a "One-second beep tone" and the "NAME" will be repeated. The call will then be sent automatically.  
The phone number will be displayed on the readout for confirmation.

The **IN USE** indicator will go on. Do not touch any keys while waiting for the **IN USE** indicator to go on.

Such action will terminate the call.

Once the **IN USE** indicator goes on, the call can only be terminated by pressing **END**.

If only one short beep is heard, say the "NAME" again.

If the repeated "NAME" is not correct, press any digit key to stop the call. Press the digit key for about one second, the tone will shift, and you can enter the "NAME" again.

Note(1): You can set the Voice Activated Mode only when your unit is in stand-by condition.

Note(2): The Voice Activated Mode is deactivated when your unit makes a call, when you press **[END]**, or one minute after setting the Voice Activated Mode.

## ONE TOUCH DIALING

This feature permits you to place a call by a single key stroke.

### To Store a Number into One Touch Memory

1. Press **[CLR]**, then enter a phone number.
2. Press **[STO]**, then one of the two One Touch Keys. Stored numbers can be reviewed by pressing **[RCL]** then the One Touch Key you want to review.

### To Place a Call to a Number in One Touch Memory

Press the One Touch Key for approx. 0.5sec.. The last 10 digits of the number will be displayed on the readout, and the **[IN USE]** indicator will light as a call is placed.

## CALL RESTRICTIONS (NAM OPTION)

This feature permits you to impose various kinds of restrictions on Outgoing Calls.

### To Set Call Restricted Mode

Enter the three-digit security code, then press **[FUNC]**, key **[#]** then **[7]**. The following key operation is needed to activate one of the restricted modes:

- [1]**: Only phone numbers having 11 digits or less are accepted. Operator assisted dialing is prohibited.
- [2]**: Only phone numbers having 7 digits or less are accepted. Operator assisted dialing is prohibited.

- [3]**: Operator assisted dialing (0 Origination) is prohibited.
- [4]**: No phone calls can be placed except for memory dialing from memory address 01 to 09. However, emergency call with "911" are available.
- [5]**: Only One Touch dialing is permitted. However, emergency call with "911" are available.
- [0]**: No restriction.

### To Exit Call Restriction Programming Mode

Press **[FUNC]**, then **[CLR]**.

Note(1): When in restricted mode 4 and 5, number storage into the memory will not be permitted.

Note(2): In the restricted mode, a short beep tone will be heard to inform you of the improper operation, and the word **[Restricted]** will be shown on the readout.

## HANDS-FREE OPERATION (NAM OPTION)

This feature permits you to engage in a conversation without lifting the handset.

1. After receiving a call (press **[SND]** to answer), conduct the conversation via the hands-free microphone with the handset on the cradle. To converse more naturally:
  - a. Speak in a normal tone.
  - b. Turn off the radio or stereo and close the car windows.
2. To place a call, enter the phone number, then press **[SND]**. The microphone will be turned on, ready for conversation when your party answers.
3. After a call is completed, Press **[END]** to terminate the call.

Note: If you hear feedback on a bad RF Channel, adjust the hands-free loop attenuation as follows.

- 1) Press **[FUNC]**, key **[7]** then **[2]**. Hands-free loop attenuation will be increased by 6 dB.
- 2) To return to the normal condition, press **[FUNC]**, key **[7]** then **[1]**.

# END-TO-END SIGNALING

This feature permits you to utilize additional phone services, such as accessing an alternate long distance network, signaling a pager, or banking by phone etc.. For these services the signaling should be in DTMF (Touch Tone™). The following two features will make it easier to send in DTMF codes.

Note: When you use this feature with a secret number, the number must be previously stored in a memory address. (Refer to "To Store the Secret Number".)

## Touch Tone™ from Memory

DTMF signaling by repertory dialing is available while engaged in a telephone conversation.

1. Press **RCL** **RCL**, then enter the repertory memory address (01 through 99). The last 10 digits of the number will appear on the readout.

Note: However, if the memory address entered has been set as a secret memory,

			S	E	C	R	E	T	
--	--	--	---	---	---	---	---	---	--

 will be displayed on the readout instead of the number.

