

WCE100 Menu Tree			
Main Menu	Menu Level 1	Menu Level 2	Remarks
1. Calls	1. Outgoing		20 List
	2. Incoming		20 List
	3. Air Time	1. Last Call	
		2. Outgoing	
		3. Total	
2. Phone Book	1. Find Entry	1. Find Name	200 Memory
		2. Find Location	7 Segmented (Name, Home, office, mobile, other,E-mail, Group)
		3. Find Number	
		4. Find Group	
	2. Add Entry	1. New Group	
	3. Edit Group	2. Chang Group	
		3. Erase Group	
	4. My Phone #		
3. PIM	1. View Schedule	1. Schedule	
		2. Anniversary	
		3. Birthday	
	2. Add schedule	1. Schedule	80 Memory
		2. Anniversary	
		3. Birthday	
	3. Alarm		One time/ Daily/ Off
	4. World Time		50 Cities
4. Ring	1. Ring Type		Bell/Lamp/Vibrator/ Vib + Bell
	2. Ring Volume		4 Levels
	3. Ring Tone		General ring tone 5 + melody 15
5. Sounds	1. Call Volume		4 Levels
	2. Key Beep		5 Levels
	3. Connect Tone		On/ Off
	4. 1 Minute Beep		On/ Off
	5. SVC Area		On/ Off
6. Display	1. Backlight		Off/10 sec/ Auto/ On
	2. Standby Display	1. Banner Mode	
		2. Picture Mode	3 Picture
	3. Banner		
	4. Language		Eng/Spanish
	5. Version		
	6.Contrast		
7. Setup	1. Auto Retry		Off/10 Sec/20 Sec/ 30 Sec
	2. Auto Receive		Off/5 Sec/10 Sec/ 20 Sec
	3. Auto Hyphen		On/ Off
	4. prepend dialing		On/ Off
8. Security	1. Lock		Never/On power up/ Now
	2. Lock Mode		
	3. Restrict	1. Phone Book	

		2. Incoming	
		3. Outgoing	
	4. Clear Memory	1. Call Logs	
		2. Phone Book	
		3. PIM	
	5. Emergency #		3 Numbers
8. Data Service	1. SIO mode select	Paket data Modem/fax mode	
	2. Incoming mode	Data/fax off Modem Always Fax Always	
SMS	1. SMS Inbox	1. Text	
		2. Voice	
		3. Erase all	
	2. SMS Outbox	1. Paging	
		2. Compose Msg	New msg / Sent msg / Inbox msg / Erase msg
	3. SMS Setup	1. New msg alert	
		2. Display text.	Display part / Display all
*Features during calls	1. Send my #		
	2. Block dial tone		
	Memo Calling volume		Only figure editable Same as 4.1
			(call transfer service)
			(call holding service)
* Speed key	Manner mode setting/ clear		
	Lock function setting/ clear		
Missed call check			
Caller ID receipt			

1. Basic Phone Setup

- 1.1 Keypad Configuration Diagram
- 1.2 Key functions
- 1.3 Display
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- 1.5 IDLE Mode
- 1.6 Icons

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- 2.2 Receiving a call
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- 2.4 Menu in Busy state
- 2.5 missed calls
- 2.6 Auto redial function
- 2.7 Touch tone dialing
- 2.8 Speed key function
- 2.9 Use restriction

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- 3.3 PIM
- 3.4 Ring
- 3.5 Sounds
- 3.6 Display
- 3.7 Setup
- 3.8 Security

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- 4.2 Incoming
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12. Data Service

- 12.1 SIO mode select
- 12.2 Incoming mode

13. SMS

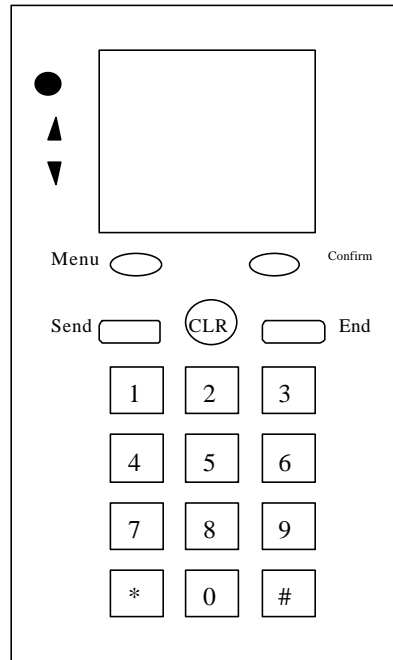
- 13.1 SMS Inbox
- 13.2 SMS Outbox
- 13.3 SMS Setup

*** SAFETY Information**

1. Basic Phone Setup

1.1 Keypad Configuration Diagram

- Keypad is composed of 0 ~ 9 key, *(Star), #(Pound), Send, CLR(Clear), End, Menu, Conform key, Internet Hot key (also for SMS), Up, Down key.



1.2 Key functions

- ● : In the idle mode, enters the SMS menu.
Upon character editing, this is used to enter special character, and upon figure editing, this is used for DTMF tone dialing.
 - ▲ ▼ : Adjusts voice volume during a conversation and keybeep volume in the idle mode. In the menu mode, scrolls through the menu options.
 - Send : Makes or answers a call
 - End : Ends a call. Also, switches the phone on or off when pressed and held.
In the menu facility, returns to the idle mode and cancels your input
 - CLR : Deletes characters from the display. *In the menu facility*, returns to the previous menu
 - Soft menu : Enters the menu facility. Also, scrolls through the menu options. In the menu facility, selects a menu function or stores information that you have entered.
 - * : In the idle mode, quickly changes to Manner mode when pressed and held.
For SMS editing, cursor moves back.
 - # : In the idle mode, phone is locked/unlock when pressed and held.
For SMS editing, cursor moves forwarder
- * Upon Incoming Call, press any key to receive a call.
- * Upon end of call, press only 'End' key to end a call.

1.2 Key functions

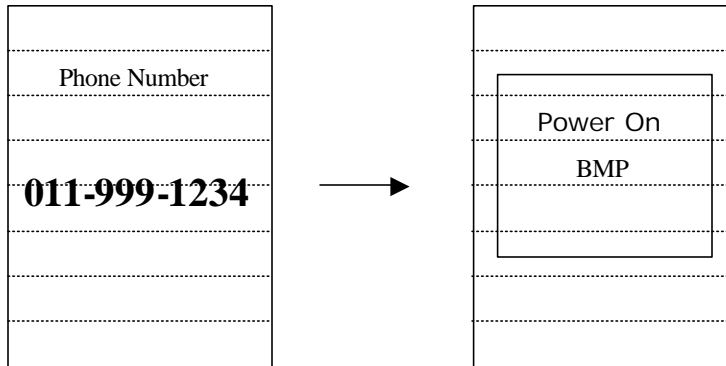
Corresponding Key	State	Active
SMS menu (MSG_K)	IDLE	Used for SMS exclusively
		Upon Korean Editing, special character selection function.
Menu(PF1_K)	IDLE	Main Menu Display.
	CALL	Busy Menu Selection.
	MENU	Move to Next menu. (also press '#') Operation according to Soft key.
Confirm(PF2_K)	IDLE	Nonevent
	CALL	Memo function while busy.
	MENU	Used to choose corresponding menu and select and set each function. Operation according to Soft key.
Send	IDLE	If pressing 'Send' key after entering phone number, a call is made. If no phone number, a call is made to the last dialed number in last call list. (if no list, Nonevent)
	CALL	If pressing 'Send' key after entering phone number, a call is made. (3-way calling)
End	IDLE	Press and hold the button for PWR On. Press and hold the button in standby screen for PWR Off.
	CALL	Used to end a call.
	MENU	Unconditional return to the initial screen.
CLR	IDLE	If pressing 'CLR' upon number input, number is deleted one by one. Press and hold the button to delete inputted numbers all at one time and return to the initial screen.
	CALL	Busy muting function.
	MENU	Cancels corresponding menu and function and returns to the higher menu.
* (Star_K)	IDLE	Upon Editing, input '*'.
	MENU	Press and hold the button to set and release manner mode. Move backward from corresponding menu. (from #2 to #1...) Upon Korean Editing, cursor moves backward.
# (Pound_K)	IDLE	Upon Editing, input '#'.
	MENU	Press and hold to set and release Lock function. Move forward from corresponding menu. (from #2 to # 3...) Upon Korean Editing, cursor moves forward.
HS_0 ~ HS_9	IDLE	Upon Editing, input corresponding number.
	MENU	If corresponding function resides in number key, activate it with selection key. (if no corresponding function, Nonevent) Upon Korean Editing, input corresponding character.
▲ ▼	IDLE	Activates it with key tone volume adjustment.
	CALL	Activates it with call volume adjustment.
	MENU	Up/down from the menu.
Each number key	1	English :
	2	English : ABC
	3	English : DEF
	4	English : GHI
	5	English : JKL
	6	English : MNO
	7	English : PQRS
	8	English : TUV
	9	English : WXYZ
	0	English :

1.3 Display

- LCD uses 128 * 128, and supports 16 character * 8 line.
- All short messages are arranged to the right, and the number is arranged to the left.
- Supports Soft key method.

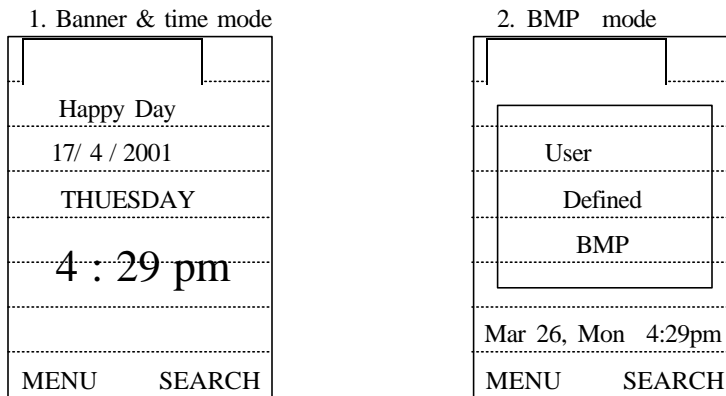
1.4 Power On/ Off

- Press and hold 'End' to power on.
- After handset number is displayed first, Power On BMP is displayed.

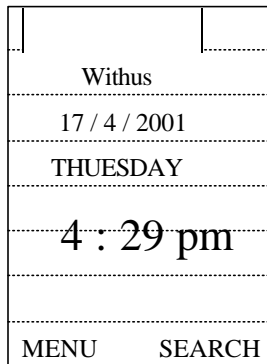


1.5 IDLE Mode

- The first line of LCD is for picture icons defined in '1.6'.
- IDLE Mode LCD can be selected '2. Standby display' of Menu '6. Display'.



* initial word (banner) defined



* No first / initial word

* For BMP mode, initial word is not displayed.

1.6 Icons

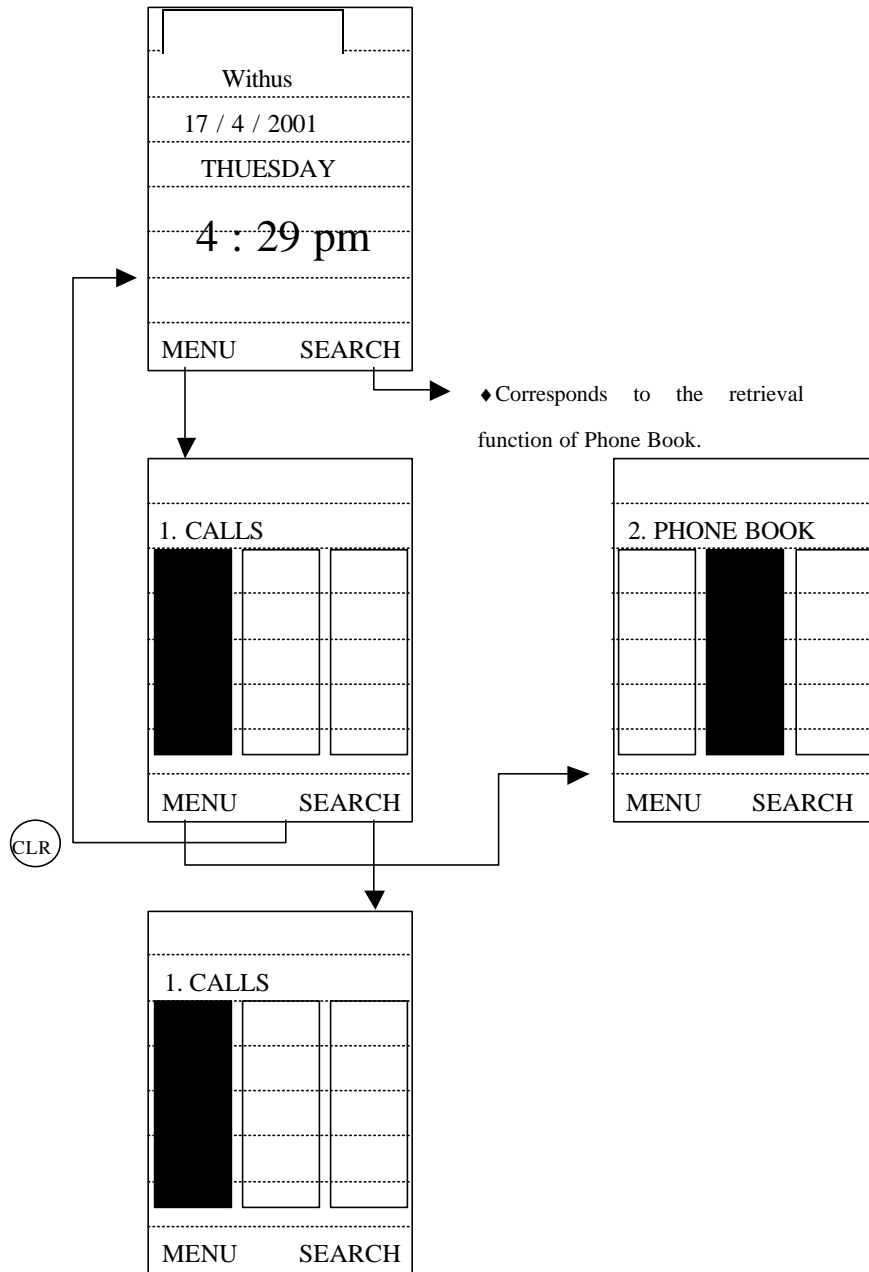


- Displays signal strength of the coverage area.
- Displays call impossible area.
- Receipt tone bell was set to vibration function.
- Displayed after alarm setting.
- Displays message receipt.
- Displays service area.
- Displays the remaining amount of the battery.

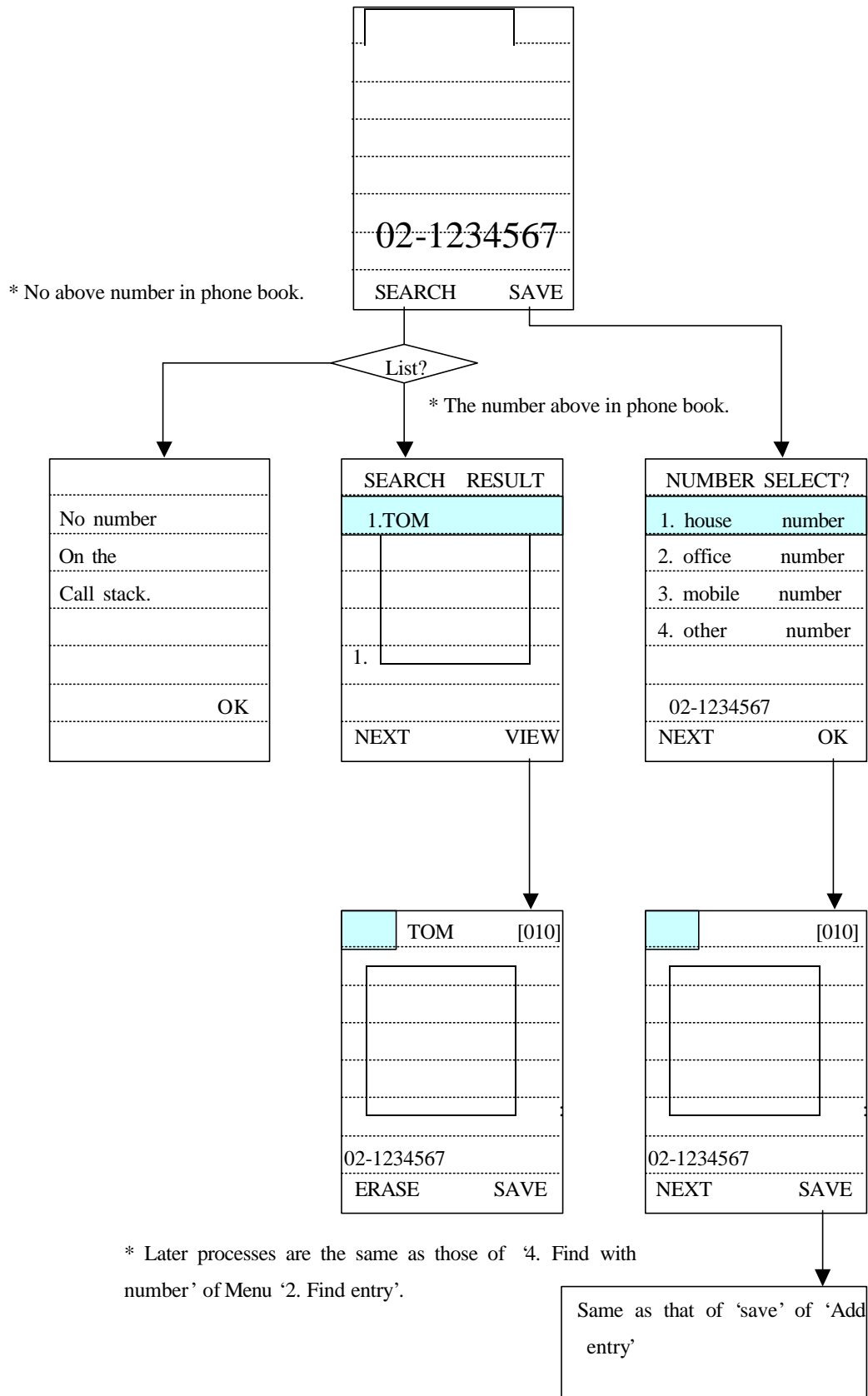
2. Basic Function

2.1 Processing in IDLE state

2.1.1 'Menu' and 'Ack' processing in IDLE state



2.1.2 'Retrieve' and 'Save' key processing upon number editing in IDLE state



2.2 Receiving a call

- If a call is received, it indicates a call by bell/ vibration/ bell after vibration/ non-sound set by users. - If a call is received, press any key to connect the call regardless of lock.

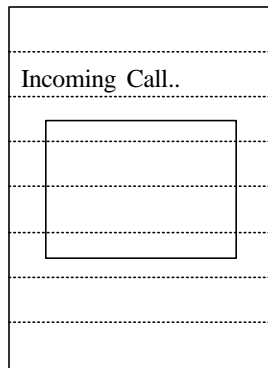
- If a call is ended, press 'End' key.

(Talk time flashes and returns to the initial screen.)

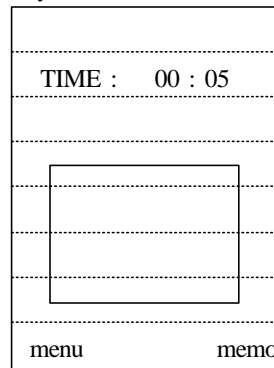
* Upon 'auto receipt function' setting, after the set time expires, it directly goes into busy state.

* If the service provider offers Caller ID service and Multi number service, phone number is displayed in the screen.

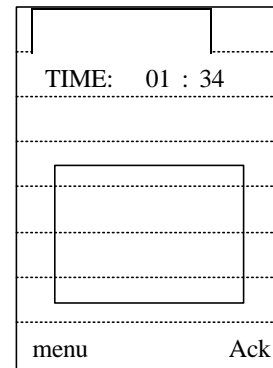
* General case



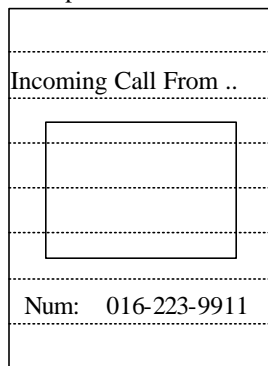
* Busy



* End of call



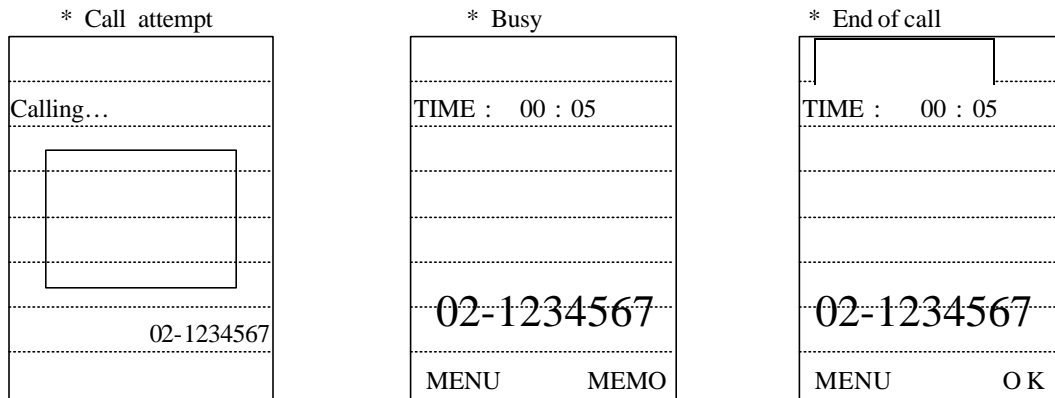
* If the provider offers Caller ID service and Multi number service



2.3 Making a call

2.3.1 General case

- Press area code and phone number, and then press 'Send' key.
 - (When you press wrong phone number, press 'CLR' key to correct that. If you press 'CLR' key shortly, it is deleted one by one and if you press that long, all are deleted.)
 - If the other party is connected, a talk begins.
 - Upon end of call, press 'End' key.
- * When also making a call to the same area, you must press area code.
- * Set frequently used area code in your mobile phone to make a call without pressing an area code. (see '4. auto area code' function of Menu '5. screen environment setting')
- * If auto area code was not set, you can talk with the other party without pressing provider ID when making a call with a mobile phone that subscribed to the same provider.



2.3.2 Making a call with redial

- Numbers recently dialed enables convenient calling next time.

2.3.2.1 Last number redial

- If you want to make a call again with the last dialed number, just press 'Send' key.
- Make a call with the last dialed number.

2.3.2.2 Recent called number redial

- See '3. called number view' of Menu '1. Phone Book'.
- Recently called numbers are displayed up to 10 numbers and a call is remade.

2.3.3 Making a call with abbreviated dial

- Press only memorized address with phone number stored to dial quickly.

2.3.3.1 One-touch dialing

- For numbers stored in the memory address (01 ~ 09), press and hold only the back digit.

(e.g., 04 → only press and hold .) 4

2.3.3.2 Two-touch dialing

- For numbers stored in the memory address (10 ~ 99), press shortly the front digit, and press and hold the back digit.

(e.g., if stored in address 14, press shortly , and 4 and hold .) 4

2.3.3.3 Three-touch dialing

- If stored in the memory address (100 ~ 200), press shortly the first two-digit, and press and hold the rear digit.

