Operator's Manual

Portable Radio Unit
KH-500/600

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NOTICE!

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NOTE!

Repairs to this equipment should be made only by an
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equipment not approved by the manufacturer could
void the user's authority to operate the equipment in
addition to the manufacturer's warranty.

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INTRODUCTION

The KH-500 (Scan) and KH-600 (DTMF) portable radios are lightweight, full-featured radios that provide reliable two-way communications on 1 to 16 channels. The KH-500 radio contains three (3) buttons on the front panel. The KH-600 contains three (3) buttons along with a twelve (12) button DTMF pad on the front panel. The scan function allows monitoring of any or all channels. Any channel may be scanned with or without a priority level. One channel can be programmed for Priority 1 (**P1**) and another for Priority 2 (**P2**), with any or all remaining channels programmed as non-priority channels (**S**). There is also an Emergency GE-STAR mode transmission capability. A LCD display provides status display of the radio functions along with the display of the selected channel number.

The Universal Device Connector (UDC), located on the side of the radio, provides connections for external audio accessories. This connector also allows the radio system personnel to connect programming equipment and program the per-channel and overall radio features. Consult the radio dealer to determine the programmed features of your radio. Features that are programmable on a per-channel basis include:

- Receive Frequency

- Transmit Frequency

- Channel Busy Lock-Out

- Optional Squelch Tail Elimination (STE) for Analog Channel Guard

- Channel Guard Encode/Decode (Analog or Digital)

- Type 99 Tone Decode

- CG/DCG Decode Tones/ Codewords

- CG/DCG Encode Tones/ Codewords

- Automatic Number Identification (ANI)

- RF Power (High or Low)

- Microprocessor Oscillator Shift in Receive mode

- Microprocessor Oscillator Shift in Transmit mode

- Channel Spacing (12.5 kHz or 25/30 kHz)

- Telephone Interconnect DTMF Keypad enable (KH-600 only)

Features that are programmable on an overall radio basis include:

- Display Backlighting

- Alert Tones

- Emergency GE-STAR (with or without Home Channel)

- Three (3) DTMF Auto-Dial Telephone Numbers (KH-600 only)

- Carrier Control Timer (CCT)

- Hi/Low RF Power Button Enable/Disable

- Scan Options

- CG Auto/Manual Reset

- A.N.I. Options

- Home Channel

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TX/CAS LED

PLUS/HOME
CHANNEL
BUTTON

MICROPHONE

DISPLAY

SCAN
BUTTON

MINUS
BUTTON

SPEAKER

Figure 1 – KH-500 Scan Radio

TX/CAS LED

DISPLAY

PLUS/HOME CHANNEL BUTTON

SCAN BUTTON

MINUS BUTTON

MICROPHONE

SPEAKER

ERICSSON

SCAN

Figure 2 – KH-600 System Radio

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BELT CLIP
LOCATION

BATTERY
RELEASE
BUTTON

HI/LOW
RF
POWER
BUTTON

MONITOR
BUTTON

PUSH-TO-TALK
(PTT BUTTON)

CHARGING CONTACTS
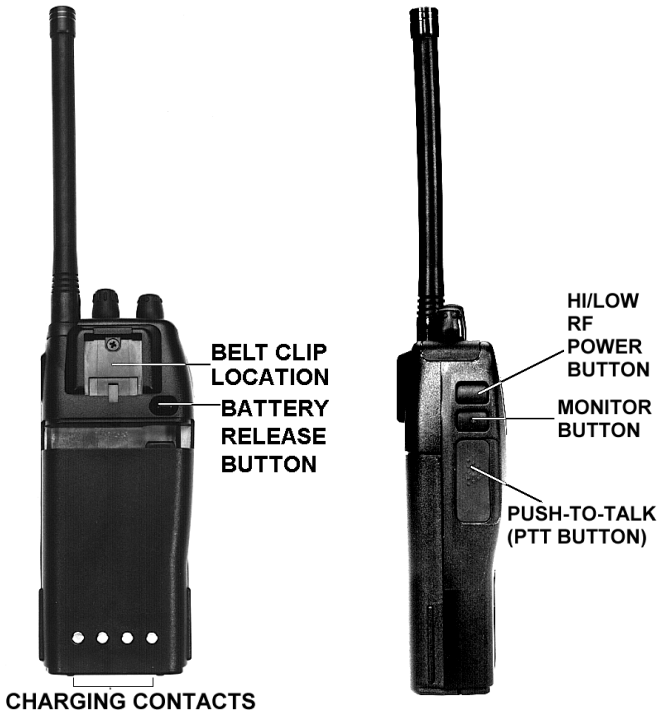
Figure 3 - Back And Left Panel Views

POWER ON-OFF
VOLUME KNOB

CHANNEL KNOB

ANTENNA

7 8 9 10
6 11
5 12
4 13
3 14
2 1 16 15

OFF   MAX
VOL   CH
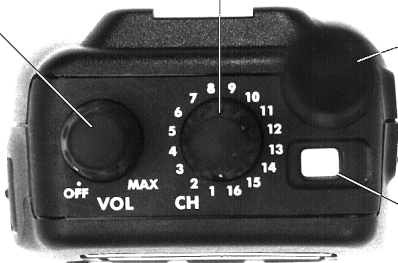
UDC
(ON SIDE PANEL)

EMERGENCY
GE-STAR
BUTTON

Figure 4 - Top, Back And Left Panel Views

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BUTTONS AND KNOBS

This section describes the primary function of the button and knob controls. Other functions associated with these controls are detailed in later sections.

