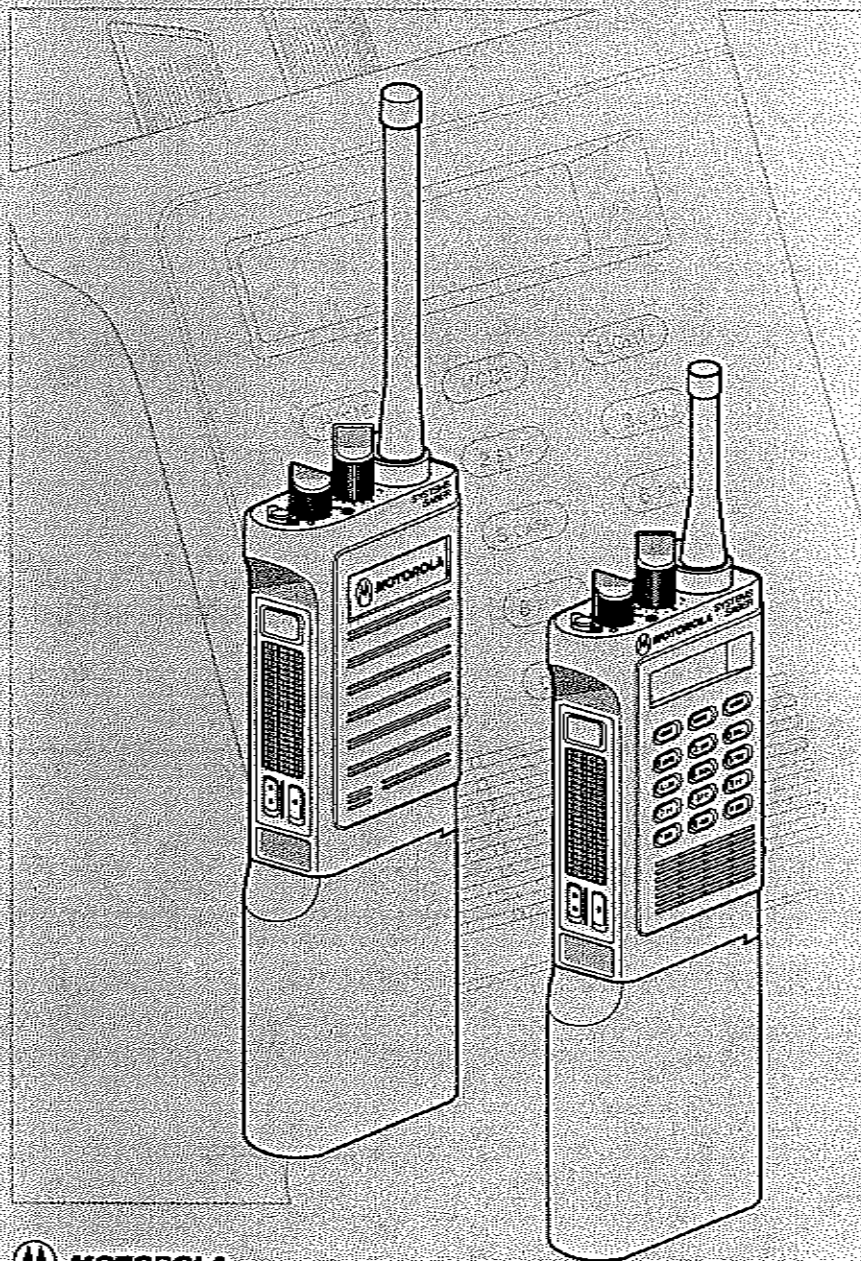


SYSTEMS SABER™ Handie-Talkie® Portable Radios

operating instructions



 **MOTOROLA**

Systems SABER™ Handie-Talkie® Portable Radios

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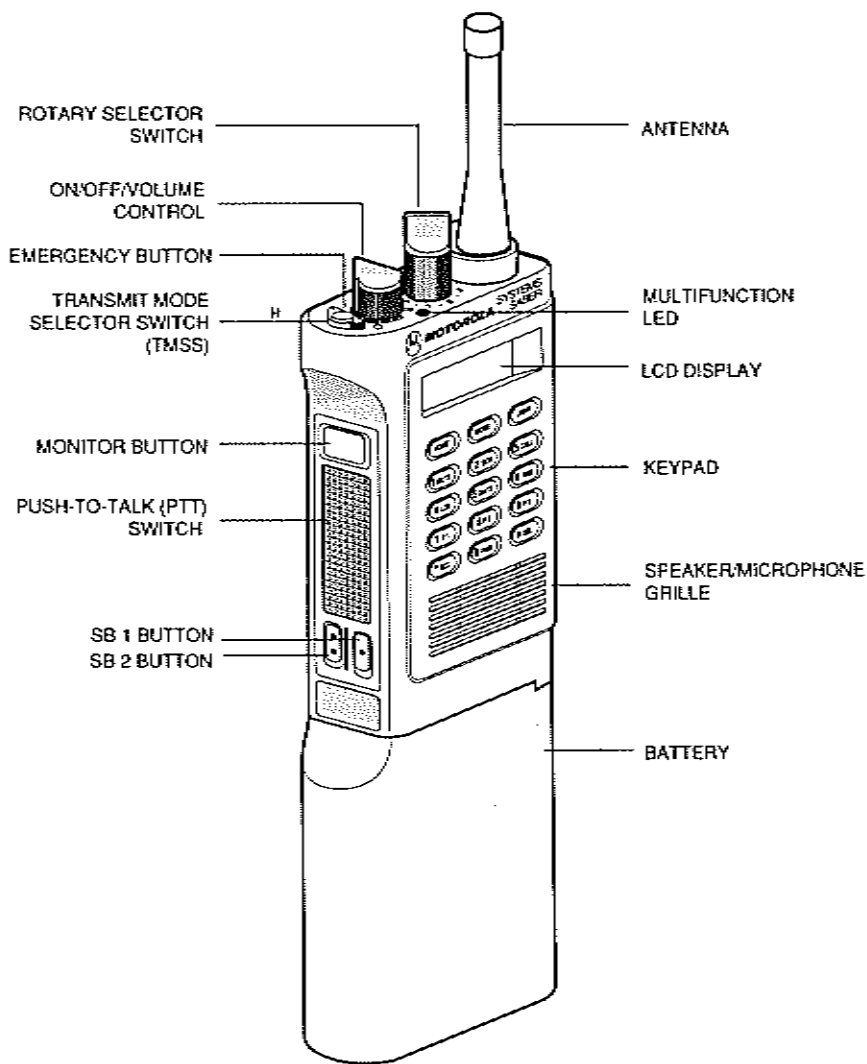
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About Your Systems SABER™ Radio

Introduction

The Systems SABER and SABER ATS radios are among the most sophisticated two-way radios on the market today, using state-of-the-art technologies to provide advanced receiver and transmitter design. These radios use custom integrated circuits that enhance performance and reliability, and reduce radio size. The Systems SABER and SABER ATS radios can operate on both trunked (UHF radios only) and conventional systems, providing you with maximum communications capability under varying operational circumstances. Digital frequency synthesis techniques provide up to 16 modes (trunked talkgroups combined with conventional channels) (Systems SABER I and SABER ATS) or 225 modes (Systems SABER III) of transceiver capability.

Note: In many ways, Systems SABER and SABER ATS radios are functionally identical; however, Systems SABER III radios have additional features and capabilities that the Systems SABER I and SABER ATS do not have. In the remainder of this manual, unless otherwise noted, consider general reference to "Systems SABER" and specific reference to "Systems SABER I" to apply also to SABER ATS.

The Systems SABER radio provides tremendous flexibility in channel management and signaling schemes. Programming, changing frequencies, retuning, and testing can all be accomplished by a qualified technician without opening the unit.

All of the features provided in the Systems SABER radio add up to more cost effective two-way communications for you. The Systems SABER radio is smaller, lighter, and much more capable than other comparable radios. Results of unparalleled Accelerated Life Testing indicate that the Systems SABER radio is far more reliable and durable than its predecessors.

*Systems SABER! It means the quality and reliability
you've come to expect from Motorola!*

Inspection

When you receive your SYSTEMS SABER packaged model, inspect the shipping carton for any outward signs of damage. Next, check the contents of the carton against the shipping invoice or bill of materials to be certain that all items ordered have been included. The SYSTEMS SABER packaged model should include:

- SYSTEMS SABER radio
- Antenna
- Nickel-cadmium battery
- Removable belt clip
- Universal connector cover
- SYSTEMS SABER operating instructions manual

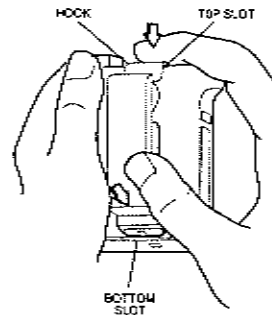
Inspect the equipment thoroughly. If any equipment was damaged during shipment, report the extent of the damage to the transportation company immediately.

Belt Clip Installation and Removal

Note: Installation and removal of the belt clip assembly should be done with the battery removed.

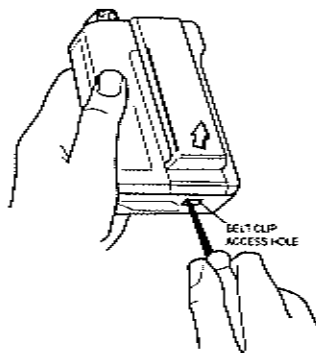
Installing the Belt Clip

1. Looking at the back of the radio, insert the top (hooked) end of the belt clip assembly into the slot at the top of the radio. Make sure that the clip's hook is centered and seated in the slot.
2. Align and center the bottom end of the belt clip in the slot between the radio housing and the baseplate.
3. Press the bottom of the belt clip into the slot until it "clicks" into place. Pull outward on the bottom of the clip to ensure that it is secured to the radio.



Removing the Belt Clip

1. Looking at the back of the radio, insert a thin, flat-bladed screwdriver into the belt clip access hole in the baseplate at an angle of about 30°, and engage the locking tab on the belt clip.
2. Push firmly inward and upward on the locking tab until it is disengaged from the access hole.
3. Continue pushing on the tab until it can be seen between the radio housing and the baseplate. If necessary, reposition the screwdriver and push on the tab again to free it from the hole.
4. Lift the belt clip up and away from the radio.

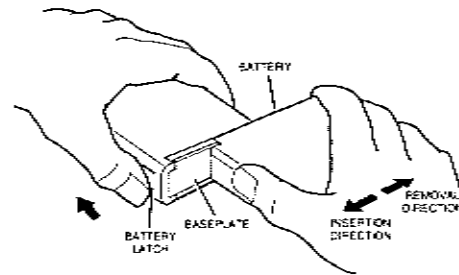


- 4 About Your SYSTEMS SABER Radio
Inspection /
Belt Clip Installation and Removal

Battery Installation or Replacement

When you receive your packaged SABER radio, inspect the shipping carton for any outward signs of damage. Next, remove and check the contents of the packing case against the shipping invoice or bill of materials to ensure that all items ordered have been included. The packaged SABER radio should include:

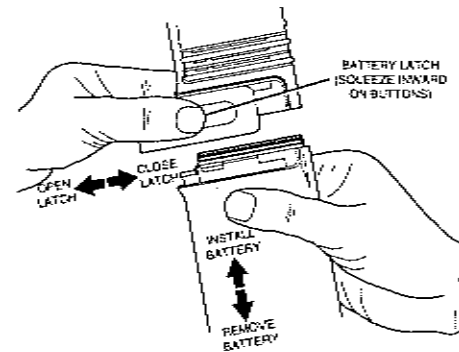
- SABER radio
- Antenna (heliflex for vhf models or flexible whip for uhf models)
- Nickel-cadmium battery (medium-capacity for low-power models, or ultra-high-capacity for high-power models)



1. Make sure that your radio is turned off.
2. Hold the radio in your hand and slide the battery latch toward the top of the radio with your thumb.
3. While holding the battery latch, slide the battery pack away from the latch until it clears the radio.
4. To replace the battery, hold the radio in one hand. With the other hand, slide the battery onto the radio baseplate and towards the latch until it "clicks" into place.

SABER II R Radio Battery Only

- Make sure that your radio is turned off.
- Simultaneously squeeze inward on the spring-loaded battery-latch buttons, and slide the U-shaped battery-latch away from the radio as far as it will go (about 1/2 inch).



- Pull the battery down and away from the radio.
- To replace the battery, position the battery on the radio and make sure that it is correctly seated. Then, slide the U-shaped battery-latch slide toward the radio unit it "clicks" into place.

Radio Features

Your SYSTEMS SABER radio includes, or is capable of, a number of features:

- low-battery alert
- time-out timer
- PTT Unit ID
- emergency alarm and call
- Failsoft (trunked systems only)
- announcement group call (trunked system only)
- trunked and/or conventional operation
- scan (trunked and conventional)
- dynamic regrouping (trunked systems only)
- secure (encrypted) communications capability
- automatic multiple site selection (AMSS) (trunked systems only)
- telephone interconnect (SYSTEMS SABER III only)
- Private Conversation™ (trunked systems only)
- Call Alert™ (trunked systems only)
- status/message (SYSTEMS SABER III trunked systems only)
- system search and lock (SSL)
- Over-The-Air Rekeying (conventional systems only)
- Multikey (conventional systems only)

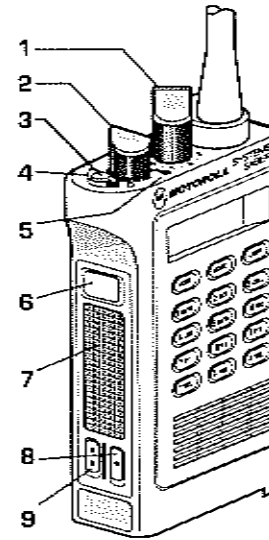
Conventional Versus Trunked Radio Operation

The SYSTEMS SABER radio is capable of both conventional and trunked operation:

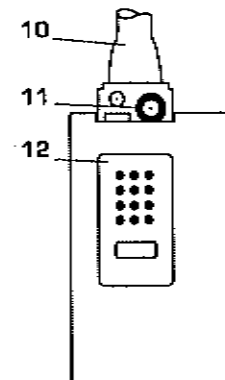
Conventional Operation - During conventional operation, your SYSTEMS SABER radio performs like a conventional two-way radio. That is, you must monitor the selected channel before transmitting (by checking the multifunction LED for channel busy or pressing the monitor button) to ensure that you are observing standard two-way radio transmission protocol by not talking over someone who is already transmitting.

Trunked Operation (UHF Radios Only) - During trunked operation, your SYSTEMS SABER radio offers a number of advantages, including fast system access, enhanced privacy, and ease of operation. In a trunked system, there is no need for you to monitor a channel before transmitting.

Controls, Switches, Indicators, and Connectors



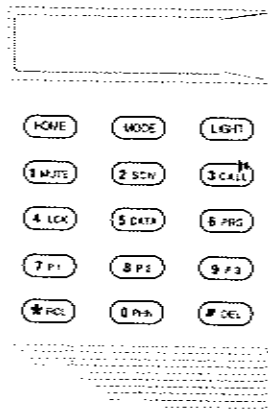
1. **Rotary Selector Switch** - Selects the trunked talkgroup or conventional (repeater/talk-around) channels, and their associated "slaved" features.
2. **On/Off/Volume Control** - Turns the radio on/off and adjusts the audio output level.
3. **Emergency Button** - Transmits an emergency alarm and/or initiates an emergency call.
4. **Transmit Mode Selector Switch (TMSS)** - On secure-equipped radios, selects whether the radio is sending secure (digitally-encrypted) voice or clear (non-encrypted) voice transmissions.
5. **Multifunction LED** - Light-emitting diode indicating normal transmission, busy, or receipt of a Private Conversation or Call Alert.
6. **Monitor Button** - Press to momentarily monitor a channel for voice communications (conventional operation), or to enable certain radio features (trunked operation).
7. **PTT (Push-to-Talk) Switch** - Pressing the PTT switch causes the radio to transmit. It also resets any tone sequences preprogrammed to the PTT switch (for example, Unit ID). The receiver operates when the PTT switch is released.
8. **Side Button 1 (SB 1) [•]** - When this button is pressed, any features assigned to it will be enabled.
9. **Side Button 2 (SB 2) [••]** - When this button is pressed, any features assigned to it will be enabled.
10. **Antenna** - Flexible Whip (standard) or heliflex (optional); with threaded base.
11. **RF Connector** - Allows connection of an external antenna or radio test equipment.
12. **Universal Connector** - Provides access to the radio for programming and testing; also allows for connection to remote accessories, such as a remote speaker microphone. The universal connector has a protective cover which should be left in place when the radio is not in use.



Note: In secure-equipped radios, to avoid losing the encryption key when operating the SYSTEMS SABER SECURENET radio, the universal connector cover should also be installed whenever the radio is being used.