(e.g., if stored in address 114, press shortly , 11 and 4 and hold .) 4

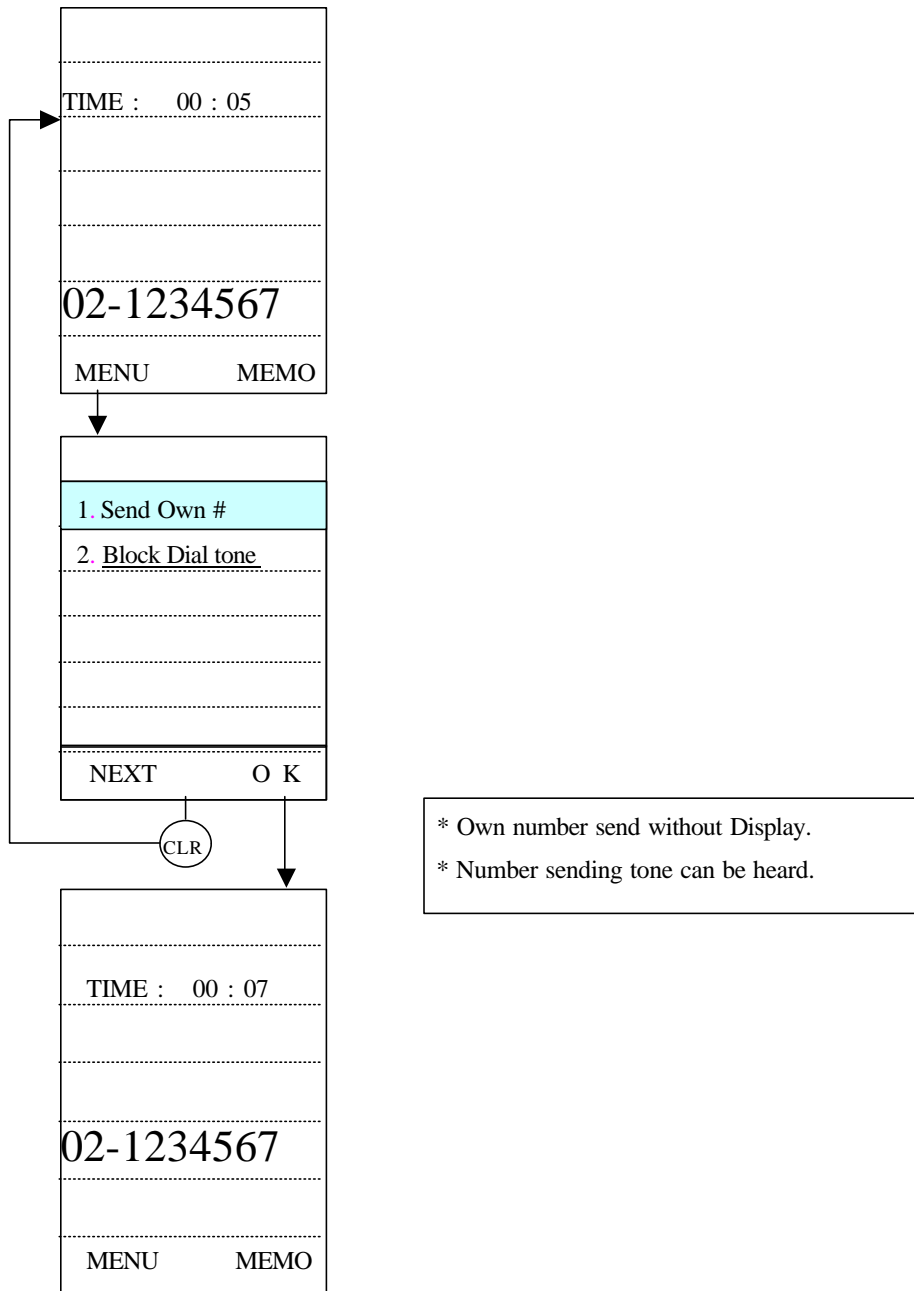
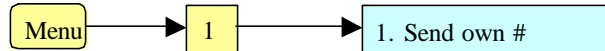
2.4 Menu in busy state

- Convenient function that can be used while in busy state.

2.4.1 Own number send

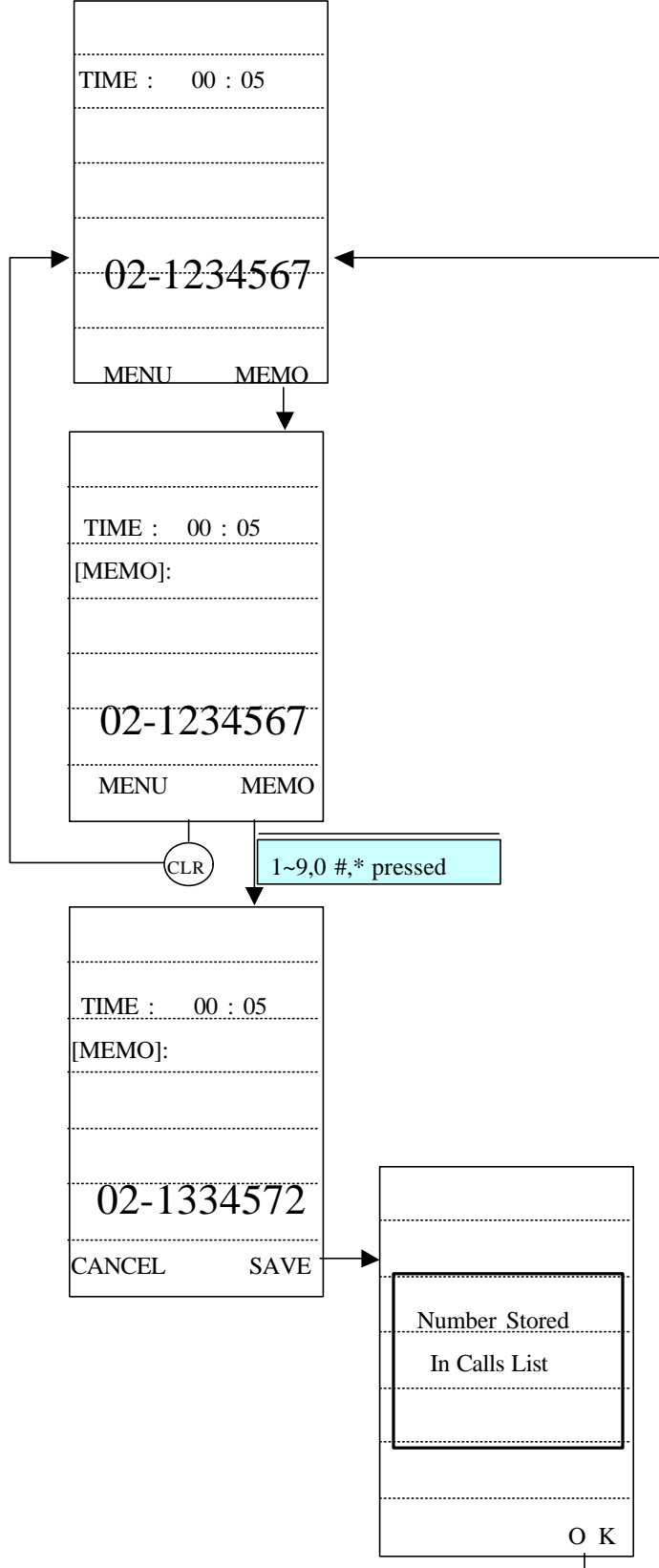
- Sends own number while in busy state.

(e.g., used in cases where after call attempt, it passes into VMS, and it leaves own number to contact)



2.4.2 Memo function

- This is to memorize phone number, account number, etc. from the other party.
(Memo contents in busy state are stored in the calling list.)
- Max. 32 characters can be entered.

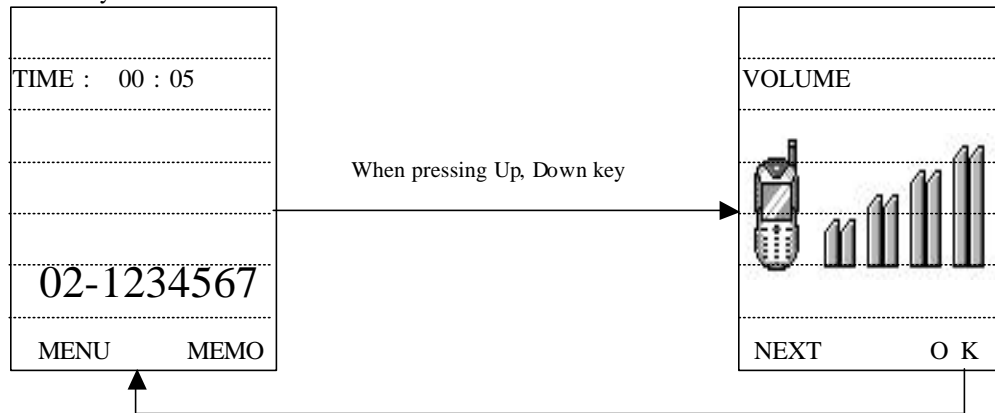


- If 'Memo' key is pressed again, it passes into talk state.
- When there is no contents, press 'CLR' key to pass into talk state.

- If 'cancel' key is pressed, Input contents are disregarded, and returns to talk state.
- When there is contents, press 'CLR' key to delete input contents one by one.

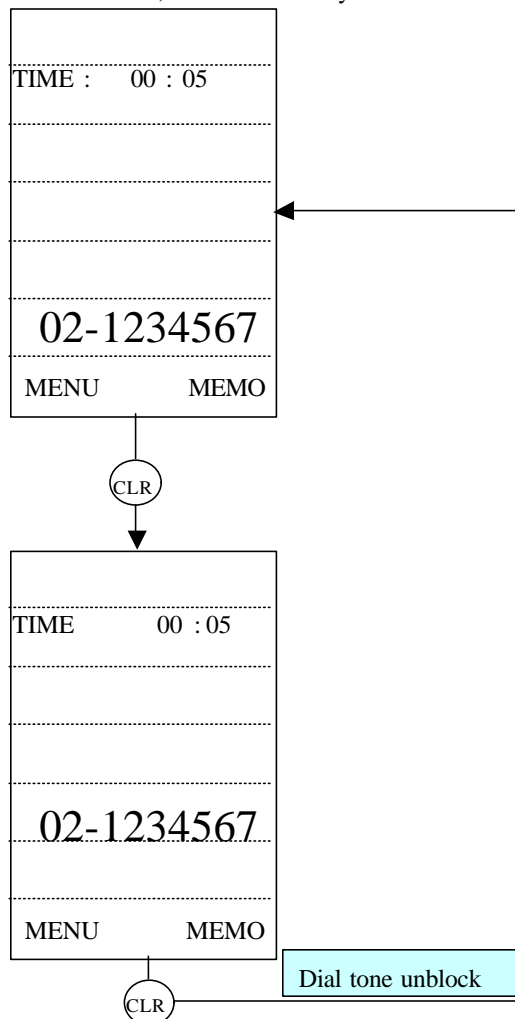
2.4.3 Call volume

- Adjusts call volume in busy state.
- After volume adjustment, the set volume applies without pressing 'Ack' key.
- * Up key : Increases call volume.
- * Down key : Decreases call volume.



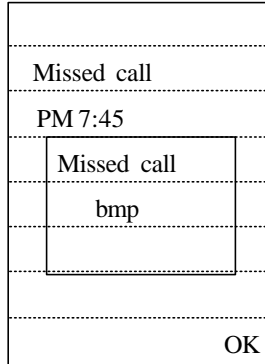
2.4.4 Dial tone blocking

- This is to make own voice blocked.
- * If talk is ended, it is automatically released



2.5 Missed calls

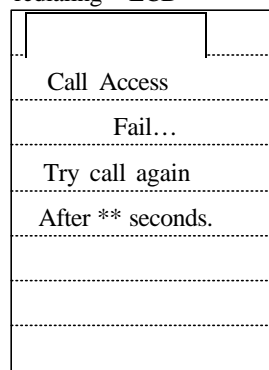
- If users could not receive a call while away from the office, it displays the time and count of calls.
(The last call time is displayed.)
- Press the button and check that. Then, it disappears.
- If there is Caller ID of the non-received calls, they are stored in the received list.



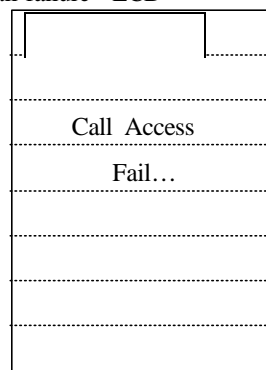
2.6 Auto redialing function

- If a call is not connected due to BTS reason, it attempts auto redial, and upon product purchase, auto redial is set to 'No Select'.
- At this time, redial tone is generated, and upon connection failure, call failure tone is generated together.
- If you want to cancel while attempting, press 'End'.
- User can change access attempt time.
(See '1. Auto Retry' of Menu '7. Setup')

* 'redialing ' LCD



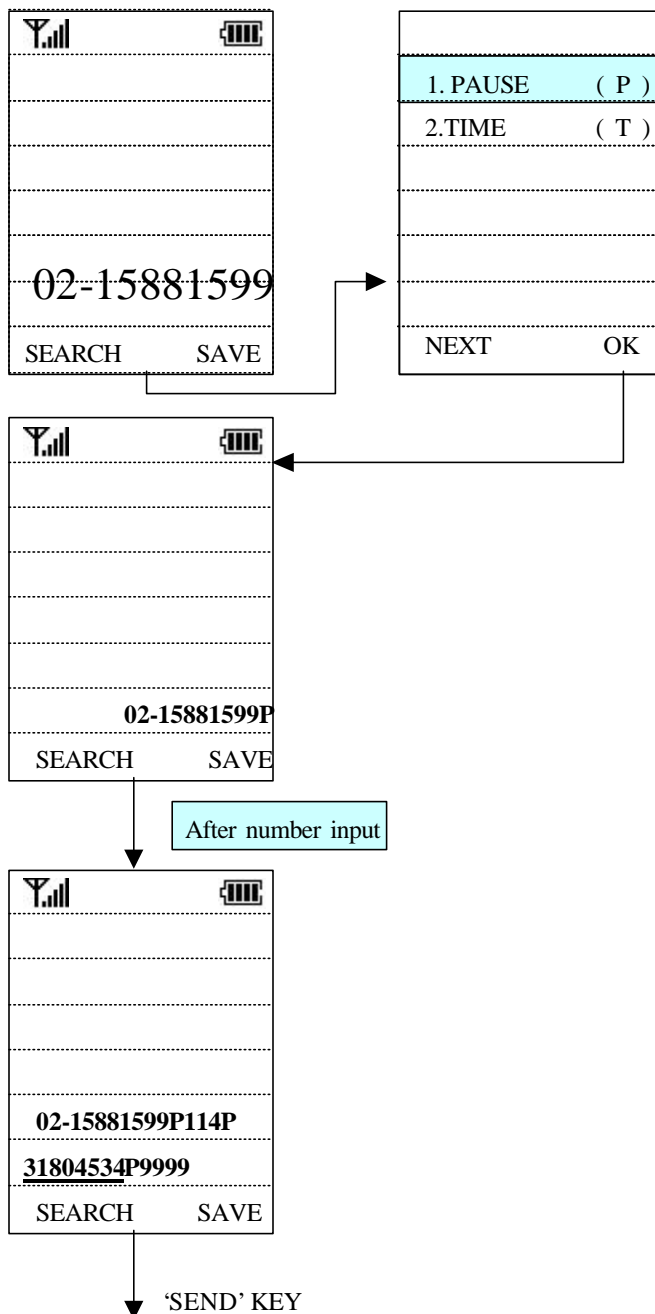
* 'Call failure ' LCD

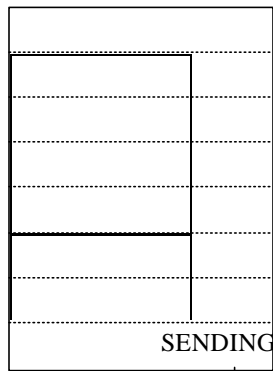


2.7 Touch tone dialing

- When connected to ARS, and multiple number input is required according to ARS, this function enables subscribers to automatically receive final services after setting even the succeeding number.
- If you enter a telephone number to send, and then press shortly SMS-exclusive key of the side keys, the next menu is displayed.

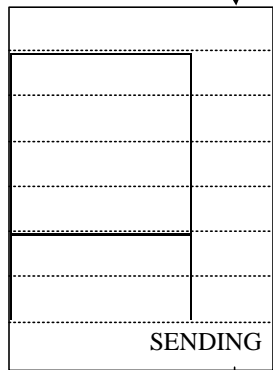
- * Manual waiting (phase) : If you press 'number send' key after ARS, the succeeding number is dialed.
- * Time waiting : After previous dialing is ended, the succeeding number is dialed automatically in 2 seconds.





* At this time, only phone number is sent.

* After call connection, press 'Number Send' key in accordance with ARS.



* After entering 'Number Send', ARS goes to the next step.

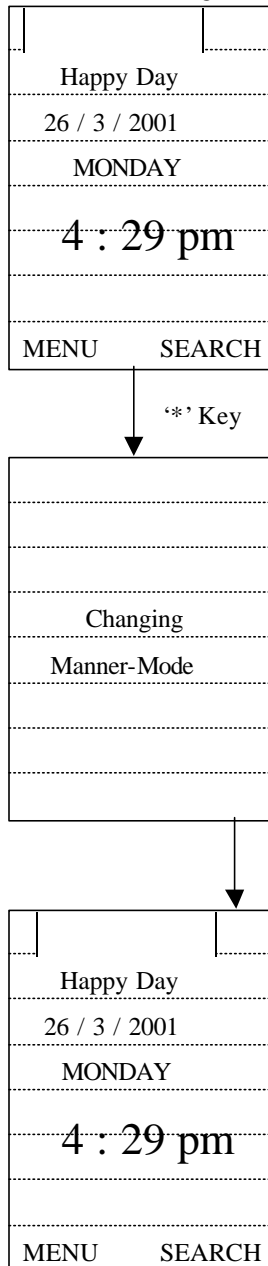
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•
•

2.8 Speed key function

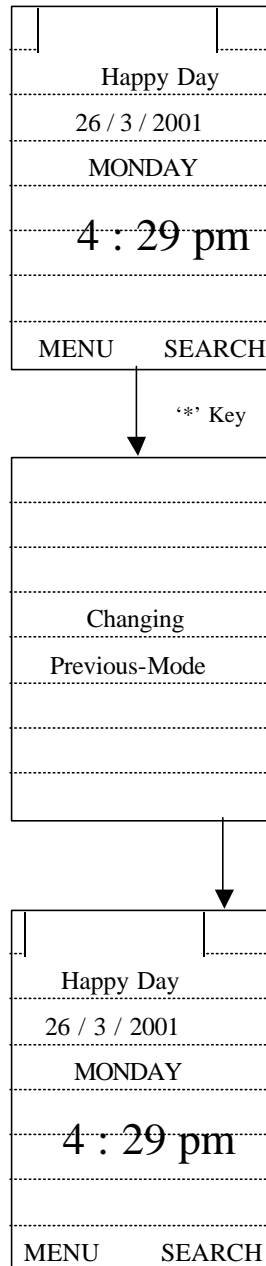
2.8.1 Manner mode setting

- This function enables termination vibration, key tone silence mode with one touch and is useful to public places such as a lecture room, etc.
- If you press '*' (Star key) for a certain time, manner mode is set.
- To release the manner mode, press again '*' key for a certain time.

* manner mode setting



* Manner mode release



2.8.2 Lock function

- Lock function is to restrict the use of phones.
- This function can be set with one touch or be set through '1. Lock' of Menu '8. Security'.
- If you press '#' (Pound key) for a certain time, lock function is set.
- When lock function is set, it can be released through the password.

* Upon lock function setting with speed key, the lock function is not changed even if you power off and on mobile phone.

* Lock function setting

Happy Day
26 / 3 / 2001
MONDAY
4 : 29 pm
MENU SEARCH

↓ '#' key

Change Lock Mode
OK

↓

Happy Day
26 / 3 / 2001
MONDAY
4 : 30 pm
UNLOCK

* Lock function release

Happy Day
26 / 3 / 2001
MONDAY
4 : 29 pm
UNLOCK

↓

Input Security Number

CLR OK

↓ * Correct password

Happy Day
26 / 3 / 2001
MONDAY
4 : 30 pm
MENU SEARCH

2.9 Use restriction

- Use restriction is to prevent mobile phone from being used for other purposes.
 - Through 'Lock mode', this function sets and clears mobile phone not to be used without password.
 - Through 'overseas call restriction', this function restricts international call.
 - Through 'prefix 700 restriction', this function can restrict 700 service.
 - Through 'origination restriction', this function can restrict all phone calls.
- Concerning functions except for 'Lock mode', move to '6. Use restriction' of Menu '10. Security' and remove corresponding restrictions to use them.

* E.g., prefix 700 restriction

02-7005425	
Search	Save

'Send' Key

Use of prefix 700	
Was restricted.	
	OK

Withus	
17 / 4 / 2001	
THUESDAY	
10 : 10 am	
Menu	OK

3. Menu configuration

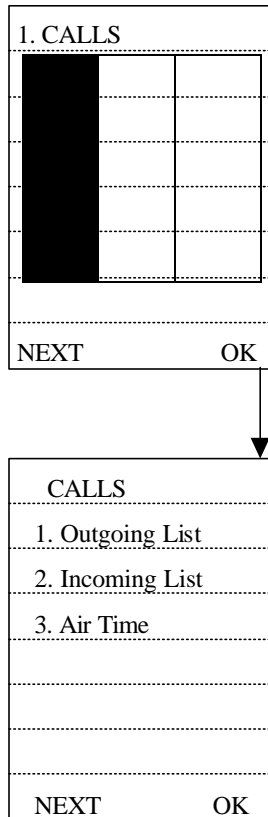
- 3.1 Calls
- 3.2 Phone Book
- 3.3 PIM
- 3.4 Ring
- 3.5 Sounds
- 3.6 Display
- 3.7 Setup
- 3.8 Security

4. Calls menu

- Can retrieve the contents of the received and called list and check the talk time.

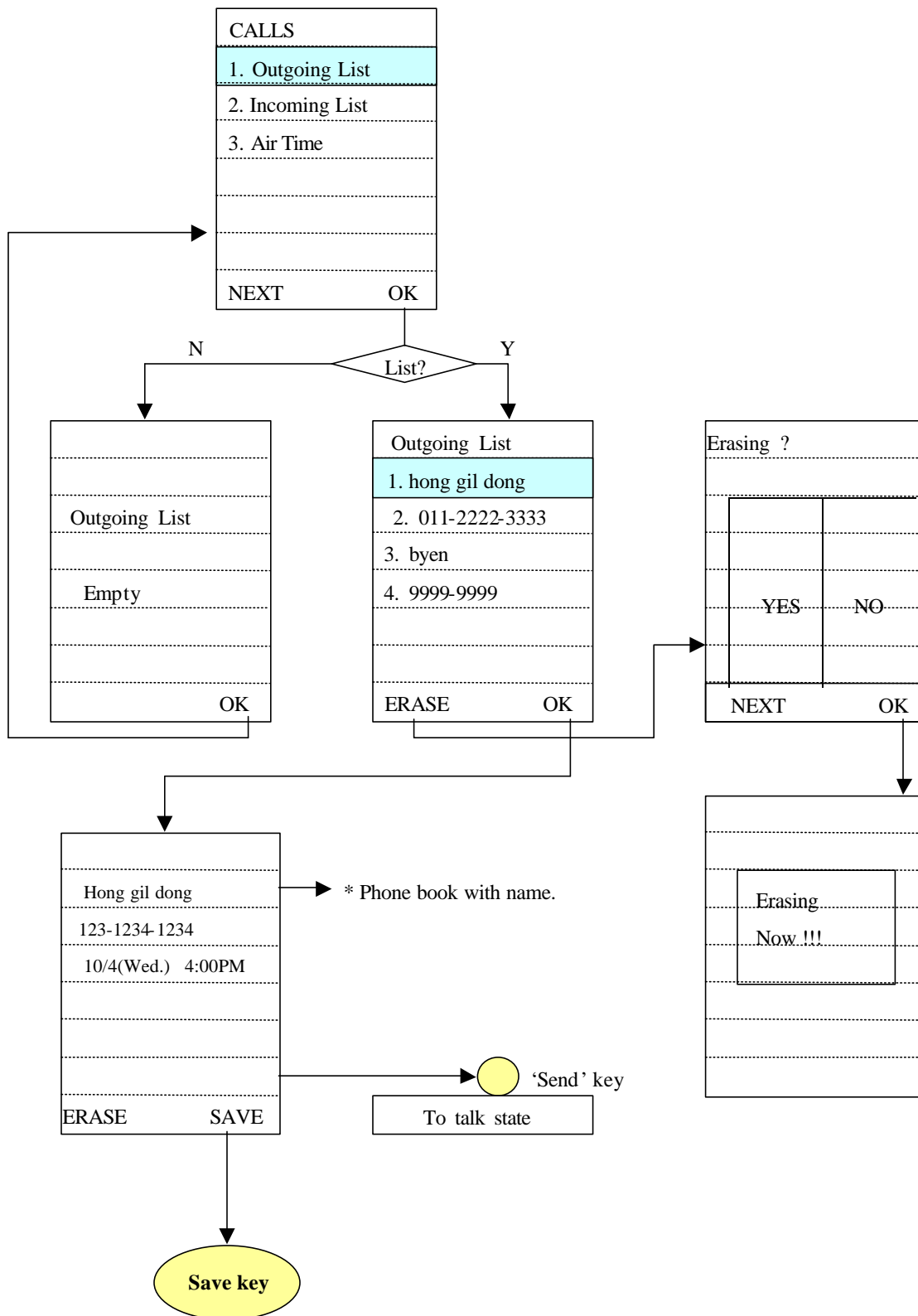
In addition, you can delete the lists individually.