POWER ON-OFF/ VOLUME KNOB

Turns radio on and off and adjusts audio listening level.

When the radio is turned on, it will resume operation at the last operating state (channel, etc.) and the power-up alert tones will be sounded. Three (3) beeps indicate the radio is in the normal (receive mode); four (4) beeps indicates the radio is scanning. The operating status of the radio will be displayed in the Liquid Crystal Display (LCD) window.

Rotating the control clockwise increases the volume level.

PUSH-TO-TALK BUTTON (PTT)

Pressing the **PTT** button on the side of the radio will key the radio transmitter.

If the radio is not scanning, it will transmit on the selected (displayed) channel. If the radio is scanning when the **PTT** button is pressed, the radio may be programmed to transmit on the selected channel or on the current receive scan channel if the **PTT** is pressed during the scan hang time.

If the selected channel is programmed with Type 99 Tone Decode enabled, pressing the **PTT** button once will disable Type 99 Tone Decode by switching the radio from the Selective Call mode to the Monitor mode. The **PTT** button must be released and then pressed a second time to key the radio.

MONITOR BUTTON   The Monitor button has several functions. Its operation will vary depending upon programming.

When the Monitor button is pressed and held down, all transmissions will be heard even if Channel Guard protected. This permits channel monitoring before transmitting. If the button is held for more than one second, Channel Guard decode will toggle ON or OFF (if it is programmed on the selected channel).

The Monitor button is also used to reset the Type 99 decoder after a Type 99 call is received. Quickly press and release the button to reset the Type 99 decoder to receive the next Type 99 call.

| **CHANNEL SELECT KNOB** | A rotary switch permits selection of channels. Rotating the switch clockwise increases the channels and counterclockwise decreases the channels. The channel is visible by looking at the channel switch from the top or viewing the LCD display. |

| **EMERGENCY GE-STAR BUTTON** | Pressing for at least one (1) second will transmit the Emergency GE-STAR code on the selected channel or a pre-programmed HOME channel. |

| **Hi/Low BUTTON** | Pressing for at least one (1) second selects the transmit power output by toggling from high-low or low-high. Must be pre-programmed for operation. |

Three (3) buttons below the LCD display are used to control scan operations when used in conjunction with the **SCAN** button.

SCAN Toggles the scan feature on and off.

+ Used in conjunction with the **SCAN** button to add channels to the scan list or increase the channel's priority status.

Home Channel button (if programmed in personality)

— Used in conjunction with the **SCAN** button to erase the selected channel from the scan list.

Used to decrease the level during squelch adjust mode.

DTMF Keypad (KH-600 only) Permits operator to make telephone interconnect calls on radio systems equipped with this option.

The top row of buttons ($\boxed{1}$, $\boxed{2_{ABC}}$, $\boxed{3_{DEF}}$) provide access to up to three pre-programmed telephone interconnect numbers (see **Telephone Interconnect Calls** section).

INDICATORS

The Liquid Crystal Display (LCD) indicates the channel number. In addition there are seven (7) status indicators (flags) which show scan status, Type 99 Tone Decode status, transmit High/Low power status and Channel Guard status.

The LCD backlighting will turn on anytime a control button is pressed. It will remain on for five (5) seconds after the button is released. If a control button is pressed while the backlight is on, the backlight remains on for another five (5) seconds. Backlighting may be programmed to remain off at all times.

```
┌─────────────────┐
│ SCN HI  │  ┌──┐  │
│ S P1 P2 │     │  │
│ PG CG   │  └──│  │
└─────────────────┘
```

Figure 5 - Liquid Crystal Display (LCD)

CHANNEL
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The selected channel number is displayed in the LCD window. When data is written into or read from the radio during PC programming, a **P** is displayed.

STATUS INDICATORS

SCN   This status indicator turns on when the scan function of the radio has been enabled.

S   When this indicator is on, the selected channel is a non-priority scan channel.

P1   When this indicator is on, the selected channel is a Priority 1 scan channel.

P2   When this indicator is on, the selected channel is a Priority 2 scan channel.

PG   When this indicator is on, the selected channel is programmed as a paging channel (Type 99 Decode). The indicator will blink when the selected channel is placed in the monitor mode or upon the reception of a call.

CG   When this indicator is on, Channel Guard is enabled on the selected channel. The indicator will go out when the selected channel is placed in the monitor mode.

HI   When this indicator is on, the selected channel is enabled for transmit high power.

TX/CAS LED Red light on steady - transmitter is active or keyed.

Red light blinking - low battery voltage, recharge or replace battery.

Green on steady - channel busy indication, radio has detected a carrier on selected channel.

ALERT TONES

Alert tones or "beeps" are sounded when some buttons are pressed and when the operating status of the radio changes. All alert tones may be programmed to be remain off. The volume level of some alert tones or "beeps" can be changed by the volume control.