Keypad (SYSTEMS SABER III Only)

The keypad allows you to use the different features available within your SYSTEMS SABER. The keypad consists of 15 keys, which are explained below:



Note: There are two basic ways to press the keypad's keys, hard-press and quick-press:

- A "hard-press" involves pressing and holding down a key for a period of time to enable a radio function or feature; this helps to prevent the accidental selection of a feature. The time period can be changed by the *Radio Service Software*.
- A "quick-press" involves a rapid pressing and releasing of a key once a function or feature has been enabled.

If the term "press" is used, the length of time of a keypress is unimportant.

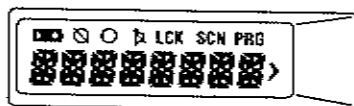
- **6 PRG** key. Hard-pressing this key puts the radio in the program mode; this will allow you to program the operator-programmable scan, telephone, and call ID lists.
- **7 P1, 8 P2, and 9 P3** keys. These keys support a number of different features. Among these are system search and lock, and Advanced SECURENET features (Over-The-Air Rekeying, Multikey).
- *** RCL** key. Hard-pressing this key, immediately followed by the **3 CALL** or **0 PHN** keys, puts the radio in the "recall list" mode. This will allow you to look through the elements of the radio's telephone, call ID, or scan lists.
- **0 PHN** key. Hard-pressing this key turns on any mode-slaved telephone feature tied to the current talkgroup/channel.
- **# DEL** key. Pressing this key allows you to step backward through the programming procedure, scroll backward in the "recall scan list" mode, or temporarily drop a channel from the scan list (nuisance delete) when the radio is scanning.

- **HOME** key. Pressing this key either returns the radio to the home display, or completes the keypress sequence in progress.
- **MODE** key. This key performs multiple functions:
 - Changing of zones. Hard-pressing this key while the display is showing the "home display" puts the radio into the "change zone" mode. Each quick-press following this hard-press will show the next zone on the display; holding the **MODE** key down will allow you to rapidly scroll through the zones.
 - Stepping through a feature. Once any other feature has been selected by hard-pressing, the **MODE** key serves as a "step-through" key, allowing you to view the different items ("modes") in that feature.
- **LIGHT** key. Hard-pressing this key turns the radio's display light on or off, depending on the radio's previous state.

On the lower four rows of keys, all of the numeric [**0 through 9**] keys are used to enter the numeric information required by some of the radio functions. In addition, certain keys are also used to select various radio functions as follows:

- **1 MUTE** key. Hard-pressing this key turns the radio's keypad tones on or off, depending on the radio's previous state.
- **2 SCAN** key. Hard-pressing this key turns on any mode-slaved scan list tied to the current talkgroup.
- **3 CALL** key. Hard-pressing this key, immediately followed by presses of the **MODE** key, puts the radio in the Call Alert or Private Conversation mode.
- **5 DATA** key. Hard-pressing this key, immediately followed by presses of the **MODE** key, puts the radio in the status, message or reprogram request mode.

Display (SYSTEMS SABER III Only)



The SYSTEMS SABER radio has a two-row liquid crystal display (LCD). The upper row contains seven status annunciators, which indicate some of the radio's operating conditions. The lower row displays alphanumeric

messages (up to eight characters long), and contains an additional menu annunciator.

Display Light

If poor light conditions make the display difficult to read, turn on the radio's display light by hard-pressing the **LIGHT** key on the keypad. This light will remain illuminated for 15 seconds before it automatically turns off; you can also manually turn the light off before the automatic turn-off time by pressing the **LIGHT** key a second time. If, while the light is on, any key or button is pressed, or any knob is turned, the light will stay on for an additional 15 seconds.

Status Annunciators

The status annunciators indicate the status of certain radio functions:

- **Battery Status** (). Indicates the charge state of the rechargeable (Ni-Cd) battery (not valid for non-rechargeable batteries).
OFF = FULLY OR PARTIALLY CHARGED; DOES NOT NEED RECHARGING
BLINKING = ALMOST EMPTY; RECHARGE BEFORE USING
- **Coded Voice** (). On secure-equipped radios, if either the coded voice mode is selected or the channel is "slaved" to the coded voice mode, this symbol will be on continually. Also, the coded voice symbol will blink if the clear voice mode is selected and a coded voice message, using the same encryption key as the one stored in the radio, is received. If the channel is "slaved" to the clear mode and the TMSS is set to the coded mode, the display will show the clear voice symbol and you will not be allowed to transmit; a bad "bonk" tone will be heard as long as the PTT switch is held down. To transmit, you will have to set the TMSS to the clear position.
ON = CODED VOICE SELECTED OR CHANNEL IS SLAVED TO CODED VOICE
OFF = CLEAR VOICE SELECTED
BLINKING = RECEIVING CODED VOICE WHILE IN THE CLEAR MODE
- **Clear Voice** (). On secure-equipped radios, if either the clear voice mode is selected or the channel is "slaved" to the clear voice mode, this symbol will be on continually. Also, the clear voice symbol will blink if the coded voice mode is selected and a clear voice message is received. If the channel is "slaved" to the coded mode and the TMSS is set to the clear mode, the display will show the coded voice symbol and you will not be allowed to transmit; a bad "bonk" tone will be heard as long as the PTT switch is held down. To transmit, you will have to set the TMSS to the coded position.
ON = CLEAR VOICE SELECTED OR CHANNEL IS SLAVED TO CLEAR VOICE
OFF = CODED VOICE SELECTED
BLINKING = RECEIVING CLEAR VOICE WHILE IN THE CODED MODE

- **Coded Squelch** (). Indicates the type of receive squelch that is in effect for the active conventional channel.
ON = CODED SQUELCH
OFF = CARRIER SQUELCH
- **Lock (LCK)**. Indicates the lock state of the AMSS. This appears on the display only when the AMSS lock status is being checked.
ON = THE AMSS IS LOCKED
OFF = THE AMSS IS NOT LOCKED
- **Scanning Function (SCAN)**. Indicates when the radio is in the scan mode.
ON = THE RADIO IS IN THE SCAN MODE
OFF = THE RADIO IS NOT IN THE SCAN MODE
- **Programming Function (PRG)**. Indicates when the radio is performing a programming function; for example, programming a scan list.
ON = THE RADIO IS PERFORMING A PROGRAMMING FUNCTION
OFF = THE RADIO IS NOT PERFORMING A PROGRAMMING FUNCTION
BLINKING = THE **6 PRG** KEY HAS BEEN HARD-PRESSED, BUT NO PROGRAMMING FEATURE HAS BEEN SELECTED
- **Menu Annunciator** (). Indicates when more information is available in some features, or more steps are required to complete a keypad sequence.
ON = MORE INFORMATION OR STEPS ON SOME FEATURES
OFF = NO MORE INFORMATION OR STEPS ON SOME FEATURES

The Home Display

Whenever one of the SYSTEMS SABER features is not being actively used, your radio will show the "home" display. This is the last zone/talkgroup stored using the **MODE/HOME** button combination.

Alert Tone Indications

The SYSTEMS SABER generates the following audible tones to indicate radio operating conditions:

- **Time-Out Timer (TOT)** If your radio has a time-out timer, transmission time is limited. If you hold down the PTT switch longer than the allotted time, you will hear a low-pitched "baaaah" alert tone, indicating that your transmission has been cut off. The alert will continue until the PTT switch is released. When the radio is in the trunked mode, a warning tone will tell you that the transmission will end in approximately four seconds.

- **Low Battery**
A low battery condition is indicated by a cricket-like "chirp-chirp" when the PTT switch is released following a transmission. After a low battery alert indication, the battery will continue to operate the radio for approximately 20 minutes before failing.
- **Valid Key Press (SYSTEMS SABER III only)**
A "chirp" tone heard when the keypad buttons are pressed indicates that the key press is accepted.
- **Invalid Key Press (SYSTEMS SABER III only)**
A "bonk" tone heard when the keypad buttons are pressed indicates that the key press is rejected.
- **Transmit on Receive-Only Channel (Conventional Systems Only)**
If you press the PTT switch while tuned to a "receive-only" channel, you will hear an alert tone, indicating that no transmission is possible on this channel. The tone will continue until the PTT switch is released.
- **PTT Transmit Inhibit Alert (Conventional Systems Only)**
If your radio has the "transmit inhibit on busy channel" feature enabled, pressing the PTT switch when the channel is busy will generate an alert tone, indicating that no transmission is possible on this channel. The tone will continue until the PTT switch is released.
- **Phone Busy (SYSTEMS SABER III only)**
The presence of a "Bah-bah-bah-bah" tone when telephone interconnect is accessed indicates that all available telephone channels are busy and the radio is in queue for the next available phone line.
- **Dynamic Regrouping (Trunked Systems Only)**
The presence of a "gurgle" tone indicates that the dispatcher has regrouped the radio into another mode over the airwaves. It doesn't require any action on the part of the user.
- **Call Alert (Page) Decode (Trunked Systems Only)**
A group of four high pitched "beep" tones every six seconds indicates that the radio has been paged.
- **Private Conversation Decode (SYSTEMS SABER III Only)**
A group of two high pitched "beep" tones indicates that there is an incoming Private Conversation call.

- **Talk Permit (Trunked Systems Only)**
A high-pitched "di-di-dit" tone after the PTT switch is pressed indicates that a channel is available.
- **Talk Prohibit (Trunked Systems Only)**
A continuous low-pitched tone after the PTT switch is pressed indicates an unsuccessful attempt to access the system.
- **Dispatch Busy (Trunked Systems Only)**
The presence of a continuous "bah-bah-bah" tone when the PTT switch is pressed indicates that all available channels are busy and the radio is in queue.
- **Call Back (Trunked Systems Only)**
Channel availability is indicated by a high pitch "di-di-dit" tone (same as talk permit) when the radio is in queue.
- **Failsoft (Trunked Systems Only)**
A continuous faint "beeping" tone every ten seconds indicates that the radio is operating in failsoft conditions.
- **Emergency Alarm/Call (Trunked Systems Only)**
Five beeps indicate that an alarm has been sent to the dispatcher.
- **Illegal Mode**
Low-pitched "baaaah" tones are heard when an invalid or unprogrammed operation is attempted on the radio.
- **Clear Mode Alert Tone on Transmit (Secure-Equipped Models)**
Pressing the PTT switch when the radio is in the clear voice mode will generate a short alert tone "beep", indicating that you are sending a clear voice (not encrypted) transmission. This tone can be disabled from the field programmer.
- **Key Fail Alert (Secure-Equipped Models)**
If the encryption key has failed or been lost and the radio is in the secure (encrypted) voice mode, six rapid "beep" tones will be generated every six seconds. If the PTT switch is pressed, the alert tone will be continuously generated until the switch is released. The radio will not transmit in the secure voice mode or receive a secure voice transmission without the encryption key.
- **Invalid Switch Position Tone (Secure-Equipped Models)**
If a radio equipped with a transmit mode selector switch (TMSS) has clear voice or coded voice slaved to a channel, and the position of the switch does not agree with the voice mode slaved to that channel, a tone will be generated when the PTT switch is pressed. The tone will continue until either the TMSS is placed in the position that matches the voice mode of the channel, or the PTT switch is released.
- **Transmit Mode Switching (Secure-Equipped Models)**
If the position of the TMSS is changed while the PTT switch is being pressed, an alert tone will be generated. The tone will continue until the PTT switch is released.

Multifunction LED Indications

The multifunction LED indicates radio operating conditions:

- a. With PTT switch pressed (radio transmitting)
 - Continuous red light - Normal transmission
 - LED unlit - No transmitter power is being sent to the antenna
 - Blinking red light (SYSTEMS SABER I only) - Low battery (does not apply to primary or non-rechargeable batteries)
- b. With PTT switch released (radio receiving)
 - Blinking red light - Channel busy (conventional channels only)
 - Blinking green light - Receipt of a Private Conversation or Call Alert

How to Recognize a Low-Battery Condition

If your radio's battery needs charging, you will hear a brief low-battery warning (a "chirp-chirp" alert tone that sounds like a cricket) each time you release the PTT switch. You will continue to get this warning until you either charge the battery, or replace it with a freshly-charged one. In addition to the alert tone (SYSTEMS SABER III radios only), whenever the radio's battery needs charging, the low-battery indication (a blinking "battery status" annunciator) will appear on the radio's display. If the battery reaches the low-battery state while the radio is not transmitting, a low-battery ("chirp-chirp") alert tone will be sounded periodically.

Operation

A trunked system uses repeater channels to create a communications path. Each system contains up to 20 repeater channels, depending on system requirements. The central controller, the main control unit of the system, uses one of the channels as a dedicated control channel. This control channel is the link between the central controller and the radios in the system. The central controller continuously transmits information to all radios consisting of timing signals to keep radios synchronized to the central controller and identification signals to identify the control channel. All radios automatically monitor the control channel when there is no voice traffic and are silent until summoned by the central controller.

A typical system might consist of a certain number of radio units operating within an organized group known as an announcement group. Each announcement group can be segmented into independent talkgroups. Talkgroup segmentation allows the announcement group to be organized into predetermined groups according to function. Members of a talkgroup hear only those messages intended for the talkgroup.

When a user presses the PTT switch to begin communication, the following events occur, all in less than one second:

- A voice channel request is automatically sent to the central controller via the control channel.
- The central controller decodes the request, identifies the user, and determines which talkgroup is being called.
- The central controller acknowledges the request via the control channel and begins searching for a open voice channel.
- The requesting radio alerts the user to go ahead if a voice channel has been assigned or to stand by for a talk permit if voice channels are busy.

Once a voice channel has been assigned, the central controller assigns the same voice channel to all talkgroup members which allow other members to join communication already in progress.

If the central controller receives a voice channel request from a radio on another talkgroup, it assigns that radio and its talkgroup to an unoccupied voice channel (when one becomes available). This action will not affect or disrupt communication already in progress on other occupied voice channels.

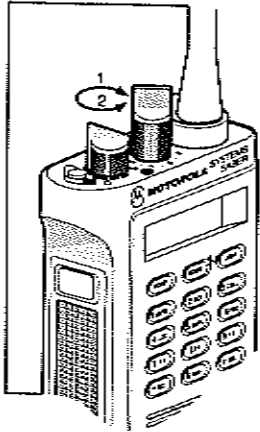
Advantages

Trunked operation has one main goal: to improve a system's efficiency by sharing its resources among many users. Although trunking has been used for many years by telephone companies, Motorola has pioneered its use in the two-way radio industry. Trunked operation offers many advantages over conventional, non-trunked radio operation.

- The system central controller automatically selects and assigns communication channels, making operations reliable, simple, and efficient.
- Channel assignment is restricted to one group at a time, eliminating interference and ensuring privacy.
- One attempt is required to access the system; if all channels are busy, the central controller will automatically assign the next available channel to the user.

How to Use Your SYSTEMS SABER Radio

Radio On/Off



1. Turn the radio on by rotating the volume control clockwise until you hear a click. The radio goes through a power-up check, and (SYSTEMS SABER III only) display characters light up.

Note: If the display shows an error message of the form *ERR X XX* (where X is alphanumeric), return the radio for service.

2. Turn the radio off by rotating the volume control fully counterclockwise until you hear a click.

Secure Voice Operation

For secure voice operation of the SYSTEMS SABER radio:

1. A SECURENET module must be installed in the radio.
2. An encryption key must be loaded from a key loader into the radio's memory. To load the key, connect the key loader cable to the universal connector on the back of the radio; refer to the keyloader's instruction manual for loading procedure.

SYSTEMS SABER radios are designed to quickly destroy the key if the battery is removed while the radio is turned on. Removing the battery with the radio turned off provides you with approximately 30 seconds to replace the battery before the key will be destroyed. If the key is destroyed, it will have to be reloaded as described above.

Note: Radios must be authorized to access the trunked system before they will operate on that system.

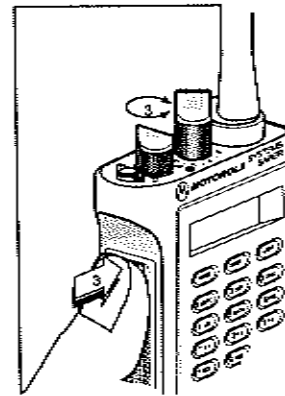
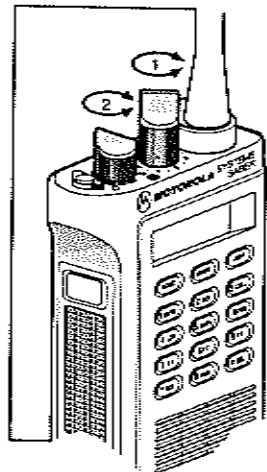
Receiving a Call

Conventional Channels

1. Turn the radio on and set the rotary selector switch to the desired position (1, 2, 3, ...).

Note: SYSTEMS SABER radios automatically determine whether a secure or clear voice message is being received. This allows the user to receive either secure or clear voice messages without having to change the position of the secure/clear selector switch.

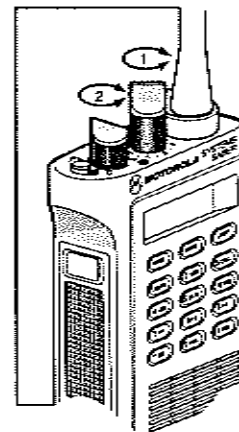
2. Listen until you hear a transmission, then adjust the volume control for a comfortable listening level.