2. Press **SND**. Then DTMF signaling will be placed and the DTMF tone can be monitored through the loudspeaker.

Note: Continuous DTMF from keypad can be manually dialed as well to access answering machines when engaged in a telephone call.

## Link Dialing

(Includes Secret Memory Locations)

This feature permits you to pre-set from repertory memory or the keypad up to five numbers before placing a call. With this feature, the first number is sent in digital form to the cell site. Then up to four other numbers can be sent with DTMF signaling by simply pressing **SND** for each additional number.

Note(1): Each number to be linked may be recalled from memory or entered by keypad.

Note(2): Each number to be linked should be within 16 digits including linking mark "=" at the end.

Note(3): Linked number can be stored in the mem-

ory. However, number of more than 16 digits should be stored into memory address 91 through 99.

Example: To access the alternate long distance service using a secret number, you should call your long distance service office first, and enter your ID number, then the phone number to be placed.

1. Recall the phone number of the long distance service office.  
Press **RCL**, then enter the memory address (01 through 99).

			7	4	6	3	4	7	9

2. Press **FUNC**, then key **✖**.  
Linking Mark "=" will be added at the end of the number and **Link 1** will appear.

				L	i	n	k	1	
			7	4	6	3	4	7	9
									=

3. Recall your ID number stored in secret memory.  
3-1. Enter the three-digit security code.  
Press keys **1**, **2**, **3**.

						L	i	n	k	2	
									1	2	3

Note: When you recall the ID number stored without secret memory, omit step 3-1 and proceed to next step 3-2.

- 3-2. Recall your ID number.  
Press **RCL**, key **4** then **1**.

				6	7	1	4	8	5	2

4. Press **FUNC**, then key **✖**.

						L	i	n	k	2
				6	7	1	4	8	5	2
										=

5. Recall or dial the phone number to be called.  
Press **RCL**, then enter the memory address (01 through 99) to recall the phone number to be called.

1	2	3	4	5	6	7	8	9	0	

6. Press **SND**. The **IN USE** indicator will light as the call is placed. **Link 1** will appear on the readout.

				L	i	n	k	1
		7	4	6	3	4	7	9 =

- After you received an answer from the long distance service office, press **[SND]** again. The DTMF signal will be placed and the DTMF tone of your ID number can be monitored through the loudspeaker. **[Link 2]** will appear on the readout.
- If your ID number is accepted, the long distance service office will answer again, so press **[SND]**. Then the long distance call will be placed and the DTMF tone can be monitored through the loudspeaker. **[Link 3]** will appear on the readout.

Note: The number linked in steps 1 through 5 can also be stored in secret memory as stated in the "Secret Memory".

- When a set of linked numbers which includes a secret number has been stored in memory address 91 through 99, enter the three-digit security code, press **[RCL]**, memory address (91 through 99), and then **[SND]** to place the call. **[Link 1]** will appear on the readout, and the first linked number will be called as shown in step 6 above.  
If the secret number is not included in the linked number, you need not enter the three-digit security code in the above operation.
- To complete the call, continue operations as shown in steps 7 and 8.

## SCRATCH-PAD DIALING

This feature permits you to enter a number to be redialed (or store a number in memory) while engaged in a conversation.

## SCRATCH-PAD DIALING WITHOUT KEYING TONES

This feature permits you to activate scratch-pad memory without annoying key tones over the circuit.

- Press **[FUNC]**, then key **[9]**, then enter a phone number. **[Tone]** will be displayed for 5 seconds.

The Microphone circuit will remain active, but the tones will not be heard.

- If necessary, press **[STO]**, then enter the memory address.
- To exit the Scratch-pad Mode, press **[FUNC]**, then key **[9]** again or turn the unit off.

## DATA TRANSMISSION

AUX I/O JACK on the phone cradle can be used for a FAX machine, Modem or other Date Transmitting equipment. Specifications of AUX I/O JACK are as follows.

JACK	: RJ11
Impedance	: 600 ohms, Balance
Level	: Input nominal -17dBV
	: Output nominal -32dBV

### Manual Mode

#### To set Data Transmission Mode

After a call is in progress (answered or sent), press **[FUNC]**, then **[SND]**. **[Data]** will appear on the readout. Then the transmission and receiving audio will be switched to the AUX I/O JACK.

