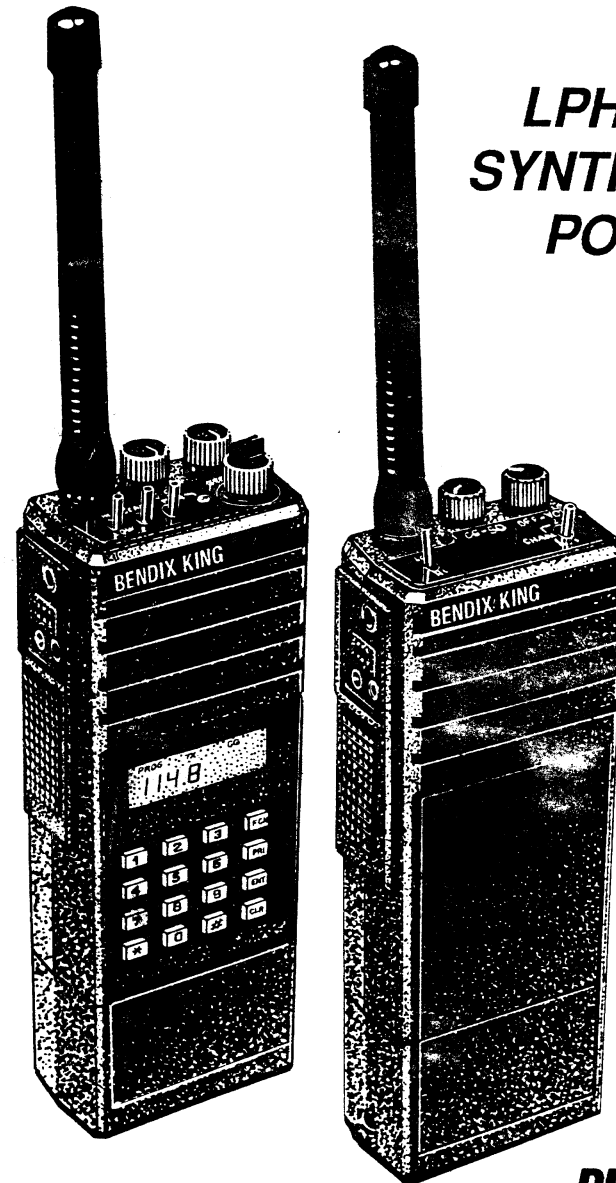


OWNER'S MANUAL

LPH SERIES SYNTHESIZED PORTABLE RADIO



BENDIX/KING

Mobile Communications Division
P.O. Box 3347
Lawrence, Kansas 66046-0347
(913) 842-0402

006-8401-02

BENDIX/KING

III. BASIC OPERATION

A. Receive (Listen)

Turn power on by rotating the Volume knob clockwise past the OFF detent. Select the appropriate channel using the Channel Select Knob or Channel Toggle Switch. Rotate the Squelch knob clockwise until a rushing noise is heard. Set the volume to a comfortable level. Then rotate the Squelch knob backwards (counter-clockwise) until the noise stops. This is called the threshold squelch setting. Further rotation counter-clockwise tightens the squelch setting, making it necessary for stronger signals to open the squelch and allow a message to be heard.

B. Transmit (Talk)

Press and hold the side PTT (push to talk) switch. The Transmit LED will glow RED when the transmitter is on. Talk in a normal voice with the speaker one to two inches from your lips. Make each transmission as brief as possible. Release the PTT switch to end transmission.

If the Transmit LED does not glow when you press the PTT switch, the battery pack may need to be charged. If the Transmit LED does not glow and a tone is heard, you are on a receive only channel. Switch the channel selector to an authorized transmit channel. If the length of your message exceeds the preset time out timer setting, the transmitter will automatically shut off and a tone will be heard. If you wish to continue this transmission, release the PTT, then press, hold, and continue talking.