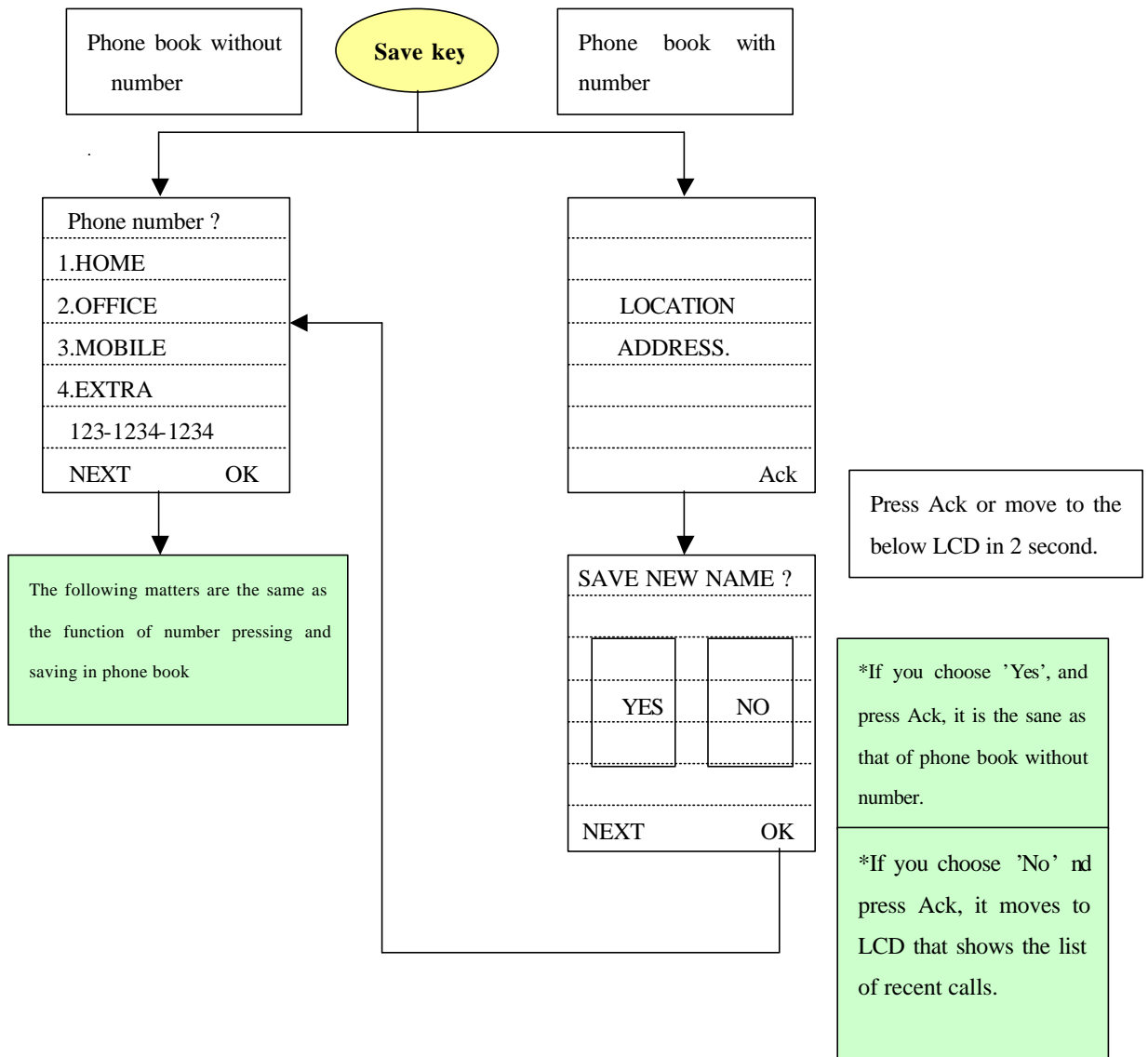
- It has 3 sub menus.



4.1 Outgoing List

- Displays the last called numbers in order up to 20 numbers.
- In addition, it can be deleted individually.





4.2 Incoming list

- Outgoing function is the same, but this can display the contents of received phone numbers, and also delete them individually.
- This also shows 20 LISTs.

4.3 Air time

- Displays last talk time, origination talk time, total talk time.

CALLS	
1. Outgoing List	
2. Incoming List	
NEXT	OK



Air Time	
1. Last Call	
2. Outgoing	
3. Total	
NEXT	OK

4.3.1 Last Call

- Displays last talk time. If ZERO is selected, it changes the time to '0'.

Air Time	
1. Last Call	
2. Outgoing	
3. Total	
NEXT	OK



Last Call	
XX : XX : XX	
xxx-xxxx-xxxx	
ZERO	OK

If you press soft icon ZERO, the last talk time saved is reset to '0'.

4.3.2 Outgoing Call

-Same as Lsat Call.

4.3.3 Total Call

- This is the same as Last Call, but does not provide ZERO function.

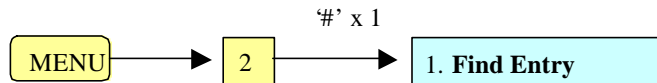
Total call
XXX call
XX : XX : XX
OK

5. Phone Book

- Displays the function of saving and retrieving phone book.
- In addition, it displays calling information in connection with phone number.
- The following describes the items used in phone book.

Item	Contents	Remarks
Name	Name	
Location	Saved address	Addresses 1 ~ 200. (phone number up to 200 can be saved)
Group name	Group designation	family, friend, job, others + user defined 3 addition enabled.
Home number	Home phone number	
Office number	Office phone number	
Mobile number	Mobile phone number	
Extra number	Extra phone number	More than one phone number of home, office, mobile phone numbers can be input, save fax, pager numbers and input international phone number.
E-mail	E-mail	

5.1 Find entry



Find Entry	
1. Find Name	
2. Find Location	
3. Find Number	
4. Find Group	
NEXT	OK

2.PHONE BOOK	
NEXT	OK

Find Entry	
Find Name	
KIM_	
X->x	INPUT

- * Entire or some part of the name to find out can only be input.
- * If you press 'enter' key without name, it displays the entire list saved.
- * Found contents are displayed in order from address 1.

Find Entry	
Find Location	
ADD: [???]	
OK	

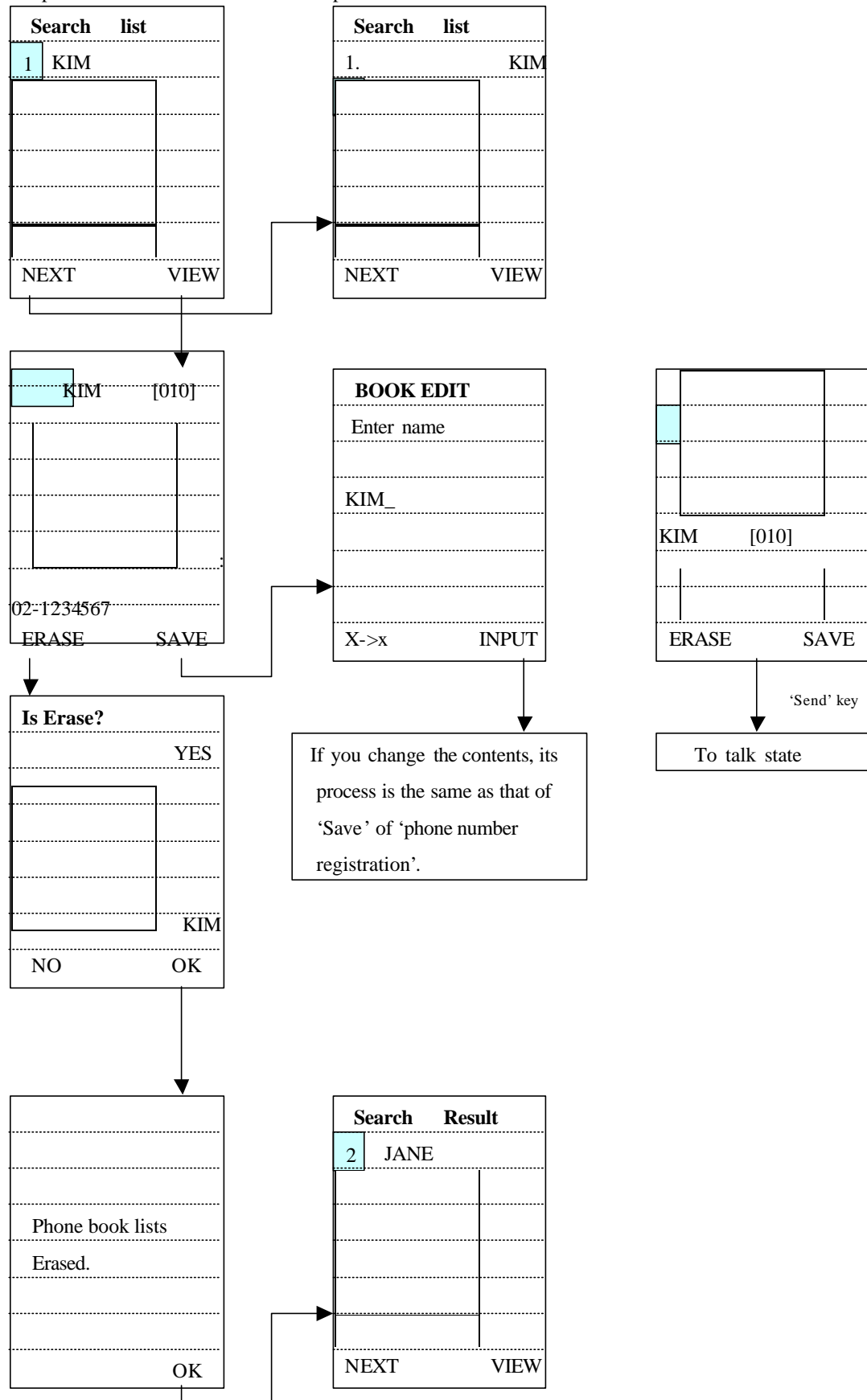
Find Entry	
Find Number	
1234	
OK	

Find Group	
Group none	
Family	
Friend	
Foreman	
Other	
NEXT	OK

- * In '???' state, it displays entire list.
- * In '01?' state, it displays only the item with contents saved among addresses 10 ~ 19.
- * In '001' state, it only displays the designated item.

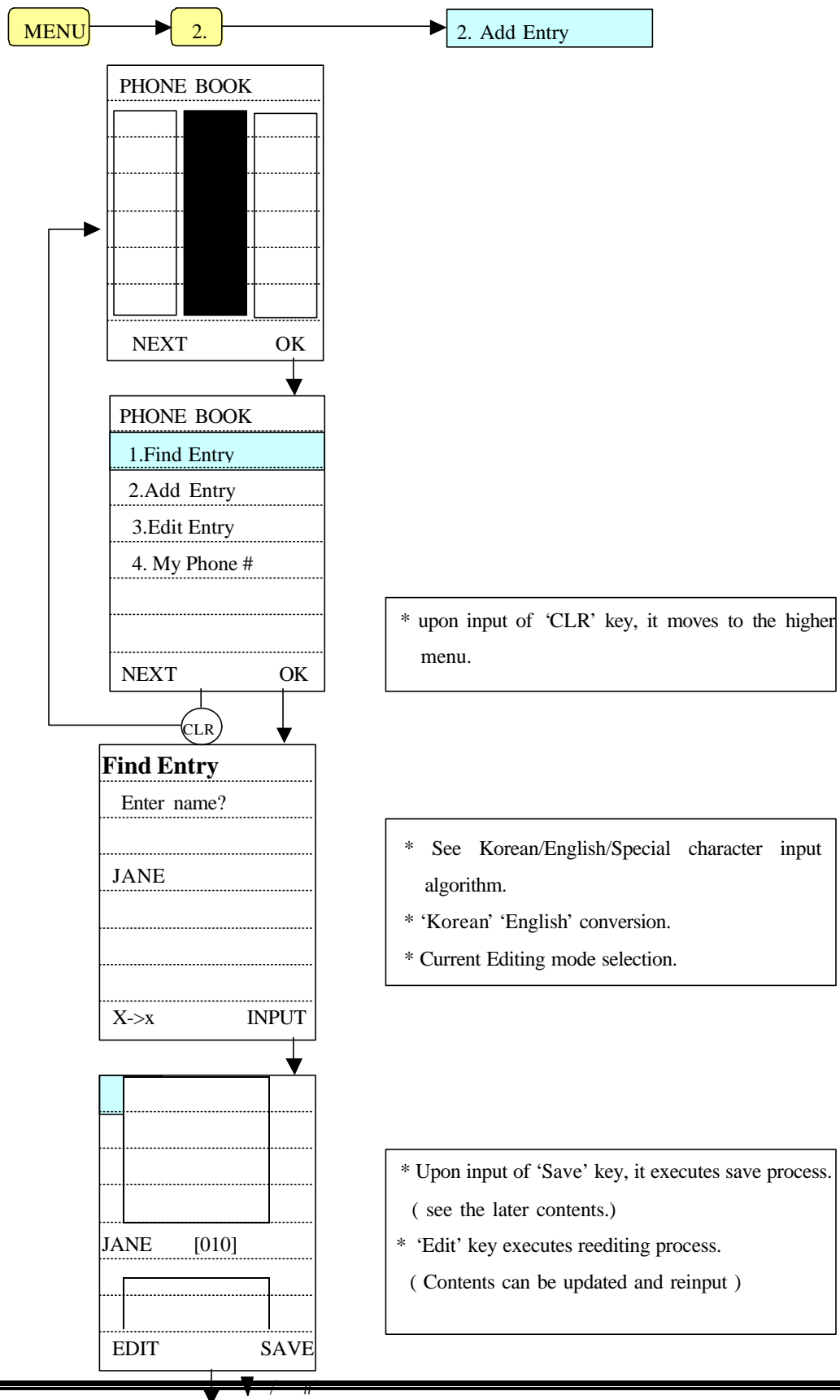
- * Displays entire list if there is no number.
- * If there is a number, it displays all items including corresponding numbers of the saved phone numbers.

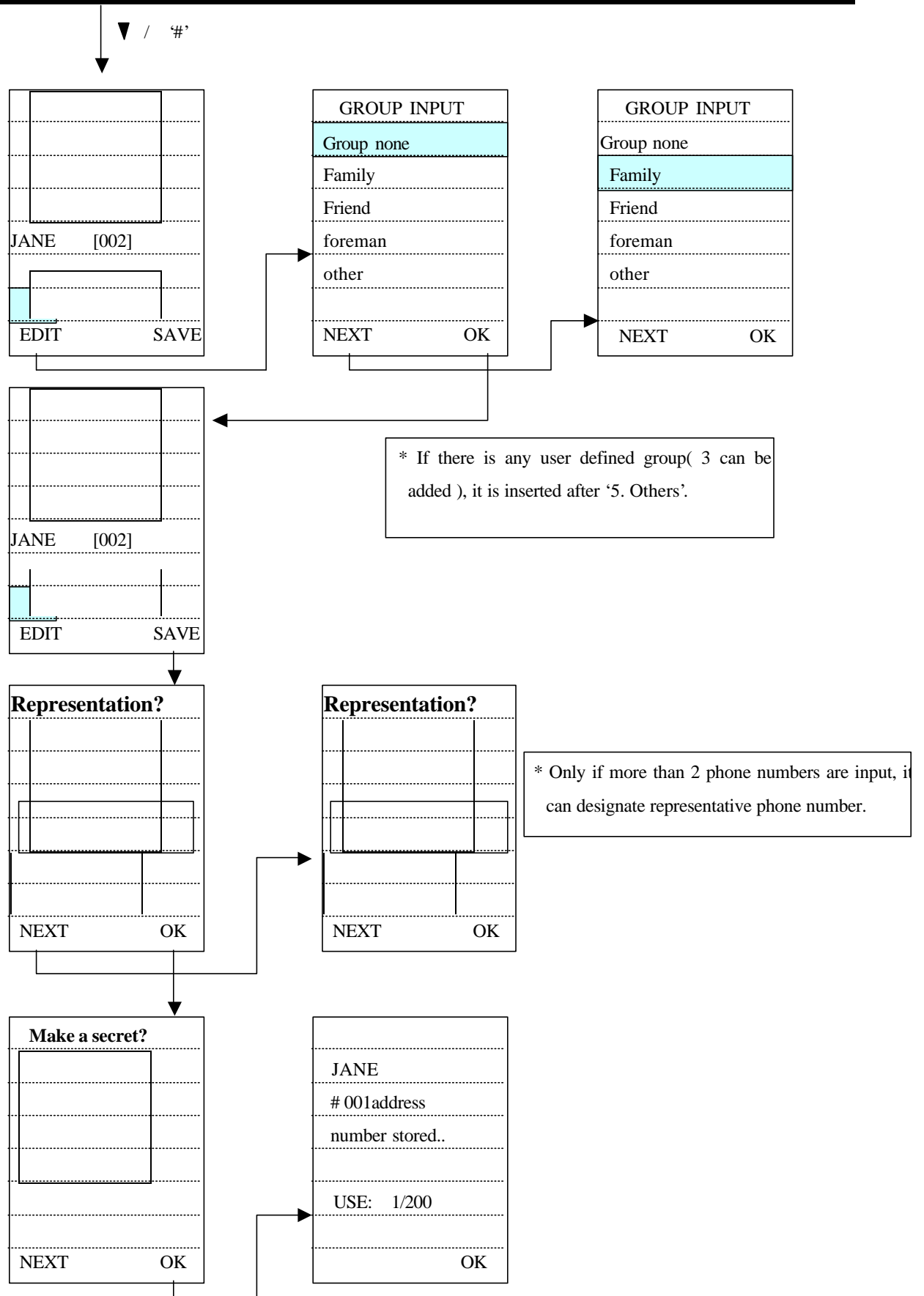
* Example of enter with the name 'KIM' input.



5.2 Add entry

- Saves phone numbers.

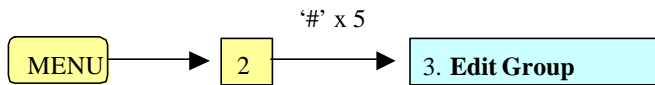




* Without pressing 'Ack', it returns to standby state after a certain time.

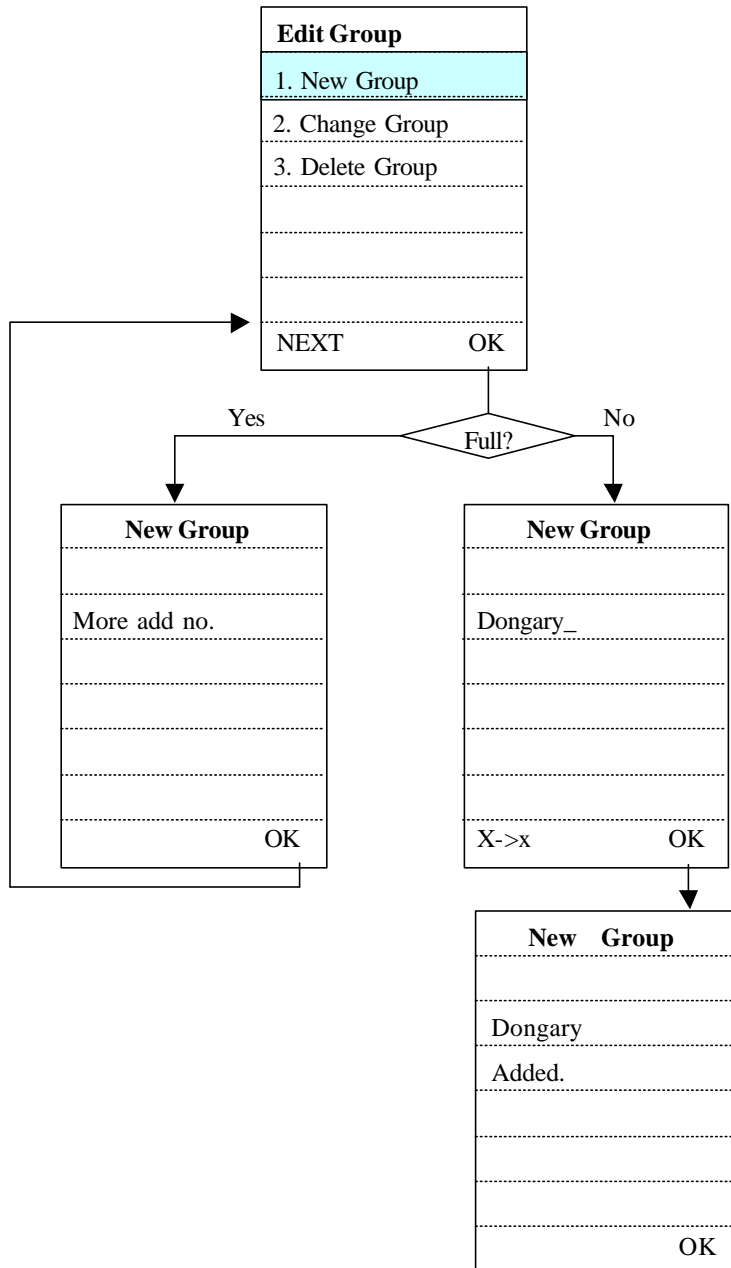
5.3 Edit group

- This can add, modify and delete the name of groups that can be saved upon phone number registration.



5.3.1 New group add

- Can add 3 additional groups in addition to the existing 'family, friend, office, others'.
- If all 7 items are designated, "No more add" is displayed, and change in '2. group name change' is possible.

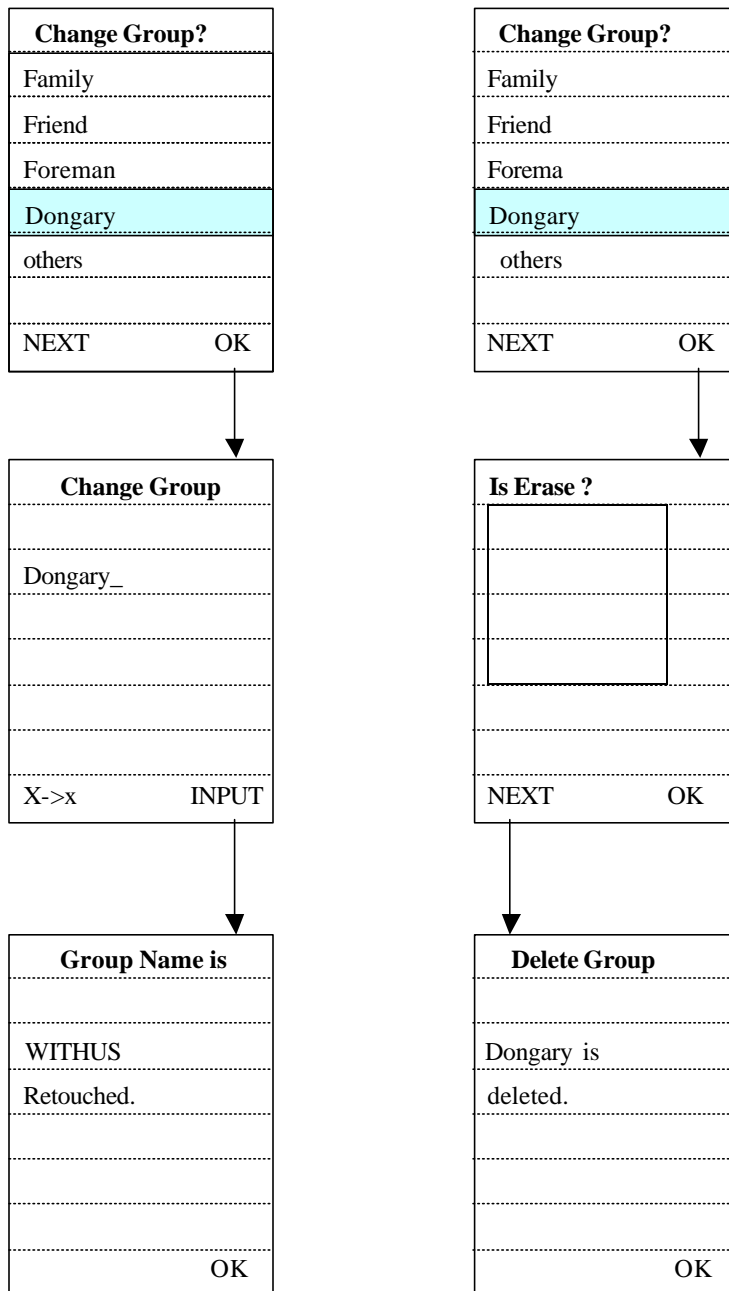


5.3.2 change group

- Can change existing group name into another name.
- Resaved in the changed group in the phone book.

