NORTHWESTERN BELL PHONES 900MHz

FEATURE LIST

1. Model 39237 – Basic + Caller ID (Type 2)

1.1 Talk Button

1.2 Battery Low Indicator

1.3 Channel Button

1.4 Handset Volume Control Button

1.5 Temporary Tone Button

1.6 Memo Button

1.7 Pause Button

1.8 Redial Button

1.9 Flash Button

1.10 Ringer ON/OFF Switch

1.11 Headset Jack

1.12 Telephone Number Storage

1.13 Multi-Function LCD Screen

1.14 Name and No. Directory -- Stores 40 Names

1.15 Caller List – Stores 80 Calls

1.16 Preferred Calls

1.17 Blocked Calls

1.18 Handset Ringer Level

1.19 Repeat Call Indicator

1.20 Out of Area Indicator

1.21 Unknown Indicator

1.22 Call Waiting Service

1.23 Message Waiting

1.24 Handset Ringer Level

1.25 Stand By Mode

1.26 Battery Power Saver

1.27 Page Button

1.28 In Use/Charge LED Indicator

1.29 Tone or Pulse Dialing

1.30 Filtered Sound System

1.31 40 Channel Auto Scan

1.32 Automated Functions

1.33 Security Code 65,536 Combinations

1.34 Desk or Wall Mount

1.35 Dependable Battery

BELL® Phones
BY NORTHWESTERN BELL PHONES

Excursion® 39237
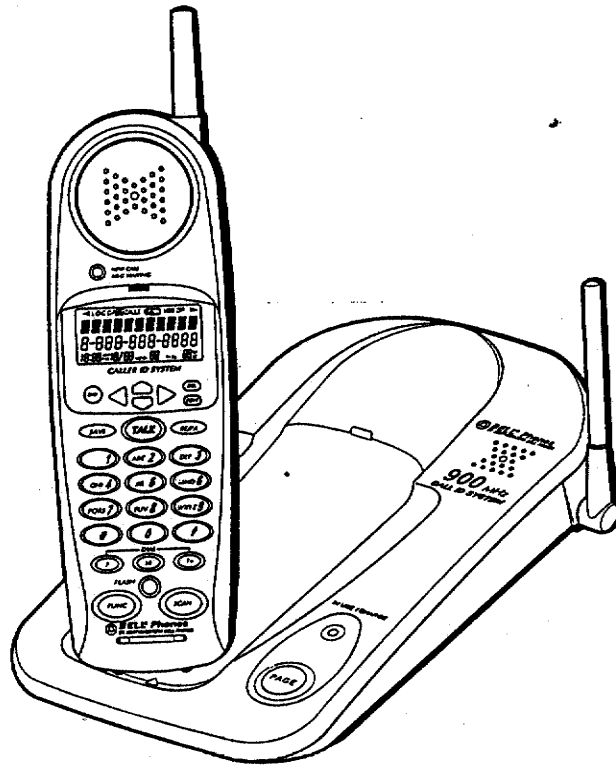
Congratulations on your selection of the Excursion® 39237 from Northwestern Bell Phones. This quality 900 MHz cordless/ caller ID telephone, like all Genuine BELL® products, has been designed to give you many years of continuous service and represents the best value for your money. It requires little maintenance and is easy to setup and operate.

OWNER'S MANUAL# 39237 ver. 09069A-1
FRONT COVER English Version

OWNER'S MANUAL # *39237* ver. 09069A-1

:1 ENGLISH VERSION

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14. Do not use the telephone to report a gas leak in the vicinity of the leak.

SAVE THESE INSTRUCTIONS

⚠ INSTALLATION PRECAUTIONS

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.

⚠ MAINTENANCE

1. Use a damp cloth to clean the plastic cabinet. A mild soap will help to remove grease or oil. Never use polish, solvents, abrasives or strong detergents since these can damage the finish.
2. Your phone should be situated away from heat sources such as radiators, heaters, stoves or any other appliance that produces heat.

BATTERY CAUTIONARY INSTRUCTION

CAUTION: To reduce the risk of fire or injury to persons, read and follow these instructions:

1. Use only the battery pack type provided with the unit.
   3.6V, 600mAh
   BYD, Model: D-AA600Bx3
   Ni-Cd Battery Pack
2. Do not dispose of the battery in a fire. The cell may explode. Check with local codes for possible special disposal instructions.

3. Do not open or mutilate the battery. Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
4. Exercise care in handling the battery in order not to short the battery with conducting material such as rings, bracelets and keys. The battery or conductor may overheat and cause burns.
5. Recharge only the battery provided with or identified for use with this product. The battery may leak corrosive electrolyte or explode if it is not the correct type.
6. Do not attempt to rejuvenate the battery provided with or identified for use with this product by heating them. Sudden release of the battery electrolyte may occur causing burns or irritation to eyes or skin.
7. When inserting the battery into this product, the proper polarity or direction must be observed. Reverse insertion of batteries can cause charging that may result in leakage or explosion.
8. Do not store this product, or the battery provided with or identified for use with this product, in high-temperature areas. Batteries that are stored in a freezer or refrigerator for the purpose of extending shelf life should be stabilized at room temperature prior to use after cold storage.
9. Disconnect telephone lines before installing batteries.

⚠ FCC NOTICE

The FCC requires that you be advised of certain requirements involving the use of this telephone.

1. This equipment complies with Part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information,

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EXCURSION® 39237 CONTROLS DIAGRAM

Handset Antenna

Handset Receiver

NEW CALL/
MSG WAITING
LED Indicator

LCD Panel

Volume Control
(LOW, MID, HI)
Slide Switch

Directory
(DIR) Button

SAVE Button

Headset Jack

TALK Button

TONE Button

7-DIGIT Button

10-DIGIT Button

Function
(FUNC) Button

Microphone

Base Unit
Charge Terminals

FLASH Button

Battery (BATT)
LOW Indicator

SCROLL UP-DOWN,
SHIFT LEFT-RIGHT
Buttons

Delete (DEL) Button

EDIT Button

Redial/Pause
(RE/PA) Button

1+ DIGIT Button

Base Unit
Antenna

Retainer Tab

IN USE/CHARGE
LED Indicator

PAGE Button

SCAN Button

TONE/PULSE
Switch

DC 9V
Jack

Telephone
Line Jack

Base Unit (Rear View)

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DESCRIPTIONS

Handset Controls:

NEW CALL/MSG WAITING LED Indicator - RED LED Blinks when there are new Caller ID call records stored in memory. GREEN LED blinks when you have new message(s) from Message Waiting (an optional service provided by your local phone company). LED indicators will turn off when you have either reviewed your call records on the unit, or if you have retrieved your message(s) from Message Waiting.