Power-up Self-test

Each time the radio is turned on, it will perform power-up self-test. All display segments will turn on, and after successful completion of the test, the radio will change to the last operating state (channel, etc.) and sound three (3) or four (4) beeps. Three (3) beeps sound if the radio is operating in the normal (not scan) state. Four (4) beeps will sound if the radio is scanning. The status will be indicated in the LCD. If the radio fails the self-test, no beeps will be sounded.

Carrier Control Timer

This feature, programmable on a per-radio basis, prevents unnecessary channel traffic and radio damage if the transmit timer limit is exceeded. If the programmed timer times-out during a transmission, the radio will beep and stop transmitting. The beeping tone will continue until the operator releases the **PTT** button. Releasing the **PTT** button resets the timer.

Channel Busy Lock-out

If channel busy lock-out has been programmed on the selected channel, the transmit function will be inhibited when the operator press the **PTT** button while the radio detects a carrier on the channel unless the carrier is modulated with the corresponding Channel Guard tone or code for that selected channel. Channel busy lock-out continues to function if Channel Guard decode is disabled with the **MONITOR** button. The channel-busy feature is programmable on a per-channel basis.

Type 99 Alert Tone

The Type 99 alert tone, indicating a receive Type 99 call, may be enabled or disabled by programming. If the programmed tone sequence is detected, the radio will beep until the second paging tone expires. If the alert tones are disabled, no alert tones will be present when a Type 99 call is received.

--- **NOTE** ---

The Type 99 alert tones can only be turned off by disabling ALL alert tones.

A.N.I. Alert Tone

If the A.N.I. transmission is programmed to occur before the beginning of the conversation, an optional Automatic Number Identification (A.N.I.) alert beep can be enabled or disabled by programming. If the alert tone is enabled, a beep will sound after the **PTT** is pressed to indicate to the operator to begin voice transmission. Some communication systems require a time delay before voice transmission begins. If the alert tone is disabled, no beep will sound.

Scan Alert Tone

The radio will sound a beep when the scan button is pressed.

Priority-One (P1) Scan

If the Priority 1 alert tone is enabled by programming and the radio receives a signal on the Priority 1 channel when scanning, the radio will sound a beep. The P1 alert tone can be disabled without disabling other alert tones.

Radio/Channel Failure

The simultaneous flashing of the LCD display and the sounding of beeps indicates the synthesizer is unable to correctly lock on the selected channel. At this time the radio changes to a mute condition and no audio is heard from the speaker when receiving and the transmit is inhibited if the **PTT** button is pressed. Select another channel, change the battery pack or have the radio repaired.

OPERATION

RECEIVING A MESSAGE

1. Turn the radio on by rotating the **ON/OFF/VOLUME** control clockwise from the "off" detent. After the radio has successfully completed its power-up self-test, it will begin operation at the last operating state (channel, etc.). The operating status of the radio will be displayed on the LCD. If enabled, the power-up alert tones (three or four beeps) will be sounded.

2. Select the desired operating channel by rotating the **CHANNEL SELECT** control until the desired channel number appears on the LCD.

3. When a transmission is received (and the correct CG/DCG or Type 99 signal is decoded, if programmed and enabled), the receiver will unsquelch and the message will be heard in the speaker.

4. Adjust the volume as necessary by rotating the **ON/OFF/VOLUME** control.

NOTE

Pressing the **MONITOR** button unsquelches the receiver for the first three (3) seconds the button is held. All transmissions will be heard, even if Channel Guard protected. If it is held for more than three (3) seconds, the Channel Guard decoder will be toggled on or off (if programmed for the selected channel).

SENDING A MESSAGE

1. Turn the radio on and select the desired operating channel as described in *RECEIVING A MESSAGE*.

2. Press the **MONITOR** button to determine if the channel is in use or observe the TX/CAS LED which shows green if the channel is busy. *Never interrupt another transmission.*

3. Hold the radio so the antenna is vertical and press and hold the **PTT** button when you are ready to transmit. Speak directly into the grill or across the face of the radio or external microphone. Release the **PTT** button when you are finished talking. Messages cannot be received and heard when the **PTT** button is pressed.

NOTE

When transmitting on a paging channel (Type 99, if programmed), the **PTT** button must be pressed twice. The first press takes the radio out of Selective mode. The second press keys the transmitter for normal transmitter operation.

HOME CHANNEL OPERATION

A Home Channel feature is available if programmed into the personality. This can stand alone or be used in conjunction with Emergency GE-STAR. If Stand Alone Home Channel and Emergency GE-STAR with Home Channel are selected, then the same channel must be selected as the Home Channel.

1. Press and hold the ➕ button for more than 1-second. The channel number on the LCD will change to identify the Home Channel. Pressing the ➕ button for less than 1-second will be considered inadvertent, and switching to the Home Channel will not occur.

2. Within 5 seconds press another button to confirm the Home Channel selection. If another button is not pressed, the KH will revert to the channel defined by the Channel Select knob. The KH will remain on the Home Channel until the Channel Select knob is moved to a new position.