#### To Exit Data Transmission Mode

Press **[FUNC]**, then **[SND]**, or terminate a call. The indication **[Data]** on the readout will go out.

### Automatic Mode

- Before leaving the car, press **[FUNC]**, then key **[2]** (more than 1 second). The display shows **[A.D/T]**. The unit will remain power-on even after the ignition switch is turned off. If necessary, lock the unit.
- When a call is received, the unit will automatically make the connection, then the transmit and receive audio will be switched to the AUX I/O JACK.
- This mode is automatically deactivated in the following cases:
  - When the ignition switch is turned back to "on" or "accessory" position.
  - When the safety timer is expired. (Refer to "Safety Timer".)
  - When **[FUNC]**, then key **[2]** are pressed again.
  - When one of the following features is activated.
    - Calls in Absence Indicator
    - 15-Second Personal Answering Message

## CALL TIME DISPLAY

This feature automatically records the elapsed time per conversation. The talk time of the last call, cumulative talk time, and the number of calls can be displayed on the readout.

The timers can also be cleared if necessary.

With beep tones you can be notified of the approximate talk time (NAM Option) in approximately 60 second increments.

### To Display the Talk Time of the Last Call

1. Press **RCL**, key **X** then **1**.

The talk time of the last call will be displayed on the readout for 5 seconds.

While in a conversation, the talk time of a call in progress will be displayed, and updated each second. The display format is as follows.

**01m25** ...1 min. and 25 sec.

### To Display the Cumulative Talk Time

1. Press **RCL**, key **X** then **2**.

The cumulative talk time will be displayed on the readout in minute format for 5 seconds.

**18m** ...18min.

### To Display the Number of Calls

1. Press **RCL**, key **X** then **3**.

The number of calls will be displayed on the readout for 5 seconds. The display format is as follows.

**86c** ...Received or placed 86 calls

### To Clear the Timer

1. Press **CLR**, then enter the three-digit security code.
2. Press **STO**, key **X** then **1**.

The timers will be cleared, and the count for the cumulative talk time and the number of calls will start from zero.

### One Minute Beep (NAM Option)

During conversation, you can be notified of the approximate talk time by tones for the first five minutes (a short monotone signal will sound every minute and a double beep tone will be heard after approximately 5 minutes.)

## A/B SYSTEM SELECTION

This feature permits you to select the system you need to use. The system that you are registered with is the preferred system, and your home system.

1. Standard Mode

When you turn the unit on, the unit remembers the last position of the A/B system selected, and will start to scan the radio frequency channels of that selection.

If you want to confirm the current mode, press **FUNC**, key **0** then **4**. Status indicator shows the current mode. To return the unit to the standard mode, press **FUNC**, key **0** then **0** again. Status indicator shows **STD**. The unit will scan the preferred system channels.

If unable to find an acceptable preferred channel, the unit switches to scan the non-preferred channels.

2. Preferred System Only Mode

Press **FUNC**, key **0** then **1**. Status indicator shows **PRF**. The unit will scan the preferred system only and prevents switching over to the non-preferred system.

3. Non-preferred System Only Mode

Press **FUNC**, key **0** then **3**. Status indicator shows **N-PRF**. The unit will scan the non-preferred system only.

4. Home Only Mode

Press **FUNC**, key **0** then **2**. Status indicator shows **Home**. You can place or receive calls only within your home area.

Note(1): The **ROAM** indicator lights as follows.

Lights continuously;

When the unit is in the preferred system in another city.

Flashes;

When the unit is in the non-preferred system.

Note(2): The **NO SVC** indicator flashes when the unit is requesting service but not in the requested service area.

## SYSTEM INHIBIT (NAM OPTION)

This feature permits you to inhibit (by NAM Option) cellular systems, or Roam Systems you do not want to use, even when in that service area.

The **NO SVC** indicator flashes, if your A/B switch is selected to any system that is inhibited.

## MULTIPLE CITY REGISTRATION

Some cellular users find it beneficial to register their phone in multiple cities, rather than rely on "roam". The multiple city registration feature permits you to reprogram from the handset, the different phone numbers for the cities in which you are registered. Each programmed phone number will be designated as your home system.