LCD Panel - Shows the Caller ID call record information and function menus.

Volume Control (LOW, MID, HI) Slide Switch - Select the receiver volume level (Low, Mid, Hi).

Directory (DIR) Button - Allows you to retrieve a memory (name and phone number) from the personal directory (up to 40 memories) and to transfer Caller ID memory to personal directory.

SAVE Button - Saves the name and number into the personal directory.

Headset Jack – For connecting your headset plug to enjoy hands-free communication.

TALK Button - Allows you to put the handset in the off-hook (TALK) and on-hook (STANDBY) modes to place or receive a call.

TONE Button - Used to temporarily change the dialing mode from Pulse to Tone when dialing in the Pulse mode. Provides tone function to access special services such as phone banking services.

7-DIGIT Button - Press and hold down to place a local call.

10-DIGIT Button - Press and hold down to place a local call with Area Code.

Function (FUNC) Button - While in STANDBY mode, this button allows you to set the handset in Function Programming mode.

FLASH Button - Momentarily hangs up the phone to access custom calling features such as Call Waiting or Three-Way Calling provided by your local phone company.

SCAN Button - While in TALK mode, it is used to manually select one of the 40 operating channels when you experience interference on the handset.

Battery (BATT) LOW Symbol – Appears on the LCD Panel when the battery power is low.

SCROLL UP-DOWN, SHIFT LEFT-RIGHT Buttons (SCROLL UP-DOWN) - Allows you to scroll through the stored list of incoming calls and function menus. (SHIFT LEFT-RIGHT) - Used for moving to the next character / digit when entering information during EDIT mode.

Delete (DEL) Button - Used to delete one or the entire Caller ID call records.

EDIT Button - While in Function Programming mode, this button allows you to change current function settings.

Redial/Pause (RE/PA) Button – (REDIAL) Allows you to automatically dial the last phone number dialed (up to 32 digits) from the handset. (PAUSE) Used to insert a pause in the dialing sequence while storing numbers in memory (for use in PABX or long distance services). Pause time is programmable and can be stored when programming a number in memory.

1+ DIGIT Button -- Press and hold down to place a long distance call. (Automatically adds the number 1 at the beginning of the displayed telephone number.)

Base Controls:

Antenna - Raise for best reception or reposition for storage purposes.

IN USE/CHARGE LED Indicator - (IN USE) - Lights solid when the handset is in the TALK mode. (CHARGE) - Lights solid when the base unit is charging the handset.

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PAGE Button - Allows you to locate the handset when it is not on the base, or to alert the person near the handset.

Base Unit Charge Terminals - Used for charging handset batteries. Clean periodically with an alcohol moistened swab.

TONE/PULSE Switch - Allows you to switch the dialing mode to either Tone or Pulse dialing.

INSTALLATION

⚠️ **CAUTION:** USE ONLY THE NICKEL CADMIUM (Ni-Cd) BATTERY TYPE INCLUDED WITH THIS UNIT. USE OF OTHER BATTERY TYPES MAY CAUSE INJURIES OR DAMAGE.

Battery Installation

1. Remove the battery compartment cover of the handset by pressing the top of the cover and sliding it down.
2. Connect the Ni-Cd battery pack plug along the slot into the handset's battery connector as shown below.
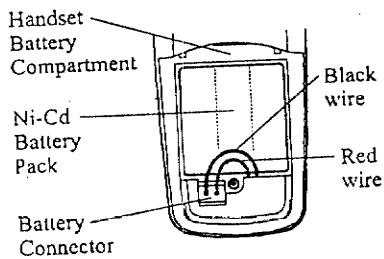
(Figure 1)

3. Insert the Ni-Cd battery pack into the battery compartment. The LCD panel will turn on in standby mode.
4. Replace the battery compartment cover by sliding it up towards the handset.

NOTE: Use the type and size of Ni-Cd battery pack, 3.6V, 600mA. It is recommended that the Ni-Cd battery pack should be fully charged overnight prior to initial use.

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Desktop Connection
Your Excursion® 39237 is equipped with a unique design of Mounting Bracket which can hold your phone at an angle of 38° and 58° when desk mounting.

1. Normal Position (Mounting Bracket not required)
   For normal position, as shown in figure 2, place the base unit on any desired but suitable location.
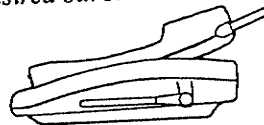
(Figure 2)

2. *38° Position (See figure 3)*
   With the back of the base unit facing up, insert the hooks of the Mounting bracket (marked "38° DESK MOUNT") into the matching slots of the base unit. Then slide the Mounting bracket into place as indicated by the arrow.
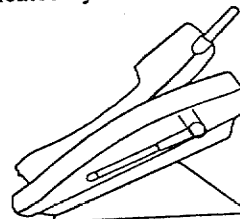
(Figure 3)

3. *58° Position (See figure 4)*
   With the back of the base unit facing up, insert the hooks of the Mounting bracket (marked "58° DESK MOUNT") into the matching slots of the base unit. Then slide the Mounting bracket into place as indicated by the arrow.
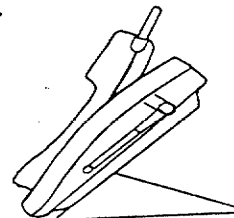
(Figure 4)

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Wall Mounting (With a standard AT&T or GTE modular wall jack)

You may choose to install the Telephone base unit onto a wall.

Wall Mounting (Standard Wall Jack)

1. Connect the short telephone line cord to the telephone line jack on the rear of the base unit.
2. Route the short line cord into the groove on the back of the base unit.
3. With the rear of the base unit facing up, insert the flange of the wall mounting bracket into the bottom slots on the back of the unit and push the wall mount bracket until it locks into place.
4. Plug the free end into the wall modular jack.
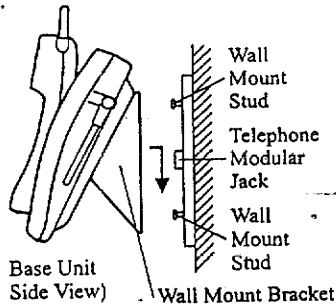
(Figure 5)

Wall Mounting (No Standard Wall Jack)

1. Drill two holes with a vertical distance between the two marked positions of 3 15/16" (100mm) as shown in figure 6.
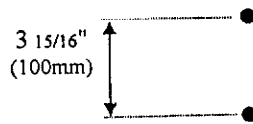
(Figure 6)

2. Drive a screw into each of the holes. Tighten them to the end of the screw lines, only leaving the smooth part of the screw head outside the wall.
3. Insert the hooks of the wall mount bracket into the matching slots at the bottom of the base unit then slide them upwards until they lock into place.