3. If you don't hear a transmission, press the monitor button to monitor the channel for voice communications, then adjust the volume control until the background noise is at a comfortable level. Press and hold down the monitor button to put the radio in the open squelch (monitor) mode; quick-press the monitor button again to return the radio to normal operation. You will not be able to monitor if your radio has "transmit inhibit on busy" enabled.

Note:

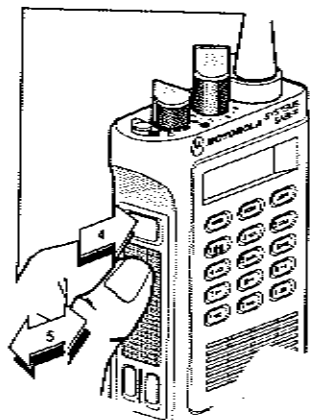
- For conventional PL/DPL operation, the radio remains squelched until the correct PL/DPL coded call is received.
 - The radio's squelch level has been pre-set at the factory. This level can be changed via the Radio Service Software.
4. Your radio is now set to receive calls on your selected frequency or mode.



Trunked Systems

1. Turn the radio on and set the rotary selector switch to the desired talkgroup position (1, 2, 3, ...).
2. Listen until you hear a transmission on your selected talkgroup, then adjust the volume control for a comfortable listening level.
3. Your radio is now set to receive calls on your selected mode.

Transmitting



Conventional Channels

1. Select the desired frequency or mode with the rotary selector switch.
2. Turn the TMSS to the desired position (secure-equipped radios only).
 - ⊗ = secure voice transmission
 - = clear voice transmission
3. Hold the radio in a vertical position with the speaker/microphone grille two to three inches from your mouth.
4. Quick-press the monitor button to monitor the channel for activity. To avoid interrupting another user, make sure the channel is clear before you begin transmitting. If the "channel busy" feature has been enabled in your radio, a blinking red LED on receive will indicate that the channel is currently busy and you should not transmit.

5. When the channel is open, press and hold down the push-to-talk (PTT) button on the side of the radio and speak slowly and clearly into the grille area.

Note: Standard radios are equipped with a transmit-indicator light emitting diode (LED). This red indicator should be on continuously while the PTT switch is being pressed and the radio is transmitting.

6. When you have finished talking (transmitting), release the PTT switch and listen (receive).

Note: If your radio is set for clear voice transmission and has the "clear mode alert tone on transmit" feature enabled, and you press the PTT button to transmit, you will hear a short alert tone ("beep"), indicating that you are sending a non-secure transmission.

Trunked Systems

1. Select the desired mode with the rotary selector switch.
2. Turn the TMSS to the desired position (secure-equipped radios only).
 - ⊗ = secure voice transmission
 - = clear voice transmission
3. Hold the radio in a vertical position with the speaker/microphone grille two to three inches from your mouth.
4. To initiate a call, simply press the PTT switch.
 - If you hear a busy signal (a low-frequency "bah-bah-bah"), release the PTT switch and wait for a call back tone (sounds like "di-di-di"). When you hear the call back tone, you will have three seconds to press the PTT switch, allowing you to make your call without getting another busy signal.
 - If a continuous "talk prohibit" tone is heard when the PTT switch is pressed, transmission is not possible. The radio may be out of range, or the TMSS may be in the incorrect position for that mode; for instance, the particular mode might be slaved secure and the TMSS set to the clear position.

How to Select a Conventional Channel or Trunked Talkgroup

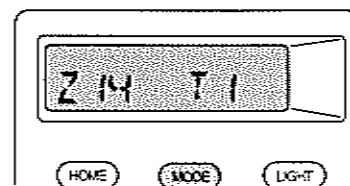
SYSTEMS SABER I Radios

The SYSTEMS SABER I radio allows the user to have up to 16 different modes (conventional channels/trunked talkgroups). The rotary selector switch on top of the radio is used to select the desired mode.

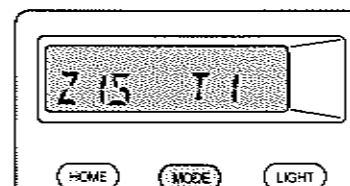
SYSTEMS SABER III Radios

The SYSTEMS SABER III radio allows the user to have up to 225 different modes (conventional channels/trunked talkgroups). The radio is partitioned into as many as 16 zones, with each zone having up to 16 different talkgroups (conventional channels or trunked talkgroups). All 16 talkgroups within any particular zone are selected via the rotary selector switch on top of the radio. As the switch is turned, the talkgroup number (the number following the "T") on the display changes accordingly. Zones are selected via the keypad using the following procedure:

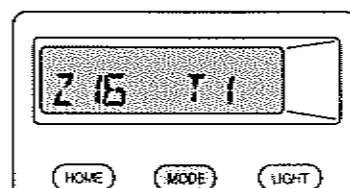
Note: In the following procedure, "Z" and "T" are used to denote zone and talkgroup respectively. These can be changed as desired using the RSS.

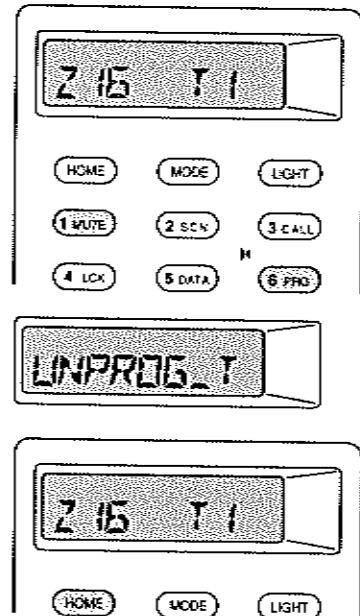


1. Hard-press the **MODE** key. The zone number (the number following the "Z") on the display starts flashing.



2. Change the zone number by either quick-pressing the **MODE** key one time for each zone number change (from lower numbers to higher numbers), or holding down the **MODE** key to scroll rapidly through the zone numbers. Release the **MODE** key when the desired number is showing on the display. While changing the zone number, you can quick-press or hold down the **# DEL** key to scroll the zone numbers in the opposite direction (from higher numbers to lower numbers).





Another way to find the zone you want is by directly entering the zone number from the keypad after hard-pressing the **MODE** key. For instance, to access zone 16, press the "1" key, then the "6" key. The display will show zone 16 (**Z16**).

Note: If the zone number/talkgroup number combination directly entered from the keypad has not been programmed, the display will briefly show **UNPROG T** (if you select an unprogrammed channel/talkgroup) or **UNPROG Z** (if you select an unprogrammed zone), then revert back to the previously displayed zone/talkgroup number.

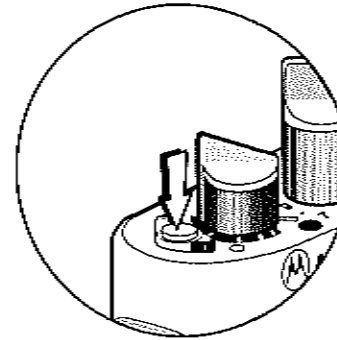
- When the desired mode (zone and talkgroup numbers) are showing on the display, complete the mode selection process by pressing the **HOME** key. This locks in the zone and makes it part of the new "home display." *If you fail to press the HOME key, the radio will revert (time-out) back to the previous home display.*

Note: The above steps showed the home displays with "Z" for zone and "T" for talkgroup or conventional channel. Through use of the Radio Service Software, specific names can be substituted for both the zone and talkgroup/channel designators. For example, "Z14 T1" could appear as "WST E5."

Note:

- The radio will continue to monitor the original zone number, regardless of the zone being currently displayed, until the **HOME** key has been pressed. Following zone selection, the radio will revert back to the original zone after a predefined time period if: the **HOME** key has not been pressed, no other key has been pressed, or the PTT switch was pressed before the **HOME** key was pressed.
- It is not necessary to press the **HOME** key when changing only the talkgroup; only zone changes require that the **HOME** key be pressed.

Emergency Operation



Pressing the emergency button on the top of the radio will send out an emergency signal. This emergency signal can take two forms: alarm and call. The SYSTEMS SABER radio can have either or both signal types enabled.

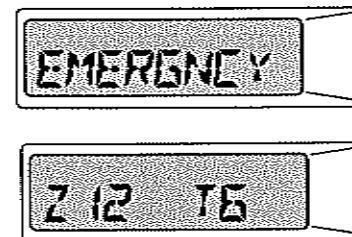
- The *emergency alarm* feature sends a data transmission on the control channel, or a designated conventional channel, to alert the dispatcher to an emergency condition and identify the unit sending the emergency signal.
- The *emergency call* (trunked systems only) is a priority type of dispatch operation, giving your radio access to a priority channel. Emergency call is preprogrammable via the Radio Service Software for either tactical or non-tactical operation. *Tactical* emergency operation places the emergency call to the currently selected talkgroup; *non-tactical* operation places the emergency call to a predetermined talkgroup.

"Emergency" signals a critical situation. It should never be used for any other reason.

Emergency Alarm Operation

Note: If the silent emergency option is present in your radio, tones will not be heard during the emergency alarm procedure, and the display state will not change.

- Press the emergency button. On SYSTEMS SABER III radios the display will alternate between showing **EMERGENCY**, and the zone and talkgroup.



Note: The type of channel/talkgroup selected determines whether a trunked or an MDC conventional alarm will be sent out to the dispatcher. If the radio initiates the emergency alarm from a trunked talkgroup, the alarm will be a trunked signal. If the radio initiates the emergency alarm from a conventional channel, the alarm will be an MDC signal.

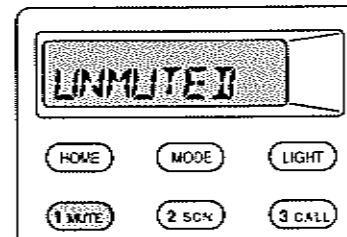
Failsoft Operation (Trunked Systems Only)

The "Failsoft" system ensures that you will continue to have radio communications capability in the event of trunked system failure. During trunked operation, the radio will go into the Failsoft mode if the central trunking controller fails for any reason. While in Failsoft, your radio will transmit and receive on a predetermined frequency in a conventional, as opposed to trunked, mode. When the trunked system returns to normal operation, the radio will automatically leave the Failsoft mode and return to the normal trunking mode.

When the SYSTEMS SABER radio is in the Failsoft mode, you will hear a faint "beeping" tone every ten seconds, and the radio will become unsquelched. At the same time (SYSTEMS SABER III radios only), the display will alternate between showing "FAILSOFT" and the talkgroup location (the talkgroup name which is active on transmit).

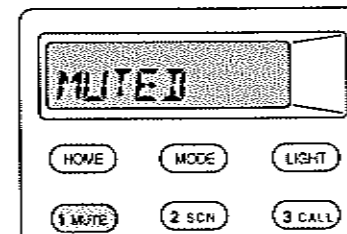
Muting the Keypad Tones (SYSTEMS SABER III Radios Only)

The radio's keypad tones, normally heard each time a keypad key is pressed, can be turned off (muted) or on (unmuted) at your discretion. To use the keypad mute feature:



1. Hard-press the **1 MUTE** key. The current keypad mute state ("MUTED" = keypad tones muted, or "UNMUTED" = keypad tones not muted) appears on the display for a few seconds, then disappears.

Note: If the current mute state is "UNMUTED," no tone will be heard as the **1 MUTE** key is pressed; if the current mute state is "MUTED," a tone will be heard as the **1 MUTE** key is pressed. The keypad mute status will change as the display changes.



2. To change the mute state, hard-press the **1 MUTE** key again. The opposite mute state shows on the display for a few seconds, then disappears.

2.
 - In a *conventional channel system*, pressing the emergency button causes the radio to repeatedly transmit, on a preassigned channel, an alarm code which includes the unit ID.
 - In a *trunked system*, when the alarm is acknowledged by the central controller, the radio will sound five beeps and the alarm will end.
 - If one tone or no tones are heard, the emergency alarm was not acknowledged. This indicates that the radio may be out of range of the system.
 - If alarm is not acknowledged, exit emergency operation by holding down the emergency button for more than one and a half seconds. A beep and a tone will be heard, and the radio will leave the emergency alarm mode.
3. When the sequence is complete, the radio will return to normal operation, or, if enabled in your radio, enter emergency call operation at step 3, below (trunked systems only).



Emergency Call Operation

1. Press the emergency button. On SYSTEMS SABER III radios the display will alternate between showing "EMERGENCY," and the zone and talkgroup.
2. Pressing the PTT switch will request a priority channel assignment in the trunked system.
3. When the radio is in the emergency call mode it operates in the usual dispatch manner.

Note:

- The talkgroup you will talk to in an emergency matter is controlled by whether your radio is programmed for tactical or non-tactical operation. If tactical, you will be talking to the talkgroup you selected before entering emergency call; if non-tactical, you will talk to a preprogrammed emergency talkgroup.
 - If you change talkgroups while in the emergency call mode, the emergency call will be moved to, and continued on, the new talkgroup.
4. It is important that you exit the emergency call mode when you have finished your emergency call. To do this, hold down the emergency button for more than one and a half seconds. A short beep and a long tone (emergency exit tone) will be heard, and the radio will leave the emergency call mode.

Scan Operation

Your SYSTEMS SABER radio can have up to 16 different independent conventional or trunked scan lists. Each scan list can be tied to one or more conventional channels or trunked talkgroups, and, if enabled by the field programmer, every scan list can be user-programmable.

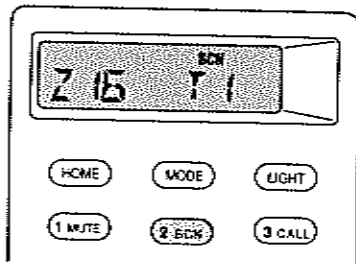
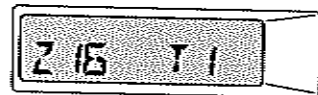
The SYSTEMS SABER radio supports priority or non-priority scanning on conventional channels (up to two priorities), as well as trunked scan and priority monitor (one priority trunked scan).

Note: Each scan list must consist of either all conventional channels or all trunked talkgroups; the two types cannot be mixed in a single list.

All SYSTEMS SABER radios support autoscans; SYSTEMS SABER I radios support *only* autoscans. With autoscans, the radio begins scanning whenever you select the channel/talkgroup to which the scan list is strapped. The radio will continue autoscanning until you change your channel/talkgroup position; this automatically turns off the autoscans feature. SYSTEMS SABER III radios can also manually access the scan feature from the keypad. In addition, SYSTEMS SABER III radios also allow you to program your scan lists from the keypad.

Note: Using the RSS, you can enable the radio to emit one tone when the radio stops on the first priority channel (two tones on second priority channel) in a conventional scan list, or on the priority talkgroup in priority monitor.

If scan has been enabled in your radio, you will be able to scan up to 16 different preprogrammed, or user-programmable, channels or trunked talkgroups per scan list. In addition, you will also be able to scan up to two priority items in conventional priority scan, or one priority item in priority monitor (trunked scan).

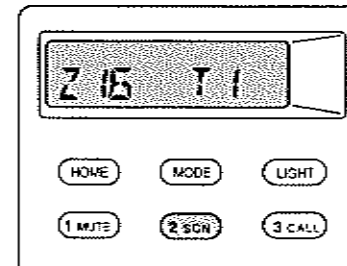


- Using the rotary selector switch and the **MODE/HOME** key combination, select the desired zone/channel (see "HOW TO SELECT A CONVENTIONAL CHANNEL OR TRUNKED TALKGROUP"). This will become the "home display."

Note: There must be a scan list slaved to the selected zone/channel in order for scanning to occur.

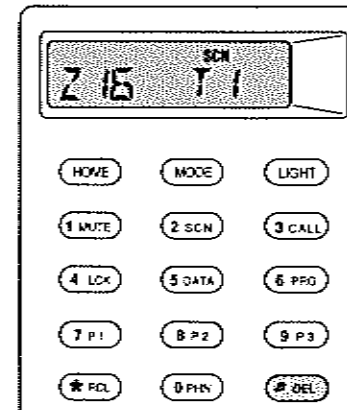
- Hard-press the **2 SCN** key until the "SCN" annunciator shows on the display.

- If a conversation is initiated on any of the channels that the radio is scanning, the display will show the talking channel and you will be able to hear the conversation. Press the PTT switch while the channel is displayed to talk back to that channel.
- To exit the scan function, hard-press the **2 SCN** key, and the "SCN" annunciator turns off.



Nuisance Delete (SYSTEMS SABER III Only)

When a conversation occurs that you do not wish to listen to, you can temporarily delete the channel from your scan list by pressing the **# DEL** key. This is known as "nuisance delete." To be able to listen to that channel again, you must first leave the scan function by hard-pressing the **2 SCN** key, then re-enable scanning by hard-pressing the **2 SCN** key again. Priority scan items cannot be "nuisance deleted."