IV. CODE GUARD™ OPERATION

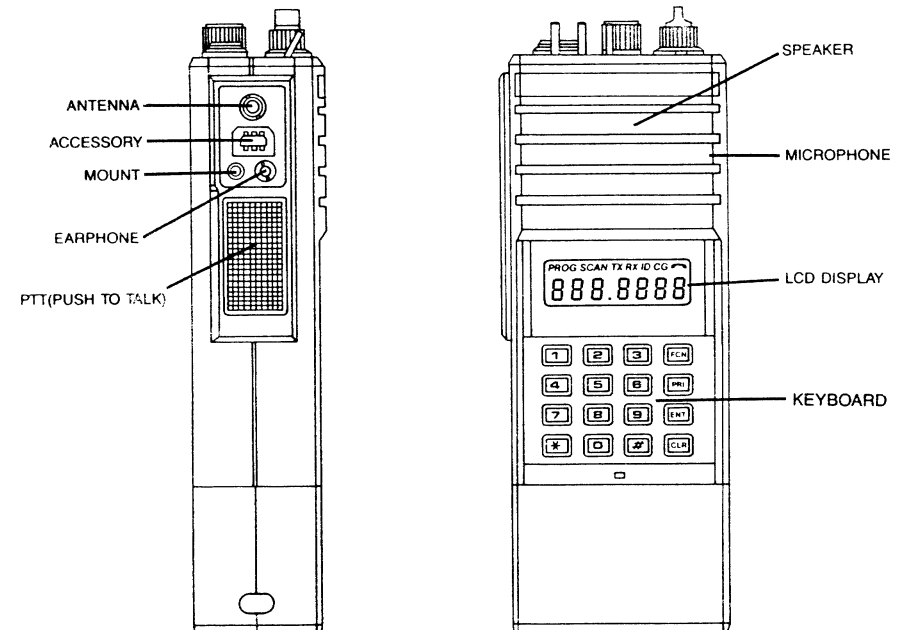
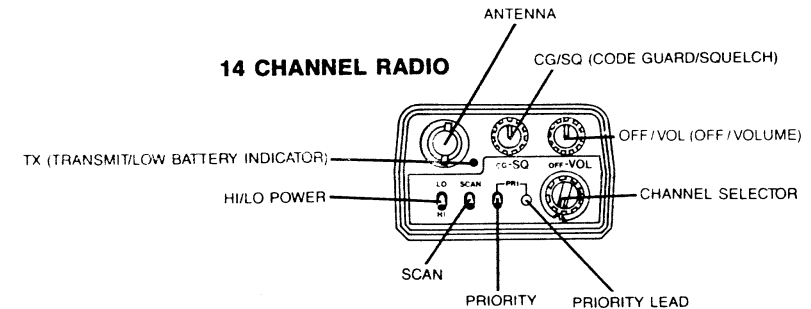
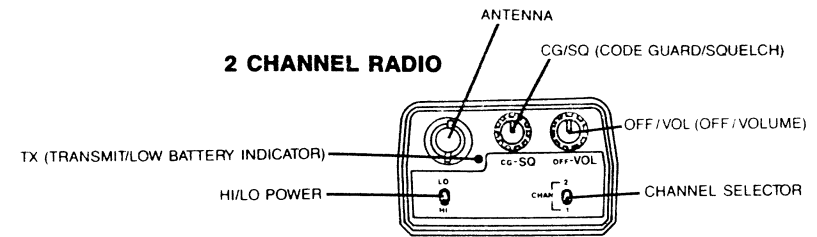
CODE GUARD™ allows one radio or group of radios to be selectively called within a system. If your radio has been programmed with CODE GUARD™, use the following receive and transmit instructions.

A. Receive (Listen)

Turn on power by rotating the Volume knob clockwise past the OFF detent. Rotate the Squelch knob clockwise until a rushing noise is heard. Set the volume to a comfortable level, then rotate the Squelch knob completely counter-clockwise, past the detent for CODE GUARD™ operation. A message will be heard only when your CODE GUARD™ is being transmitted.

B. Transmit (Talk)

Before transmitting on CODE GUARD™ channels, monitor the channel by turning the SQ knob clockwise, off the detent. If the channel is not busy, press and hold the side PTT (push to talk) switch. The Transmit LED glow RED when the transmitter is on. Talk in a normal voice with the speaker one to two inches away from



your lips. Make each transmission as brief as possible. Release the PTT switch to end transmission. Reset the SQ knob to the CODE GUARD™ position.

If the Transmit LED does not glow when you press the PTT switch, the battery pack may need to be charged. If the Transmit LED does not glow and a tone is heard, you are on a receive only channel. Switch the channel selector to an authorized transmit channel. If the length of your message exceeds the preset time out timer setting, the transmitter will automatically shut off and a tone will be heard. If you wish to continue this transmission, release the PTT, then press and hold.