Press **CLR**, then enter the new system ID number (5 digits) followed by the corresponding phone number (10 digits). Please include your area code.

You must register your unit with the carrier in order to get both the system ID number and your phone number.

Press **FUNC** then key **6**. Your new phone number will be displayed on the readout. (Holding down **6**, to display your new system ID number.)

Note(1): System ID number and phone number can not be programmed during a call.

Note(2): Calls are placed or received using only the programmed phone number, in use at the time of call.

## RADIO FREQUENCY (RF) CHANNEL INDICATOR

If necessary, you can see the RF channel number in which your unit is operating.

1. Press **RCL**, key **✕** then **4**. The RF channel number in which your unit is operating, RSSI and SAT frequency will be displayed on the readout.

The display format is as follows:

					C	1	2	3	
R	1	8	7		S	6	0	3	0

C123...RF channel Number

R187...RSSI value

S6030...SAT frequency

2. When on a call, the display will update when a handoff occurs.
3. The display will remain on the readout until you manually reset it by pressing any key.

## 15-SECOND PERSONAL ANSWERING MESSAGE

With this feature you can record a short message for callers.

When the phone receives a call in your absence, the phone will answer it automatically with your pre-recorded message which can be recorded for up to 15 seconds.

### 1. Voice Memory Mode

To Set Voice Memory Mode:

Press **CLR** to clear the readout, then press **L C K** **FUNC** **#** **6**. (**L C K** is your unlock code.) **MSGrg** will appear on the readout.

To Record a Message:

Lift the handset and press **STO**.

After a one second beep tone from the loudspeaker, you can record your 15 second message in the unit through the handset microphone. You will hear two short beep tones 15 seconds after the first beep tone, which tells you that recording time is up.

To Review Recorded Message:

Press **RCL** while the phone is in Voice Memory Mode.

You will hear a one-second beep tone followed by your recorded message either through the loudspeaker (on-hook) or through the handset earpiece (off-hook).

To Change Recorded Message:

Press **STO** while the phone is in Voice Memory Mode.

After one second beep tone, the phone is ready to record your new message.



To Exit Voice Memory Mode:

Press **[FUNC]**, then **[CLR]**.

All indicators will light momentarily, and a tone will be heard.

## 2. Answering Mode

When the phone is in Answering Mode, the phone will answer incoming calls with your recorded message in your absence, even if you turn off the ignition.

To Set Answering Mode:

- 1) Press **[FUNC]**, then key **[4]**.  
**[MSG]** will appear on the readout.
- 2) Turn off the ignition switch, but leave the phone power switch ON. If necessary, lock the unit.
- 3) The unit will be ready to answer incoming calls with the recorded message.

To Deactivate the Answering Mode:

This mode is automatically deactivated in the following cases:

- 1) When the ignition switch is turned back to "on" or "accessory" position.
- 2) When the safety timer is expired. (Refer to "Safety Timer".)
- 3) When **[FUNC]**, then key **[4]** are pressed again.
- 4) When one of the following features is activated.
  - Horn Alert,
  - Calls in Absence Indicator
  - Data Transmission (Automatic Mode)

## HORN ALERT (NAM OPTION)

This feature indicates the incoming call by sounding the horn or by flashing the lights.

1. Press **[FUNC]**, then key **[2]**. **[Horn]** will appear on the readout. However, the mode is not available unless the ignition switch is turned off.
2. Turn off the ignition switch, but leave the car telephone power switch ON. If necessary, lock the unit.
3. When a call is received, the unit will either sound the horn or flash the lights five times, depending on how the horn alert wire has been connected to the car.
4. This mode is deactivated in the following cases:
  - 1) When **[FUNC]** and then key **[2]** are pressed again.
  - 2) Set the Calls in Absence Indicator mode.
  - 3) Set the 15-second Personal Answering Mes-

sage mode.

Note(1): Deactivate the mode if not necessary, because this mode remains activated even if the power source is turned off.

Note(2): The power source is automatically turned off to prevent the discharge of car battery when the safety timer expires (refer to "Safety Timer").