4. Hang the unit onto the screws, then slide it down firmly to fasten the base securely, as shown in figure 7.
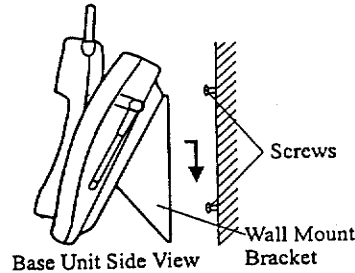
(Figure 7)

Handset Retainer Tab

If the base unit is to be placed in the wall mount position, the retainer tab allows the handset to hang onto the base unit. Your handset has been designed with two retainer slot position that would allow you to hang your handset facing either up or down on the base unit.

POWER CONNECTION

⚠ **CAUTION:** You must use a Class II, 120 Volt AC / 9 Volt DC adaptor that delivers at least 300 mA. The center tip must be positive and the plug must correctly fit the unit's DC 9V jack.

1. Plug the AC adaptor into a standard AC outlet.
2. Insert the small plug into the DC 9V jack on the rear of the base unit as shown in figure 8.

(Figure 8)

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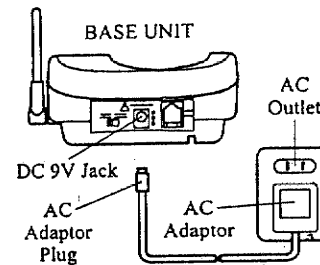
2. Listen for a dial tone.
3. Dial the phone number.
4. When you have finished your call, press the TALK button or place the handset on the base unit.

OR

1. Dial the phone number.
2. Press and hold down the 7 DIGIT button or 10 DIGIT button or 1+ DIGIT button.

NOTE: If you cannot get a dial tone, check your telephone line cord connection and power connection. Refer to the troubleshooting section of this manual for more solutions.

Extension Phones
Extension telephones can be connected. When an extension telephone is being used, the base unit IN USE/CHARGE LED indicator will start to blink and the handset LCD screen will display, "*EXT IN-USE.*"

To Receive a Call
If the Ring Mode is set to HI or LOW and you receive an incoming call, the handset will ring and the LCD panel will display "*RINGING...*" when you are receiving an incoming call.

If the handset is on the base or out of the base:
- Simply pick up the handset and review caller ID information, press the TALK button on the handset and start conversation with the caller.

NOTES:
- You can also program to turn the ringer OFF, as described in Function ④ of the "FUNCTION PROGRAMMING Section" of this manual.
- No auto Turn On feature.

To End a Call
Since the unit features "Auto-Standby," simply return the handset to the base unit to hang up. You can also press the TALK button to hang up if you are away from the base unit.

Last Number Redial
If you get a busy signal, you can use the Redial (RE/PA) button to automatically dial the last phone number dialed (up to 32 digits)
1. Pick up the handset and press the TALK button.
2. Listen for a dial tone.
3. Press the RE/PA button to automatically dial the last phone number you dialed.

Flash Function
While in TALK mode, use the FLASH button to access custom calling features such as Call Waiting or Three-Way Calling provided by your local phone company. Consult your local phone company for more details.

Pause Function
In some cases, such as PABX or long distance service, a pause may be needed in the dialing sequence. Pressing the Pause (RE/PA) button on the handset inserts a few seconds of delay between dialed numbers. Pause(s) can be inserted into the programmed dialing sequence in memory dialing. See the "FUNCTION PROGRAMMING Section" to edit the time delay for the Pause time setting.

Mixed Mode Dialing (Temporary Pulse to Tone Dialing)
If you only have pulse dialing available in your area, accessing special services (bank by phone, etc.) require a tone signal. Ensure that your TONE/PULSE switch is set to PULSE. While in TALK mode, press the TONE (*) button to switch from Pulse to Tone dialing temporarily. Pulse dialing mode resumes when the call is ended.

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Channel Selection (40 Channels)
Channel Scan (Auto-Scan)
- If you are receiving a call or dialing out and TALK button is pressed, the unit auto-scans for the best channel available.
- The current channel number will be displayed on the lower right-hand corner of the LCD panel while "WAITING" is on display.

```
WAITING          ── Channel
              40     Number
```
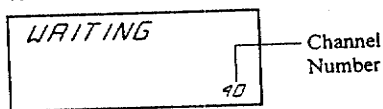
Channel Scan (Manual)
- If the existing channel becomes noisy or starts having interference, press the SCAN button on the handset. The unit will automatically scan for the best channel available.
- The current channel number will be temporarily flashed on the lower right-hand corner of the LCD panel while in TALK mode then the call timer will continue to count.

```
TALKING...        ── Channel Number
                     will flash then the
                     call timer will
         00   05     continue to count.
```
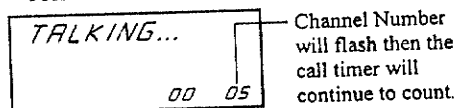
NOTE: It takes about 2 seconds for the unit to scan to the next clear channel.

PAGE Function
If you have misplaced the handset or need to alert the person nearby the handset, press the PAGE button on the base unit. First press of this button will activate the handset to beep continuously for 50 seconds, provided that the handset is on standby mode and located within transmitting range. The handset LCD panel will display "PAGING..." while it is being paged by the base unit. Pressing this button the second time will terminate the beep sound.

65,536 Combination Security Coding
The telephone use a digital coding security system to prevent unauthorized use of your telephone line by other cordless phones

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nearby. The unit has 65,536 possible security code combinations. Each combination of the code is randomly generated every time the handset is picked up.

Resetting Security Code and Channel
Communication between the handset and the base unit may not be possible in any of the following situations:
1. After a power failure.
2. After relocating the base unit by disconnecting the AC adaptor.
3. The handset goes out of range from the base unit.

To reset, place the handset on the cradle of the base unit for five seconds.

CALLER ID OPERATION
This telephone automatically displays incoming caller's name and telephone number together with the date and time of the call. It records up to 80 calls and stores the data in Memory.

IMPORTANT: *Subscription to Caller ID (CID) service from your local phone company is required for using the Caller ID features of the unit. Other optional services such as Message Waiting and Caller ID Call Waiting can be ordered from your local phone company.*

Receiving Caller ID Information
Between the first and second ring, the LCD panel will display the Caller ID information such as name (if available), phone number (if available), date and time of call.

NOTE: The Caller ID information will not be displayed if you pick up the phone before the second ring.

Viewing Caller Information during Incoming Calls
1. When there is an incoming call, the name and the telephone number of the caller will automatically appear after the second ring. Press the SHIFT

14

RIGHT button to view a name of more than 11 digits.

```
 THOMPSON SM ►   ►
                 →
   555-555-5555   ←
 12:00 pm 7/19 NEW 1  ◄
```

```
 ►  ◄ SMITH            ⎯ Number of
 →     555-555-5555      new calls
 ←                       recorded
 ◄   12:00 pm 7/19 NEW 1
```

Time ⎯⎯⎯⎯⎯ Month/Date

OR

Caller's telephone number will appear if the caller's name is not available.