TYPE 99 OPERATION

The radio may be programmed to power up in the Selective mode or in the Monitor mode. If the Selective mode is programmed and a Type 99 channel is selected at power up, the **PG** status flag will illuminate. If the Monitor mode is programmed and a Type 99 channel is selected, the **PG** status flag will blink.

When the radio is operating in the Selective mode, it operates as a tone and voice receiver and only those calls that are coded for it will be heard.

When the radio is operating in the Monitor mode, all calls (with correct Channel Guard, if programmed) will be heard.

In either mode, when a Type 99 channel has been selected and a valid code is received, a series of alert tones (if programmed) will alert the operator of the incoming call. If the radio is in the Selective mode, it will automatically switch to the Monitor mode after the detection of the second Type 99 tone.

NOTE

If the radio was programmed to power up in the Selective mode, changing positions on the channel select switch will always place a Type 99 programmed channel in the Selective mode. If the radio was programmed to power up in the Monitor mode, changing positions on the channel select switch will always place a Type 99 channel in the Monitor mode.

Type 99 Selective Call Receiving and Sending

1. Select the appropriate channel to receive the Type 99 tone signal.

2. After a Type 99 call is received and the beeps have sounded, press the **PTT** button and answer the call. When the communication sequence is completed, press the **MONITOR** button to reset the radio for the next call.

3. When the radio is reset (Selective mode), Type 99 operation can be disabled by pressing and releasing the **PTT** button. The **PG** status flag will blink. No transmission occurs. A second press of the **PTT** button will result in a normal transmission.

4. To return to Type 99 Selective mode, press the
   MONITOR button. The **PG** status flag will be on.

SCAN OPERATION

The radio may be programmed for a front panel selectable Priority 1 (P1) channel, a fixed pre-programmed P1 channel or a selected P1 channel. A scan list must be created before scan operation can be used. All non-priority (S) channels and the Priority 2 (P2) channel are added or deleted from the scan list by using <scan> in conjunction with ➕ and ➖.

A front panel selectable P1 channel permits the operator to modify the scan list by using the <scan> button in conjunction with the ➕ or ➖ keys.

A fixed P1 channel has already been pre-programmed and cannot be changed.

A selected P1 channel becomes the channel selected by the **CHANNEL SELECT** control.

Each channel in the scan list is retained in memory when the radio is turned off or when the battery pack is removed.

Starting Or Stopping Scan

Press the [SCAN] button to turn on the scan function. The **SCN** status flag will come on. To turn off the scanning function, press the [SCAN] button and the **SCN** status flag will go off.

Receiver Scan Rate

Scan rate will vary depending upon the number of channels on the scan list and whether scanning for Channel Guard. Fewer channels on the scan list or not scanning for Channel Guard will result in a faster scan rate.

There are three types of Scan condition: simple scan, priority scan and Channel Guard scan.

When Scan function is turned on, the radio will perform a simple scan on all channels on the scan list plus the channel selected by the **CHANNEL SELECT** switch although that channel may not be on the scan list. Once activity is detected (and if programmed, the correct Channel Guard is decoded) on a channel, the radio changes the scanning mode from simple scan to priority scan. The channel with activity will be indicated

in the LCD display along with the corresponding status flag, **S**, **P1** or **P2**.

The scan function is now in the priority scan mode and scanning will be determined by the following conditions:

- NON-PRIORITY PROGRAMMED CHANNELS - The radio will lock on the channel until activity on the channel ceases. The scanning will resume after a pre-programmed time delay.

- PRIORITY 1, NON-PRIORITY PROGRAMMED CHANNELS - If the receive channel is non-priority, the radio will sample the Priority 1 channel for activity. Priority 1 channel will continue to be sampled while remaining on the non-priority channel until the carrier ceases and scanning resumes after a pre-programmed delay. Should activity be detected during a sampling of the Priority 1 channel, the radio will switch to the Priority 1 channel and remain there until activity ceases on the Priority 1 channel. Once activity ceases on the Priority 1 channel, scanning will resume after a pre-programmed delay.

If the receive channel is Priority 1, the radio will lock onto this channel for the duration of the activity and no other channels will be scanned. After the activity ceases, scanning will resume after a pre-programmed delay.

- PRIORITY 2, NON-PRIORITY PROGRAMMED CHANNELS - This condition operates similar to the above with the Priority 2 replacing the Priority 1 references.

- PRIORITY 1, PRIORITY 2, NON-PRIORITY PROGRAMMED CHANNELS - If the receive channel is non-priority, the radio will sample the Priority 1, return to the non-priority channel, then sample the Priority 2 channel. This sampling will continue until activity ceases on the non-priority channel or activity is detected on either of the Priority channels. If activity is detected on the Priority 2 channel, the radio will lock onto that channel but will continue to sample the Priority 1 channel for activity. Should activity be detected on the Priority 1 channel while locked onto the Priority 2 channel, the radio will switch to the Priority 1 channel and remain there for the duration. After activity ceases, scanning will resume after a pre-programmed delay.

If activity is detected on the Priority 2 channel instead of Priority 1 or a non-priority channel, the radio will sample the Priority 1 channel for activity. The radio will remain locked onto the Priority 2 channel for the duration of the activity unless the sampling of the Priority 1 channel detects activity. If this occurs, the radio will lock onto the Priority 1 channel for the duration of the activity. Scanning will resume after a pre-programmed time delay.