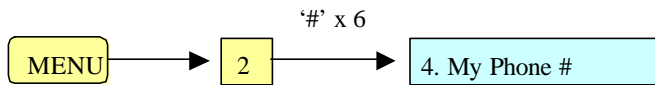
5.3.3 delete group

- Can delete existing group name.
- 'Group name delete' is to erase only the name of the designated group and other contents are not deleted and they remain in 'group[not designated]' state.



5.4. My phone number

- Check own mobile phone number.



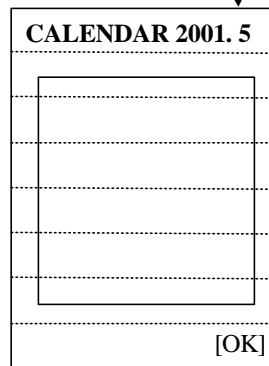
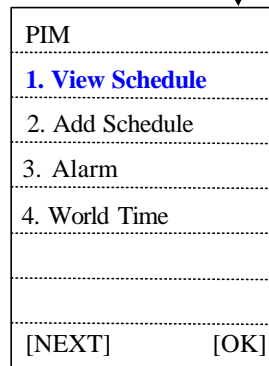
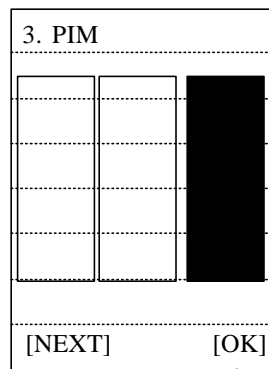
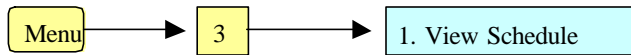
PHONE BOOK	
1.Find Entry	
2.Add Entry	
3.Edit Entry	
4. My Phone #	
NEXT	OK

My Phone number	
011-999-8282	
OK	

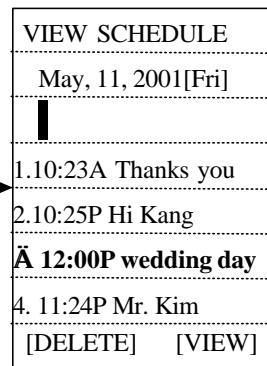
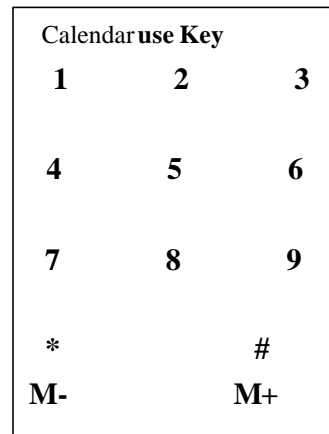
6. PIM

6.1 View Schedule

- Retrieves the schedule already input
- The contents of schedule, anniversary can be input up to 48 characters in English.
- Schedule shows according to time sequence.
- You can check alarm setting for schedule from icon.



Up, down key adjusts year

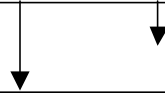


* UP,DOWN key
STAR,POUND key
In order to scroll

Scroll Executes that in order.

Erase schedule list only scrolled

VIEW SCHEDULE
May, 11, 2001[Fri]
12:00 [PM]
[ANNIVERSARY]
wedding day
.....
.....
[EDIT] [CANCEL]



ANNIVERSARY
May, 11, 2001[Fri]
Alarm Time
12 : 00 [PM]
wedding day
.....
.....
[PM] [SAVE]



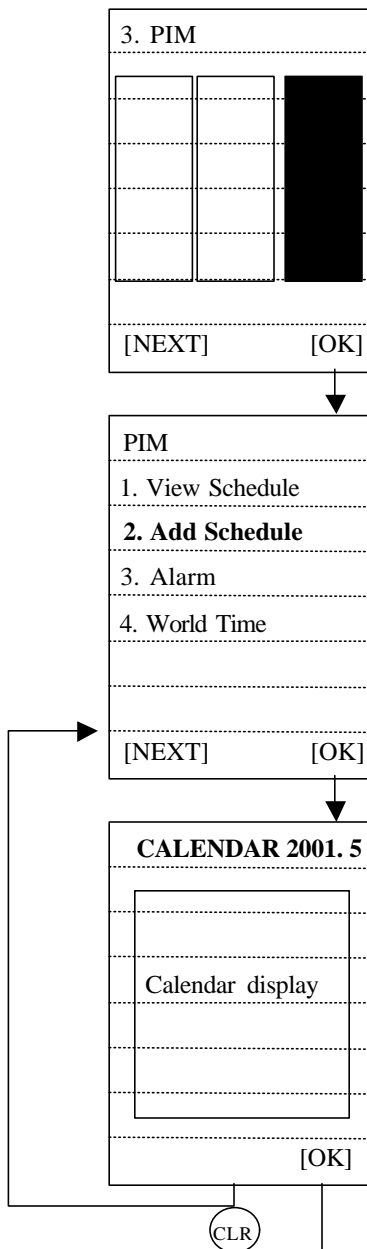
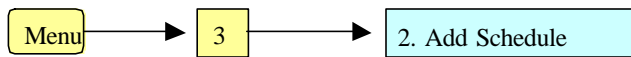
ANNIVERSARY
WRITE TEXT :
wedding day
.....
....._
[X->x] [OK]



Same routine as Add schedule

6.2 Add Schedule

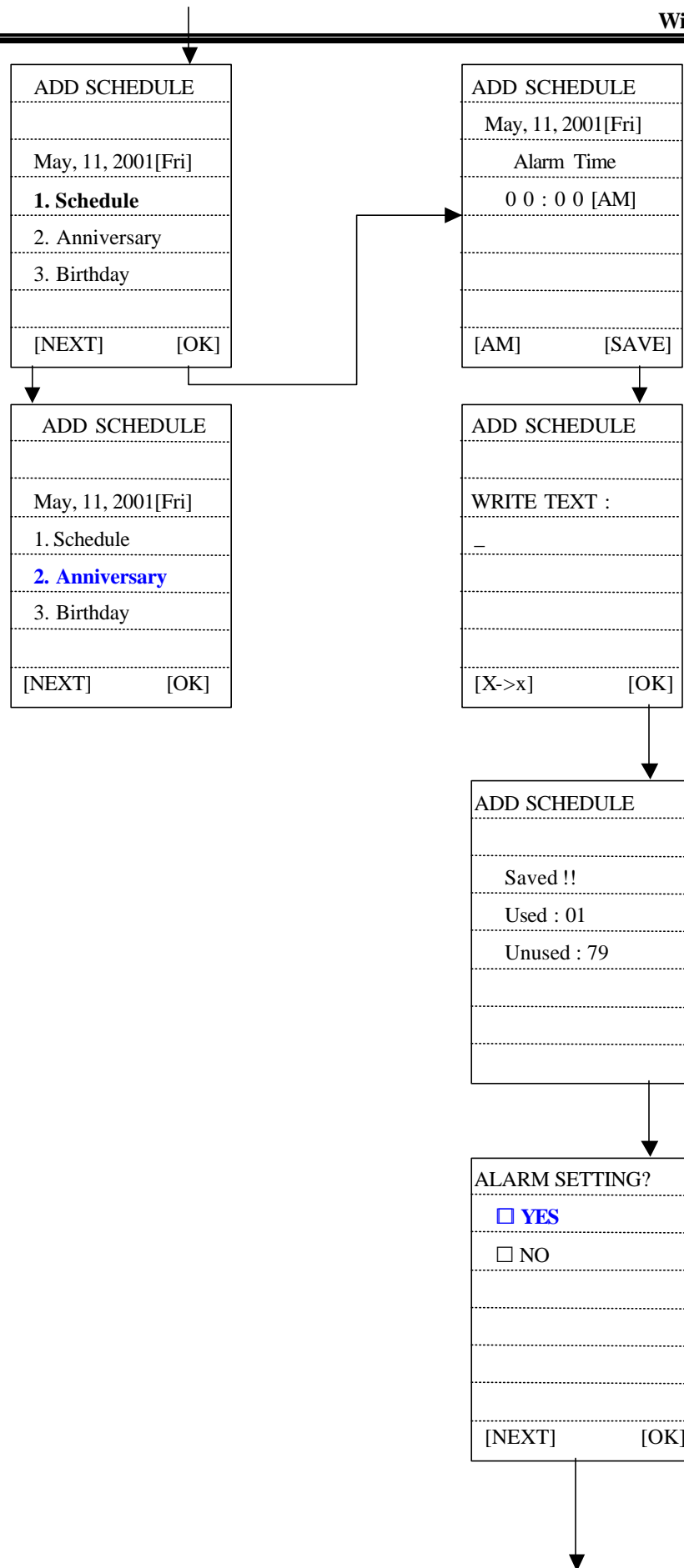
- If selecting scheduler, calendar is displayed
- Upon selection of date, schedule corresponding to the date is displayed.
- You can set alarms, make them generated at the time you want and select alarm tone.
- You can edit in a different item such as schedule, anniversary, birthday.
- Alarm melody is set to different melody according to items.
- Schedule you edited already is display after ringing.

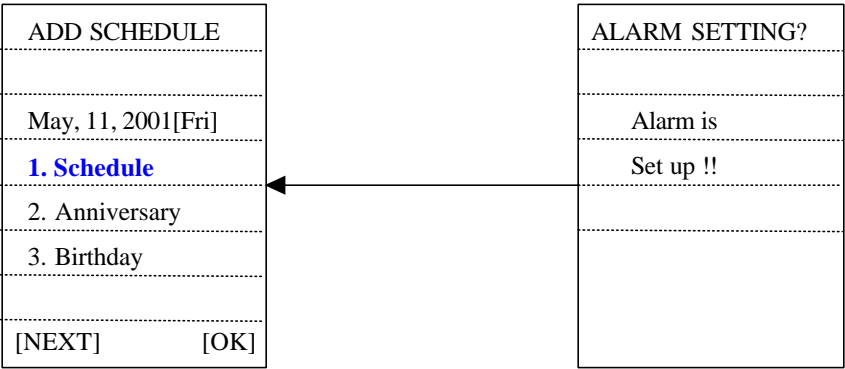


Up, down key adjusts year.

Calendar use Key		
1	2	3
4	5	6
7	8	9
*		#
M-		M+

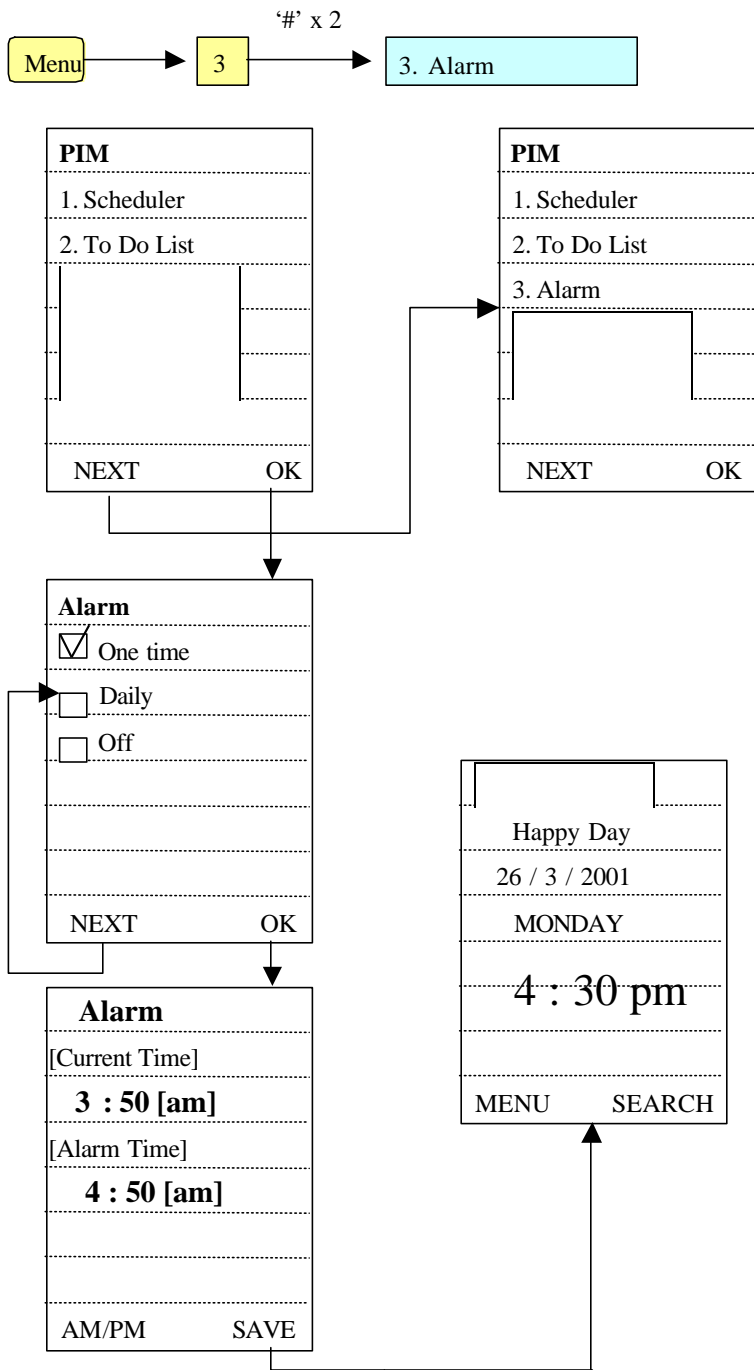
* You can't input any schedule into date already passed.





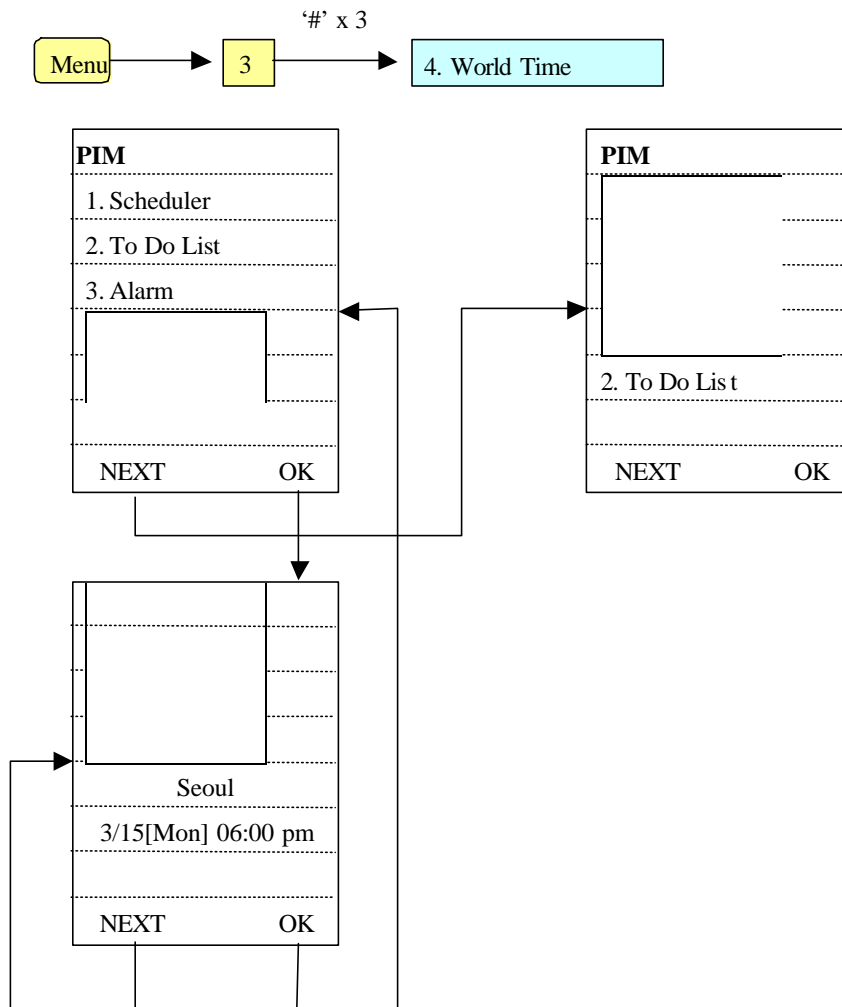
6.3 Alarm

- This is to set time so that alarm is generated one time per day or daily.



6.4. World Time

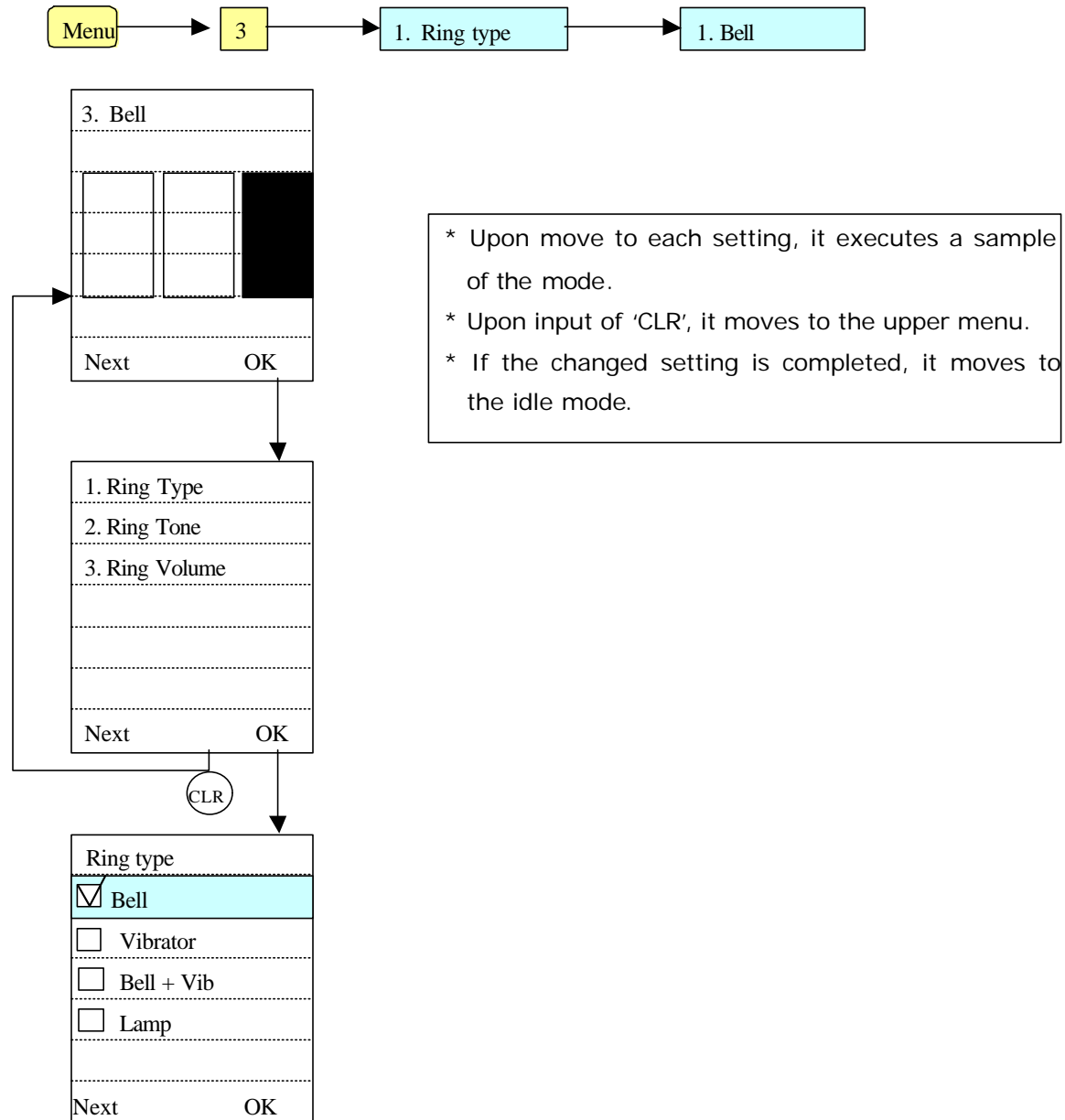
- This can check the time of foreign countries.
- Displays the time of major 50 countries.



7. Ring

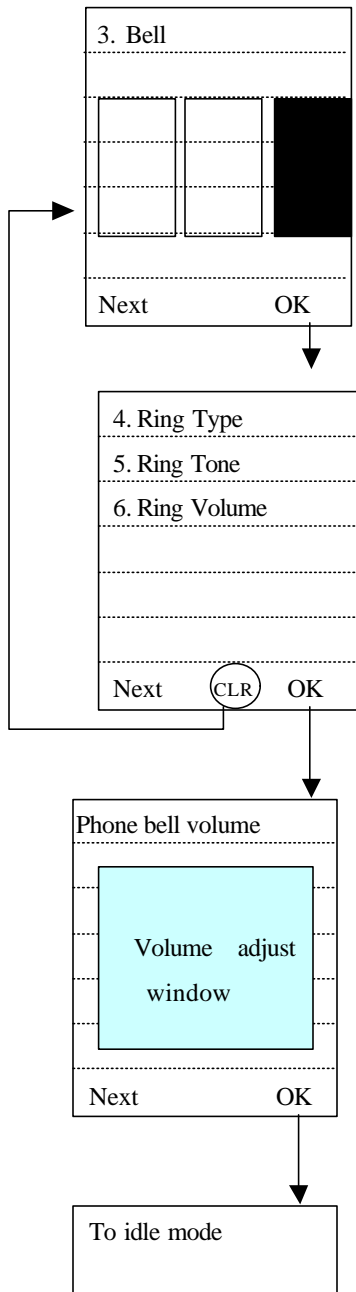
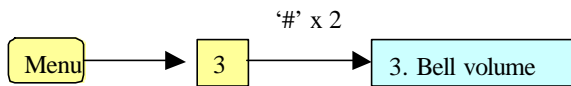
7.1 Ring type

- Sets phone bell type upon incoming call.
- The type includes 'bell/ vibration/ bell after vibration / no-sound(lamp)'.
- If you select vibration, the use of time gets short.
- * Upon selection of vibration, bell after vibration, 'vibration' icon is displayed, and mobile phone vibrates for about 1 second the moment it is set up.
- * For manner mode, clear the manner mode first, and use phone bell setting menu.