OR

"*OUT OF AREA* " will appear if the origin of the incoming call does not support the Caller ID system.

e.g.

```
 OUT OF AREA
 0--- --- ----
 12:00 pm 7/19  NEW 1 TOTAL 20
```
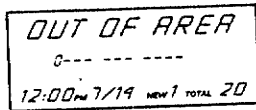
OR

"*UNKNOWN* " will appear if the origin of the incoming call has no name and does not support the Caller ID system.

e.g.

```
 UNKNOWN ⎯⎯⎯⎯ Unknown
 U--- --- ----    name
                  U is Out
 12:00 pm 7/19 NEW 1 TOTAL 20  of Area
```
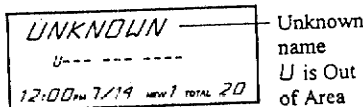
OR

"*PRIVATE* " and/or "*P-- --- --- --* " will appear if the caller's name and/or telephone number is blocked.

OR

"*EXT IN USE* " will appear when an extension phone is being used

OR

"*DATA ERROR* " will appear if the wrong data was received from the telephone line.

OR

The name stored in the DIRECTORY will appear for an incoming call with matching telephone numbers.

"MSG WAITING " (Message Waiting)
The MSG WAITING GREEN LED indicator will blink when there is a message for you from your telephone company if you have subscribed to Voice Mail message service and if you have requested Visual Message Indication from your local telephone company. "MSG WAITING" will appear on the LCD Screen in STANDBY mode. (To remove the MESSAGE WAITING indicator, see page 21 for detail.)

Call Waiting
When you subscribe to Call Waiting service from your local telephone company, this telephone will display the name and number of the second caller while you are having a conversation.

1. When you are having a conversation, this telephone will automatically display the name and number of the second caller.
2. Press the FLASH button to answer the second caller. The first caller's name and number will be displayed.
·3. When you have finished, press the FLASH button to continue with your conversation with the first caller.

"Call-FWD" (Forwarded Call)
Appears on the upper left-hand side, when the incoming call has been assigned to your telephone number.

"L-D-C" (Long Distance)
Appears on the upper left-hand side, when the incoming call is a long distance call and the service is provided by your local telephone company.

Caller List
Records call information for up to 80 incoming calls such as caller's name and telephone number together with the date and time of the call. After recording a new incoming call, the NEW CALL RED LED indicator will blink and the display will look as shown below:

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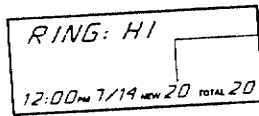
```
 ┌──────────────┐
 │ RING: HI     ├──┐      No. of new
 │              │  │      calls.
 │12:00pm 7/14 new20 total20│      Maximum
 └──────────────┘         calls = 80
```

Viewing the Caller List

1. Press the SCROLL DOWN button to view the latest record, or press the SCROLL UP button to view the first record, press the SHIFT RIGHT button if the name has more than 11 digits.
2. Press the Directory (DIR) button to go back to standby mode. (If no active buttons are pressed for 10 seconds or you have viewed the last record in the Caller's List, the LCD Screen will automatically return to STANDBY mode.)

Placing a Call from the Caller List

1. Press the SCROLL DOWN button to select from the latest record, or press the SCROLL UP button to select from the first record.
2. Press and hold down the 7-DIGIT button for local call, or the 10-DIGIT button for local call with area code, or the 1+ button for a long distance call.
3. To end your conversation, either press the TALK button or place the handset on the base unit.
4. To place a call from the Caller's List in TALK mode, press the TALK button, then follow steps 1 to 3.

NOTE: You can edit the number before dialing, but you cannot SAVE any changes in the Caller List.

Editing the Caller List before Dialing

1. Press the SCROLL UP or DOWN button to find the caller.
2. Press the EDIT button.
3. Move the cursor by pressing the SHIFT LEFT or RIGHT button to the digit you want to change. To erase digits, press the DELETE button. To add digits, use the TELEPHONE KEYPAD (0~9) buttons.

4. Press and hold down the 7-DIGIT button for local call, or the 10-DIGIT button for local call with area code, or the 1+ button for a long distance call.
5. To end your conversation, either press the TALK button or place the handset on the base unit.

NOTE: The name of the caller and time called cannot be edited.

Saving the Name and Number in the Caller List into the DIRECTORY

1. Press the SCROLL UP or DOWN button to find the caller.
2. Press and hold down the SAVE button.

NOTE: It is not advisable to save a telephone number without the corresponding name. This will lead to improper display on Private and Out of Area calls.

Deleting All Records in the Caller List

1. Press and hold down the DELETE button at the STANDBY mode.

```
 ┌──────────────┐
 │ ALL DELETE   │
 │              │
 │12:00pm 7/14 new0 total0│
 └──────────────┘
```
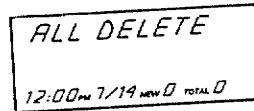
2. The LCD Screen will automatically return to STANDBY mode.

Selective Deleting in the Caller List

1. Press the SCROLL UP or DOWN button to find the caller at STANDBY mode.
2. Press and hold down the DELETE button, then the LCD Screen will display the next item in the directory.

```
 ┌──────────────┐
 │ DELETE    ←  │
 │              │
 │12:00pm 7/14  2│
 └──────────────┘
```
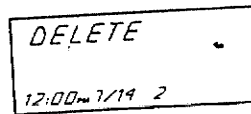
3. Press the Directory (DIR) button to return to STANDBY mode.

```
PBX MODE
       OFF
    • 7 TOTAL 9
```
KEYPAD Button # 7

```
PAUSE TIME
         4
     • 8 TOTAL 9
```
KEYPAD Button # 8
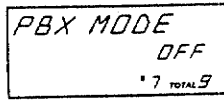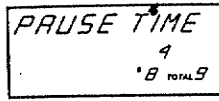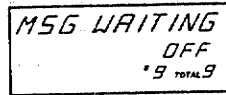
```
MSG WAITING
        OFF
     • 9 TOTAL 9
```
KEYPAD Button # 9

Function ①: *Setting the LANGUAGE*

This telephone offers English (default), Spanish, French languages for your convenience.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display *"FUNCTIONS."*
2. Press the KEYPAD # 1 button. The LCD will show *"ENGLISH"*. This is the default setting.
3. Press the EDIT button. The LCD will flash *"ENGLISH."*
4. Press the SCROLL UP or DOWN button to select the language you desire.
5. To set the desired language, press and hold the SAVE button for about two seconds.
6. After the language is set, press the Function (FUNC) button to return to standby mode.