If activity is detected on the Priority 1 channel instead of Priority 2 or a non-priority channel, the radio will lock onto the Priority 1 channel for the duration of the activity. Scanning will resume after a pre-programmed delay.

Adding Channels To Scan List

1. Scan must be off to add channels to the scan list.

    If the **SCN** status flag is on, press the SCAN button to turn scan off.

2. Select the desired channel with the **CHANNEL SELECT** control.

3. Press and hold the SCAN button and then repeatedly

    press the ➕ key until the desired Priority status flag appears: **S** for non-priority, **P2** for Priority 2 or **P1** for Priority 1.

    ─────────────── NOTE ───────────────

    Priority 1 can only be selected by the operator if the radio is programmed for front panel selectable scan option.

4. If a new Priority 1 or Priority 2 channel is selected, the previously corresponding priority channel will become a non-priority scan channel.

Deleting Channels From Scan List

1. Scan must be off to delete channels from the scan list. If the **SCN** status flag is on, press the 🔳SCAN button to turn scan off.

2. Select the desired channel with the **CHANNEL SELECT** control.

3. Press and hold the 🔳SCAN button and then press the 🔳 button to delete the selected channel from the scan list.

NOTE

Priority 1 can only be deleted by the operator if the radio is programmed for front panel selectable P1 channel option.

Using The Radio With Scan

The Selected Channel

The selected channel is the channel in the display when scan is turned on by the SCAN button. The selected channel does not necessarily have to be a channel on the scan list. When a signal is not being received, the radio reverts to this channel for transmitting. When a signal is being received, the radio can be pre-programmed to either revert to this selected channel or remain on the receive channel for transmissions.

If the radio was pre-programmed for transmit on the selected channel, the selected channel will be displayed on the LCD when the transmitter is keyed.

If the radio was pre-programmed for transmit on the receive channel, the channel will be displayed on the LCD and the transmitter will transmit on that channel providing this is accomplished during the pre-programmed time delay before scanning resumes.

Should the operator change the channel with the **CHANNEL SELECT** control during scanning, the new channel will become the selected channel. If the selected channel is changed to a channel not in the scan list, the new channel will be temporarily added to the scan list until the selected channel is changed again or scan function is turned off.

Scanning With Channel Guard

Any channel in the scan list can be scanned not only for activity but for correct Channel Guard tones or DCG codewords. The correct tone or codeword will permit scanning to lock onto that channel with activity. If the radio detects activity but without the correct tone or code, the green **BUSY** LED will light but no audio will be heard from the speaker.

TELEPHONE INTERCONNECT CALLS (KH-600 ONLY)

The operator may make telephone interconnect calls on radio systems equipped for this option. One of three pre-programmed numbers can be selected and dialed automatically using either of the three keys on the top row of the DTMF keypad. The telephone numbers may also be manually dialed using the keypad.

Communication takes place in a simplex mode. In other words, you cannot talk and listen at the same time. You must press and hold the **PTT** button each time you wish to talk (transmit) and release it when you wish to listen (receive).

Specific procedures for placing a telephone interconnect call from the radio are determined by the radio system and the individual radio programming. Consult your radio dealer for the exact operating procedures necessary for your system and radio.

Pre-programmed Number

1. Select the channel in your radio system that has telephone interconnect capability using the **CHANNEL SELECT** control.

2. Press and hold the **PTT** button and momentarily press the scan button to activate the auto-dialer.

3. While still holding the **PTT** button, momentarily depress one of the keys ($\boxed{1}$, $\boxed{2_{ABC}}$, $\boxed{3_{DEF}}$) to select the desired pre-programmed number.

4. Release the **PTT** button. The microphone will be muted and the DTMF tones will be heard in the speaker as the radio sends the selected number.

5. When the called party answers, press the **PTT** button each time you wish to speak (transmit) and release it each time you wish to listen (receive).

6. At the completion of the call, press and hold the **PTT** button and then press the appropriate DTMF buttons to send the disconnect tone(s) and remove the radio from the telephone interconnect function.

NOTE

Consult with the radio dealer for the procedure to disconnect a telephone interconnect call from the system.

Placing A Manually Dialed Call

1. Select a channel in your radio system that has telephone interconnect capability by using the **CHANNEL SELECT** control.

2. Press and hold the **PTT** button and then press the DTMF buttons (as required by the radio system) to originate a telephone interconnect call. The radio will transmit the selected tone.

3. Release the **PTT** button and listen for a dial tone.

4. Press and hold the **PTT** button and then dial the desired telephone number using the numeric keypad. As each number is dialed, the DTMF tone will be heard in the speaker.

5. Release the **PTT** button when the dial sequence is complete.

6. When the called party answers, press and hold the **PTT** button each time you wish to speak (transmit) and release it each time you wish to listen (receive).

7. At the completion of the call, press and hold the **PTT** button and then press either the DTMF buttons (as required by the radio system) to disconnect from the telephone interconnect function.