7.2 Ring volume

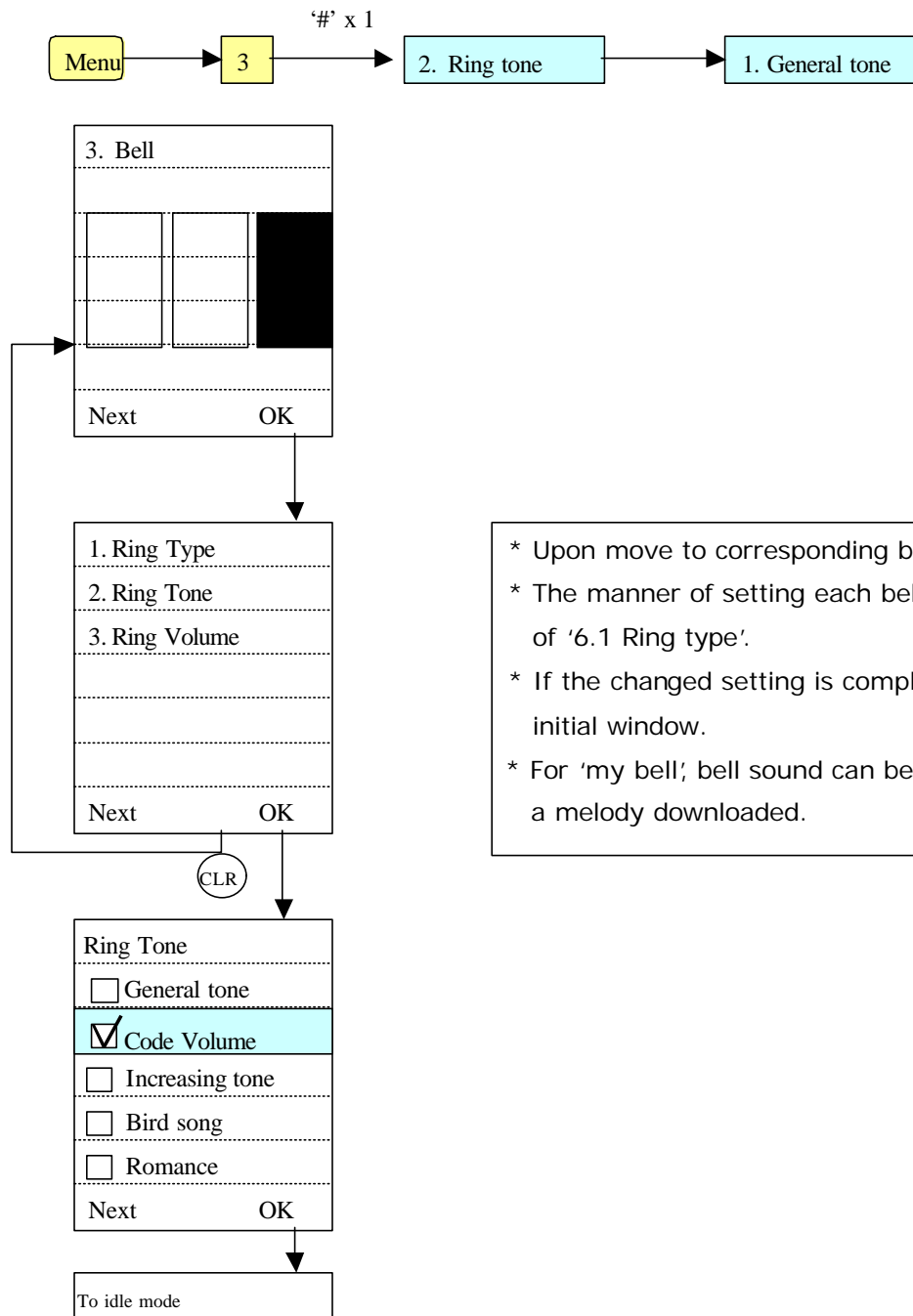
- This is to adjust the volume of phone bell.
- It can be adjusted up to 4 levels.
- If volume is changed, sound with suitable volume goes off.



7.3 Ring tone

- This is to select bell sounds upon incoming call.

(general tone : 5 types, melody: 10 types, my bell : 3 types)

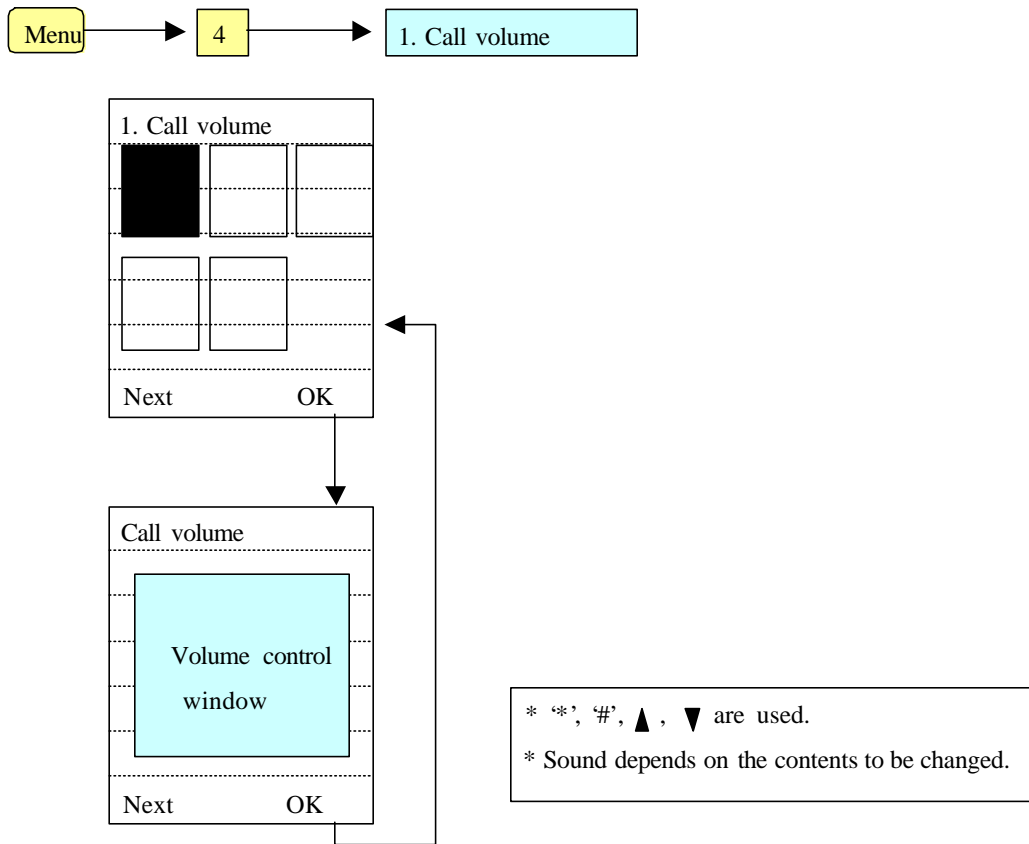


- * Upon move to corresponding bell sound, bell goes off.
- * The manner of setting each bell is the same as that of '6.1 Ring type'.
- * If the changed setting is completed, it moves to the initial window.
- * For 'my bell', bell sound can be selected only if there is a melody downloaded.

8. SOUNDS

8.1 Call volume

- This is to adjust the volume of the other party's tone.
- This is divided into 4 levels.

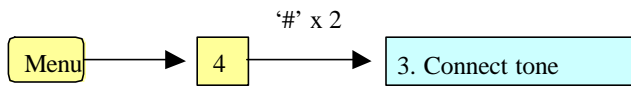


8.2 Key beep

- This is to control the volume of button tone.
- This is divided into 5 steps.
- Same as that of 'Call volume'.

8.3 Connect tone

- Confirm tone that goes off when a call is connected.
- After confirming dial tone, take with the other party.



3. Connect tone	
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
Next	OK

Set connect tone ?	
<input type="text"/>	<input type="text"/>
Y	N
Next	OK

- * Choose either 'Yes' or 'No'.
- * It is originally set to 'Yes'.

8.4 1-minute beep

- Passing tone that goes off ever 1 minute after call start.
- Same as that of 'connect tone'.

8.5 Svc area

- If service area is changed, it goes off.
- Same as that of 'connect tone'.

9. Display

- Sets basic environment to change standby screen state to the state that user wants.

9.1 Backlight

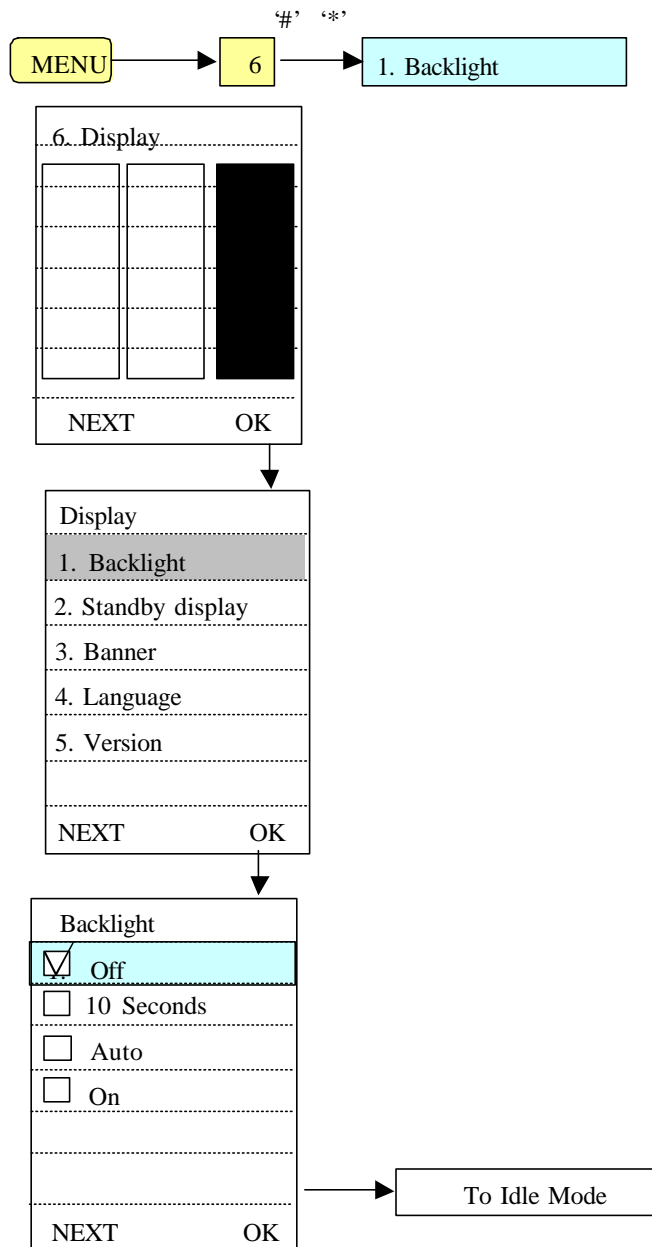
- This enables user to use mobile phone in the dark.

* All-time off : always off.

* 10 sec. : off in 10 sec.

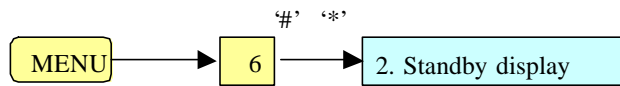
* Auto : Off in daytime and On at night. (5 pm ~ 8 am next day)

* Always : Always On. (however, battery consumption gets larger.)



9.2 Standby display

- Can set the initial state or standby screen of phones.
- * Can configure only with banner & time, and configure LCD with a picture.



* for selection of banner & time mode

6. Display	
NEXT	OK

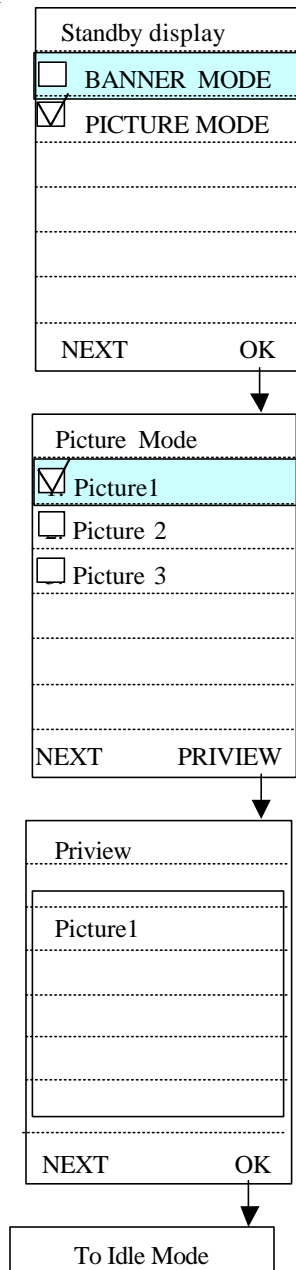
Display	
1. Backlight	
2. Standby display	
3. Banner	
4. Language	
5. Version	
NEXT	OK

Standby display	
<input checked="" type="checkbox"/>	BANNER MODE
<input type="checkbox"/>	PICTURE MODE
NEXT	OK

* If moving to standby LCD after setting function,
set banner& time mode is applied.
* See '1.5 IDLE Mode'.

To Idle Mode

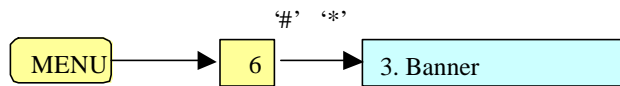
* For picture selection



* If you power off and on after setting function,
set picture 1 is displayed in standby LCD.
* See '1.5 IDLE Mode'.

9.3 Banner

- To enter own name or desired phrase in mobile phone.
- Displayed in standby LCD.
- English, Number can be entered up to 16 digits.



6. Display

NEXT OK

Display

1. Backlight
2. Standby
3. Banner
4. Language
5. Version

NEXT OK

Banner Input

I LOVE YOU!

X x OK

I LOVE YOU!

17 / 4 / 2001

THUESDAY

4 : 30 pm

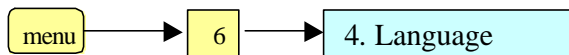
MENU SEARCH

- * See English/special character input algorithm.
- * 'English' Upper-/lower-case letter conversion.
- * Current editing mode selection.
- * Input letters can be deleted with 'CLR'.

- * If pressing 'Enter', it directly moves to the standby screen, and own contents are displayed.

9.4 Language

- Can flexibly select languages.
- Sets mother language to **main**.
- If Spanish is **mian**, – **Spanish** – **Eng**
 - **Spanish**
 - **Port**
 - **Fren**
 - **Hebrew**
 - **Italy**
- If you select each language in the above format as to 6 languages, all things in the DISPLAY change to the language of the MAIN and upon EDITING, it can display main and other language.



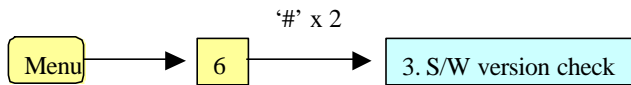
Language	
<input type="checkbox"/>	ENGLISH
<input type="checkbox"/>	SPANISH
<input type="checkbox"/>	PORTUGUESE
<input type="checkbox"/>	FRENCH
<input type="checkbox"/>	HEBREW
<input type="checkbox"/>	ITALIAN
NEXT	OK



ILDE

9.5 Version

- Checks the version of mobile phone.



3. S/W version check		
Next OK		

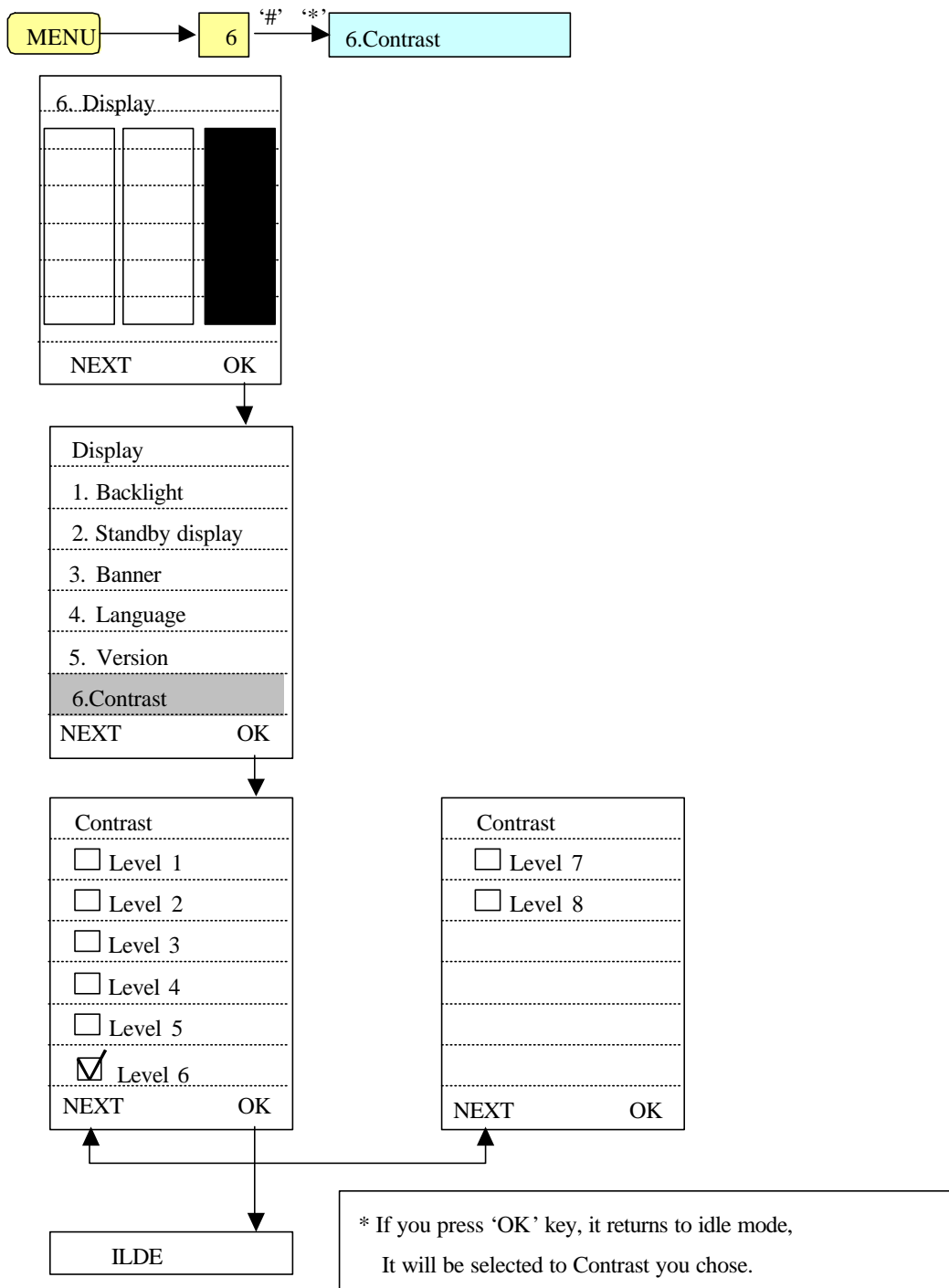
S/W version check		
XMT001 V35		
2000 / 10 / 05		
20 : 30 : 00		
OK		

- * Shows the model and final version.
- * Shows the final version prepared date.
- * Shows the final version prepared time.

9.6 Contrast

-

- 1 8



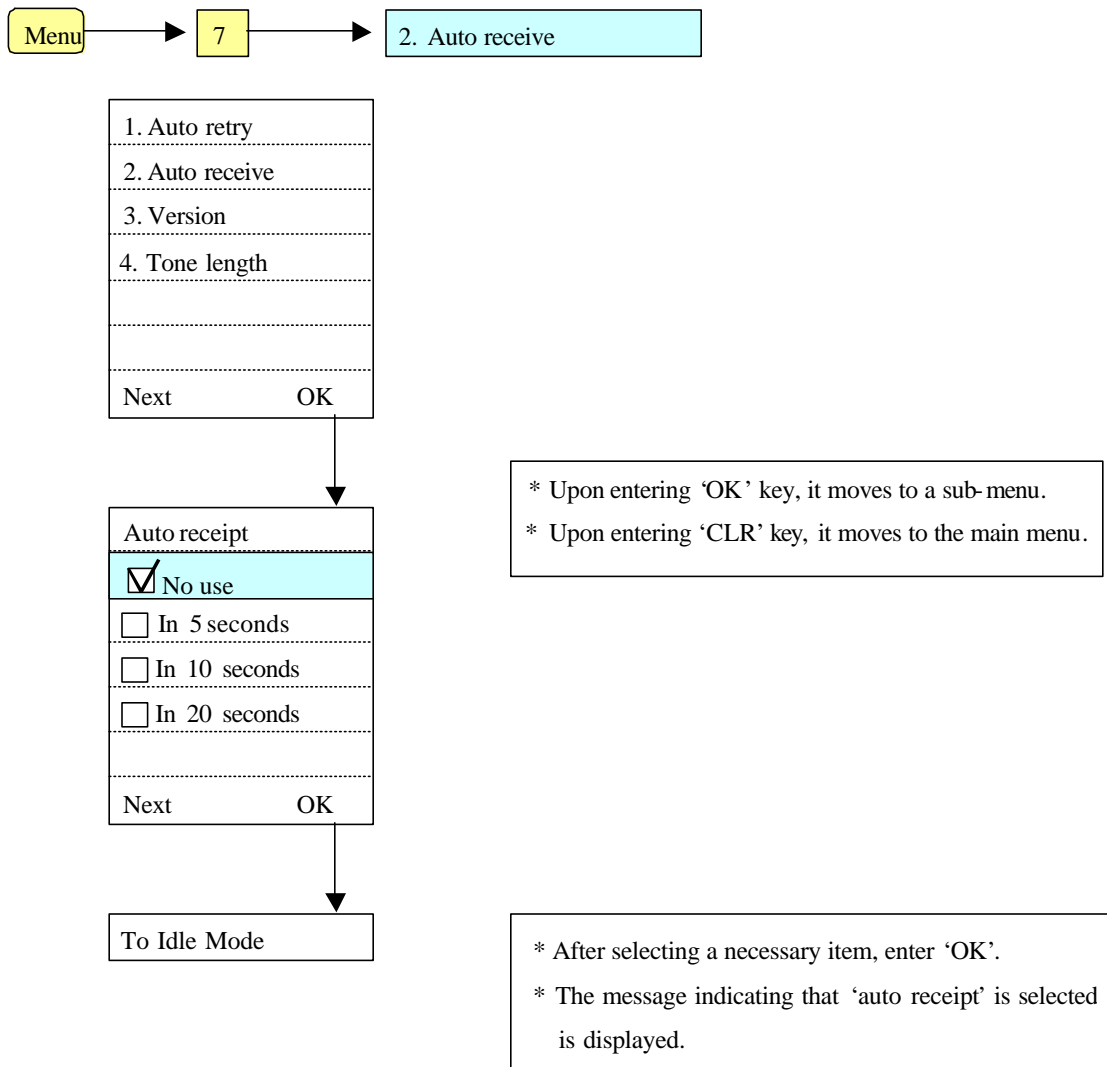
10. Setup

10.1 Auto retry

- If a call connection fails due to BTS situation during call attempt, redial interval could be set.
- The default setting is 'Off' when purchasing the device.
- The redial interval options are 'after 10 seconds', 'after 20 seconds'

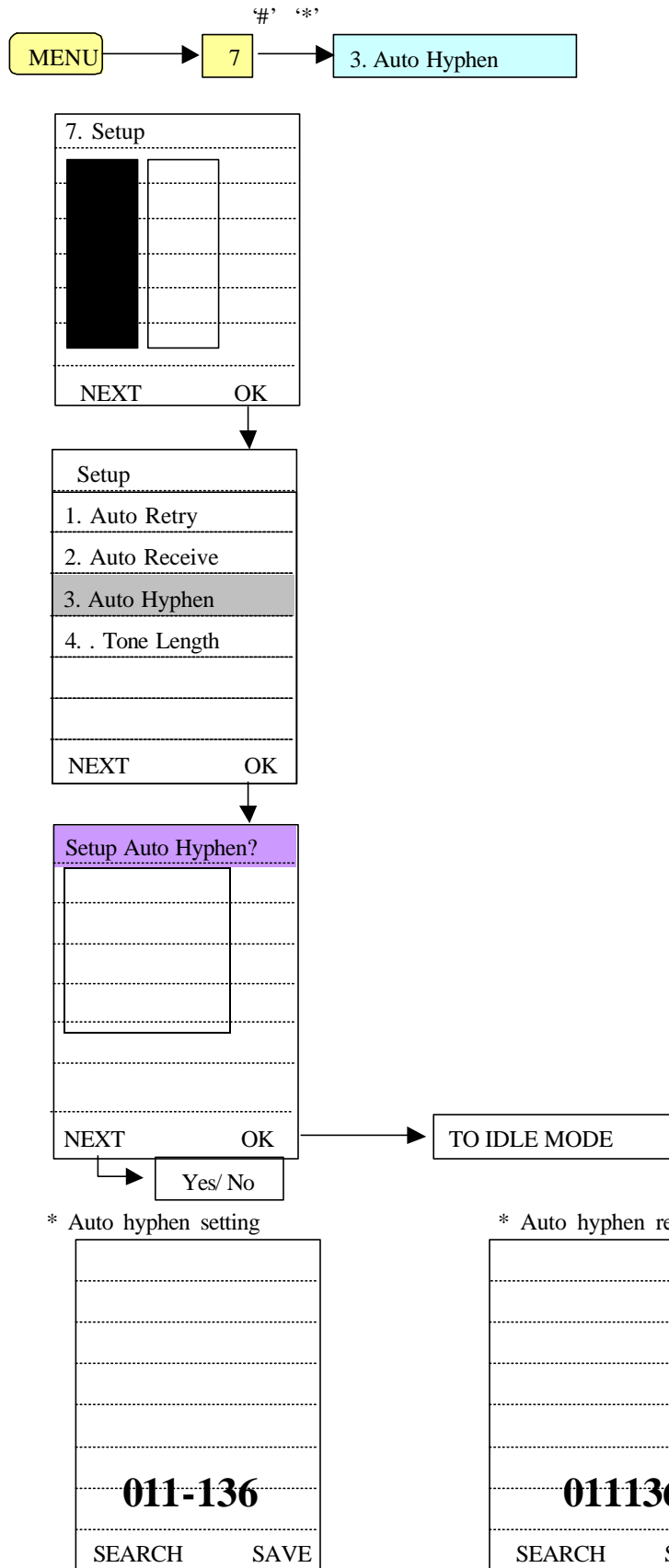
10.2 Auto Receive

- Enables auto call connection after a given period of time
- The default setting is 'No setting' when purchasing the device, and executes the internally defined setting.