Function ②: *Setting SILENT ON/OFF*

This telephone will generate the first ring sound even in the BLOCKED CALL mode to indicate that you have an incoming call. To keep silent in BLOCKED CALL mode, you can turn off the first ring sound.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display *"FUNCTIONS."*
2. Press the KEYPAD # 2. The LCD will show *"SILENT"*
3. Press the EDIT button. The LCD will flash *"OFF."* The default setting is OFF.

4. Press the SCROLL UP or DOWN button.
5. To save the desired mode, press and hold the SAVE button for about two seconds.
6. Press the Function (FUNC) button to return to standby mode.

Function ③: *Setting TIME & DATE*

Although the LCD time and date are automatically set when the first Caller ID call is received, you can change the time and date as follows:

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display *"FUNCTIONS."*
2. Press KEYPAD # 3. The LCD will show *"TIME SET."*
3. Press the EDIT button. The LCD will flash the digit to be changed.
4. Press one of the number keys 0 to 9 to select the desired digit.
5. To select AM or PM, press KEYPAD # 1 for AM and KEYPAD # 2 for PM when the LCD is blinking AM / PM.
6. If you make a mistake while entering the date and time, press the EDIT button twice to start over.
7. After the time and date is set, press the Function (FUNC) button to return to standby mode.

Function ④: *Setting the RINGER VOLUME (HI, LOW, OFF)*

This function enables you to adjust the ringer volume from HI, LOW and OFF as desired.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display *"FUNCTIONS."*
2. Press KEYPAD # 4. The LCD will show *"RING: HI."* The default setting is HI.
3. Press the EDIT button. The LCD will flash the current ringer volume setting.
4. Press the SCROLL UP or DOWN button to select the desired ringer volume setting (HI, LOW, OFF)

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5. To save the desired ringer volume setting, press and hold the SAVE button for about two seconds.
6. After the ringer volume is set, press the Function (FUNC) button to return to standby mode.

Function ⑤: *Setting the LCD CONTRAST*

This unit enables you to select 8 brightness levels for the Large LCD screen

1. Press the function (FUNC) button while in standby mode. The LCD panel will display "*FUNCTIONS.*"
2. Press KEYPAD # 5. The LCD will show "*CONTRAST.*" The default setting is 4.
3. Press the EDIT button. The LCD will flash the current contrast number setting.
4. Press the SCROLL UP or DOWN button to select the desired contrast level (1 to 8).
5. Press and hold the SAVE button for about two seconds.
6. After the contrast is set, press the Function (FUNC) button to return to standby mode.

Function ⑥: *Setting PBX NUMBER*

This unit enables you to preset the PBX number (such as an 8 or 9) while you are using a switchboard system.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display "*FUNCTIONS.*"
2. Press KEYPAD # 6. The LCD will show "*PBX NO.*" and the current one-digit PBX number setting. The default setting is 9.
3. Press the EDIT button. The LCD will flash the current PBX number setting.
4. Press the SCROLL UP or DOWN button to select the desired PBX number (0-9).
5. Press and hold the SAVE button for about two seconds.

6. After the PBX number is set, press the Function (FUNC) button to return to standby mode.

Function ⑦: *Setting PBX ON/OFF*

This unit enables you to turn ON/OFF the PBX system depending on the telephone system you are using.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display "*FUNCTIONS.*"
2. Press KEYPAD # 7. The LCD will show "*PBX MODE*" and the current PBX mode setting (ON/OFF). The default setting is OFF.
3. Press the EDIT button. The LCD will flash the current PBX setting.
4. Press the SCROLL UP or DOWN button to select PBX ON or PBX OFF mode.
5. Press and hold the SAVE button for about two seconds.
6. After the PBX mode is set, press the Function (FUNC) button to return to standby mode.

Function ⑧: *Setting PAUSE TIME*

This unit enables you to adjust the pause time when placing a call using a switchboard system or dialing long distance calls.

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display "*FUNCTIONS.*"
2. Press KEYPAD # 8. The LCD will show "*PAUSE TIME*" and the current pause time (in seconds). The default time is 4 seconds.
3. Press the EDIT button. The LCD will flash the current pause time setting.
4. Press the SCROLL UP or DOWN button to select the desired pause time.
5. Press and hold the SAVE button for about two seconds.
6. After the pause time setting is saved, press the Function (FUNC) button to return to standby mode.

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Function ⑨: *Setting MSG WAITING (Message Waiting)*

The unit's Message Waiting setting is defaulted to "OFF". Message Waiting will turn on automatically only when your local phone company sends you the signal provided that this optional service is available in your area.

Your local phone company will send you a Message Waiting OFF signal after you have finished retrieving your messages from your voice mail. The Message Waiting On signal will be turned off automatically. In an unlikely event the Message Waiting On signal fails to turn off due to data capturing error, simply follow the procedures below to turn it off:

1. Press the Function (FUNC) button while in standby mode. The LCD panel will display *"FUNCTION."*
2. Press KEYPAD # 9. The LCD will show *"MSG WAITING"* and the current Message Waiting status (On or Off).
3. Press the EDIT button. The LCD will flash the current Message Waiting status.
4. Press the SCROLL UP or DOWN button to turn off the Message Waiting signal.
5. Press and hold the SAVE button for about two seconds.
6. After the Message Waiting mode is set, press the Function (FUNC) button to return to standby mode.

TECHNICAL INFORMATION

This cordless phone uses radio frequencies to allow mobility. There are certain difficulties in using radio frequencies with a cordless telephone. While these are normal, the following could affect the operation of your system.

Noise: Electric pulse noise is present in most homes at one time or another. This noise is most intense during electrical storms. Certain kinds of electric equipment such as light dimmers, fluorescent bulbs, motors, and fans also generate noise pulses. Because radio frequencies are susceptible to these noise pulses, you may occasionally hear them in your handset. Generally they are a minor annoyance and should not be interpreted as a defect in your system.

Range: Because radio frequencies are used, location of the base unit can affect operating range. Try several locations in your home or business and pick the one that gives you the clearest signal.

Interference: Some electronic devices operate in and/or generate interference near the operating frequencies of your cordless telephone. While several protection circuits are used to prevent unwanted signals, there may be periods when these unwanted signals cause interference. If interference occurs frequently, it can be minimized or eliminated by lowering the height of your base antenna or by relocating the base unit. You can check for interference before selecting the final base unit location by plugging in the phone.