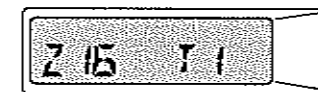


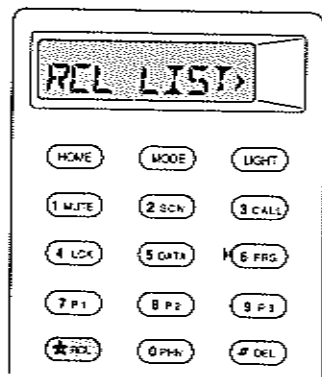
How to Recall Scan List Information (SYSTEMS SABER III Only)

The "recall scan list" function allows you to review the prestored scan list associated with the currently selected zone/talkgroup. However, you cannot make any changes to the list using this function.

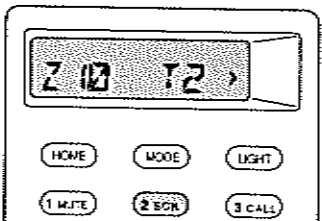
- Using the rotary selector switch and the **MODE/HOME** key combination, select the desired zone/talkgroup (see "HOW TO SELECT A CONVENTIONAL CHANNEL OR TRUNKED TALKGROUP"). This will become the "home display."

Note: There must be a scan list slaved to the selected talkgroup.

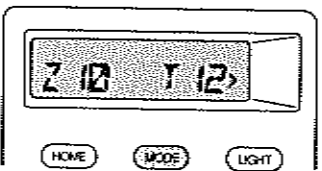




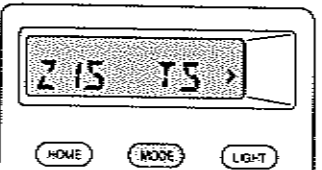
- Hard-press the * RCL key to enable the "recall scan list" function. The display shows "RCL LIST" with the ">" annunciator blinking.



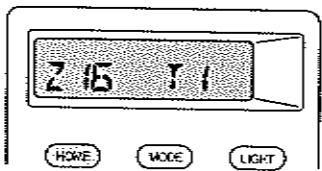
- Quick-press the 2 SCN key. The display shows the first item in the selected scan list.



- Using the MODE key, advance through the scan list items, either one at a time by quick-pressing the key, or scrolling by holding the key down. The display scrolls slowly at first, then changes to a faster scroll rate as the key is held down. When the last item in the list has been passed, the first item in the list will again be displayed. At any point in the list, you can move through the list in the opposite direction by using the # DEL key.



- To leave the "recall scan list" function, hard-press the HOME key. The display changes to show the "home display."



Operator Programming of a Scan List (SYSTEMS SABER III Only)

The "program" function allows you to program or re-program any mode-slaved scan list on which user programming has been enabled by the field programmer. A maximum of 16 non-priority channels, plus the "designated transmit channel," and up to two priority channels in conventional scan or one priority talkgroup in priority monitor, can be stored in the scan list. This function does not allow you to activate scanning (see "HOW TO USE SCAN"), nor does it allow you to alter any of the scan lists which have been designated as "read-only" by the field programmer.

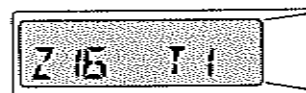
Note: A particular scan list can be linked to more than one conventional channel or trunked talkgroup; therefore, if a scan list is changed, it will also be changed for all the other channels or talkgroups that have that particular scan list tied to them.

A scan list can contain either all conventional channels or all trunked talkgroups; no mixing of the two types is allowed. For example, if you attempt to program a trunked talkgroup into a conventional channel scan list, the display will flash "ILLEGAL" after the last digit is entered; you will have program a conventional channel instead.

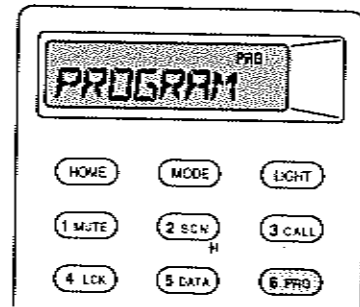


Program the scan list using the following procedure:

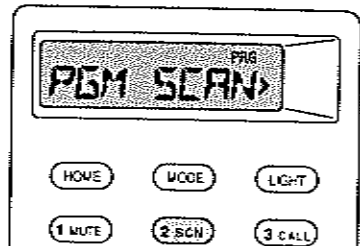
- Using the rotary selector switch and the MODE/HOME key combination, select the desired zone/talkgroup (see "HOW TO SELECT A CONVENTIONAL CHANNEL OR TRUNKED TALKGROUP"). This will become the "home display."



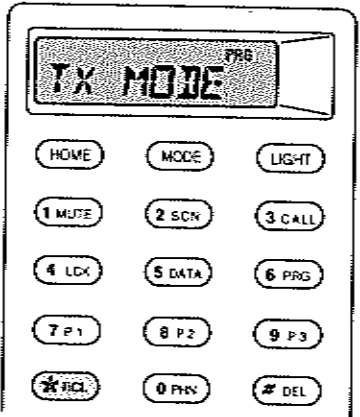
Note: There must be a scan list slaved to the selected talkgroup.



- Hard-press the **6 PRG** key until the display shows **"PROGRAM"** with the **"PRG"** annunciator blinking.

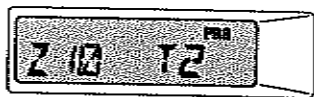


- Immediately press the **2 SCN** key. The display shows **"PGM SCAN"** with the **"PRG"** annunciator blinking. As an alternative, you can wait until the display changes to show **"PGM CALL"** or **"PGM PHON,"** then press the **MODE** key until **"PGM SCAN"** appears.

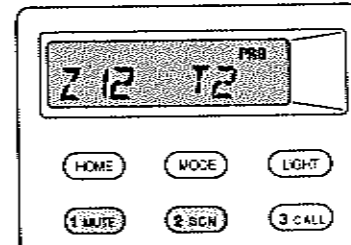


- Hard-press the *** RCL** key to bring up the first item in the scan list. If the "designated transmit channel" has been enabled for the scan list, the display will briefly show **"TX MODE"**; this is the item identifier used to indicate the current designated transmit channel/talkgroup. If the "designated transmit channel" has not been enabled for the scan list, the first item shown will be **"PRIOR 1"** (if you have priority scan), or **"POS 1"**. **"POS 1"** will also be displayed when the designated transmit channel and first priority are mode-slaved to the current selected talkgroup.

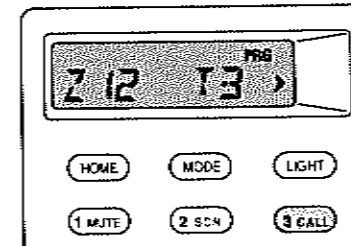
Note: If you quick-press the **MODE** key while the name of the current item is showing on the display, you can quickly scroll through the scan list to select the desired item identifier (TX MODE, PRIOR 1, PRIOR 2, POS 1, POS 2, etc.).



- Two seconds later, the display changes to show the zone, with the two digits following the **"Z"** flashing. The **"PRG"** annunciator stops blinking and stays on. You can now enter a new zone number if you wish.



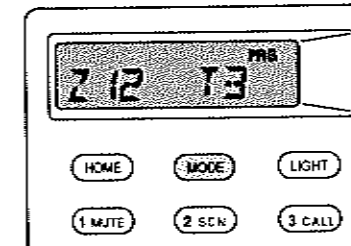
- Use the keypad to enter the desired zone number. The new zone number is displayed, the digits following the **"Z"** stop flashing, and the digits following the **"T"** begin flashing. You can now enter a new talkgroup number if you wish.



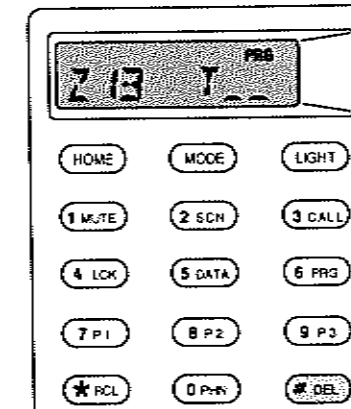
- Use the keypad to enter the desired talkgroup number. The new talkgroup number is displayed, and the digits following the **"T"** stop flashing.

At the same time, the **">"** annunciator turns on, indicating that you can now either:

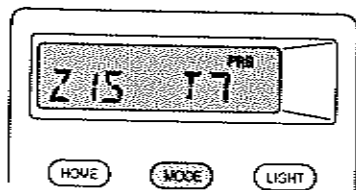
- Hard-press the **MODE** key to accept the changes, or



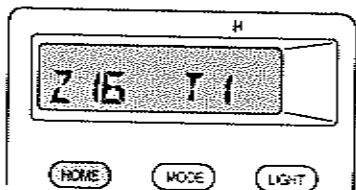
- Press the **# DEL** key to step the display backwards, one field at a time. For example, if you have finished entering the new zone/talkgroup and you press the **# DEL** key, the display will show:



Another press of the **# DEL** key will clear both fields. Finally, another press of the **# DEL** key will bring the display to the preceding item in the scan list, and the scan list which you had changed will be back in its original, unchanged condition.



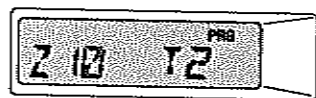
8. When the changes to the scan list item have been accepted using the **MODE** key, the next item in the scan list appears on the display. As in step 4, above, the name (identifier) of the item appears briefly on the display, then the zone and talkgroup associated with that name appear. Repeat steps 5 through 7 for each item in the scan list.



9. When all the desired changes have been made to the items in the scan list, store the changes by hard-pressing the **HOME** key. The display will show the "home display."

Deleting an Item From the Scan List

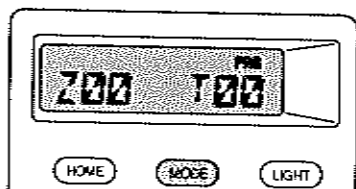
To delete an item from a scan list, use the following procedure:



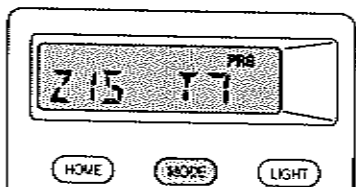
1. Following steps 1 through 4 of "Programming a Scan List," go to the appropriate scan list and the item that you wish to delete. The display will show the current zone and channel/talkgroup, with the digits following the "Z" flashing.



2. From the keypad, enter "00" for the zone side, then "00" for the channel/talkgroup side.



3. Press the mode key to lock in the change and advance the display to the next item in the scan list. You could also, after entering the first "0" on the zone side, press the **MODE** key to jump to the channel/talkgroup side, enter another "0," and finally press the mode key to move to the next scan list item.



Note: After an item has been deleted from a scan list, the item identifier information for all of the rest of the items in that scan list will change. For example, if you delete the "POS 3" item from a scan list, the identifier information for "POS 4" and all following items will move upward by one ("POS 4" will become "POS 3," "POS 5" will become "POS 4," etc.).

Moving Through the Items in a Scan List

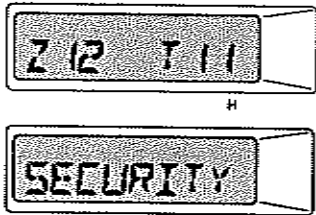
Every item in a scan list has an identifier ("TX MODE," "PRIOR 1," "POS 1," etc.), which is briefly displayed before the actual items in the scan list are displayed (that is, "Z __ T __"). During the time that the identifier is displayed, you can move to other items in the scan list by quick-pressing the **MODE** key. Each time the key is quick-pressed, the display will move to the next item in the scan list; this will allow you to move quickly to the exact item that you wish to change.

When you reach the last item in the list, the display will "wrap around" to show the first item in the list again. For example, if you quick-press the **MODE** key when "POS 16" is showing, the next identifier shown will be "TX MODE," then "POS 1," etc.

Note: If all the items in a scan list have not been programmed, the item following the last programmed item will be shown with blanks; for example, "Z __ T __".

Announcement Group Call (Trunked Systems Only)

The "announcement group call" feature allows the radio operator to call more than one talkgroup at a time, much like a conference call on a standard telephone. An announcement group is a group of talkgroups tied together to make a larger group. Every talkgroup in an announcement group has talkback capabilities; that is, each radio can talk back to the radio originating the call.



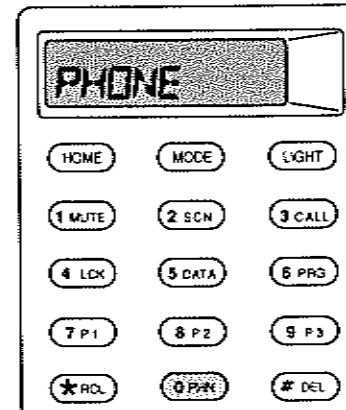
How to Make an Announcement Group Call

1. Go to the trunked talkgroup position where the announcement group is located by using the **MODE/HOME** key combination and the rotary selector switch. The display will show either the zone/talkgroup numbers assigned to the announcement group, or a name that has been assigned to the announcement group by the Radio Service Software (for example, "**SECURITY**").
2. Press the PTT switch. All the talkgroups assigned to this particular announcement group will be able to listen to, and answer, your call. Once you have finished with the announcement group call, return the rotary selector switch to a standard talkgroup.

Conventional Telephone Interconnect (SYSTEM SABER III Only)

SYSTEMS SABER III radios support two entirely different modes of "conventional telephone interconnect" operation, depending on what has been programmed by the Radio Service Software (RSS). The RSS selects the mode of operation that the radio will support, but only one mode can be supported at a time.

The first mode of operation (automatic code transmission) does not require you to input the access and hangup codes. These codes have been preprogrammed and strapped to up to ten different zone/channels, and are transmitted automatically when the PTT switch is pressed. The second mode of operation (manual code transmission or "live-dial mode") requires that you input/send all DTMF digits manually; no preprogrammed access or hangup codes are automatically transmitted.



Sending a conventional telephone call (automatic code transmission)

1. Hard-press the **0 PHN** key to select the "telephone" function. The display momentarily shows "**PHONE**," then shows the access code "vernacular" (either the default name, "**ACCESS X >**," [where X = a number from 1 to 10] or a name of up to eight characters programmed by the RSS).

Note: The radio will automatically revert to another channel if "revert" has been programmed for that channel.



2. Press the PTT switch. The preprogrammed access code is automatically sent out; the access code digits are displayed as they are sent out.
3. Listen for the dial tone. The display will show the last number that was dialed, programmed, or recalled.

Note: If you do not hear a dial tone (indicating that the system was busy or could not be reached), you will have to press the **HOME** key and repeat steps 1 and 2.

4. When a dial tone is heard, you will have three options:

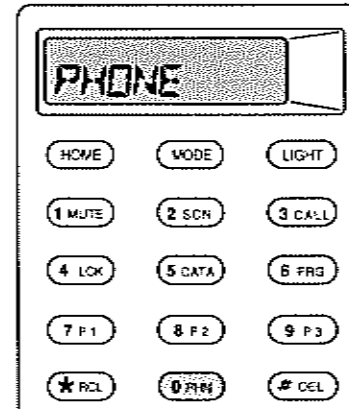
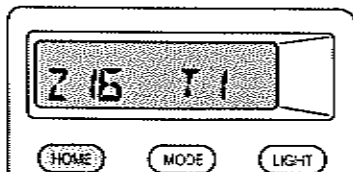
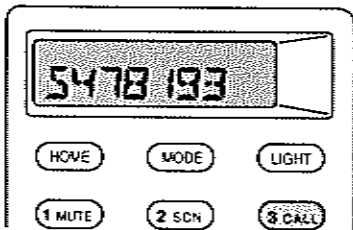
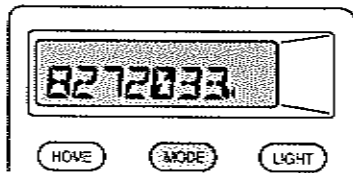
- Press the PTT switch. This will send out the number that is shown on the display.
- Press the **MODE** key. This will put the radio into the "autodial" mode, allowing you to use the **MODE** key to scroll through the preprogrammed list of as many as nine different phone numbers. The display will momentarily show "**LAST NUM.**" then will change to show the last number accessed (dialed, stored, or recalled).

Press the **MODE** key the desired number is displayed, then transmit the number by pressing the PTT switch.

- Press the numeric (**0 - 9**) keys to send any number desired. The digits appear on the display, and are sent out, as the keys are pressed.

5. When you have finished your conversation, press the **HOME** key. The display momentarily shows "**HANGUP X.**" then the radio transmits the hangup code for the selected channel and reverts back to the "home" display.

Note: If "revert" has been enabled, the radio will revert back to the channel it was on before entering the "phone" mode.



Sending a conventional telephone call (manual code transmission or "lve-dial")

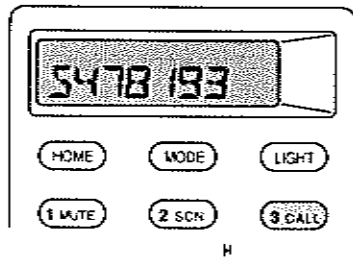
Note: When operating in this mode, the radio *will not* automatically send out access or hangup codes; you must manually enter these codes as required.

- Hard-press the **0 PHN** key to select the "telephone" function. The display momentarily shows "**PHONE.**" then the radio enters the "lve-dial" mode; that is, every time a numeric key is pressed, the corresponding digit is sent out.