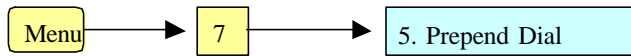
10.3 Auto Hyphen

- This is to locate hyphen (-) between the front digit and the rear digit.



10.4 Prepend dialing

- The prepend option lets you add digits such as area code or number you use often.
- The prepend phone number cannot be more than 10 digits.



7. SETUP		
[NEXT]		[OK]

SETUP	
1. Auto Retry	
2. Auto Receive	
3. Auto Hyphen	
4. Tone Length	
5. Prepend Dial	
[NEXT] [OK]	

PREPENDING?	
YES / NO BMP	
[NEXT] [OK]	

When you select NO, it returns to idle mode.

[PREPENDING]
031435
[SAVE]

* input with
number

Prepend dial setting completed	
--------------------------------------	--

(Example)

031-4351	
[FIND]	[SAVE]

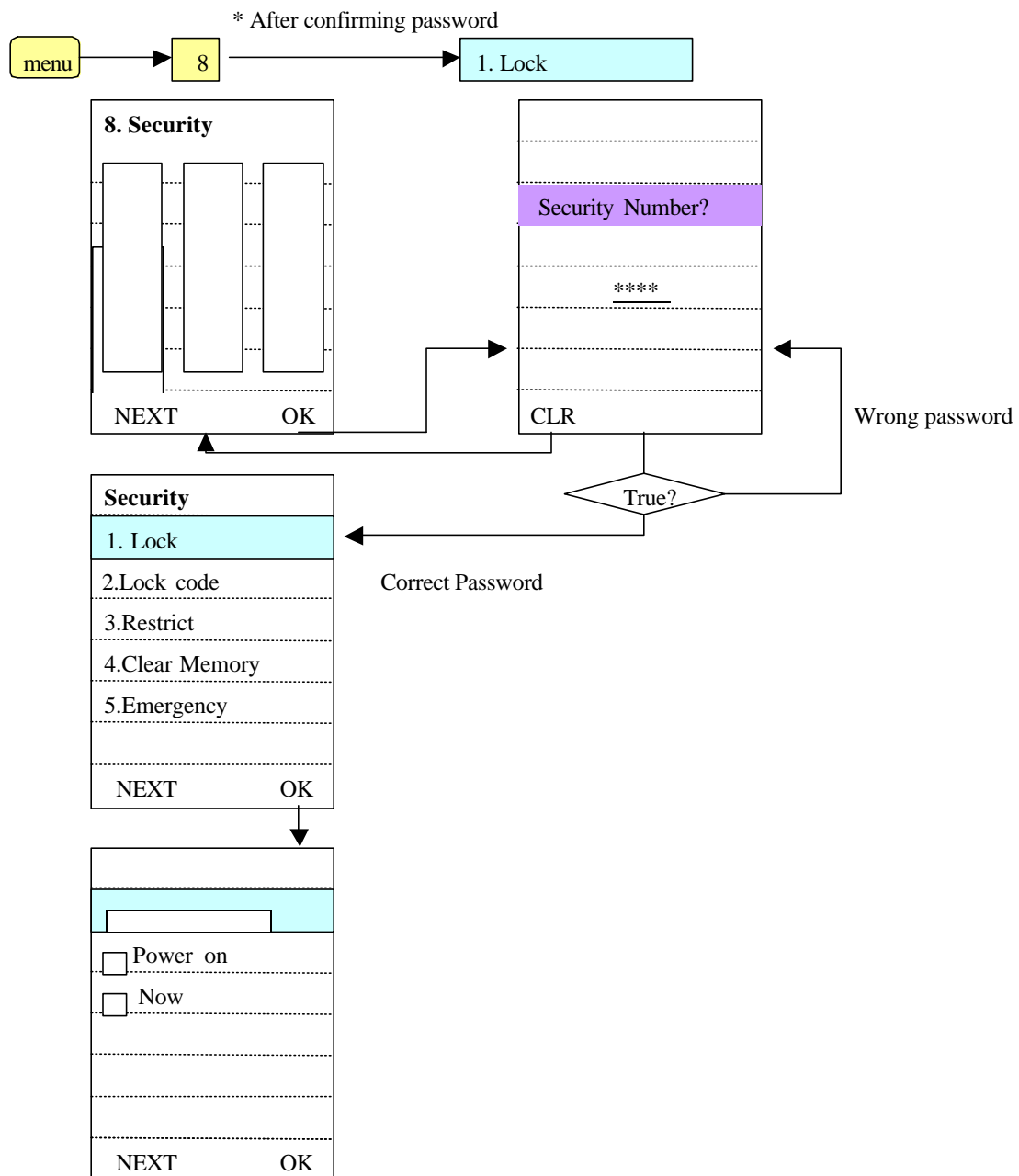
When you press 1, 031 435 is
Automatically is input.

11 Security

- This to prevent others from using mobile phone without permission.
- To execute this function, you should always go through password confirm process.
- Upon product purchase, the password is set to '0000'.

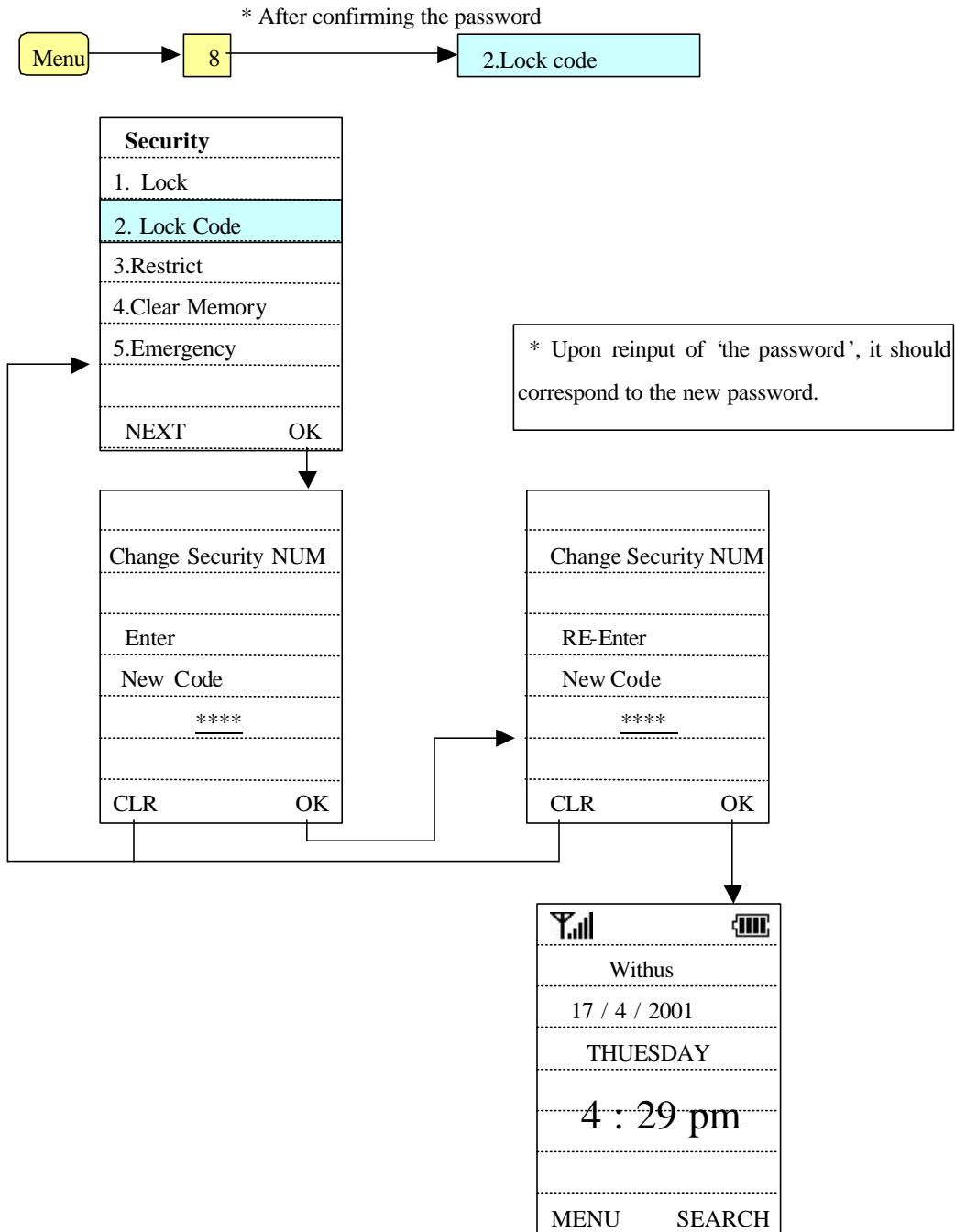
11.1 Lock

- This is to restrict use of phone.
- Upon lock function setting, the state is not changed unless you release the function.
(see '2.8.2 lock function')



11.2. Lock code

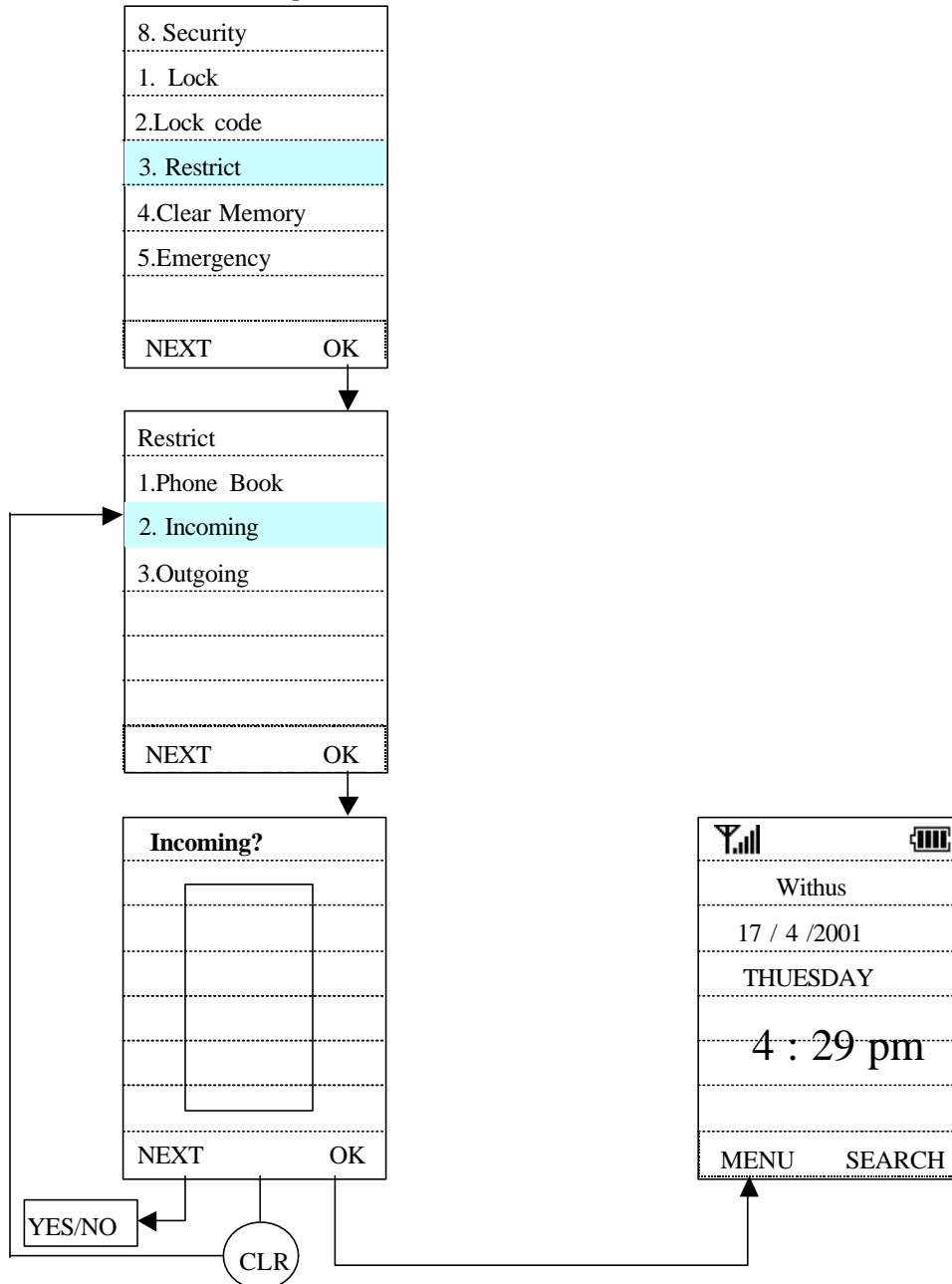
- This is used to change the password.
- Upon purchase, the password is set to '0000'.
- If you forget the password, contact the service center.
- * The password contains 4 digits.



11.3 Restrict

- This to prevent phone from being used for other purposes.
- Through 'phone book restriction', you can restrict the use of phone book.
- Through 'receipt restriction', you can restrict call receiving.
- Through 'calling restriction', you can restrict call making.

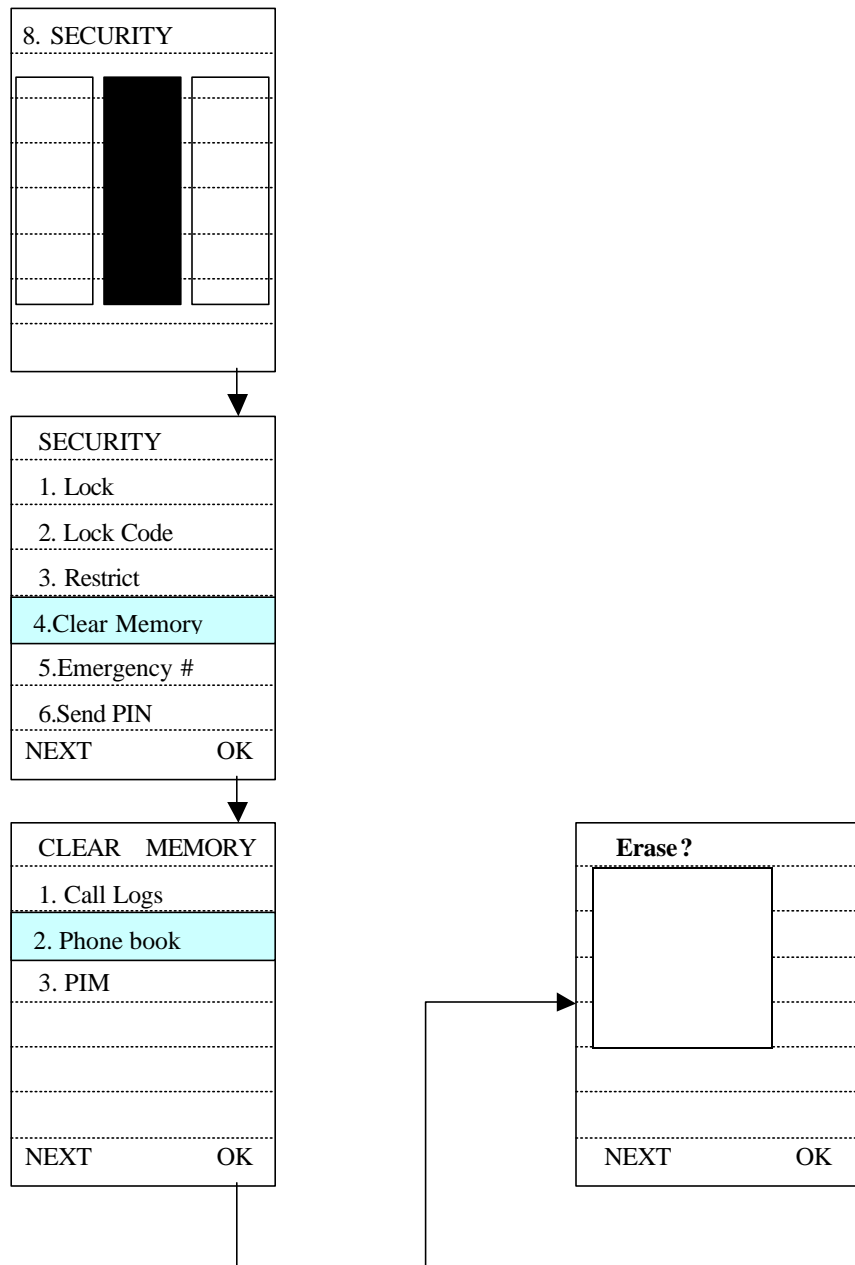
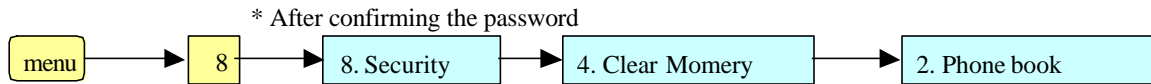
Ex> selection of receipt restriction



* The remaining functions are also the same procedure as above.

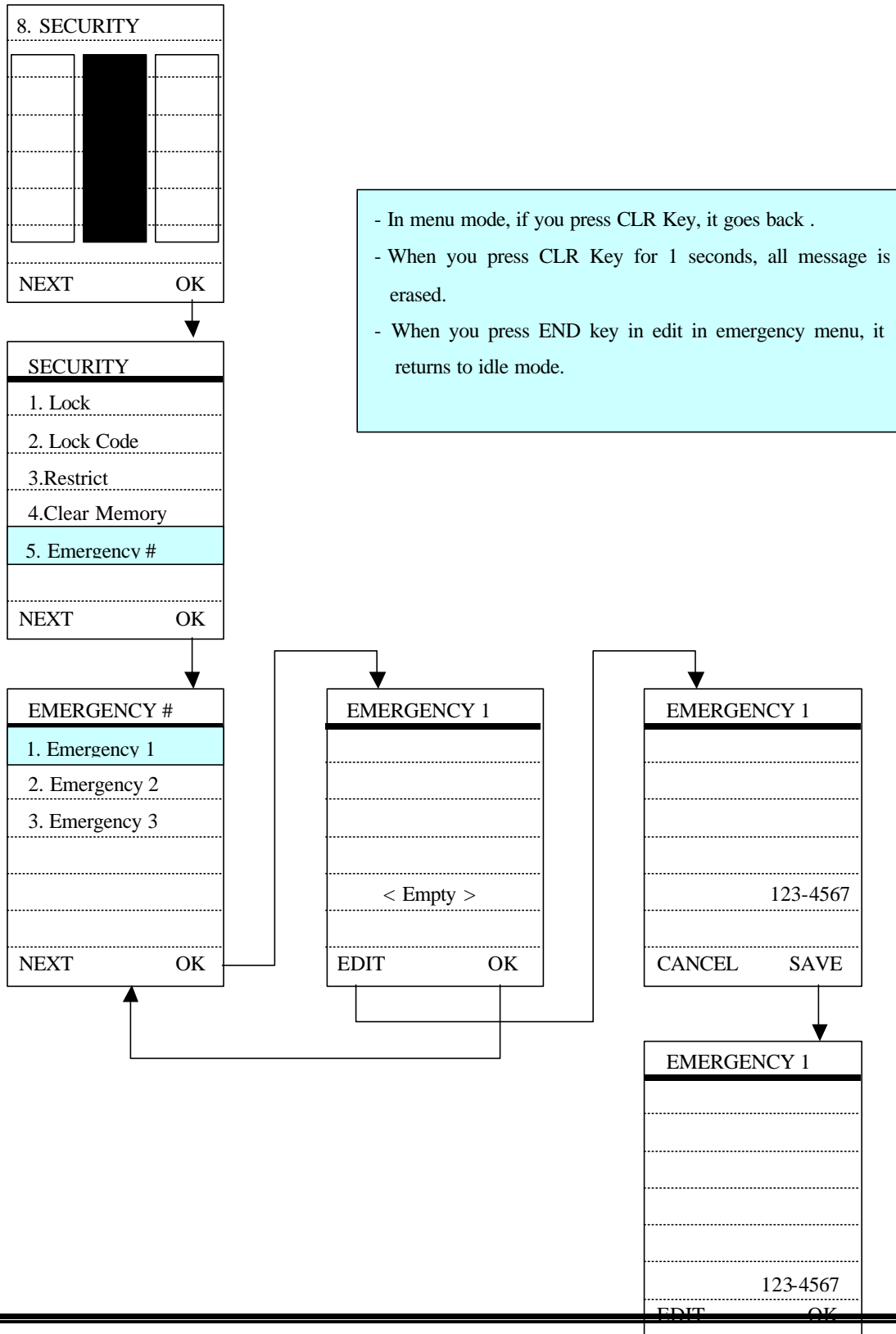
11.4 Clear Memory

- This is to delete all the contents saved in memory address 001 ~ 200.
 - Take a notice not to erase the number that should not be deleted.
 - For the function of deleting single address, you can delete the desired number through '2. Find entry' of Menu '1. Phone book'.
- (see '4.2 Find entry')



11.5 Emergency

- In emergency condition, user can make a call from the phone book even if outgoing call is restricted
- User can store maximum 3 numbers.

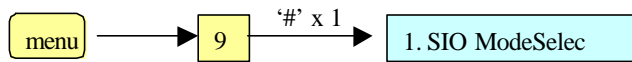


12. Data Service

- Sets the service environment for Internet/PC communication/Fax, etc.

12.1 SIO mode select

- You can set up speed rate when you PC is connected to mobile phone.
- This is only speed rate with Mobil phone with PC , nothing to do speed rate with connection of Internet, fax service.