Improving Cordless Reception
Follow these guidelines to improve cordless sound quality:
- Select an area to install the unit where it is closest to the center of your home or office. This will improve the operating range of the unit.
- Keep the base unit away from electrical equipment. Radio Frequency Interference (RFI) is sometimes generated by these appliances, which can cause a degradation in cordless reception.
- Keep the handset batteries charged as much as possible. Weak handset batteries can limit the range of cordless operation.

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CHARACTER ENTRY TABLE

If you are assigning names for stored phone numbers into memory, please follow the table below to determine the equivalent keypad keystrokes are needed for a certain character. Please refer to "Storing Phone Numbers into Memory" on how to store phone numbers.

KEYPAD BUTTON	CHARACTERS							
①	(space)	&	'	(	)	*	.	1
②	A	B	C	2				
③	D	E	F	3				
④	G	H	I	4				
⑤	J	K	L	5				
⑥	M	N	O	6				
⑦ .	P	Q	R	S	7			
⑧	T	U	V	8				
⑨	W	X	Y	Z	9			
⓪	0							
#	#							
*	*							

HOW TO USE THIS TABLE

1. Select the appropriate character to be entered from the CHARACTERS columns.
2. Find the corresponding KEYPAD BUTTON located on the same row.
3. Press the corresponding KEYPAD BUTTON several times (depending on which column where the selected character is located). For example: if the letter "C" was chosen, press KEYPAD # 2 three times until "C" appears on the LCD panel.

EXAMPLE:

If you want to enter "12 ACME &CO.", then the following keystrokes will be needed:

Character	Keypress Needed
1	Press ① eight times, then press the → key to shift right.
2	Press ② four times, then press the → key to shift right.
(space)	Press ① one time, then press the → key to shift right.
A	Press ② one time, then press the → key to shift right.
C	Press ② three times, then press the → key to shift right.
M	Press ⑥ one time, then press the → key to shift right.
E	Press ③ two times, then press the → key to shift right.
&	Press ① two times, then press the → key to shift right.
C	Press ② three times, then press the → key to shift right.
O	Press ⑥ three times, then press the → key to shift right.
.	Press ① seven times, then press the → key to shift right.

TROUBLESHOOTING

| TELEPHONE UNIT TROUBLESHOOTING TABLE ||
SYMPTOM	SOLUTION
No dial tone	• Check for the telephone line cord connectors at both ends that they are pushed in firmly until they click. • If you had a power failure or had unplugged the base unit, return the handset on the base unit for two to five seconds to reset the system.
Does not ring	• Check to see if the programmable ringer volume is set to OFF. Refer to the "Function ④: Setting Ringer Volume" section of the manual. • You may have exceeded the Ringer Equivalence Number (REN) limit of how many phones can be connected to the same line. The REN total of all devices (printed on the bottom label of each unit) should not exceed five (5). Disconnect the appropriate units to lower the REN total. • Check to see if you have programmed a number to be a blocked call. Refer to the "BLOCKED CALLS" section of the manual.
No power on the handset unit	• Check for the Ni-Cd battery pack connection inside the battery compartment on the handset. • The handset rechargeable Ni-Cd battery pack may need charging.
Does not charge	• Make sure the charging contacts on both the base unit and the handset is in contact during charging. • The charging contacts may need cleaning with an alcohol-moistened cloth.
Range is limited	• Raise or reposition the antenna on the base unit. • Move the base unit so that it is centrally located in your residence or office and make sure that the base unit is not located near appliances. • Refer to the "Technical Information" section regarding range.
Calls received flutters or fades	• The handset rechargeable Ni-Cd battery pack may need charging.
Interference on reception	• Choose an alternate channel using the SCAN button on the handset.

CALLER ID SYSTEM TROUBLESHOOTING TABLE

SYMPTOM	SOLUTION
The Caller ID LCD panel is blank	• Check the power connections. • Check the telephone line cord connections. • Check the batteries for proper installation. • The handset LCD panel will only start displaying information after the first call is received.
The Caller ID LCD panel does not show the caller's name and/or phone number	• The Caller ID unit will not function until you have Caller ID service provided by your local phone company. Call your local phone company to have Caller ID installed on your telephone line. • Check your telephone line connections. Make sure all connections are secure and connected. • If you have a telephone answering device (TAD) connected with the unit, set the TAD to answer after two rings or more. • If it is a blocked call or an out-of-area call, the caller's name and/or phone number will not appear on the display. Please refer to the "Receiving Caller ID Information" section for more details. • If only the caller's phone number appears on the display, it may be a Single Data Message Format (SDMF) call, as opposed to a Multiple Data Message Format (MDMF) call.
Random characters and/or "NO DATA SENT" appear on the LCD panel.	• On rare occasions, the Caller ID information sent by the telephone company may have an error in the transmission. This is not the fault of your Caller ID unit. It can only capture and store the data that was received.
Cannot erase call records in memory	• The Delete (DEL) button must be pressed and held for at least two seconds to erase a single call record. To erase all call records, press and hold the Delete (DEL) button for at least five seconds.
Cannot get Call Waiting identification on the LCD panel.	• Subscription to Caller ID Call Waiting (CIDCW) is required from your local phone company for the CIDCW function to operate properly. Call your local phone company for details.

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Test Mode Procedure for Model 39237

Note: The default test mode channel frequency is CH20 for both the Base Unit (B/U) and the Handset (H/S). Refer to the Frequency Table for proper frequency allocations.

Base

Basic Test Mode:

Insert the 9Vdc plug into the B/U DC jack while pressing the "Page" key. Both RX and TX will be activated and basic testing can be done. Press the "Page" key to scan the channel frequency one at a time.

Handset:

Insert the battery into the H/S battery socket while pressing the "*" key. Press "*" key to scan the channel frequency one at a time.

TALK MODE

CONDITION 4 : Multi channel on the Base TX and Handset TX frequency are occupied.

Ex. CH 1: 926.250 MHz   CH 4 : 926.362 MHz   CH 36: 927.562 MHz   CH 39: 927.675 MHz
CH 2: 926.287 MHz   CH 5 : 926.400 MHz   CH 37: 927.600 MHz   CH 40: 927.712 MHz
CH 3: 926.325 MHz   CH 38: 927.637 MHz

CH 3: 926.325 MHz - Stored channel during the last link in handset memory

HANDSET

BASE

(START)

(START)

Activate Talk Mode

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
ex. 926.325MHz -Starts scanning here
CH1 CH2 CH3 ... CH5 ... ... CH40
|—50ms
X   X   X   X   X   X : Occupied Channel

RECEIVER SCAN FOR FREE CHANNEL

X X X X X
CH1 ...   .CH21 ... ... CH40
|—25ms   X : Occupied channel
Stores all free channel into its memory.