Note: The radio will automatically revert to another channel if "revert" has been programmed for that channel.

- Enter the access code for your system. The digits are displayed and sent out as they are entered.
- Listen for the dial tone.

Note: If you do not hear a dial tone (indicating that the system was busy or could not be reached), you will have to press the **HOME** key and repeat steps 1 through 3. Pressing the **HOME** key at any time will return the radio to its normal operating mode.

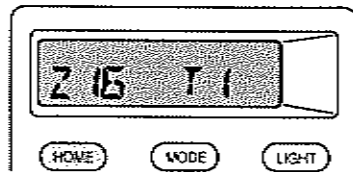


- When a dial tone is heard, press the numeric (0 - 9) keys to send any number desired. The digits appear on the display, and are sent out, as the keys are pressed.

Note: When in the "live-dial" mode, you can also use the **MODE** key to access the preprogrammed "autodial" numbers as described in step 4 b of the "automatic code transmission" section.

- When you have finished your conversation, enter the hangup code for your system. The digits appear on the display, and are sent out, as the keys are pressed.

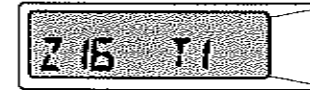
- Press the **HOME** key to exit. The radio reverts back to the "home" display.



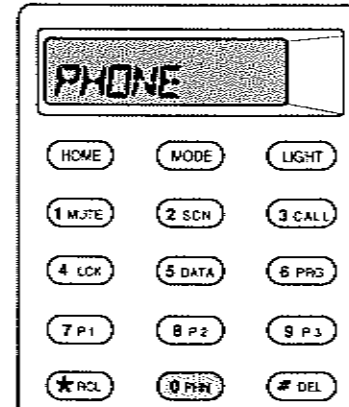
Trunked Telephone Interconnect (SYSTEM SABER III Radios Only)

Receiving a Trunked Telephone Call

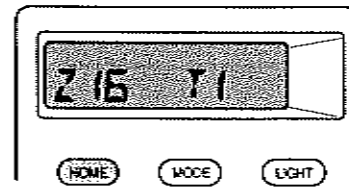
- When a trunked telephone call is received, a telephone-like ringing sounds, and the display alternates between showing "**PHONE**" and your present talkgroup.

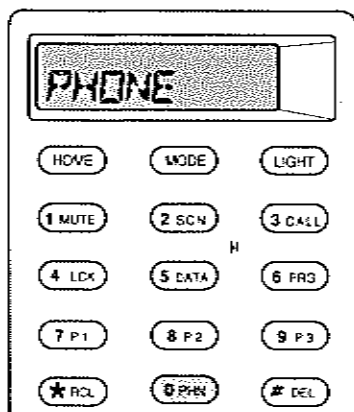


- Press the **0 PHN** key. The display continually shows "**PHONE**," indicating that you may begin your telephone conversation.



- When the call is completed, press the **HOME** key to hang up and return to normal operation.





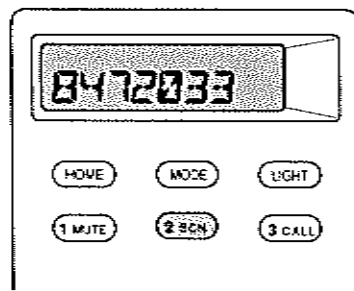
Sending a Trunked Telephone Call to a Number on the Preprogrammed List

1. Hard-press the **0 PHN** key to select the phone function. The display momentarily shows "**PHONE**," followed by the last number accessed, and you will hear a dial tone.

Note: The "last number accessed" refers to the last number dialed, stored, or recalled.

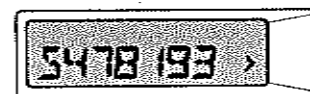
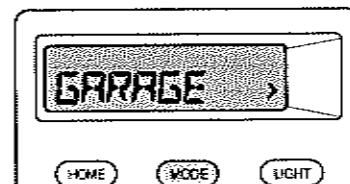


2. If you wish to call the last number accessed, simply press the PTT switch to send the call, then go to step 5.
3. If you wish to call one of the nine pre-stored numbers, quick-press the **MODE** key; the display momentarily shows "**LAST NUM.**" followed by the last number accessed. Next, either:
 - a. Press any one of the numeric (**0 - 9**) keys. This will directly access the corresponding pre-stored phone number (the **0** key will select the last number accessed), and the number will show on the display.



- a. Press any one of the numeric (**0 - 9**) keys. This will directly access the corresponding pre-stored phone number (the **0** key will select the last number accessed), and the number will show on the display.

or



- b. Quick-press the **MODE** key additional times to step through the list of pre-stored numbers; the **# DEL** key can be used to step through the list in the opposite direction. As you step through the list, you will see the names assigned to the phone numbers (if so programmed by the Radio Service Software), along with the blinking ">" annunciator. If you stop on one of the names, the screen will change and the actual phone number associated with the name will be displayed, along with the blinking ">" annunciator.

4. Once the desired phone number is showing on the display, press the PTT switch to dial the number. The display will show the numbers as they are sent out.



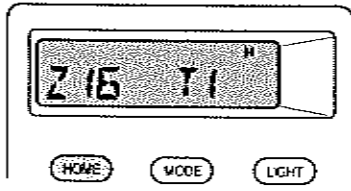
5. If you are beyond the range of the trunked system, the display will alternate between showing "**OUT RANG**" and "**NO PHONE**," and a continuous low-pitched tone will sound. Press the **HOME** key to resume normal operation.



6. If the trunked phone interconnect is in use, a busy tone will sound, and the display will show "**BUSY**." When the phone interconnect becomes available, the radio will be at step 2, above.

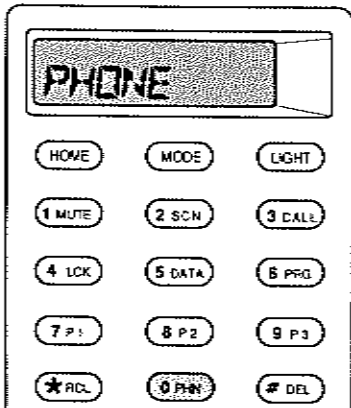


- If the trunked phone interconnect is out of service or if no keys are pressed during a prolonged time period, the radio will display "NO PHONE," a "bonk" alert tone will sound, and the radio will return to normal operation.

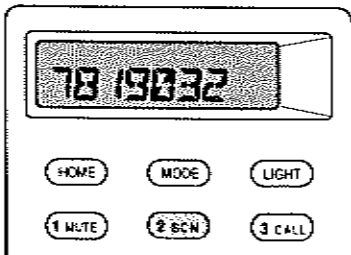


- When your call has been completed, press the **HOME** key to hang up and return to normal operation.

Sending a Trunked Telephone Call to a Number Not on the Preprogrammed List



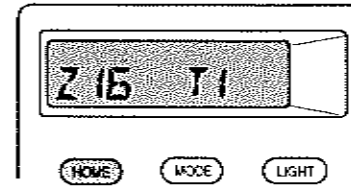
- Hard-press the **0 PHN** key to select the phone function. The display momentarily shows "PHONE," followed by the last number accessed, and you will hear a dial tone.



- Enter the desired numbers from the keypad as you would when using a telephone. The numbers are dialed, and shown on the display, as they are entered.

Note: When you have finished dialing the first telephone number, and before hanging up (by pressing the **HOME** key), you can dial additional numbers by:

- pressing additional numeric keys to enter the number directly, or
- pressing the **MODE** key, then pressing the numeric key of a prestored phone number, then pressing the PTT switch, or
- pressing the **MODE** key, then quick-pressing the **MODE** key until you find the desired prestored phone number, then pressing the PTT switch.

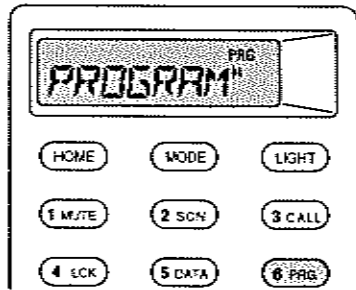


- When your call has been completed, press the **HOME** key to hang up and return to normal operation.

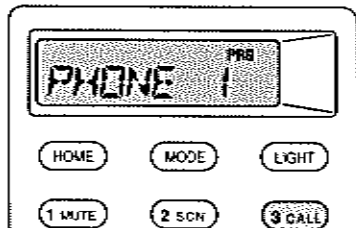
Note: You can view the items in the telephone preprogrammed list by hard-pressing the *** RCL** key (the display shows "RCL LIST >"), then pressing the **0 PHN** key; the display shows the first telephone number on the list. You can then move through the list by quick-pressing the **MODE** key to view its contents. When you are finished, press the **HOME** key to return to the home display.

Operator Programming of the Conventional/Trunked Telephone List
(SYSTEMS SABER III Only)

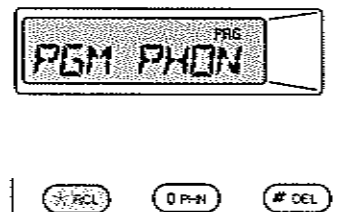
The "program" function allows you to program or reprogram the preprogrammed telephone (conventional or trunked) list. The list has nine different locations (1-9) in which information can be stored. To use the "program" feature, do the following:



1. Hard-press the **6 PRG** key. The display shows **"PROGRAM"** with the **PRG** annunciator blinking.



2. Now either:
 - a. Select the "program telephone" list by quick-pressing the **0 PHN** key. The display shows **"PHONE 1"** with the **PRG** annunciator on constantly. Two seconds later the display changes to show the actual telephone number with the first digit flashing.



- b. If a few seconds have elapsed since performing step 1, and you have not chosen from among the telephone, scan, and call ID lists, the display will default to showing **"PGM CALL," "PGM PHON,"** or **"PGM SCAN"** (this depends on the order in which these features have been selected by the RSS), with the **PRG** annunciator blinking. To select the telephone list, press the **MODE** key until the display changes to show **"PGM PHON,"** with the **PRG** annunciator blinking. Then, quick-press the *** RCL** key to bring you to step 3.

3. At this point you can either:
 - a. Use the keypad to change the first telephone number, or
 - b. Use the **MODE** key to scroll through the list until you find the identifier (name; for example, **BOB, PHONE 2,** etc.) of the telephone number that you want to change.

Note: If you change any telephone number which had an identifier preprogrammed from the RSS (for example, **BOB, TOM,** etc.), the identifier will change to the default identifier (**PHONE 1, PHONE 2,** etc.) that corresponds to the location for which the changes were made.



4. After you have chosen the location to change and made the changes, press the **MODE** key to store the changes and move to the next location.

5. When the desired changes have been made to the list, exit the programming mode by hard-pressing the **HOME** key. The display will change to show the "home" display.

Private Conversation (SYSTEMS SABER III Trunked Systems Only)

The "Private Conversation" feature not only allows you to carry on a conversation that is heard only by the two parties involved, but also enables you to determine whether the unit you are calling is in service. The unit being called can also view the calling unit's six-digit ID before answering. You can choose whether or not to leave your unit ID number (with a Call Alert page) with the unit that you are calling so that you may be called back. Private conversation operation is similar to that of telephone interconnect.

Receiving a Private Conversation Call



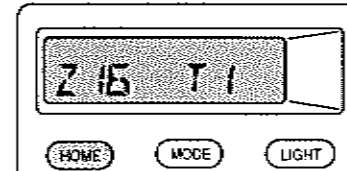
1. When a Private Conversation call is received, two alert tones (high-pitched "beeps") are sounded, the display alternates between showing "RCV PVT" and the current talkgroup, and the multifunction LED flashes green.



2. To answer the call, press the **3 CALL** key within 20 seconds after you hear the alert tones. The display shows the ID number of the calling unit. To respond to the call, press the PTT switch and talk.

Note:

- If you do not press the **3 CALL** key before pressing the PTT switch, your conversation will be heard by all members of the talk group.
- If you press the **3 CALL** key after 20 seconds have passed, you will not respond privately to the call just received; instead, you will enter the "Sending a Private Conversation Call" state, as described in that section.
- If the system is busy when you attempt to answer the call, a busy tone will sound. When a channel becomes available, you will receive a call back and your radio will automatically key-up for three seconds so that you can begin talking.

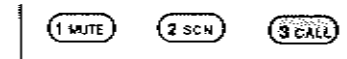


3. After completing the Private Conversation, press the **HOME** key to hang up.

Note: If you do not hang up after completing the Private Conversation, and remain inactive for more than one minute, the radio will alert you of the fact by sounding an alert tone every six seconds. After two minutes of inactivity in the Private Conversation mode, a continuous "illegal mode" tone will be sounded.

Sending a Private Conversation to a Number on the Preprogrammed List

If your radio has preprogrammed Private Conversation enabled, you will be able to call any of nine prestored Private Conversation ID numbers.



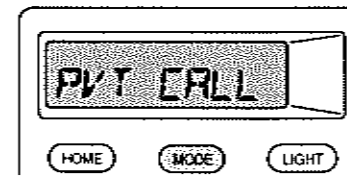
1. Hard-press the **3 CALL** key.



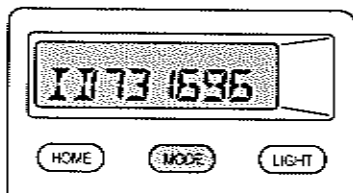
2. Quick-press the **MODE** key until the display shows "PVT CALL."



3. Quick-press the *** RCL** key, then either:



- a. Quick-press the **MODE** key until the desired preprogrammed ID appears on the display, or

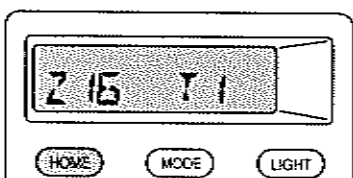


- b. Directly access the desired preprogrammed ID by pressing the appropriate numeric (1 through 9) key.

Note: You can re-display the Private Conversation ID number called, or the ID number of the person who last called you, by pressing the numeric 0 key after the * RCL key has been pressed (step 3). You can also view your own radio's ID by pressing the 3 CALL and # DEL keys after pressing the * RCL key.

4. Once the desired party's six-digit ID (or name) is showing on the display, press the PTT switch. A telephone-type ringing sounds if the unit you are calling is in service.
 - If the called unit is not in service, no ringing will sound. After six seconds a momentary low-pitched tone will sound. You can now either try again to call the party by pressing the PTT switch again, or press the HOME key to hang up and return to normal operation.
5. If the called unit answers, identify yourself and begin your Private Conversation.
6. When your conversation is completed, press the HOME key to hang up and return to normal operation.

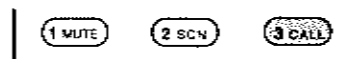
Note: If you do not hang up after completing your conversation, you will remain in the Private Conversation mode with the called unit, and will miss all talkgroup traffic and incoming phone calls. If, while in this mode, you remain inactive for more than one minute, the radio will alert you of the fact by sounding an alert tone every six seconds. After two minutes of inactivity in the Private Conversation mode, a continuous "illegal mode" tone will be sounded.



Note: You can view the items in the Private Conversation/Call Alert preprogrammed list by hard-pressing the * RCL key (the display shows *RCL LIST >'), then pressing the 3 CALL key; the display shows the first Private Conversation/Call Alert ID on the list. You can then move through the list by quick-pressing the MODE key to view its contents. When you are finished, press the HOME key to return to the home display.

Sending an Unlimited Private Conversation Call

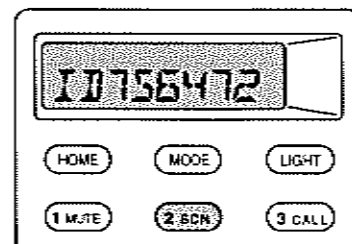
If your radio has unlimited Private Conversation enabled, you will be able to call any available Private Conversation ID number.



1. Hard-press the 3 CALL key.



2. Quick-press the MODE key until the display shows "PVT CALL."



3. Enter the six-digit ID number of the radio that you want to call. If you make a mistake while entering a number, press the # DEL key to delete one number at a time from the display until the mistake is removed, then enter the remainder of the ID.

Note: The first digit of the six-digit ID must always be a "7." If you do not enter a "7" as the first digit, the display will not show "ID7_ _ _ _ ." and the radio will emit "bad key" tones for any other digits entered until a "7" is entered as the first digit.

Call Alert (Page)(Trunked Systems Only)

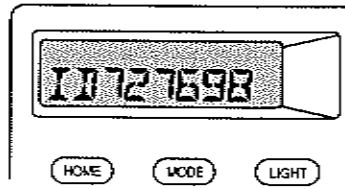
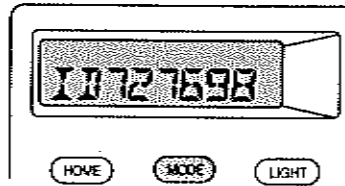
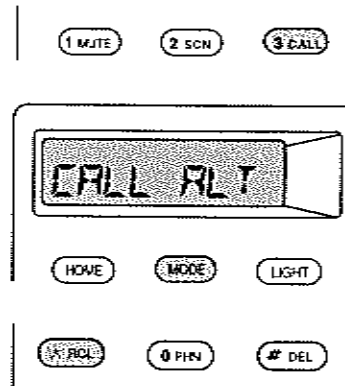
- Once the desired party's six-digit ID is showing on the display, press the PTT switch. A telephone-type ringing sounds if the unit you are calling is in service.
- If the called unit is not in service, no ringing will sound. After six seconds a momentary low-pitched tone will sound. You can now either try again to call the party by pressing the PTT switch again, or press the **HOME** key to hang up and return to normal operation.
- If the called unit answers, identify yourself and begin your Private Conversation.
- When your conversation is completed, press the **HOME** key to hang up and return to normal operation.