V. TRANSMIT POWER

Placing the HI/LO toggle switch in the HI position enables full transmitter power. The LO position reduces power to about one watt, thereby reducing current drain and increasing battery life.

VI. BATTERY INFORMATION

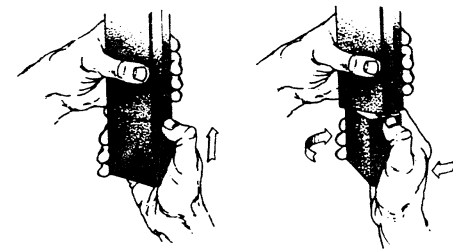
- A. Before operating the unit, with a nickel cadmium battery pack, the pack must be charged. For reasons of safety the battery pack is shipped uncharged.
- B. To remove the battery, turn the radio off. Press up the metal tab on the side of the case while twisting the battery pack approximately 30° and remove it from the radio.
- C. To replace the battery, locate the center hub on the battery pack top in its recess on the radio base. Position the pack at the 30° offset, seating two metal studs in their recess. Apply upward pressure to the pack while twisting the pack to its original position. The metal tab will click, locking the pack in position.
- D. BENDIX/KING battery packs are available in a variety of sizes and types for special applications. Rechargeable packs can be charged separately or while attached to a radio.
- E. Periodically check the contacts on battery pack for dirt that may prevent a good electrical contact with the charging base.
- F. Use of the scan feature can effect battery performance. Battery life specifications are based on 5% receive, 5% transmit and 90% standby usage with the scanner off. If the scanner is left on and is searching typically active channels, the receive portion of the duty cycle may exceed the 5% typical rating resulting in shorter battery life.

The number of channels searched in the scan list also effects battery life. An increase of channels in the scan list results in a decrease in battery life.

Your dealer has a chart showing battery life with scanner use.

- G. In order to optimize battery operation, batteries should not be left in the charger for extended periods after being charged. Best battery life will be obtained if the battery is charged and discharged on a regular cycle.

- H. **WARNING:** Do not dispose of a battery pack in fire. An explosion may occur.



VII. BUILT IN FEATURES ON SELECT MODELS

Select BENDIX/KING radios are based on a microprocessor core that allows extra features and operational characteristics to be built in to the radio. Your dealer will define the best operational settings for your system and program them into the radio.

Additional transmit and receive frequencies, up to 14, can be added. If you wish to monitor other local radio systems that fall anywhere in your band, a frequency with or without CODE GUARD™ can be added to your program.

The radio comes equipped with a time out timer. This is used to limit the duration of calls and to guard against accidental PTT locking on the transmitter and tying up the radio system. The duration of the time out timer can be changed by your dealer. (0-3.75 minutes)

A SCAN delay is included to allow a response to a transmission to be received before the scanner moves on to search for new activity. If you find that your scanner is restarting before message replies are heard, you can ask your dealer to increase the scan delay time. (0-7.5 seconds)

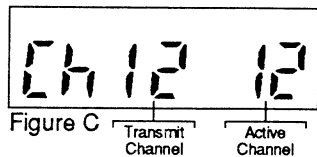
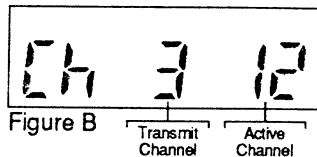
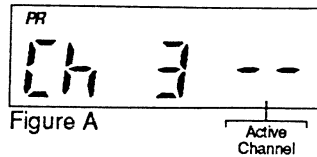
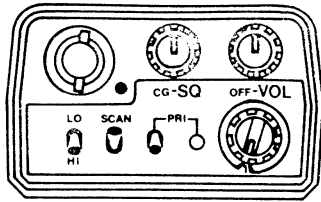
There are three different priority modes available. These are discussed in the priority section of this manual. Your dealer can help you choose the best one for your system needs.

VIII. OPERATIONAL FEATURES AVAILABLE ON SELECT MODELS

A. SCAN OPERATION

When in the scan mode, the radio receiver samples channels in a predetermined list (scan list) looking for activity. If an active channel is found, the scanning action stops and the message on that channel is heard. Once the message stops, the receiver will wait for a response before scanning resumes. This waiting period is called the "scan delay time." It has been preset (from 0 seconds to 7.5 seconds) by your dealer. The scan list has also been preset. On some radios you

will be able to add or delete channels from your scan list. The channel, that the Channel Selector Knob is set to, is always included in the scan list.