TRANSMIT TALK DATA AND FREE CHANNEL
DATA WHICH IS 903.712 MHz
It would continue sending data until it would
receive the acknowledgement code from base.
This would take <4 seconds and it would stop the
process, user must activate talk again.

927.712 MHz(CH40)

Note:
If the RF level of the
occupying device is
stronger, the base
could not recognize
the data transmitted.
Then it will not link.

RECEIVER RECEIVE DATA FROM HANDSET
It would temporarily use 927.712 MHz(CH40)for the
receive frequency. It would choose any free chan-
nel nearest to the current channel (927.712 MHz)
which is stored in its memory. Ex. 926.962 MHz

RECEIVE DATA FROM BASE. DATA INCLUDES
ACKNOWLEDGEMENT CODE AND CHANNEL
DATA WHICH IS 926.962 MHz (CH20).

903.712 MHz(CH40)

SEND ACKNOWLEDGEMENT AND CHANNEL
DATA USING 903.712 MHz (CH 40)
Channel data is 926.962 MHz (CH20)

Since it has receive data from base within the
specified time of 4 seconds, it would stop sending
data and changes its TX frequency to 926.962 MHz
(CH20).

It would change the receiver frequency base from
the selected stored channel, 926.962 MHz CH20.

IT WOULD THEN LINK WITH BASE

RX Frequency : 902.962 MHz (CH20)
TX Frequency : 926.962 MHz (CH20)

902.962 MHz(CH20)

927.962 MHz(CH40)

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 902.962 MHz (CH20)
RX Frequency : 926.962 MHz (CH20)

(END)

(END)

TALK MODE

CONDITION 3 : Multi channel on the Handset TX frequency are occupied.
Ex. CH 1: 926.250 MHz   CH 4 : 926.362 MHz
     CH 2: 926.287 MHz   CH 5 : 926.400 MHz
     CH 3: 926.325 MHz

CH 3: 926.287 MHz - Stored channel during the last link in handset memory

HANDSET   **BASE**

(START)   (START)

Activate Talk Mode

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
ex.902.325 MHz - Starts scanning here
CH1 CH2 CH3 ... CH5 ... ... CH40
|←→| 50ms

RECEIVER SCAN FOR FREE CHANNEL

X   X   X   X   X   X : Occupied Channel
CH1 CH2 CH3 ... CH5 ... ... CH40
|←→| 25ms
Stores all free channel into its memory.

TRANSMIT TALK DATA AND FREE CHANNEL DATA WHICH IS 902.325 MHz
It would continue sending data until it would receive the acknowledgement code from base. This would take <4 seconds and it would stop the process, user must activate talk again.

926.325 MHz (CH3)
Note:
if the RF level of the occupying device is stronger, the base could not recognize the data transmitted. Then it will not link.

RECEIVER RECEIVE DATA FROM HANDSET
It would temporarily use 926.325MHz (CH3) for the receive frequency. It would choose any free channel nearest to the current channel (926.325 MHz) which is stored in its memory. Ex. 927.712 MHz

RECEIVE DATA FROM BASE. DATA INCLUDES ACKNOWLEDGEMENT CODE AND CHANNEL DATA WHICH IS 927.712 MHz (CH40).

902.325 MHz (CH3)

SEND ACKNOWLEDGEMENT AND CHANNEL DATA USING 902.325 MHz (CH 3)
Channel data is 927.712 MHz (CH40)

Since it has receive data from base within the specified time of 4 seconds, it would stop sending data and changes its TX frequency to 927.712 MHz (CH40).

It would change the receiver frequency base from the selected stored channel (927.712 MHz)

IT WOULD THEN LINK WITH BASE

RX Frequency : 903.712 MHz (CH40)
TX Frequency : 927.712 MHz (CH40)

903.712 MHz(CH40)

927.712 MHz(CH40)

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 903.712 MHz (CH40)
RX Frequency : 927.712 MHz (CH40)

(END)   (END)

TALK MODE

CONDITION 5 : All TX channels of Handset and Base are occupied (All Busy)

CH3 : 902.325 MHz - Stored channel during the last link in Handset memory.

HANDSET   BASE

START   START

Activate Talk Mode

RECEIVER SCAN FOR FREE CHANNEL
From last channel stored in the H/S memory
⌐ ex. 902.325 MHz
CH1 CH2 CH3 ... CH16 ... | ... | ... CH40
X X X X X X X
50ms   X : Occupied channel

RECEIVER SCAN FOR FREE CHANNEL
From this channel (926.250 MHz)
X X X X X X X X X X
CH1 CH2 CH3 ... CH5 ... | ... | ... CH40
25ms   X : Occupied channel
Stores all free channel into its memeory.

TRANSMIT TALK DATA AND FREE CHANNEL
DATA WHICH IS 902.812 MHz
It would continue sending data until it would
receive the acknowledgement code from base.
This would take <4 seconds and it would stop the
process, user must activate talk again.

926.812 MHz (CH16) →

RECEIVER RECEIVE DATA FROM HANDSET

It would use 926.812 MHz (CH16) for the receive
frequency.

RECEIVE DATA FROM BASE

← 902.812 MHz (CH16)

SEND ACKNOWLEDGEMENT

IT WOULD THEN LINK WITH BASE

RX Frequency : 902.812 MHz (CH16)
TX Frequency : 926.812 MHz (CH16)

← 902.812 MHz (CH16)

926.812 MHz (CH16) →

IT WOULD THEN LINK WITH HANDSET

TX Frequency : 902.812 MHz (CH16)
RX Frequency : 926.812 MHz (CH16)

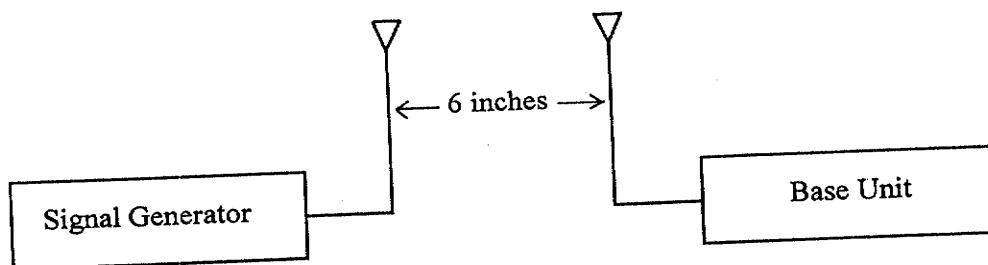END   END

<u>39237 AUTOMATIC CHANNEL SELECTION</u>

The following tests were performed to show the incorporation of automatic channel selection.