Note: If you do not hang up after completing your conversation, you will remain in the Private Conversation mode with the called unit, and will miss all talkgroup traffic and incoming phone calls. If, while in this mode, you remain inactive for more than one minute, the radio will alert you of the fact by sounding an alert tone every six seconds. After two minutes of inactivity in the Private Conversation mode, a continuous "illegal mode" tone will be sounded.

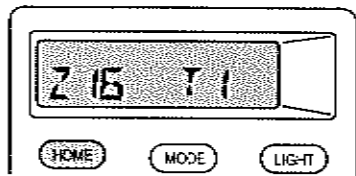
If your radio has "Call Alert encode" enabled, you will be able to send a Call Alert (page) to any one of nine different radios. The six-digit ID (or name) of each radio to be paged must have been preprogrammed into your SYSTEMS SABER radio.

Sending a Preprogrammed Call Alert (Page) (SYSTEMS SABER III Only)

- Hard-press the **3 CALL** key.
- Quick-press the **MODE** key until the display shows "**CALL ALT**."
- Quick-press the *** RCL** key, then either:
 - Quick-press the **MODE** key until the desired preprogrammed ID appears on the display, or
 - Directly access the desired preprogrammed ID by pressing the appropriate numeric (1 through 9) key.



Note: You can re-display the last Call Alert ID called by pressing the numeric **0** key after the *** RCL** key has been pressed (step 3). You can also view the ID number assigned to your radio (the one used by others to send you a Call Alert, Private Conversation, or telephone call) by pressing the **3 CALL** and **# DEL** keys after the *** RCL** key has been pressed. The display will momentarily show "**RADIO ID**," followed by your radio's ID number.



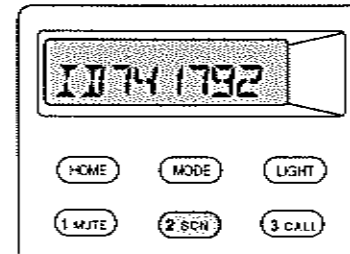
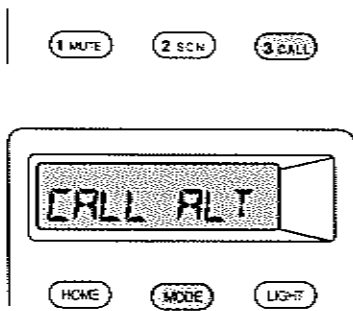
4. Once the desired party's six-digit ID (or name) is showing on the display, press and release the PTT switch. This will send the page.
 - If a one "beep" Call Alert (page) encode tone is heard when the PTT switch is pressed, the page was sent but not received. The target radio may be out of range, turned off, or currently in use.
 - If five "beeps" are heard, the target radio has received the Call Alert, and your radio has returned to normal operation.
5. If the paged party responds, transmit normally.

Note: You can view the items in the Private Conversation/Call Alert preprogrammed list by hard-pressing the * RCL key (the display shows "RCL LIST >"), then pressing the 3 CALL key; the display shows the first Private Conversation/Call Alert ID on the list. You can then move through the list by quick-pressing the MODE key to view its contents. When you are finished, press the HOME key to return to the home display.

Sending an Unlimited Call Alert (Page) (SYSTEMS SABER III Only)

If your radio has "unlimited Call Alert" enabled, you will be able to send a Call Alert (page) to any number of other radios.

1. Hard-press the 3 CALL key.
2. Quick-press the MODE key until the display shows "CALL ALT."



3. Enter the six-digit ID of the radio you wish to page. If you make a mistake while entering a number, press the # DEL key to delete one number at a time from the display until the mistake is removed, then enter the remainder of the ID.

Note: The first digit of the six-digit ID must always be a "7." If you do not enter a "7" as the first digit, the display will not show "ID7_ _ _ _ ." and the radio will emit "bad key" tones for any other digits entered until a "7" is entered as the first digit.

4. Once the desired party's six-digit ID is showing on the display, press and release the PTT switch. This will send the page.
 - If an invalid key "bonk" tone is heard while entering the six digit ID code, start over again.
 - If an invalid key "bonk" tone is heard when the PTT switch is pressed, the six digit ID code was invalid.
 - If a one "beep" Call Alert (page) encode tone is heard when the PTT switch is pressed, the page was sent but not received. The target radio may be out of range, turned off, or currently in use.
 - If five "beeps" are heard, the target radio has received the Call Alert, and your radio has returned to normal operation.
5. If the paged party responds, transmit normally.

Receiving a Call Alert (Page)

When a Call Alert (page) is received, a four-beep Call Alert decode tone is heard, the display (SYSTEMS SABER III Only) alternates between showing "RCV CALL" and the current talkgroup name, and the multifunction LED on top of the radio flashes green. The beep tones will repeat every six seconds until the Call Alert is acknowledged. To acknowledge the page, follow the steps in the "Responding to a Call Alert" section.

Note:

- If you try to acknowledge the Call Alert by pressing the PTT switch, you will be sending a normal talkgroup dispatch. In this case, you will only be able to communicate with the unit which Alerted you if it is in your selected talkgroup. This is the case for SYSTEMS SABER I radios.
- Your radio can only receive a Call Alert (page) if it is:
 1. Turned on and in range.
 2. Currently on the same trunked system as the caller.
 3. Not currently engaged in another conversation.

If you receive more than one Call Alert, the most recent Call Alert will override any earlier ones; however, you can still receive incoming telephone or Private Conversation calls.

Responding to a Call Alert (Page)

For SYSTEMS SABER I radios, do the following:

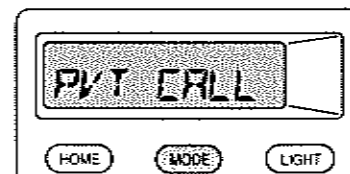
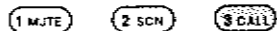
1. Press the PTT switch and ask who is paging you.
2. When the radio that "Call Alerted" you answers, continue your conversation.

Note: Since your SYSTEMS SABER I radio can only respond to Call Alerts from your own talkgroup, you will be unable to respond to a Call Alert from a radio that is not in your talkgroup.

For SYSTEMS SABER III radios, do the following:

Note: Pressing the PTT switch or changing modes, before performing steps 1 and 2, will cause the radio to lose the Call Alert and allow another Call Alert to be received.

1. Hard-press the 3 CALL key.



2. Quick-press the **MODE** key until the display shows "PVT CALL."

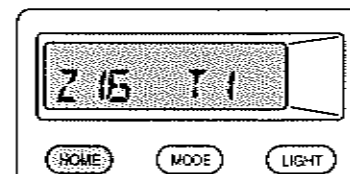
3. Press the PTT switch to initiate a Private Conversation with the caller. The display shows the ID number of the radio that "Call Alerted" you.

4. When the called unit answers, identify yourself and begin your Private Conversation.

5. When your conversation is completed, press the **HOME** key to hang up and return to normal operation.

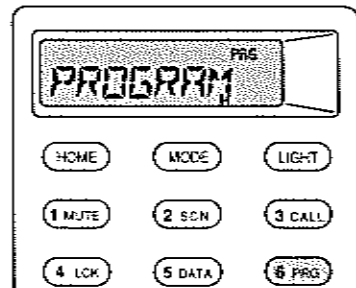
Note:

- A special case arises if you know that the radio that "Call Alerted" you is in your talkgroup. In this case you can simply press the PTT switch and ask who "Alerted" you.
- If you do not hang up after completing your conversation, you will remain in the Private Conversation mode with the called unit, and will miss all talkgroup traffic and incoming phone calls. If, while in this mode, you remain inactive for more than one minute, the radio will alert you of the fact by sounding an alert tone every six seconds. After two minutes of inactivity in the Private Conversation mode, a continuous "illegal mode" tone will be sounded.

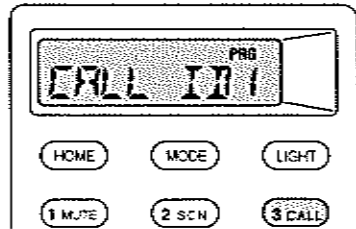


**Operator Programming of the Private Conversation/Call Alert ID List
(SYSTEMS SABER III Only)**

The "program" function allows you to program or reprogram the preprogrammed call (Call Alert/Private Conversation) ID list (there is only one list for both Private Conversation and Call Alert). The list has nine different locations (1 - 9) in which information can be stored. To use the "program" feature, do the following:

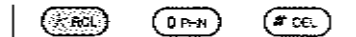


1. Hard-press the **6 PRG** key. The display shows **"PROGRAM"** with the **PRG** annunciator blinking.



2. Now either:
 - a. Select the "program call ID" list by quick-pressing the **3 CALL** key. The display shows **"CALL ID 1"** with the **PRG** annunciator on constantly. Two seconds later the display changes to show the actual ID number with the first digit flashing.

or



- b. If a few seconds have elapsed since performing step 1, and you have not chosen from among the telephone, scan, or call ID lists, the display will default to showing **"PGM CALL," "PGM PHON,"** or **"PGM SCAN"** (this depends on the order in which these features have been selected by the RSS), with the **PRG** annunciator blinking. To select the call ID list, press the **MODE** key until the display changes to show **"PGM CALL,"** with the **PRG** annunciator blinking. Then, quick-press the *** RCL** key to bring you to step 3.

3. At this point you can either:
 - a. Use the keypad to change the first call ID number, or
 - b. Use the **MODE** key to scroll through the list until you find the identifier (name; for example, BOB, PHONE 2, etc.) of the call ID number that you want to change.

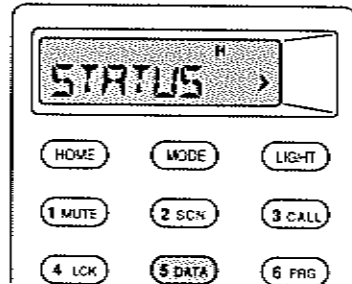
Note: If you change any call ID number which had an identifier preprogrammed from the RSS (for example, BOB, TOM, etc.), the identifier will change to the default identifier (CALL ID1, CALL ID2, etc.) that corresponds to the location for which the changes were made.



4. After you have chosen the location to change and made the changes, press the **MODE** key to store the changes and move to the next location.
5. When the desired changes have been made to the list, exit the programming mode by hard-pressing the **HOME** key. The display will change to show the "home" display.

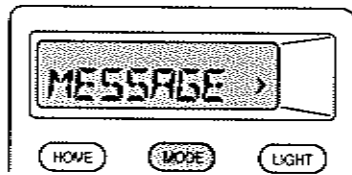
Status/Message (SYSTEMS SABER III Trunked Systems Only)

Status transmissions are used to inform the dispatcher of the current state of the radio, while message transmissions indicate a temporary condition and/or a response to a query from the dispatcher. For example, a typical status might be "ENROUTE" or "LUNCH," and a typical message could be "PLS CALL" or "10-4." Both status and message names are programmable by the RSS. The default names are "STATUS X" for status and "MSG X" for message, where "X" is a number from 1 through 8. Each radio can support up to eight separate statuses and eight separate messages.

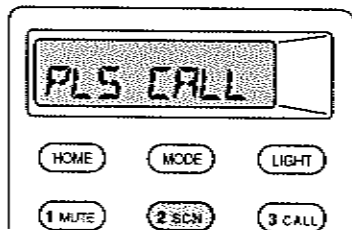
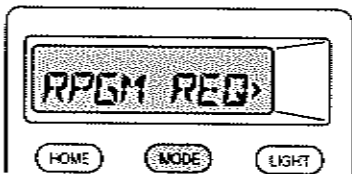


Sending a Status or Message Transmission

1. Hard-press the **5 DATA** key. The display shows "STATUS >" (assuming that this is the order in which the feature was placed by the RSS).

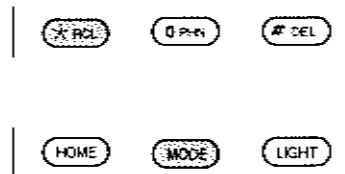


2. Quick-pressing the **MODE** key changes the display to "MESSAGE >" or "RPGM REQ >". As the **MODE** key is quick-pressed, the display switches among showing the three choices. Choose the "status" or "message" function (the **RPG REQ** is used elsewhere in this manual), then select which of the statuses or messages you wish to send by either:
 - a. Directly pressing the numeric (**0 - 8**) key that corresponds to the status or message that you want to send. If no status or message is available, the display will not change and a "bad-key" tone will sound.



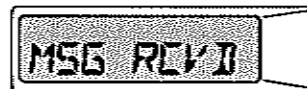
- a. Directly pressing the numeric (**0 - 8**) key that corresponds to the status or message that you want to send. If no status or message is available, the display will not change and a "bad-key" tone will sound.

or



- b. By first pressing the *** RCL** key, then scrolling through the pre-programmed list of items by pressing the **MODE** key (forward scroll) or **# DEL** key (backward scroll). The first item shown after the *** RCL** key is pressed will be the last attempted status/message.

3. When the desired item is shown on the display, send out the status or message by pressing the PTT switch. The display flashes the selected status or message name until your transmission is received and acknowledged by the dispatcher.
 - When your transmission is received by the trunked central controller, a "central acknowledge" tone (beep) sounds.
 - When the dispatcher acknowledges the transmission, a "dispatcher acknowledgement" tone (beep-beep-beep) sounds, and the display shows either "STS RCVD" (status) or "MSG RCVD" (message).



If no acknowledgement is received by the radio, the display shows either "NO ACK," "NO SYS," or "OUT RANGE," and an "illegal key" tone sounds. The radio then returns to normal operation.

Dynamic Regrouping (Trunked Systems Only)

Radios with the "dynamic regrouping" feature enabled can be steered by the dynamic regrouping terminal to a special group, typically used during emergency situations. When your radio has been dynamically regrouped, you will hear a distinct "gurgle" tone.

You will not notice whether your radio has this feature enabled until a dynamic regrouping is actually performed. If you turn your radio's rotary selector switch to the dynamic regrouping position without being dynamically regrouped, an "illegal mode" tone will be heard.

1. When the radio is dynamically regrouped, you will hear a "gurgle" tone.
2. Turn the rotary selector switch to the predetermined dynamic regrouping position to eliminate the "gurgle" tone.
3. Talk and listen as normal.
4. When the dynamic regrouping has been canceled, a constant low pitched tone will be heard until a normal talkgroup has been selected.

Note: Whenever the gurgle tone is heard upon pressing the PTT switch, the radio is transmitting on the dynamic talkgroup, regardless of the position of the rotary selector switch.

Select Enable and Select Disable

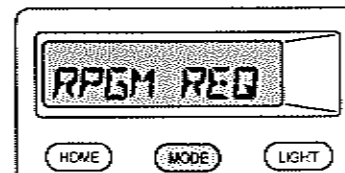
The dispatcher may classify regrouped units into either of two categories, "select enabled" or "select disabled":

- "Select enabled" units are free to make mode changes to any of the available talkgroups, including the dynamic group.
- "Select disabled" units cannot change modes, since the dispatcher has specifically chosen to force the unit to remain in the dynamic mode.

Reprogram Request

"Reprogram request" is the method by which you inform the dynamic regrouping console that you want a new dynamic regrouping assignment.

1. Hard-press the **5 DATA** key.



2. Quick-press the **MODE** key until the display shows "**RPGM REQ**."

Note: Since, at this point, you are out of regular dispatch operation, the radio has a built-in timer which will automatically exit you from the feature if you don't complete the "reprogram request" operation within a preset time period. After several seconds, the radio will emit a "bad" "beep" and return to the "home" state.

3. Press the PTT switch to send the reprogram request. The display begins flashing, and a "central acknowledgement" tone ("beep") sounds, indicating that your request was received by the system central controller.

Note: If the regrouping request is not acknowledged within six to eight seconds, the display will show "**NO ACK**," and the radio will emit a "bad" "beep" and return to normal operation.

4. When the regroup request has been acknowledged, a "dispatcher acknowledgement" tone (beep-beep-beep-beep) will sound, indicating that the dispatcher terminal has logged-in the regroup request, and the display will show "**ACK RCVD**." The radio will then return to normal operation.



4 LOCK

5 DATA

6 PRG

Automatic Multiple Site Selection (AMSS) (Trunked Systems Only)

Communications are extended beyond the reach of a single trunked site (antenna location) by the "automatic multiple site selection" (AMSS) feature. In a system where wide area coverage is required, multiple trunking sites are utilized. AMSS automatically switches the radio to a different site when the current site's signal becomes too weak. Typically, this happens when the user goes out of the range of one site and into the range of another.