To begin scanning, place the SCAN toggle switch in the SCAN position. Scan operation occurs only while the radio is receiving. After SCAN is enabled, two flashing bars on the right side of the display (Figure A) indicate that the radio is scanning the channels in the Scan List.

When a signal is detected, scanning stops and the signal being received is heard, with the active channel shown on the right side of the LCD display. (Figure B) The radio receiver stays on that channel until activity ceases and resumes scanning after the "scan delay" time.

If you wish to transmit on the last active scan channel (right side of display), turn the Channel Select Knob on top of the radio to match that channel. The channel numbers in the display will now match. (Figure C) Turn OFF the SCAN toggle switch for normal talk-listen operation.

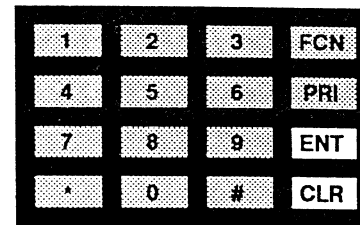
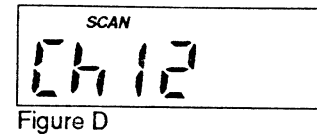
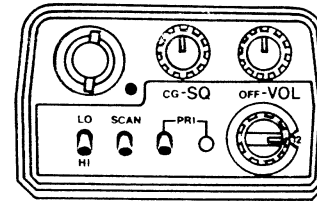
When the PTT is pressed while in the scan mode, the radio transmits on the "transmit" (left side of display) channel. Upon release of PTT, the radio receiver will hold on that channel. If no activity occurs during the "scan delay" time, the radio resumes scanning.

B. SCANNING CODE GUARD™ CHANNELS

To scan for channels with programmed CODE GUARD™, rotate the SQ knob completely counter-clockwise, past the detent. When a signal is detected, scanning stops and the CODE GUARD™ for that channel is checked. If the proper CODE GUARD™ is present, the radio receives that channel until CODE GUARD™ ceases. If the proper CODE GUARD™ is not present the radio receiver will resume scanning immediately.

C. CHANGING THE SCAN LIST

Your radio has been programmed with a permanent or changeable scan list. If your scan list can be changed, use the following steps to enter or clear channels.



To avoid confusion, turn OFF the PRI and SCAN toggle switches on the top of the radio.

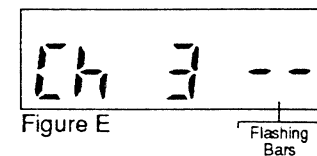
Turn the Channel Select Knob to the channel to be entered or cleared.

To ENTER a channel into the scan list, press the [ENT] key on the keyboard. A short beep will be heard. "SCAN" will be shown in the LCD display. (Figure D)

To CLEAR a channel from the scan list, press the [CLR] key. A short beep will be heard, and the "SCAN" in the display will disappear.

D. PRIORITY OPERATION

Priority operation consists of receiving on any channel while still monitoring for a message on the priority channel. Priority can also be used in combination with Scan operation. NOTE: The priority scan feature samples carrier frequency only and does not sample CODE GUARD™.



When the PRI (priority) toggle switch is turned ON, the channel designated "priority" is sampled 4 times a second, regardless of activity on any other channel. Two flashing bars on the right hand side of the display indicate that the radio is sampling the priority channel. (Figure E) If a signal is received on the priority channel, the radio receiver will lock on to this channel for the duration of the transmission.

When the SCAN toggle switch is ON and the PRI toggle switch is OFF, normal scanning will occur but the priority channel will not be sampled. If both scan and priority toggles are off, the radio will function as in basic operation.

There are three priority modes, one has been preset by your dealer:

Priority Mode A — The priority channel is tied to the Channel Select Knob. When the selector is set on channel 5, this is the priority channel. If the selector is switched to channel 8, this becomes the priority channel. You will transmit on the frequency chosen by the Channel Select Knob.

Priority Mode B — The priority channel is fixed. You will transmit on the frequency chosen by the Channel Select Knob.

Priority Mode C — The priority channel is fixed. When the PRI toggle switch is ON, you will transmit on the priority channel regardless of the Channel Select Knob setting.

If you do not know which priority mode is preset for your radio, the following steps will identify it.