Equipment Used to Perform Tests

- JUNGJIN JSG-1051B Signal Generator
  Interference Signal 1KHz, 5KHz deviation

Test Set-Up

Test Procedures

1. Set signal generator at a certain channel (e.g. channel 1), then turn the generator off.

2. Turn on the phone, set the phone at the same channel as in step 1, then turn off the phone.

3. Turn on the signal generator.

4. Turn on the phone, investigate and record the locked channel. If scan functions correctly, it will lock to any channel, but not the one in step 1.

5. Repeat Step 1-4 for 40 channels

Test Results

INTERFERENCE CHANNEL AT	PHONE PRE-SET CHANNEL AT	PHONE AUTO-SCAN TO CHANNEL AT -13 dBm
1	1	2
2	2	3
3	3	4
4	4	5
5	5	7
6	6	7
7	7	8
8	8	9
9	9	10
10	10	11
11	11	12
12	12	14
13	13	14
14	14	15
15	15	16
16	16	17
17	17	18
18	18	19
19	19	20
20	20	22
21	21	22
22	22	23
23	23	24
24	24	25
25	25	26
26	26	27
27	27	28
28	28	29
29	29	31
30	30	31
31	31	32
32	32	33
33	33	34
34	34	35
35	35	36
36	36	37
37	37	38
38	38	39
39	39	40
40	40	1

Summary

The phone under test has an automatic selection mechanism that will prevent establishment of a link on any occupied frequency channel.

CIRCUIT DESCRIPTION
Model: 39237 (Northwestern Bell)

| 1 | Base |

a. RF Transmitter Section – RF Board

Compressed audio signal is frequency modulated through the varactor diode D3. Diode D3, choke coil L2 and the external components formed the voltage controlled oscillator circuit for the transmitter part. This circuit generates the TX VCO frequency. A portion of this signal is fed back to the PLL IC's pin1 (FIN1) for phase comparison. Once the phase of oscillation stabilized, the PLL circuit generates the error voltage necessary for the VCO to oscillate at the desired transmitter's RF frequency. The VCO circuit impedance is matched with the succeeding circuit through the transistor Q7 that also acts as the buffer amplifier. RF amplifier Q5 boosts the signal for transmission. This amplified RF signal is trimmed to the desired frequency band by BPF903 so as not to interfere with the receiver circuit. The transmitter RF signal is then propagated through the antenna.

b. RF Receiver Section - RF Board

The Base Unit antenna receives RF signal. Band Pass Filter BPF927 trims the signal to the desirable frequency band. Transistor Q8 is a low noise amplifier that boosts the RF signal to a specific level for mixing. PLL IC1 (TB31202) is used as a Universal Phase Lock Loop circuit. The frequency from the Voltage Controlled Oscillator (VCO) D1, L1 and Q4, is fed back to the PLL IC through pin 16 (FIN2) for phase comparison. During channel scanning or turning the unit on, once the phase of oscillation stabilized (locked), the PLL circuit generates the first local oscillator frequency for down-converting the received RF signal into the first IF frequency 10.7MHz. This process is accomplished through the IF mixer circuit Q3. Q1 is used for matching the impedance of the mixer circuit with the succeeding circuits. The resulting IF signal is kept constant by the IF Filter FL2 to 10.7MHz which is then mixed with the second local oscillator frequency 11.150MHz (derived from X1 & C47) to produced a much lower IF frequency. This lower IF frequency is further filtered by IF Filter FL4 to produce a more stable signal of 450KHz. Quadrature+ signal detection is accomplished internally by the Narrow-band Detector IC2 (KA3361) with the IF coil L7. The recovered audio frequency can be taken from IC2 audio output pin9. Double conversion of received signal is utilized to improve the image frequency rejection of the unit.

c. Transmitter Audio Section – Main Board

Audio Frequency signal from the telephone line is compressed through the compressor part of IC100 to minimize the transmission noise. The degree of compression depends on the external RC combinations. AGC is also utilized by IC100 to avoid shock noise caused by abrupt change of audio levels. The compressed audio is filtered and amplified for better acoustical performance. VR1 trims the transmitted audio into a desirable level.

d. Receiver Audio Section – Main Board

The compressed Audio Frequency signal is passed through passive RC filters for acoustic compliance. The filtered audio is then fed to the Compander IC100 for expansion thus retrieving the original Audio signal with noise filtered out. Q201 & Q202 are used as buffer circuit. Matching transformer HYB1 isolates the high-voltage telephone line to the rest of the circuit. HYB1 is also used as a hybrid transformer to create a two-way path for audio transmission to and reception from the telephone line.

2	**Handset**

b. RF Transmitter Section – RF Board

Refer to portion 1.b for this section. All circuit performance is exactly the same except that Band Pass Filter BPF903 be changed to BPF927 for the handset transmission.

b. RF Receiver Section – RF Board

Refer to portion 1.b for this section. All circuit performance is exactly the same except that Band Pass Filter BPF927 is changed to BPF903 for the handset reception.

c. Transmitter Audio Section – Main Board

Audio Frequency signal from the handset or from the headset microphone is compressed through the compressor part of IC103 to minimize the transmission noise. The degree of compression depends on the external RC combinations. AGC is also utilized by IC103 to avoid shock noise caused by abrupt change of audio levels. The compressed audio is filtered and amplified for better acoustical performance. Q101 is a switching transistor that controls the power supply for the TX RF part.

Fuse FS1 and varistor VA400 act as high current and high voltage protectors for the telephone line interface. In case of presence of voltage surge across the telephone line, VA400 decreases its resistance and dumps the line voltage to a safe level. Fuse FS1 opens when excessive current is present on the line thus protecting both the user and the line interface.

c. Battery Charging & Code Setting

Battery charging commences when transistor Q500 detects the presence of the handset on cradle. Q209 forms the reset circuit in conjunction with the charge detect circuit to command the CPU to change the security code. When the reset circuit is activated, the CPU will send a new security code to the handset selecting among 65536 combinations.

d. Ring Detection

Incoming ring signal is detected by the photo-coupler IC400. Diode D408 and R408 set the level of signal detection. The CPU checks the frequency of the ring signal, and when valid, sends the ringing command to the speaker or to the Handset.

e. Power Supplies

Diode D201 ensures uniform polarity for the entire circuit. Transistor Q200 and capacitor C208 regulate the voltage to +9Vdc for the buffer amplifier circuit. IC201 regulates the voltage to +5Vdc for the rest of the circuit. Transistor IC201 controls the power supplied to the TX part of the RF circuits.

f. Squelch Detection

In conjunction with the 3361 IC (IC2 of the Base RF), SVR2 sets the level of signal detection and U1C acts as the comparator circuit whose composite output is the RSSI signal for the CPU.

g. RX Data

Commands from the Handset is filtered and re-constructed by the Schmitt trigger circuit U1B. The composite output is the RX Data that is input to the CPU for validation and processing.