Under normal conditions, the AMSS feature is invisible to the operator; however, the operator does have manual controls (the side buttons and [SYSTEMS SABER III only] the monitor button) which may be used to check or change the AMSS operation as described in the following paragraphs:

Operator-Initiated AMSS

Note: If AMSS is enabled on a SYSTEMS SABER I radio, the AMSS lock state will always be "unlocked."



1. On SYSTEMS SABER III radios only, check which site the radio has currently selected and the radio's current lock status (locked or unlocked, according to the state of the LCK annunciator) by quick-pressing the monitor button. The current site name is displayed for a few seconds, along with the LCK annunciator (on or off, depending upon whether the AMSS is locked or not). If the radio is not locked onto a site but is scanning for a new site, the display shows "SITE SCN."

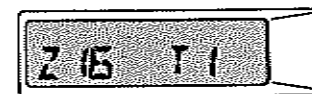
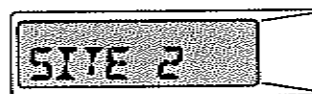
Note: Be careful not to hold the monitor button down too long, causing the current AMSS lock condition to be changed.



2. Manually initiate a scan to another site during weak signal conditions by pressing and holding one of the side buttons (SB1 or SB2) until an alert tone sounds. Also, on SYSTEMS SABER III radios the display will temporarily show "SITE SCN."

Locking Onto a Site (SYSTEMS SABER III Only)

If you are aware that weak signals are common in particular areas, use the "AMSS lock" function to prevent the radio from automatically scanning for a new site. While the radio is locked onto a site, it will not scan for a new site.

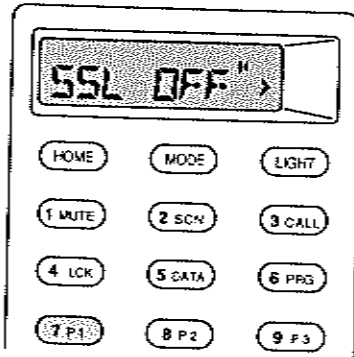


1. Quick-press the monitor button to view the site name and the AMSS lock condition of the radio. If the LCK annunciator is lit, the site is locked; if the annunciator is not lit, the site is unlocked.
2. To change the AMSS lock condition, hard-press the monitor button until a "beep" is heard. The display shows "SITE LCK" if the AMSS becomes locked or "SITE UNL" if the AMSS becomes unlocked.
3. The new lock state will be displayed for a few seconds, then the radio will return to normal operation.

Note: Remember to unlock AMSS to cause AMSS to resume automatic scanning for the best site. If, at any time, you have difficulty in accessing the system, check to make sure that the AMSS feature is in the unlocked (normal scanning for best site) mode.

System Search and Lock

The "system search and lock" (SSL) feature allows you to communicate beyond the reach of a single conventional repeater or trunked system. When your radio moves out of the range of a repeater or trunked system, the radio automatically searches through a predetermined list of alternate repeaters/systems and locks onto one that is in the current coverage area. Periodically, the radio "looks back" for and, when in range, locks onto the original system.



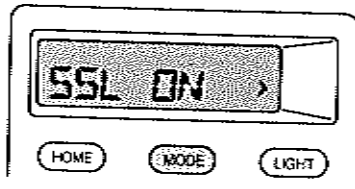
Turning System Search and Lock On/Off

1. Hard-press the "P" key (P1, P2, or P3) which the RSS has assigned to system search and lock (SSL). The display shows "SSL OFF >" if SSL is currently off, or "SSL ON >" or "SSL ON H >" if SSL is on.

Note: If you do not wish to change the current condition of SSL at this time, exit the SSL feature by pressing the HOME key.



2. Press the MODE key. The display shows "SSL ON >" if SSL was off in step 1, or "SSL OFF >" if SSL was on in step 1.

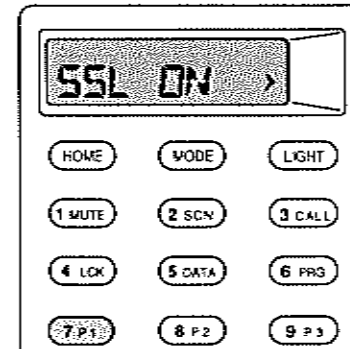


3. Press the HOME key. This actually changes the SSL condition from "off" to "on," or from "on" to "off."

Note: After SSL has been turned on, the typical display upon pressing the appropriate "P" key would show "SSL ON >" if the radio was not on the home system, and "SSL ON H >" if the radio was on the home system.

Manually Forcing a System Search

You can manually force your radio to search for a new system. Before you can do this, SSL must be currently on. If necessary, turn SSL on before performing the following procedure.



1. Hard-press the "P" key (P1, P2, or P3) which the RSS has assigned to system search and lock (SSL). The display shows "SSL ON >" or "SSL ON H >."



2. Press the MODE key. The display shows "SEARCH >."



3. Press the HOME key to activate the search. The display momentarily shows "SRCH ON," then shows the vernacular (name) assigned to the talkgroup/channel that is being searched. While the search is in progress, the name will be flashing; when the radio locks onto the new system the name will remain on constantly.

STAT-ALERT™ (MDC-1200™) Features (Conventional Systems Only)

In addition to the standard MDC-1200 ID and emergency features previously discussed, some SYSTEMS SABER radios offer several additional features based on MDC-1200 signalling:

Note: These features are not available in every SYSTEMS SABER radio; they are available only in radios that are capable of supporting them.

- **Radio Check.** Allows the dispatcher to check whether a particular radio is turned on, as long as the radio is within the range of the system. The radio automatically sends out a message after being polled by the dispatcher.
- **Selective Radio Inhibit.** Allows the dispatcher to make any radio in the system temporarily inoperable, as long as the radio is within the range of the system.
- **Remote Monitor.** Allows the dispatcher to remotely key-up a radio in an emergency or critical situation in order to monitor its activity. This feature can be enabled or disabled on a individual radio basis.
- **Repeater Access.** Allows systems with overlapping coverage areas to selectively access just one of the repeaters. The repeater IDs can be slaved on a channel-by-channel basis, and sent on every PTT switch press, or they can be slaved to the radio's side buttons and be sent out manually.

Advanced SECURENET (Conventional Systems Only)

Note: Advanced SECURENET features are only available on radios that have been equipped by the factory to support them. In addition, the radio must also be equipped with an Advanced SECURENET encryption module.

Advanced SECURENET incorporates two new features into the existing SECURENET system: over-the-air rekeying (OTAR), and Multikey operation. OTAR lets you rekey radios over the air or wireline from a remote location. Multikey allows a radio to be equipped with as many as eight different encryption keys, utilizing the same encryption algorithm (for example, DVP, DVP-XL, etc.). Depending on the type of encryption you have, your radio will support Multikey only or OTAR/Multikey.

The operation of the Advanced SECURENET features are explained in the following paragraphs, first for the SYSTEMS SABER I, then for the SYSTEMS SABER III.

Operation of Advanced SECURENET Features on a SYSTEMS SABER I Radio

- **Multikey.** With the Multikey feature, as many as eight different encryption keys are available for use by a SYSTEMS SABER I radio. These keys can be strapped, on a one-per-channel basis, to any of radio's up to 16 different channels. The RSS selects the key and the channel to which it is strapped. The keys are then loaded using either a manual keyloader, or OTAR. If you use your radio for both the conventional and trunked applications, you will have to designate one of the keys as the trunking key.
- **OTAR.** On a SYSTEMS SABER I radio OTAR operation is transparent to the user. The key management controller will change the keys of the radio whenever they require changing.

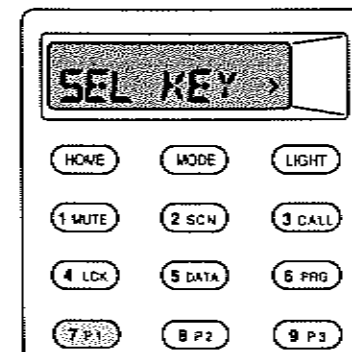
Operation of Advanced SECURENET Features on a SYSTEMS SABER III Radio

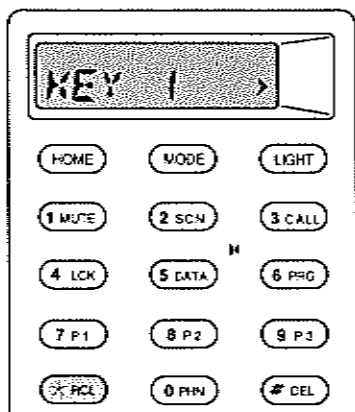
With the SYSTEMS SABER III radio, in addition to the features explained above, the user gains additional capabilities: operator-selectable keys, operator-selectable index, and request rekeying. These Advanced SECURENET features can be programmed so that all three are controlled by one specific "P" (P1, P2, or P3) key, or they can be distributed among the three "P" keys. For example, operator-selectable key can be under P1, operator-selectable index under P2, and request rekeying under P3. Your choices will be restricted if you already have other features (for example, "systems search and lock") assigned to some of the keys.

In the following examples we will assume that all the features have been structured under one "P" key (the P1 key), and the first feature structured is operator-selectable keys.

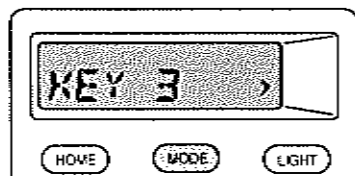
How to Select a Key

1. Hard-press the P1 key. The display shows "SEL KEY >."





2. Press the * RCL key. The display shows the current key (for example, "KEY 1").

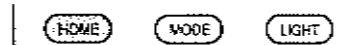


3. Quick-press the MODE key to scroll the display until you find the desired key.

Note:

- You can use the # DEL key to scroll the display in the opposite direction.
- The "DEF KEY" display refers to the default key (the key that is slaved to that particular channel). Choosing the "DEF KEY" will cause the radio to use the default encryption key for that channel.
- Channels that are designated as "non-operator-selectable" will not change the slaved key that is assigned to them.

4. Press the HOME key to store the key that is shown on the display.

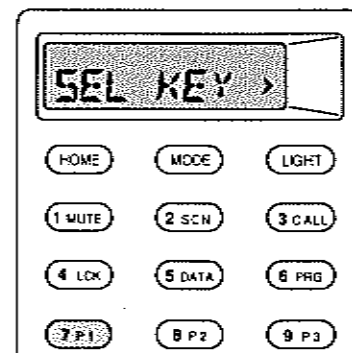


Note: After the key is stored, pressing the PTT switch while the radio is in the coded mode will cause the key name to be momentarily displayed.g69

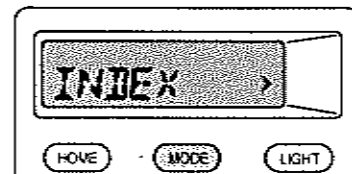
How to Select an Index

"Indexing" allows you to select one or more groups of several keys from among the eight available keys. For example, you could have a group of three keys structured to one index, and another group of three different keys structured to another index; by changing indexes, you would automatically switch from one set of keys to the other. Every channel to which one of the original keys was slaved will now have the equivalent new key instead. Indexing also allows the key management controller to change the keys within the index that is not currently being used without disrupting operation of the radio.

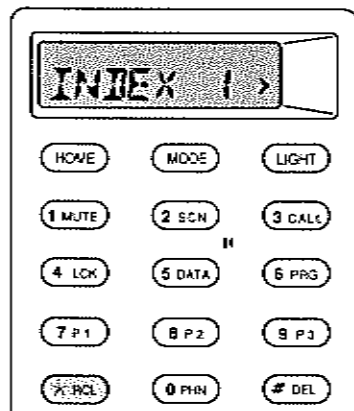
To select an index, do the following:



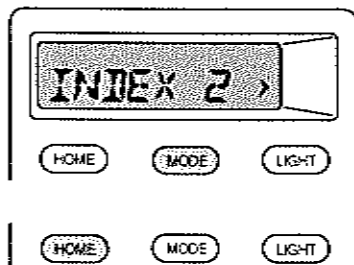
1. Hard-press the P1 key. The display shows "SEL KEY >."



2. Press the MODE key until the display shows "INDEX >."



3. Press the * RCL key. The display shows the current index (for example, "INDEX 1").



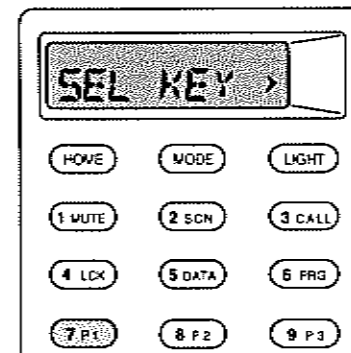
4. Press the MODE key to select the new index (for example, "INDEX 2").

5. Press the HOME key to store the new index.

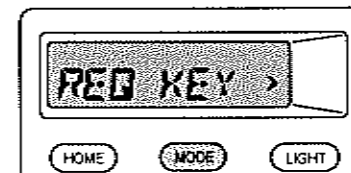
Note: You can see which index you are currently using by moving the transmit mode selector switch (TMSS) from the "clear" position to the "coded" position. The display will momentarily show the current index.

How to Request Rekeying

With the "request rekeying" feature, you can ask the dispatcher to be "rekeyed" (update your keys) over the air. To be rekeyed, do the following:



1. Hard-press the P1 key. The display shows "SEL KEY >."



2. Press the MODE key until the display shows "REQ KEY >."



3. Press the PTT switch. The ">" annunciator disappears. At this point, either



a. The display momentarily shows "DENIED," followed by a bad "bonk" tone, and the radio returns to normal operation.

or



b. The display shows **"PLS WAIT,"** indicating that you are waiting for the key management controller to acknowledge the request.

(1) If the request *is not* acknowledged within a predetermined time period, the display will show **"NO ACK,"** a "bad key" "chirp" will be emitted, and the radio will return to step 3, above. At this time you can either try again by pressing the PTT switch, or exit by pressing the HOME key.

(2) If the request *is* acknowledged, the display will show **"PENDING,"** a "good key" "chirp" will be emitted, and the radio will wait for the request to be accepted.

(a) If the request is denied, or the attempt to program the radio is unsuccessful, the display will momentarily show **"DENIED,"** sound a bad "bonk" tone, and return to step 3, above.

(b) If the request is accepted and successful, the display will momentarily show **"REKEYED,"** emit four "good key" "chirps," and return to the normal "home" state.

In Case of Operating Problems

If you experience operating difficulties with your SYSTEMS SABER radio:

1. Review the appropriate steps in the operating procedures.
2. Reset the radio by turning the radio off and back on again.
3. Be sure that the rotary selector switch is set to the correct position.
4. Be sure that the secure/clear selector switch is set to the correct position.
5. Be sure that the correct encryption key has been loaded into the radio (secure-equipped radios only).
6. Make sure that your radio's battery is charged.
7. If the quality of the transmitted or received signal is poor, check the antenna. It must be undamaged and held in an upright position for maximum range.
8. Try several different operating locations, especially when using the radio inside buildings.
9. Check the transmitter by transmitting to an alternate portable radio or communications receiver.

Batteries

The SYSTEMS SABER radio gets its power (7.5 Vdc) from a Motorola rechargeable nickel-cadmium battery. This safe, dependable power source is designed specifically for use in the SYSTEMS SABER radios. Proper care of the battery will ensure its effectiveness and allow peak performance of the radio.

WARNING:

Do Not dispose of the battery in a fire or incinerator; this may cause an explosion.
Do Not short circuit the radio battery. An accidental short circuit such as a paper clip dropped across the battery terminals may generate enough heat to spark a fire.

H

Recharging Batteries

The battery should be fully charged before use to ensure optimum capacity and performance. The battery was designed to be charged only in a Motorola battery charger. Charging in non-Motorola equipment may lead to battery damage, and voids the battery warranty. If a battery is being charged for the first time, or if it has been stored for a long period of time, a minimum charge of 14 hours will be required. Subsequent charges will require about one hour of charge time.

Charging temperature of the battery should be about 77°F (room temperature) whenever possible. Charging a cold battery (below 45°F) may result in leakage of electrolyte, and ultimately, in failure of the battery. Charging a hot battery (above 95°F) results in reduced discharge capacity, affecting performance of the radio. SYSTEMS SABER battery chargers contain a temperature sensing circuit to ensure that the battery is charged within these temperature limits. For additional information on batteries and battery charging, refer to battery charger manual 68PB1106C65 (single-unit charger) or 68PB1106C66 (multiple-unit charger).

Maximizing Battery Capacity. The high-performance Ni-Cd battery in your radio is designed to deliver maximum energy throughout its long life expectancy. Since this battery may be repeatedly shallow-discharged (discharged for short periods of time) or left on charge for long periods of time, an occasional deep (complete) discharging is recommended to ensure maximum battery output capacity. This can be accomplished by either turning the radio on and leaving it in the receive mode overnight, or cycling the battery through a battery conditioner.

For additional information on Motorola's nickel-cadmium batteries, write to:
 Motorola, Inc.
 Battery Marketing Department
 8000 W. Sunrise Blvd.
 Ft. Lauderdale, FL 33322
 FAX: (305) 475-6483

Nickel-Metal-Hydride Batteries

Nickel-metal-hydride (NiMH) is an alternative technology to nickel-cadmium (Ni-Cd) for users of rechargeable batteries. The benefits are increased energy density (high capacity) and environmental safety (contains no mercury, lead and <4% cadmium). Please adhere to the following operational guidelines in the use and selection of these batteries.