9. DATA SERVICE	
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
[NEXT]	[OK]

DATA SERVICE-----	
1. SIO ModeSelect	
2. Incoming Mode	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
[NEXT]	[OK]

COMM MODE-----	
Packet Data	
modem/Fax	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
[NEXT]	[OK]

or

COMM MODE-----	
Packet Data	
modem/Fax	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
[NEXT]	[OK]

→

SIO Rate	
Changed to	
115200	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

→

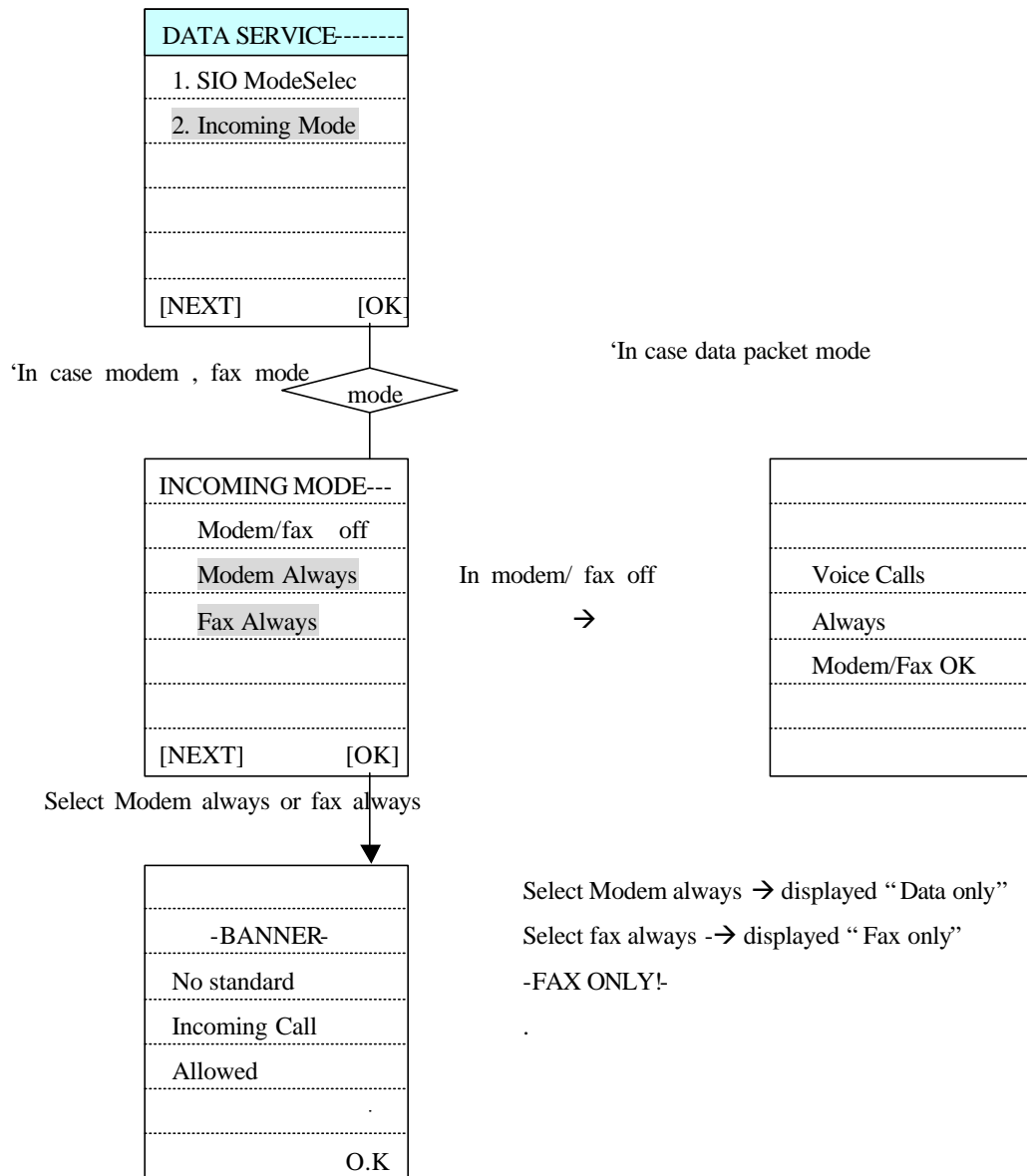
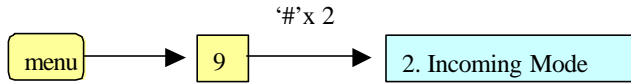
SIO Rate	
Changed to	
19200	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

* packet data : 115,200 bps setting
* modem, FAX: 19,200 bps setting

12.2 Incoming mode

- Modem/ Fax off disables data reception and recognizes incoming calls as voice calls.
- Moem/ Fax off is set as default.
- In “Modem Always” mode, all incoming calls are recognized as asynchronous data calls.
- In “Fax Always” mode, all incoming calls are recognized as Fax calls.
- In fax mode or modem mode, voice incoming call can’t be possible.

-



*Data mode lets you use data service with the serial port on the bottom of your phone.

The transmission rate of the serial port is 19200bps or 115200 bps.

- data mode is set as default.
- DM mode disables data service but lets you download new programs through the serial port on the bottom Of your phone.
- The transmission rate of the serial port is 38400bps.

TEST

8

DS/DM MODESELECT	
1. Data Mode	
2. DM Mode	
[NEXT]	[OK]

↓

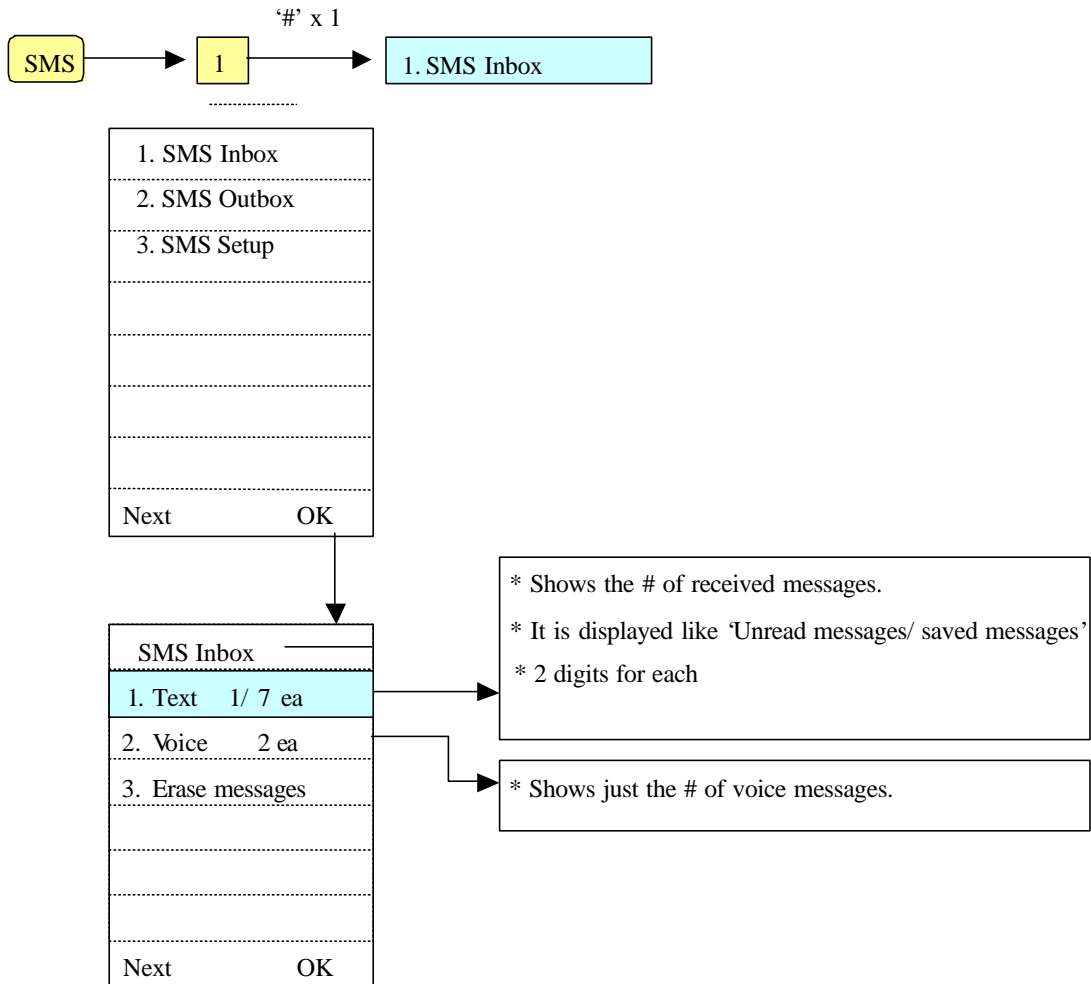
DS/DM Mode
Dm Mode
Selected

13. SMS

- It enables the transceiving of short messages and the receipt of various information with mobile phone.
- Mobile call paging is possible.
- For SMS menu , ● key is used from side key

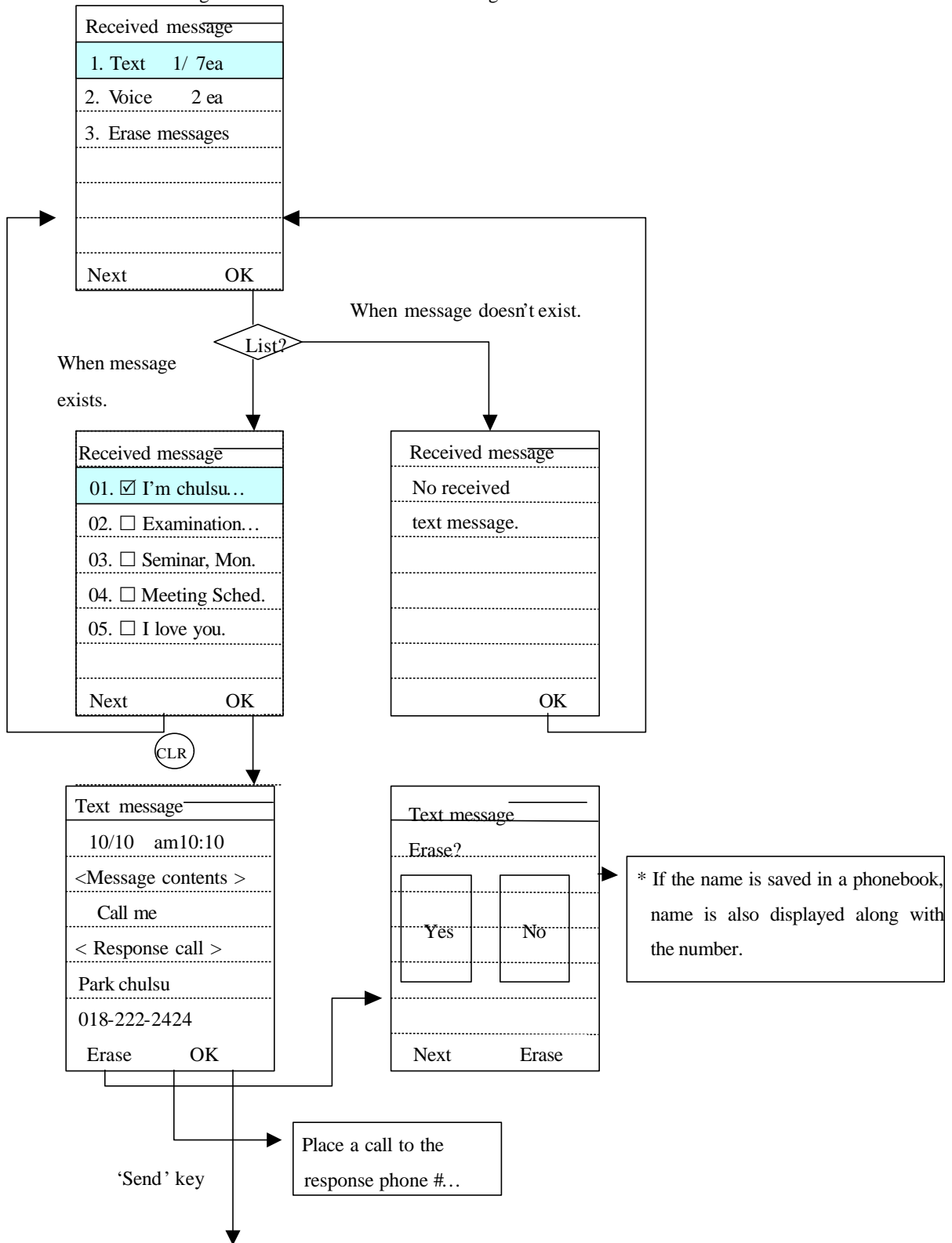
13.1 SMS Inbox

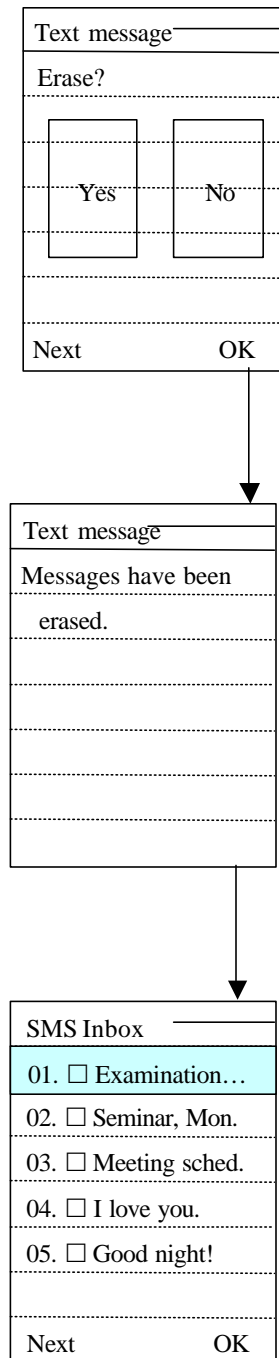
- With this function, you may confirm or erase the received message to a mobile phone.



13.2.1 Text

- With this function, you can check the received text message.
- Text messages of up to 50 may be stored .
- Unread message is marked with ☒ and read message is marked with ☐.

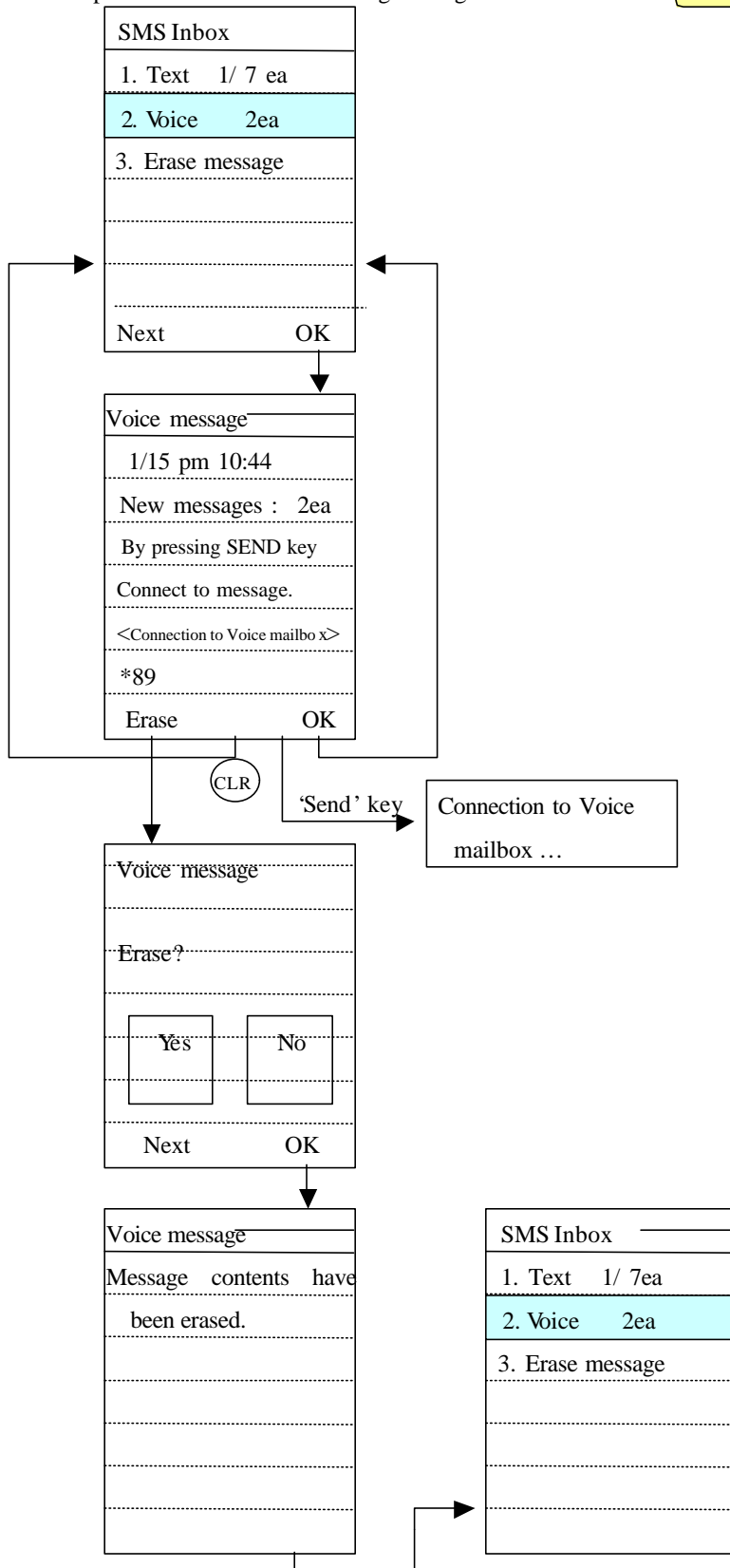




13.2.2 Voice

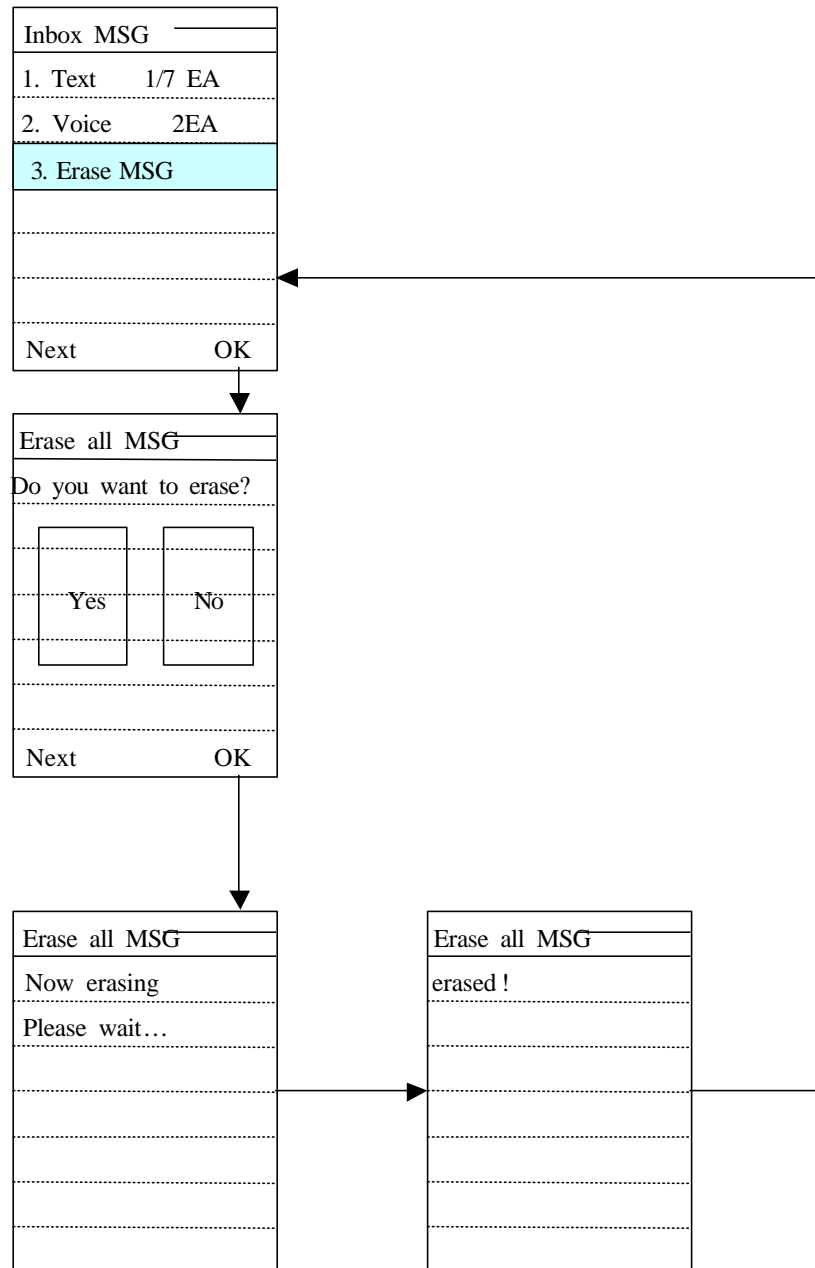
- With this function, you can check received voice messages.
- The contents is not displayed but the received date and time are.
- It is possible to check voice message through *89

Send



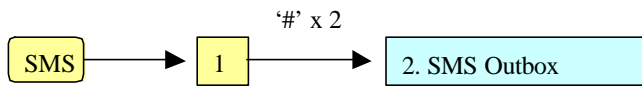
13.2.3 Erase all

- You can erase all of the short/voice messages stored in a mobile phone.



13.2 SMS Outbox

- You can send a message or page a person.
- You can compose a message yourself or send the message by calling the one that is previously stored.

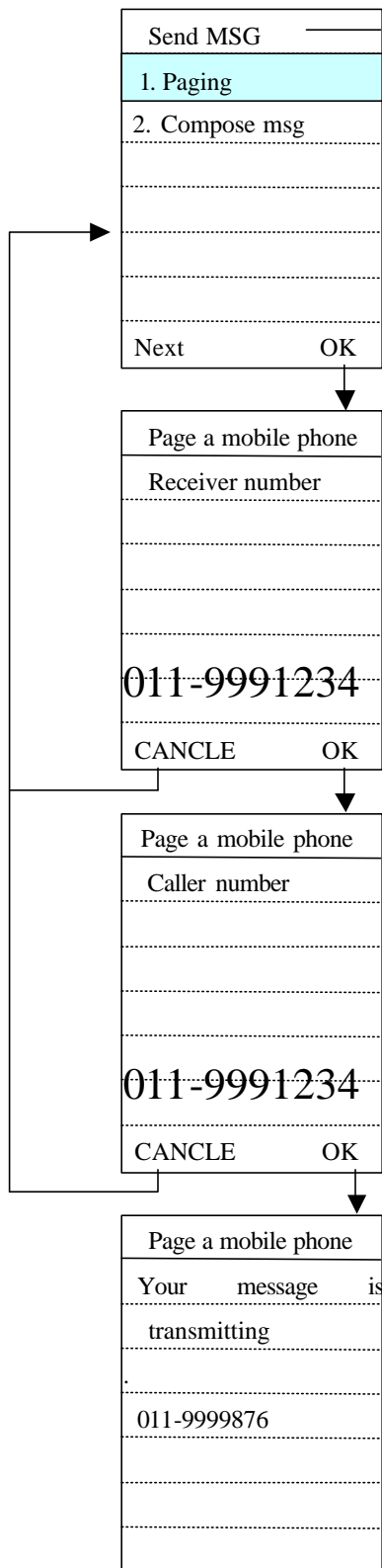


1. SMS Inbox
2. SMS Outbox
3. SMS Setup
Next
OK

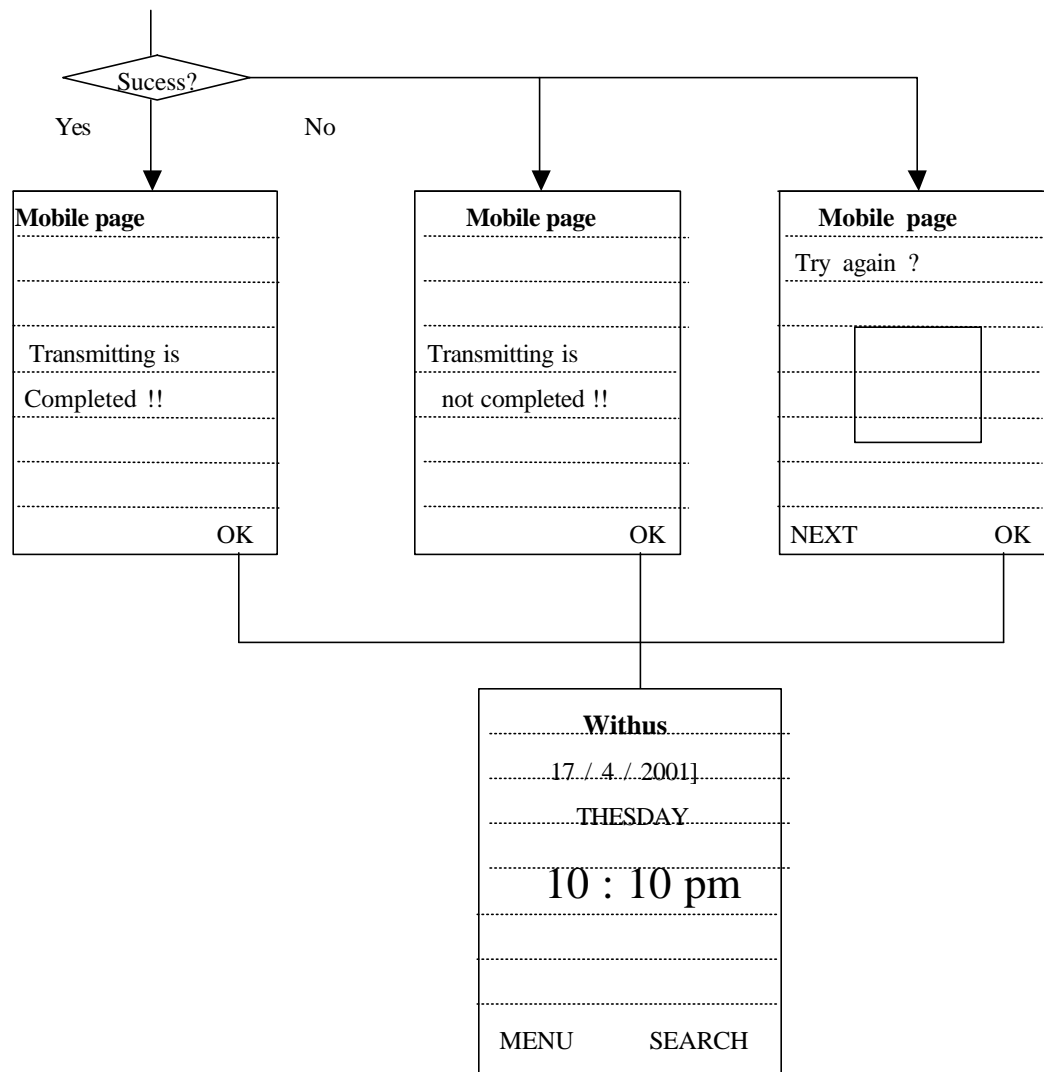
SMS Outbox
1. Paging
2. Compose Msg
Next
OK

13.2.1 Paging

- You can call a person without a message.