EMERGENCY OPERATION

If enabled by pre-programming, GE-STAR emergency signaling can be transmitted when the Emergency button is pressed and held for one second. This Emergency GE-STAR ID can be pre-programmed to be sent on the channel selected by the **CHANNEL SELECT** control or a pre-programmed Home Channel. The red **TX** indicator will light and the radio proceeds to transmit the Emergency GE-STAR ID for the programmed time interval and number of times (1 to 15 or unlimited, pre-programmed). If programmed for unlimited times, the emergency operation will continue until the battery is dead or the radio is turned OFF and then back ON.

Should the Emergency GE-STAR button be pressed when the radio is in scanning operation, the radio will stop scanning, perform the transmission of the GE-STAR ID emergency signaling and then resume normal operation.

The emergency state can be cleared by turning the radio off and then back on.

BATTERY INFORMATION

CHARGE BEFORE USING

Insert the radio into the slot on the charger and ensure that the ON/OFF/VOLUME control is in the OFF position. Connect charger to a 120 VAC outlet. An optional 230 VAC charger may be needed for international applications. Charge the battery for the first time at least 14 hours but no longer than 48 hours. Over-charging may reduce battery life.

RECHARGING THE BATTERY

Recharge the battery when you experience difficulty in receiving or sending a message. Also the battery may need recharging when the red TX indicator is blinking.

Chargers are available with nominal charge times of one to 14 hours. Combinations include single and multiposition chargers. When charging a battery pack that is attached to a radio, always turn the radio OFF to ensure a full charge. For specific instructions, refer the applicable charger Operator's Manual. Charging in non-Ericsson equipment may lead to battery damage and void the battery warranty.

CONDITIONING THE BATTERY

Batteries which have been stored (charged or discharged) will generally not be capable of full capacity until the batteries have been fully cycled two or three times. (Charging the battery in an Ericsson rapid charger and then discharging the battery pack with the radio until low battery is indicated is considered one cycle.)

INSTALLING THE BATTERY PACK

1. Ensure the ON/OFF/VOLUME control knob is in the OFF (detent) position.

2. Align the battery pack tabs with the battery mounting plate slots on the back of the radio (see Figure 6).

3. Insert the tabs into the slots, push down and slide the battery toward the battery latch until the battery latch clicks into place.

2. Take hold of the Battery Pack and slide it back until it stops.

1. While pressing the Battery Pack Release Button

3. Lift up and separate the battery pack from the radio.

4. When replacing the battery pack, align the ribs on the sides of the battery pack with the slots in the sides of the radio. Push down and slide the battery pack into place.
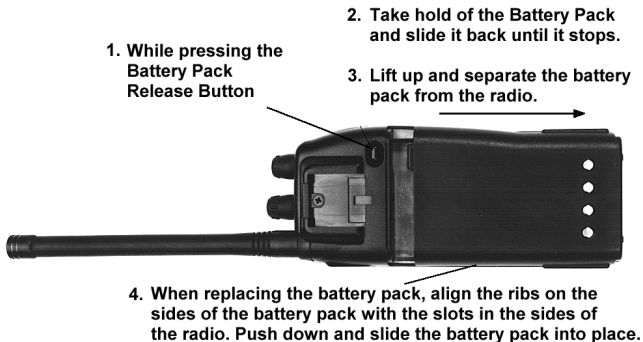
Figure 6 - Installing And Removing The Battery Pack

REMOVING THE BATTERY PACK

1. Ensure the ON/OFF/VOLUME control know is in the OFF (detent) position.

2. Press the battery release button to release the battery.

3. Remove the battery pack by sliding it back until it stops. Then lift up and away until it separates from the radio.

BATTERY CARE & MAINTENANCE

- Your charger is intended for indoor use only. Keep the charger and/or wall cube dry. **Do Not** use in or near water.

- **Never** let the battery contacts touch metal objects that could short-circuit the contacts. For example, keys or coins in your pocket.

- **Do Not** disassemble a battery.

- **Do Not** dispose of a battery in a fire.

- Use only the supplied or specified battery and charger.

- Periodically condition your battery for improved battery capacity and performance.

BATTERY RECYCLING

The product that you have purchased contains a rechargeable, recyclable battery. At the end of its useful life, under various

state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal. Call Toll Free 1-800-8-BATTERY for information and/or procedures for returning rechargeable batteries in your state.

OPERATING TIPS

Antenna location and condition is important when operating a portable radio. Operating the radio in low areas or terrain, under power lines or bridges, inside of a vehicle or in a metal or steel framed building can severely reduce the range of the unit. Mountains and buildings can also reduce the range of the unit.

In areas where transmission or reception is poor, some improvement may be obtained by ensuring that the antenna is vertical. Moving a few yards in another direction or moving to a higher elevation may also improve communications. Vehicular operation can be aided with the use of an externally mounted antenna.

Battery condition is another important factor in the trouble free operation of a portable radio. Always properly charge the batteries.

EFFICIENT RADIO OPERATION

Hold the portable radio approximately three inches from your mouth and speak into the microphone at a normal voice level.

Keep the antenna in a vertical position when receiving or transmitting a message.

Do not hold the antenna when receiving a message and, especially, do **not** hold when transmitting a message.