Technology	NiCd	NiCd	NiCd	NiMH	NiMH
Rated Capacity	1500ma	950ma	650ma	900ma	1650ma
Average Capacity	1800ma	1100ma	700ma	950ma	1700ma
Housing Size	Long	Medium	Short	Short	Medium
Cycles	500-700	500-700	500-700	350-500	350-500
Warranty Period	18 months	18 months	18 months	12 months	12 months
Charge Rates	Rapid / Trickle	Rapid / Trickle	Rapid / Trickle	Rapid / Trickle	Rapid / Trickle
Charge Time	1.5 hours	1.5 hours	1.5 hours	2.0 hours	2.0 hours
Self Discharge (storage)	< 0.7% per day	< 0.7% per day	< 0.7% per day	< 0.4% per day	< 0.4% per day
Operating Temperature	-30° to +60°C	-30° to +60°C	-30° to +60°C	-10° to +60°C	-10° to +60°C
Storage Temperature	-40° to +85°C	-40° to +65°C	-40° to +65°C	-30° to +50°C	-30° to +50°C
SABER Vehicular Adapter	Yes	Yes	No	No	No
Porta-Pocket	Yes	Yes	Yes	No	No
Factory Mutual/ Intrinsically Safe	Available	Available	Available	Available	To Be Submitted
% Cadmium	-	-	-	0	< 4%

- Use only rapid chargers for NiMH batteries
- NiMH batteries should not be used under the following conditions:
 - Prolonged Storage (> 2 weeks)
Discharge rate for NiMH batteries is up to 4% per day. NiCd batteries are best suited for prolong storage with a discharge rate of less than 0.7% per day.
 - Operating Temperature is below -10° C
NiCd is best suited in this application with a minimum operating temperature of -30° C.
 - Storage Temperature is not within -30° to +50° C.
If NiMH batteries are stored in temperatures exceeding +50° C, permanent damage will result.
- Do Not charge NiMH in SABER Vehicular Adapters or Porta-Pocket™ Chargers.

NiMH can be charged using the following Motorola products:

Kit Number	Description
NTN4734	Single-Unit Charger 117V
NTN4796	Multi-Unit Charger 117V
NTN4786	Single-Unit Charger 220V
NTN4797	Multi-Unit Charger 220V

- It is recommended that Motorola NiMH batteries be used in chargers manufactured by Motorola Inc. Motorola Inc. is not responsible for battery life degradation which may occur unless NiMH batteries are charged with the prescribed accessories.

Accessories

List of Accessories

Antennas:

NAD62B2	Heliflex [136-150.8 MHz]
NAD6472	Heliflex [146-162 MHz]
NAD6473	Heliflex [157-174 MHz]
NAD6552	Heliflex [148-174 MHz]
NAE6131	Heliflex; For Use On Public Safety Microphone [403-433 MHz]
NAE6132	Heliflex; For Use On Public Safety Microphone [440-470 MHz]
NAE6431	Heliflex [403-433 MHz]
NAE6432	Heliflex [440-470 MHz]
NAE6440	Whip [403-512 MHz]

Audio Accessories:

NLNB410	Velcro Patch Pin Attachment (for use with Public Safety Mic)
NMN6050	Headset/Microphone, Safety Helmet (use with NTN5665)
NMN6056	Headset, Earpiece (use with NTN5665)
NMN6064	Headset with Boom Microphone (use with NTN5714)
NMN6065	Headset with Cup Microphone (use with NTN5714)
NMN6128	Remote Speaker Microphone
NMN6129	Public Safety Microphone (UHF Only; Less Antenna and Velcro Patch)
NMN6154	Public Safety Speaker Microphone with Earpiece Jack (UHF Only; Less Antenna and Velcro Patch)
NMN6158	Swivel Clip Back Replacement for Public Safety and Remote Speaker/Microphones
NMN6166	Remote Speaker/Microphone with Cord and Earpiece Jack
NTN5581	Thumbscrew (for Standard Screw Replacement)
NTN5627	Button Snap for Remote and Public Safety Microphones
NTN5651	Velcro Back Replacement for Public Safety and Remote Speaker/Microphones

Headset Accessories:

NMN6050	Headset/Microphone, Safety Helmet (use with NTN5665)
NMN6056	Headset, Earpiece (use with NTN5665)
NMN6064	Headset with Boom Microphone (use with NTN5714)
NMN6065	Headset with Cup Microphone (use with NTN5714)
NTN6068	Adapter [Mid-Band], Headset Accessory
NTN5213	Adapter [VHF & UHF], Headset Accessory
NTN5665	Headset Adapter Cable, Bayonet Jack (use with NMN6050 and NMN6056)
NTN5714	Headset Adapter Cable, Phone Jack (use with NMN6064 and NMN6065)

Surveillance Accessories:

NSN6038	Earpiece with No Volume Control (use with NTN5212)
NSN6050	Speaker, Earpiece (without Volume Control) (use with NTN5664)
NTN5039	Extra-Loud Earpiece for Surveillance Accessory (Earpiece Only; No Plug or Wire) (use with NTN5664)
NTN5212	Earpiece Adapter (use with NSN6038)
NTN5664	Surveillance Accessory Adapter (with Keyload Capability) (use with NSN6050, NTN5039, ZMN6031, ZMN6032, ZMN6038, and ZMN6039)
ZMN6031	Surveillance Accessory, Earpiece, Separate Microphone and PTT Switch (use with NTN5664)
ZMN6032	Surveillance Accessory, Earpiece, Combined Microphone and PTT Switch (use with NTN5664)
ZMN6038	Surveillance Accessory, Earpiece, Combined Microphone and PTT Switch with Extra-Loud Earpiece (use with NTN5664)
ZMN6039	Surveillance Accessory, Earpiece, Separate Microphone and PTT Switch with Extra-Loud Earpiece (use with NTN5664)

Carrying Accessories:

NLN4529	Swivel Belt Loop for Carrying Case; 2 1/2-Inch
NLN4530	Swivel Belt Loop for Carrying Case; 3-Inch
NLN6349	Shoulder Strap
NLN8559	Epaulet Strap
NTN5580	Case, Swivel (For Radio with Medium-Capacity Battery)
NTN5644	Case, Swivel (For Radio with Ultra-High-Capacity Battery)
NTN5577	Case with Belt Loop (For Radio with Medium-Capacity Battery)
NTN5578	Case with Belt Loop (For Radio with Ultra-High-Capacity Battery)
NTN4788	Removable Belt Clip Attachment
NTN5575	Nylon T-Strap for Carrying Case
NTN5029	Raised Belt Clip Attachment
NTN5728	Removable Swivel "D" Bracket Attachment (for use with Swivel Belt Loop)

Batteries:

NTN4538	Medium-Capacity, Nickel-Cadmium, FM Approved (Groups D, F, and G)
NTN4593	Medium-Capacity, Nickel-Cadmium
NTN4595	Ultra-High-Capacity, Nickel-Cadmium
NTN4596	Ultra-High-Capacity, Nickel-Cadmium, FM Approved (Groups D, F, and G)
NTN4905	Lithium, Disposable (Not Recommended for High-Power Use; Operating Temperature = +5°C to +60°C Requires Medium-Capacity Battery Carrying Case)

Battery Chargers:

NLN7967	Wall Mount Kit for Multi-Unit Charger
NLN7968	Rack Mount Kit for Multi-Unit Charger
NTN4734	Single-Unit, Rapid-Rate, 117-Volt
NTN4786	Single-Unit, Rapid-Rate, 220-Volt
NTN4796	Multi-Unit, Rapid-Rate, 117-Volt
NTN4797	Multi-Unit, Rapid-Rate, 220-Volt/240-Volt
NTN5564	SABER Pocket Adapter (for MX rapid-rate chargers only)

Intrinsically-Safe Models and Accessories

The following radio models and accessories are approved as being intrinsically Safe by Factory Mutual (FM) Corporation. Refer to the radio label for intrinsic safety ratings and required batteries. Only the accessories and antennas listed below may be used with approved radios.

Radio Models:

VHF	UHF
H33TUN5170CN	H34TUN5170CN
H43TUN5170CN	H44TUN5170CN
H33YUN5170CN	H34YUN5170CN
H43YUN5170CN	H44YUN5170CN
H33TUK5170CN	H34TUK5170CN
H43TUK5170CN	H44TUK5170CN
H33TUB5170CN	H34TUB5170CN
H43TUB5170CN	H44TUB5170CN
H33YUB5170CN	H34YUB5170CN
H43YUB5170CN	H44YUB5170CN

Antennas:

NAD6282A	Heliflex (136-150.8MHz)
NAD6471A	Heliflex (136-150.8MHz)
NAD6472A	Heliflex (146-162MHz)
NAD6473A	Heliflex (157-178MHz)
NAD6552A	Heliflex (148-174MHz)
NAE6131A	Heliflex; For Use on Public Safety Mic (403-433MHz)
NAE6132A	Heliflex; For Use on Public Safety Mic (440-470MHz)
NAE6133A	Heliflex; For Use on Public Safety Mic (470-512MHz)
NAE6431A	Heliflex (403-433MHz)
NAE6432A	Heliflex (438-470MHz)
NAE6434A	Heliflex (460-520MHz)
NAE6440A	Flexible Whip (403-520MHz)
NAE6440B	Flexible Whip (403-520MHz)

Accessories:

NMN6050A	Headset/Microphone, Safety Helmet
NMN6056A	Headset, Earpiece
NMN6064A	Headset with Boom Microphone
NMN6065A	Headset with Cup Microphone
NMN6128B	Speaker/Microphone, Remote
NMN6129B	Microphone, Public Safety (Less Antenna and Velcro Patch)
NMN6166B	Speaker/Microphone with Cord and Earpiece Jack, Remote
NSN6038A	Earpiece with No Volume Control
NSN6050A	Speaker, Earpiece (without Volume Control)
NTN5039A	Earpiece for Surveillance Accessory, Extra-Loud (Earpiece Only; No Plug or Wire)
NTN5212A	Adapter, Earpiece
NTN5213B	Adapter (VHF & UHF), Headset Accessory
NTN5665A	Cable, Headset Adapter, Bayonet Jack
NTN5714A	Cable, Headset Adapter, Phone Jack
ZMN6031A	Surveillance Accessory, Earpiece, Separate Microphone and PTT Switch
ZMN6032A	Surveillance Accessory, Earpiece, Combined Microphone and PTT Switch
ZMN6038A	Surveillance Accessory, Earpiece, Combined Microphone and PTT Switch with Extra-Loud Earpiece
ZMN6039A	Surveillance Accessory, Earpiece, Separate Microphone and PTT Switch with Extra-Loud Earpiece

SABER Vehicular Adapters (SVA):

HMN1035	Microphone, Palm
HMN1036	Microphone, Compact Palm
HMNS169	Microphone, Full-featured SABER Display
NSN6054	Speaker, 12-Watt
NTN1043	SVA Package 1 (Includes Console, 12-Watt Speaker, Palm Microphone, Mounting Hardware, and Cables)
NTN1044	SVA Package 2 (Includes Console, 12-Watt Speaker, Compact Palm Microphone, Mounting Hardware, and Cables)
NTN1066	SVA Package 3 (Includes Console, 12-Watt Speaker, Full-Featured Display Microphone, Mounting Hardware, and Cables)
NTN5487	SVA Charging Console

Porta-Pocket Chargers (Regular 16-Hour Charge Rate):

NKN6289	12-Volt dc Ignition Wiring Cable (Includes Dash-Mount Bracket)
NKN6290	12-Volt Cigarette Lighter Receptacle Cable (Includes Dash-Mount Bracket)
NLN9559	Spare Dash-Mount Bracket for Radio Belt Clip
NTN5563	Single Unit Porta-Pocket Charger with 110Vac Power Supply/Cable

RF Power Amplifiers:

N1274	RF Power Amplifier; 20-40 Watts; 136-174MHz
N1275	RF Power Amplifier; 7-35 Watts; 403-420/450-512MHz

Miscellaneous:

NTN5025	Cover, Universal Connector
NTN5517	Adapter, Remote Antenna

Universal Connector Cover Instructions

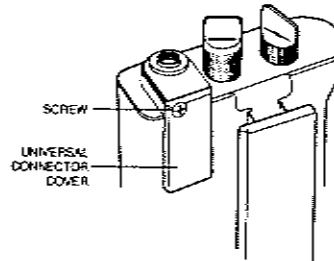
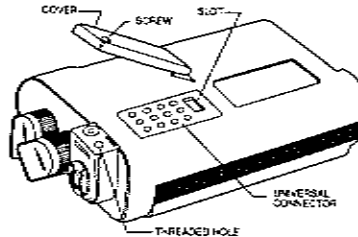
The universal connector cover protects the universal connector. The cover should be installed whenever the radio is not being used with an accessory.

Removing The Cover

1. Loosen the screw on the cover.
2. Lift the cover up and away from the radio and store it in a convenient place.

Installing The Cover

1. Looking at the back of the radio, insert the tab on the cover into the slot just below the universal connector.
2. Pivot the cover toward the radio until the connector is completely covered and the screw on the cover mates with the threaded hole on the connector.
3. Snugly tighten the screw (0.3 in. lb.) to hold the cover in place. **DO NOT OVERTIGHTEN THE SCREW.**



Connecting an Accessory

Caution: Although the accessory connectors used with other Motorola radios are similar in appearance to the ones designed for the SYSTEMS SABER radio, they are incompatible with the SYSTEMS SABER radio universal connector. If you try to use one with your SYSTEMS SABER radio, it will not operate properly.

Remote and Public Safety Microphones

These units are connected by a cable and accessory connector to the universal connector on the back of the radio. To attach the accessory connector to the universal connector, refer to the accessory's instruction manual:

Public Safety Microphone	- 68P81106C68
Remote Microphone	- 68P81107C36
Remote Microphone with Earphone Jack	- 68P81107C37

General

Cleaning Procedures

The external surfaces of the SYSTEMS SABER radio, including the housing and battery case, may be cleaned when necessary. The only cleaning agent recommended for these external surfaces is a 0.5% solution of a mild dishwashing detergent in water (one teaspoon of detergent per gallon of water). The detergent/water solution should be applied sparingly with a stiff, non-metallic, short-bristled brush to work all loose dirt away from the radio. A soft, absorbent, lintless cloth or tissue should then be used to remove the solution and dry the radio. Make sure that no water remains entrapped near the connectors, cracks, or crevices.

CAUTION: Cleaning the radio housing and/or battery with solvents or spirits may permanently damage the surfaces.

Handling Procedures

1. Avoid physical abuse; do not pound, drop, or throw the radio unnecessarily. Do not carry the radio by the antenna.
2. Avoid subjecting the radio to an excess of liquids; never allow the radio to become submerged.
3. Avoid subjecting the radio to corrosives, solvents, or spirits. Clean the radio with the recommended solution only.
4. Do not disassemble the radio in any way; keep connector covers in place until ready for use, and replace afterwards.

Safety Information

The Federal Communications Commission (FCC), with its action in General Docket 79-144, March 13, 1985, has adopted a safety standard for the human exposure to radio frequency (rf) electromagnetic energy emitted by FCC-regulated equipment. Proper operation of this radio will result in user exposure substantially below the FCC recommended limits.

- **DO NOT** hold the radio with the antenna very close to, or touching, exposed parts of the body, especially the face or eyes, while transmitting. The radio will perform best if the microphone is two or three inches away from the lips, and the radio is vertical.
- **DO NOT** hold the transmit (PTT) down when not actually desiring to transmit.
- **DO NOT** allow children to play with any radio equipment containing a transmitter.
- **DO NOT** operate a transmitter near unshielded electrical blasting caps or in an explosive atmosphere, unless it is a type qualified for such use.

Service Information

Proper repair and maintenance procedures will assure efficient operation and long life for this product. A Motorola maintenance agreement will provide expert service to keep this and all other communication equipment in perfect operating condition. A nationwide service organization is provided by Motorola to support maintenance services. Through its maintenance and installation program, Motorola makes available the finest service to those desiring reliable continuous communications on a contract basis.

Motorola's National Service Organization is the largest service organization specializing in mobile communications. It includes over 900 authorized or company owned stations. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.

For contract service requirements, please contact the nearest Motorola service representative.

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The Motorola products described in this manual may include copyrighted Motorola computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted computer programs, including the right to copy or reproduce in any form the copyrighted computer program. Accordingly, any copyrighted Motorola computer programs contained in the Motorola products described in this manual may not be copied or reproduced in any manner without the express written permission of Motorola. Furthermore, the purchase of Motorola products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyright, patents, or patent applications of Motorola, except for the normal nonexclusive royalty free license to use that arises by operation of law in the sale of the product.

Restrictions

Because this radio contains a transmitter, Federal Law prohibits unauthorized, non-licensed personnel from adjusting or maintaining it. If any operational difficulties should arise while using this product, report them to authorized service personnel as soon as possible.



68PB1060C10-C

Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322