1. Set the PRI and SCAN toggle switches to OFF.
2. Rotate the Channel Select Knob, stopping at each detent to view the LCD Display.
3. If a "PR" symbol (in the upper left of the LCD Display) does not appear for any channel, you have priority Mode A.
4. If "PR" is displayed (Figure F), rotate the Channel Select Knob on a different channel, then turn the PRI toggle ON.

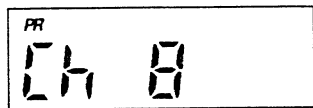
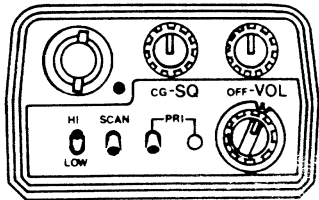


Figure F

If the LCD channel stays on your selected channel, you have priority Mode B.

If the LCD channel changes to the priority channel, you have priority Mode C.

Priority Mode A Details:

In this mode, the priority channel is tied to the Channel Select Knob. When the SCAN and PRI (priority) Toggle Switches are ON, Scanning will occur until an active scan channel is found. The radio will receive the active channel (Figure G) while continuing to sample the priority channel 4 times per second. If during this sampling the priority channel becomes active, the priority LED will light. The radio receiver will go to the priority channel and hold for the duration of the transmission. (Figure H) The priority channel will be shown on the right hand side of the

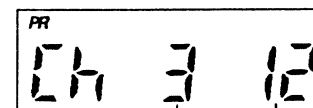


Figure G

Transmit Channel Active Channel

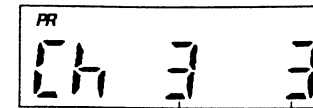


Figure H

Reply On Transmit Channel Priority Overrides Active Channel

Priority Mode B Details:

This mode fixes one channel in the radio as the priority channel. With the SCAN toggle switch OFF and PRI (priority) toggle switch ON, the radio can receive on the Knob Selected Channel while still sampling the priority channel. If the priority channel becomes active, the Priority LED goes on and the radio holds on the priority channel for the duration of the transmission. If you wish to reply to a message on the priority channel, you must rotate the Channel Select Knob to the priority channel, then transmit.

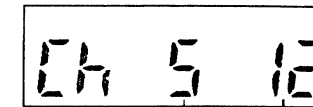


Figure J

Transmit Channel Active Channel

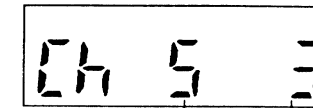


Figure K

Transmit Channel Priority Overrides Active Channel

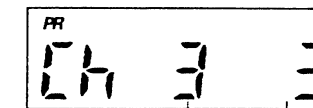


Figure L

Transmit Channel (Priority) Priority Channel

display. If you wish to reply to a message on the priority channel, press the PTT and you will transmit on the priority channel. Once activity ceases on the priority channel, the radio returns to scan operation. NOTE: On certain models the "PR" symbol will not show in the display when the priority toggle switch is on.

With both SCAN and PRI toggle switches ON, normal scanning operation will occur until the scanner locks on to an active channel. (Figure J) The priority channel will continue to be sampled 4 times per second while the radio is listening to this active channel. If activity occurs on the priority channel, the radio will override the active scan channel, go to the priority channel, and hold for the duration of the transmission. (Figure K) If you wish to reply to a message on the priority channel, you must rotate the channel selector to the priority channel, then transmit. (Figure L) Once activity has ceased on the priority channel, the radio returns to scan operation.

Priority Mode C Details:

With the PRI toggle switch ON and SCAN switch OFF, radio operation is exactly the same as in Mode B. The fixed priority channel is sampled 4 times a second. If activity occurs on the priority channel, the radio will go to the priority channel and hold for the duration of the transmission. If you wish to reply to a message heard on the priority channel, press the push to talk and the radio will automatically transmit on the priority channel regardless of the setting of the Channel Select

Knob. In Priority Mode 'C' the radio will always transmit on the priority channel if the PRI toggle switch is ON. The priority LED will come on as a reminder that you are transmitting on the priority channel. Once activity has ceased on the priority channel, the radio will return to the Channel Select Knob receive channel.