ANTENNA CARE AND REPLACEMENT

Do not use the portable radio with a damaged or missing antenna. A minor burn may result if a damaged antenna comes into contact with the skin. Replace a damaged antenna immediately. A missing antenna could damage your portable radio.

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

ELECTRONIC DEVICES

RF energy from your portable radio may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc. are shielded from RF energy. However, in areas that instruct you to turn off two-way radio equipment, always observe the rules. If in doubt, turn it off.

AIRCRAFT

Always turn off your portable radio before boarding any aircraft.

- Use it on the ground only with crew permission

- Do not use it in the air

BLASTING AREAS

To avoid interfering with blasting operations, turn your radio OFF when in a "blasting area" or in areas posted "turn off two-way radio". Remote control RF devices are used by some construction crews to set off explosives.

POTENTIALLY EXPLOSIVE ATMOSPHERES

Areas with potentially explosive atmosphere are often, but not always, clearly marked. These may be fueling areas, such as gas stations, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust or metal powders.

Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Turn OFF your radio when in any area with a potentially explosive atmosphere. It is rare, but not impossible that the radio or its accessories could generate sparks.

ACCESSORIES

The following accessories are available for use with the KH-500/600 radio units:

Antenna, 136-155 MHz, Helical	KRE 101 1219/1
Antenna, 150-165 MHz, Helical	KRE 101 1219/2
Antenna, 160-174 MHz, Helical	KRE 101 1219/3
Antenna, 403-440 MHz, Helical	KRE 101 1219/10
Antenna, 440-470 MHz, Helical	KRE 101 1219/12
Antenna, 470-512 MHz, Helical	KRE 101 1219/13
Antenna, 403-440 MHz, Whip	KRE 101 1223/10
Antenna, 440-512 MHz, Whip	KRE 101 1223/12
Rechargeable Battery Pack (Extra High Capacity)	BKB 191 202
Rechargeable Battery Pack (High Capacity)	BKB 191 203
Speaker/Microphone (Ericsson Label)	KRY 101 1617/33
Earpiece	RLD 541 07/11
Rapid Charger, 120/230 VAC (Ericsson Label)	BML 161 51/505
Multi-Rapid Charger, 120/230 VAC (Ericsson Label)	BML 161 51/513

ACCESSORIES CONTINUED

Compact Rapid Charger, 120/230 VAC (Ericsson Label)	BML 161 74/12
International Plug Adapter Kit (For use with BML 161 74/12 only)	BML 161 74/21
Belt Clip	KRY 101 1232/2
Belt Loop with Swivel Mount	KRY 101 1609/A1
Leather Case w/Belt Loop	KRY 101 1622/1
Leather Case w/ Belt Loop & swivel	KRY 101 1622/A2
Shoulder Strap (For Leather Case)	KRY 101 1607/1

INTRINSICALLY SAFE USAGE

Selected portable radios with appropriate factory installed options are certified as Intrinsically Safe by the Factory Mutual Research Corporation and the Canadian Standards Association. Intrinsically Safe approval through Factory Mutual includes Class I, II, III, Division 1 hazardous locations in the presence of Groups C, D, E, F and G atmospheres. Non-Incendive approval includes Class I, Division 2 hazardous locations in the presence of Groups A, B, C and D atmospheres. Approval through the Canadian Standards Association (CSA) includes Class I Groups C and D, Class II Group G Coal Dust; and Class III. CSA approval also includes Class I, Division 2 Groups A, B, C and D.

Hazardous locations are defined in the National Electrical Code. Useful standards NFPA 437A and NFPA 437M for the classifications of hazardous areas can be ordered from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

BATTERY PACKS

Only battery packs identified with a green FM/CSA label shall be used with a portable radio that is rated and labeled as Factory Mutual/CSA Intrinsically Safe. Use of nonspecified battery packs voids Factory Mutual/CSA approval. The following battery packs are approved for use in intrinsically safe radios:

BKB 191 202/2   Rechargeable Battery Pack, Extra High Capacity
BKB 191 203/2   Rechargeable Battery Pack, High Capacity

ACCESSORIES

Use of accessories other than those listed voids Factory Mutual/CSA approval. The following accessories are for use with intrinsically safe radios:

Speaker/Microphone/Antenna (Ericsson Label)	KRY 101 1617/31
Earpiece Kit	RLD 541 07/11
Antenna, 136-155 MHz, Helical	KRE 101 1219/1
Antenna, 150-165 MHz, Helical	KRE 101 1219/2
Antenna, 160-174 MHz, Helical	KRE 101 1219/3
Antenna, 403-440 MHz, Helical	KRE 101 1219/10
Antenna, 440-470 MHz, Helical	KRE 101 1219/12
Antenna, 470-512 MHz, Helical	KRE 101 1219/13
Antenna, 403-440 MHz, Whip	KRE 101 1223/10
Antenna, 440-512 MHz, Whip	KRE 101 1223/12
Belt Clip	KRY 101 1232/2
Belt Loop w/swivel	KRY 101 1609/A1
Leather Case w/Belt Loop	KRY 101 1622/1
Leather Case w/ Belt Loop & swivel	KRY 101 1622/A2
Shoulder Strap (for leather case)	KRY 101 1607/1

GLOSSARY

conventional channel - a radio channel (transmit/receive) that is allocated for conventional (non-trunked) use and may be manually selected by the operator.

conventional mode - communicating on radio channels allocated for conventional use.