## CALLS IN ABSENCE INDICATOR

This feature indicates the number of incoming calls while you are out of your car.

1. Press **[FUNC]**, then key **[3]**. **[Call]** will appear on the readout. However, the mode is not available unless the ignition switch is turned off.
2. Turn off the ignition switch, but leave the car telephone power switch ON. If necessary, lock the unit.
3. When calls are received, the unit will indicate them by flashing **[CALL]** and **[XX]** (XX is the number of calls) alternately on the readout.
4. This mode is deactivated in the following cases:
  - 1) When **[FUNC]** and then key **[3]** are pressed again.
  - 2) Set the Horn Alert mode.
  - 3) Set the Automatic mode of Data Transmission.
  - 4) Set the 15-second Personal Answering Message mode.
5. The **[CALL]** and **[XX]** will remain flashing until any key is pressed or the handset is lifted.

Note(1): Deactivate the mode if not necessary, because this mode remains activated even if the power source is turned off.

Note(2): The power source is automatically turned off to prevent the discharge of car battery when the safety timer expires (refer to "Safety Timer").

## SAFETY TIMER (NAM OPTION)

Your timer is set for 8 hours. You can change it from 1 hour up to 31 hours for 15-second Personal Answering Message, Horn Alert, Calls in Absence Indicator and Automatic Mode of Data Transmission features.

# FUNCTION REVIEW

This feature shows you which numbered keys to use for different FUNC/RCL key functions.

To review the function menu:

Press **[FUNC]** for about one second.

Scroll the menu up or down, using the **[#]** or **[\*]** key respectively.

The display information will appear as follows.

	DISPLAY	FUNCTION
[Lock ]	[FUNC 1	]Lock
[Horn ]	[FUNC 2 <1 s	]Horn
[A.D/T ]	[FUNC 2 >1 s	]Auto. Data Transmission
[Call ]	[FUNC 3	]Number of Calls in Absence Indication
[MSG ]	[FUNC 4	]Message Answering Mode
[A. Ans ]	[FUNC 5	]Automatic Answering
[Mute ]	[FUNC 8	]Mute
[Tone ]	[FUNC 9	]DTMF Tone Mute
[ABsys ]	[FUNC 0 0-4	]A/B System Selection
[HF ]	[FUNC 7 1-2	]Hands-free Adjustment
[Timer ]	[RCL * 1 3	]Call Timer
[RF CH ]	[RCL * 4	]RF Channel Indication
[Light ]	[RCL * 5	]Backlighting Control
[Alert ]	[RCL * 6	]Alert Volume Control
[Silent ]	[RCL * 7	]Silent Incoming Calls
[Data ]	[FUNC SND	]Manual Data Transmission
[Secret ]	[FUNC STO N	]Secret Memory
[MSGrg ]	[LCK FUNC#6	]Voice Memory Mode
[Restr ]	[XYZ FUNC#7	]Call Restricted Mode
[ID ]	[<ID>FUNC 6	]Multiple City Registration

Note (1) : N = Repertory Memory Address (01 through 99)

Note (2) : LCK = Three-digit Unlock Code

Note (3) : XYZ = Three-digit Security Code

Note (4) : <ID> = System ID number + Own Phone Number

# IMPORTANT SAFETY INFORMATION

Please read and follow these cautions carefully:

TURN OFF your unit in an explosive atmosphere (near a fuel pump, blasting area, etc.).

DO NOT operate your unit when someone is within two feet (0.6 meters) of your antenna.

DO NOT dial when your vehicle is moving in states where this action is illegal (this is not a prudent practice, even where it is legal).

DO NOT permit untrained personnel to operate the unit.

## WARNING

The following offenses can be punished by fine, imprisonment, or both:

- Using obscene, indecent or profane language.
- Using the unit to give off false distress calls.
- Wiretapping or otherwise intercepting a telephone call unless that person has first obtained the consent of the parties participating in the call.
- Making anonymous calls to annoy, harass or molest other people.
- Charging to an account without authorization to avoid payment for service.
- Refusing to yield a party line when informed that it is needed for an emergency call (It is also unlawful to take over a party line by stating falsely that it is needed for an emergency).

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