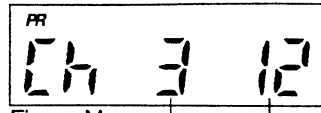


Figure M

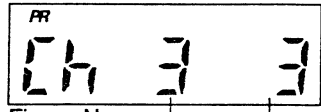


Figure N

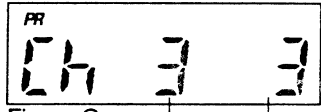


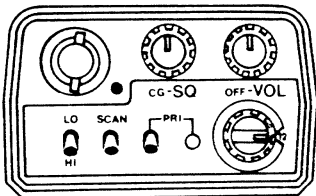
Figure O

With both SCAN and PRI toggle switches ON, the radio will scan until it locks on to an active channel. (Figure M) The priority channel will continue to be sampled 4 times a second while the radio is listening to this active channel. If activity occurs on the priority channel, the radio will override the active scan channel, go to the priority channel and hold for the duration of the transmission. (Figure N) If you wish to reply to a message on the priority channel, press the PTT and the radio will automatically transmit on the priority channel, regardless of the setting of the Channel Select Knob. In priority Mode 'C' the radio will always transmit on the priority channel if the PRI toggle switch is on. (Figure O) The priority LED will come on to remind you that you are transmitting on the priority channel. Once activity ceases on the priority channel, the radio returns to scan operation.

NOTE: On certain models the "PR" symbol will not show in the display when the priority toggle switch is on.

E. TO CHANGE THE PRIORITY CHANNEL

The fixed priority channel used in Priority Mode B and C may be permanently set by your dealer or may be changeable. If your radio has changeable priority, use the following steps to make this change. NOTE: Only one channel can be designated as the priority channel.



1. To avoid possible confusion, turn OFF the PRI and SCAN toggle switches on the top of the radio.
2. Turn the Channel Select Knob to the channel that you wish to enter as the new priority channel.

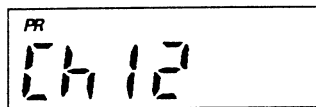
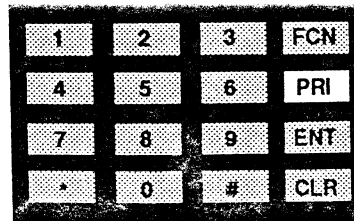


Figure P

A press of the [PRI] key causes a short beep, with the letters "PR" displayed, indicating that the displayed



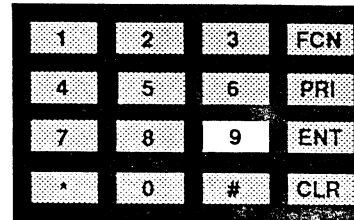
channel is now the priority channel. (Figure P)

A channel can be both a priority and a scanned channel. Due to multiple sampling of the same channel, maximum performance occurs when the priority channel is not also a scan channel.

F. USER CODE GUARD™ SELECTION

Certain BENDIX/KING models allow user selection of CODE GUARD™ values independent of the rotary channel selector setting. This is accomplished using the keyboard. The radio has been programmed by your dealer to enable or disable this feature. The programming has also assigned a transmit frequency and CODE GUARD™ and a receive frequency and CODE GUARD™ to each position shown on the rotary channel selector. The CODE GUARD™ VALUES FOR Channels 1-9 can be pulled away from their normal pairing and matched with any of the other frequencies in the radio.

For example, to use the CODE GUARD™ values of Channel 9 with the frequencies of Channel 5:



1. Set the rotary channel selector to Channel 5.
2. Press the 9 key on the front panel keyboard. The radio will now operate on the frequencies of Channel 5 with Channel 9 CODE GUARD™ values. During normal operation, the LCD will show 2 numbers: the transmit/receive channel on the left (5) and the selected CODE GUARD™ values on the right (9) with the CG symbol. (Figure Q) The display will not show selected CODE GUARD™ values in scan or priority scan mode.

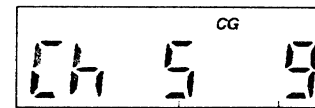
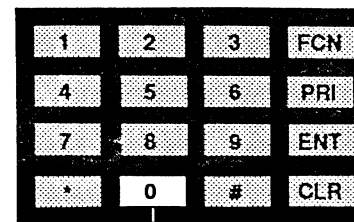


Figure Q



Reset

3. Press the 0 key to reset all values to the original programming. Or press a different digit key (1-9) to select a new set of CODE GUARD™ values.