CCT - Carrier Controlled Timer - a programmable timer that will disable a transmission if the timer length is exceeded.

CG - Channel Guard - a method of controlling receiver mute with a tone or digital code.

Talk-around mode - also referred to as "direct mode", talk-around provides a direct unit-to-unit short range communications link. It is intended to maintain communications outside of the main system coverage area.

Telephone Interconnect - this feature allows the user to initiate or receive telephone calls through the radio if the system is configured for this operation. (Trunked Mode Only)

Channel Number	TX Freq (MHz)	Encode CG/DCG	RX Freq (MHz)	Decode CG/DCG	USE
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

NOTES

WARRANTY

A   Ericsson Inc. (hereinafter "Seller") warrants to the original purchaser for use (hereinafter "Buyer") that Equipment manufactured by Seller shall be free from defects in material, workmanship and title, and shall conform to its published specifications. With respect to any Equipment not manufactured by Seller (except for integral parts of Seller's Equipment to which the warranties set forth above shall apply). Seller gives no warranty, and only the warranty, if any, given by the manufacturer shall apply. Batteries are excluded from this warranty but are warranted under a separate Nickel-Cadmium Battery Warranty.

B.   Seller's obligations set forth in Paragraph C below shall apply only to failures to meet the above warranties (except as to title) occurring within the following periods of time from date of sale to the Buyer and are conditioned on Buyer's giving written notice to Seller within thirty (30) days of such occurrence:

1.   for fuses, incandescent lamps, vacuum tubes and non-rechargeable batteries, operable on arrival only.

2.   for parts and accessories (except as noted in B.1) sold by Seller's Service Parts Operation, ninety (90) days.

3.   for all other Equipment of Seller's manufacture, one (1) year.

C.   If any Equipment fails to meet the foregoing warranties, Seller shall correct the failure at its option (i) by repairing any defective or damaged part or parts thereof, or (ii) by making available at Seller's factory any necessary repaired or replacement parts. Any repaired or replacement part furnished hereunder shall be warranted for the remainder of the warranty period of the Equipment in which it is installed. Where such failure cannot be corrected by Seller's reasonable efforts, the parties will negotiate an equitable adjustment in price. Labor to perform warranty service will be provided at no charge during the warranty period only for the Equipment covered under Paragraph B.3. To be eligible for no-charge labor, service must be performed by an Authorized Service Center or other Servicer approved for these purposes either at its place of business during normal business hours, for mobile or personal equipment, or at the Buyer's location, for fixed location equipment. Service on fixed location equipment more than thirty (30) miles from the Service Center or other approved Servicer's place of business will include a charge for transportation.

D.   Seller's obligations under Paragraph C shall not apply to any Equipment, or part thereof, which (i) has been modified or otherwise altered other than pursuant to Seller's written instructions or written approval or, (ii) is normally consumed in operation or, (iii) has a normal life inherently shorter than the warranty periods specified in Paragraph B, or (iv) is not properly stored, installed, used, maintained or repaired or, (v) has been subjected to any other kind of misuse or detrimental exposure, or has been involved in an accident.

E.   The preceding paragraphs set forth the exclusive remedies for claims (except as to title) based upon defects in or nonconformity of the Equipment, whether the claim is in contract, warranty, tort (including negligence), strict liability or otherwise, and however instituted. Upon the expiration of the warranty period, all such liability shall terminate. The foregoing warranties are exclusive and in lieu of all other warranties, whether oral, written, expressed, implied or statutory. NO IMPLIED OR STATUTORY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT OR EXEMPLARY DAMAGES.

This warranty applies only within the United States.

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NICKEL-CADMIUM BATTERY WARRANTY

A. Ericsson Inc. (hereinafter "Seller") warrants to the original purchaser for use (hereinafter "Buyer") that nickel-cadmium batteries supplied by Seller shall be free from defects in material and workmanship, and shall conform to its published specifications for a period of twelve (12) months from the date of purchase.

B. For purposes of this warranty, batteries shall be deemed defective if (1) the battery capacity is less than 80% of rated capacity, or (2) the battery develops leakage.

C. If any battery fails to meet the foregoing warranty, Seller shall correct the failure by issuing a replacement battery upon receipt of the defective battery at an Authorized Service Center (ASC). To obtain the name and address of a ASC, ask your salesperson, consult the Yellow Pages, or call the number printed at the bottom of this page.

D. Replacement batteries shall be warranted only for the remaining unexpired warranty period of the original battery. This warranty becomes void if:
(1)   The battery has been subjected to any kind of misuse, detrimental exposure, or has been involved in an accident.

OPERATOR'S RADIO SETUP

RADIO TYPE:

FREQUENCY BAND:

OPERATOR'S NAME:

EMERGENCY HOME CHANNEL:

HOME CHANNEL:

EMERGENCY NUMBERS

Police

State Police

Fire

Poison Control

Ambulance

**Life Saving and
Rescue Squad**