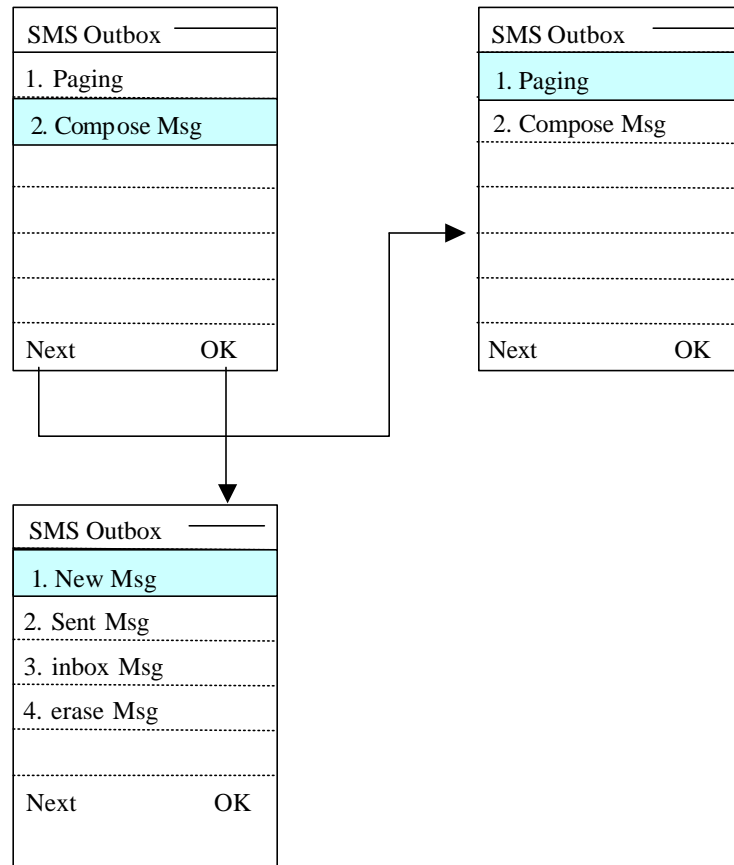


- * If you press 'OK' without a message, the message saying "input the other person's number" is displayed.
- * Upon inputting 'CANCEL' key, input number is disregarded and moves to the upper level menu.
- * Reply number is one's own number; however, it can be modified.
- * The input number can be erased one by one using "CLR" key.



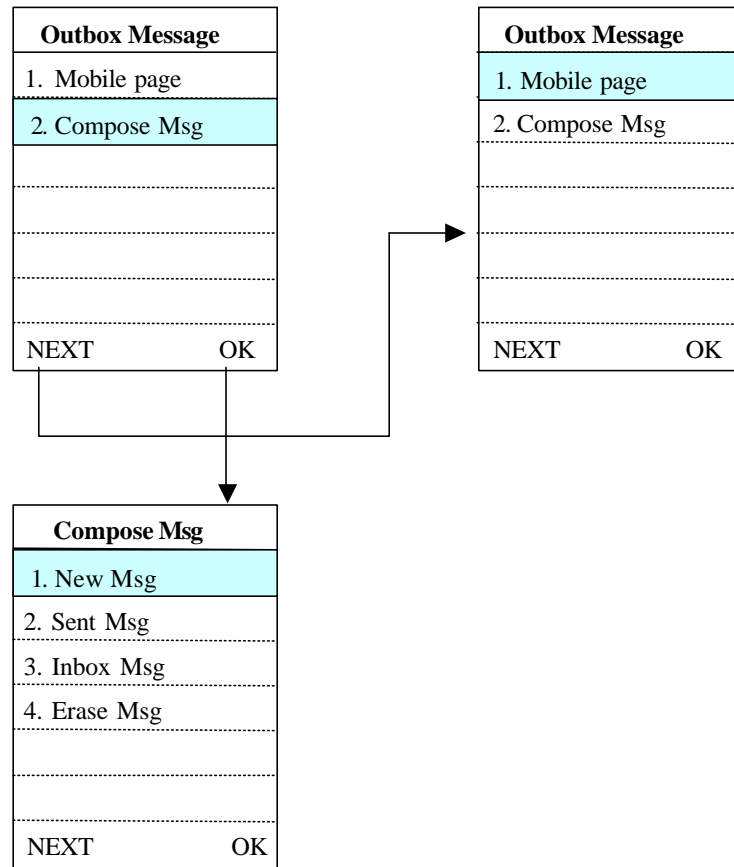
13.2.2 Messaging

- You can send a short message to a person.



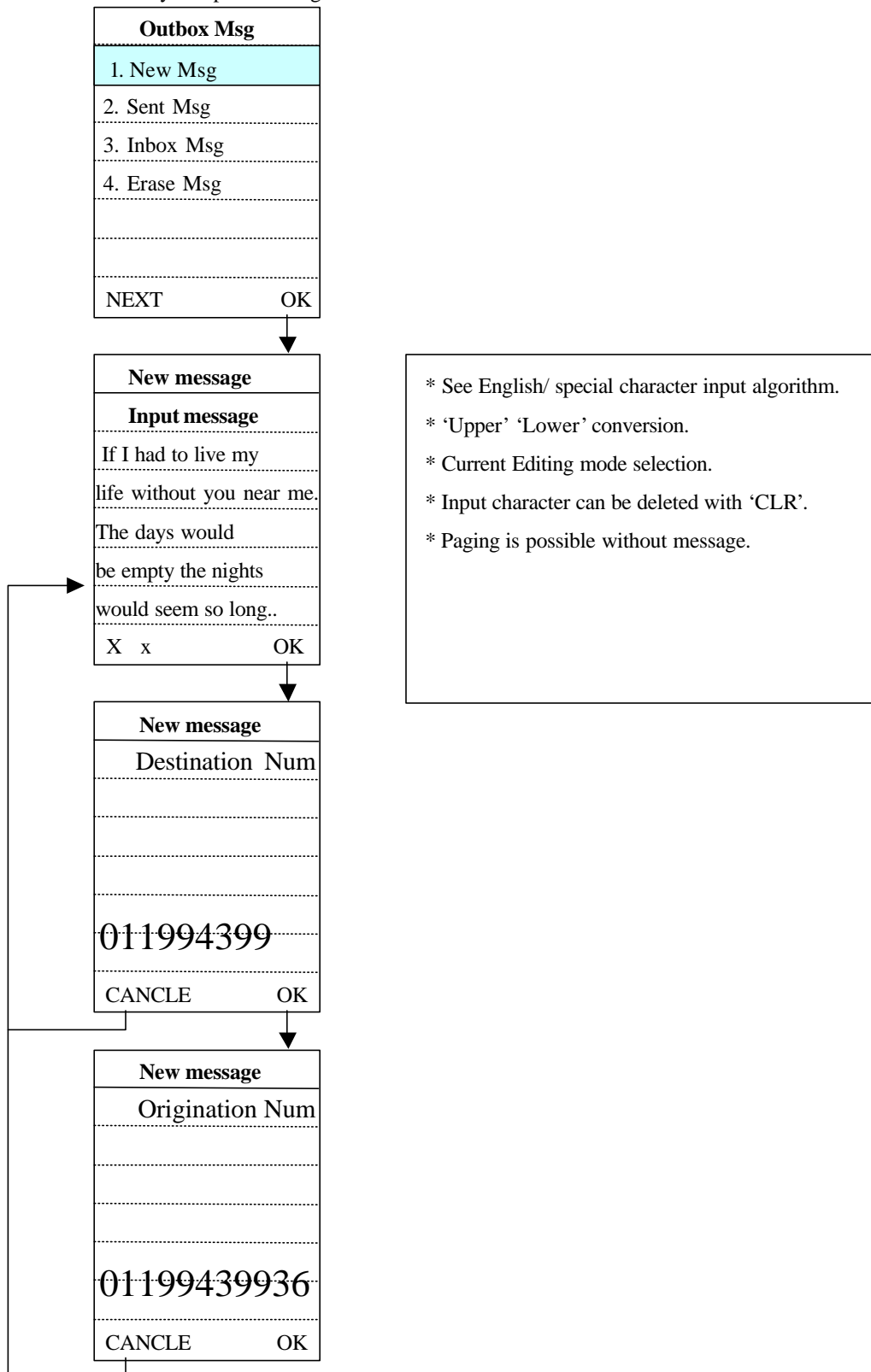
13.2.2.1 New MSG

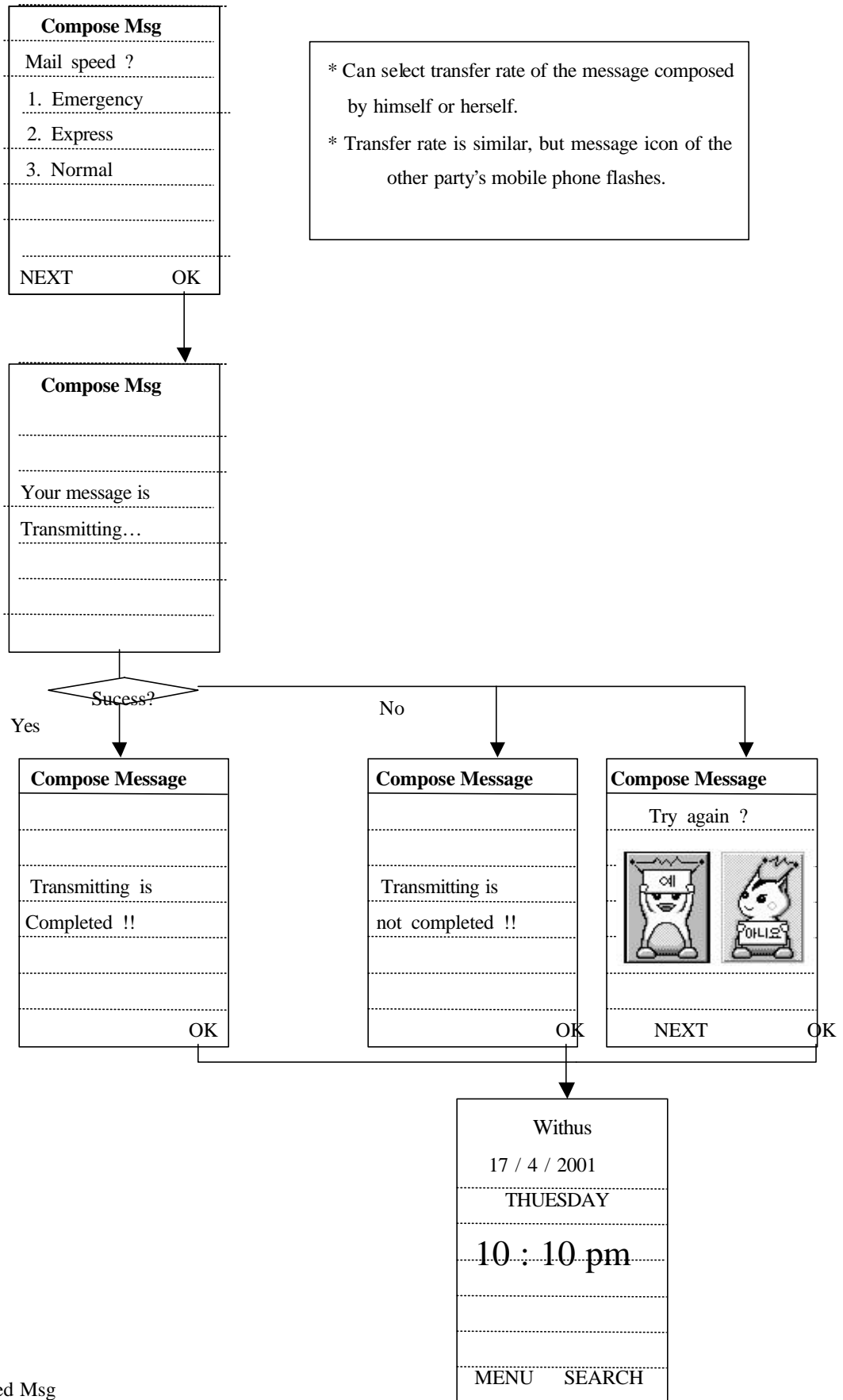
- You can mail a composed message or sent message to the other on the mobile phone.



13.2.2.1 New Message

- Can directly compose messages.

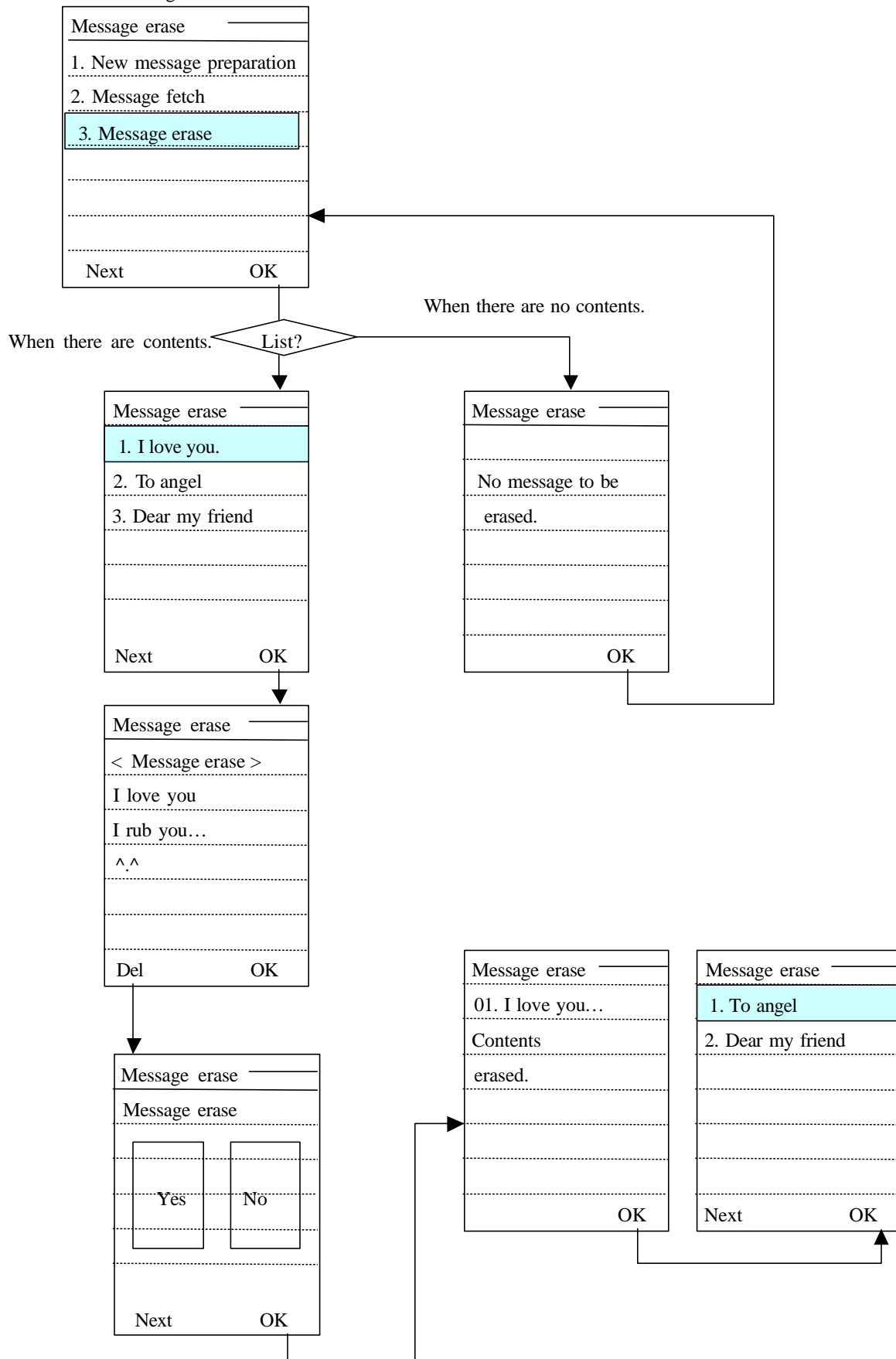




13.2.2.2 Stored Msg

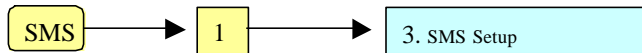
- It is allowed to fetch message prepared in advance to prepare and send message.

12.2.2.3 Message Erase



13.3 SMS Setup

- You can select how to notify the message reception to user.
- It can show the contents of received message on screen or indicate that message arrives.



13.3.1 New Msg Alert

- You can select how to notify the message reception to user.
- Options are 'Vibration + lamp', 'Notify one time', 'Notify every 2min.'

13.3.2 Display text

- Upon receiving message, it can be display part of message or all contents of message.

Safety information

1 Wireless phone safety tips

2. Consumer information on SAR (Specific Absorption Rate)

3. TIA safety information

4. FDA Consumer Update

1. Wireless Phone Safety Tips

Below are safety tips to follow while driving and using a wireless phone.

Your WCE-100 wireless telephone gives you the ability to communicate by voice virtually anywhere, anytime, where CDMA digital 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 WCE-100 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 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. If you receive an incoming call at inconvenient time 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 access 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 case of fire, traffic accident or medical emergencies.*
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.*
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.

*Wherever wireless phone service is available. 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.

2. Consumer information on SAR (Specific Absorption Rate)

THIS MODEL PHONE MEETS THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

This wireless phone has been tested and complies with the Federal Communications Commission (FCC) RF exposure limits for General Population/Uncontrolled exposure environment.

In addition, it complies with the following standards and guidelines.

- FCC 96,326, Guidelines for Evaluating the Environmental Effects of Radio Frequency Radiation.
- FCC OET Bulletin 65 Edition 97-01 (1997) Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- ANSI/IEEE C95.1 – 1992, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz.
- ANSI/IEEE C95.3 – 1992, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave.

The exposure standard for wireless mobile phones employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg.* Tests for SAR are conducted using standard operating positions specified by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before a phone model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (e.g., at the ear and worn on the body) as required by the FCC for each model.

The highest SAR value for this model phone when tested for use at the ear is _____ and when worn on the body, as described in this user guide, is _____. (Body-worn measurements differ among phone models, depending upon available accessories and FCC requirements). While there may be differences between the SAR levels of various phones and at various positions, they all meet the government requirement for safe exposure.

The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF emission guidelines. SAR information on this model phone is on file with the FCC and can be found under the Display Grant section of <http://www.fcc.gov/oet/fccid> after searching on FCC ID _____. Additional information on Specific Absorption Rates (SAR) can be found on the Cellular Telecommunications Industry Association (CTIA) web-site at <http://phonefacts.net>.

For body worn operation, to maintain compliance with FCC RF exposure guidelines, use only WITHUS approved accessories. Use of unauthorized accessories can violates the FCC RF exposure compliance requirements.

* In the United States and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kg (W/kg) averaged over one gram of tissue. The standard incorporates a substantial margin of safety to give additional protection for the public and to account for any variations in measurements.

3. TIA safety information

Provided herein is the complete TIA Safety Information for Wireless Handheld phones. Inclusion of the text covering Pacemakers, Hearing Aids, and Other Medical Devices is required in the owner's manual for CTIA Certification. Use of the remaining TIA language is encouraged when appropriate.

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 Commissions (FCC) adopted RF exposure guidelines with safety levels for hand-held wireless phones.

Those guidelines are consistent with the safety standards previously set by both U.S. and international standards bodies:

ANSI C95.1 (1992)*

NCRP Report 86 (1986)

ICNIRP (1996)

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).

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

TIPS ON EFFICIENT OPERATION:

For your phone to operate most efficiently:

- Extend your antenna fully.
- 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.

DRIVING

Check the laws and regulations on the use of wireless telephones in the areas where you drive. Always obey them.

Also, if using your phone while driving, please:

- Give full attention to driving -- driving safely is your first responsibility;
- Use hands-free 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 electronic equipment may not be shielded against the RF signals from your wireless phone.

Pacemakers

* American National Standards Institute; National Council on Radiation Protection and Measurements; International Commission on Non-Ionizing Radiation Protection

The Health Industry Manufacturers Association recommends that a minimum separation of six (6") inches 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 .
- If you have any reason to suspect that interference is taking place, turn your phone OFF immediately

Hearing Aids

Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may want to consult your service provider [or call the customer service line to discuss alternatives.] Optional for each phone manufacturer.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if they are 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

FCC regulations prohibit using your phone while in the air. Switch OFF your phone before boarding an aircraft.

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 when in any area with a potentially explosive atmosphere and obey all signs and instructions. Sparks 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 marked clearly. Potential areas may include: fueling areas (such as gasoline stations); below deck on boats; fuel or chemical transfer or storage facilities; vehicles using liquefied petroleum gas (such as propane or butane); areas where the air contains chemicals or particles (such as grain, dust, or metal powders); and any other area where you would normally be advised to turn off your vehicle engine.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. DO NOT place objects, including either 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.

4. FDA Consumer Update

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 radio frequency 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, neuroepitheliomatous 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.²

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.

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.⁴

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.⁵

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.

2 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.

3 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.

4 Preece, AW, Iwi, G, Davies-Smith, A, Wesnes, K, Butler, S, Lim, E, and Vary, A. Effect of a 915-MHz simulated mobile phone signal on cognitive function in man. Int. J. Radiat. Biol., April 8, 1999.

5 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.

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 do not demonstrate that mobile phones are harmful. But if people are concerned about the radio frequency 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 & Internet 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/>