ESP504™

GENERAL SAFETY INFORMATION

The United States Department of Labor, through the provisions of the Occupational Safety and Health Act of 1970 (OSHA), has established an electromagnetic energy safety standard which applies to the use of this equipment. The following precautions are recommended to minimize exposure to electromagnetic energy:

WARNING

DO NOT operate the transmitter of the radio with the antenna touching the face, eyes or any exposed body parts.

DO NOT operate the transmitter of a mobile radio when someone outside the vehicle is within **two feet** (0.6 meter) of the antenna.

DO NOT operate the transmitter of any radio unless all radio frequency connectors are secure and any open connectors are properly terminated.

DO NOT allow children to operate transmitter equipped radio equipment.

DO NOT operate the radio near electrical blasting caps or in an explosive atmosphere.

In addition, all equipment must be properly grounded according to SEA Inc. installation instructions for safe operation and should be properly serviced by a qualified technician.

SEA recommends that this equipment be maintained and repaired only by qualified technical personnel or under such supervision.

This device complies with Part 15 of the FCC rules. Operation is subject to the condition that this device does not cause harmful interference.

CONFIGURATION CHECKLIST

Congratulations on your purchase of the SEA ESP504 Mobile Transceiver. Your ESP504 has many features that can be tailored to suit your communications requirements. The feature list on page one of this manual includes the complete capabilities of the ESP504; however, not all capabilities may be offered by your radio service provider.

The features that have been activated for your ESP504 are checked or circled below. Your dealer should complete this page and explain the operation of each feature. In addition, this manual covers each capability under the corresponding page.

CONFIGURATION NAME _____ DATE _____

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TRUNKED OPERATION	☐	☐	☐	☐
CONVENTIONAL OPERATION	☐	☐	☐	☐
NOT PROGRAMMED	☐	☐	☐	☐
INTERCONNECTED	☐	☐	☐	☐
REPEATER TALKAROUND	☐	☐	☐	☐
BUSY CHANNEL LOCKOUT	☐	☐	☐	☐
CALL INDICATOR	☐	☐	☐	☐
HORN ALERT	☐	☐	☐	☐

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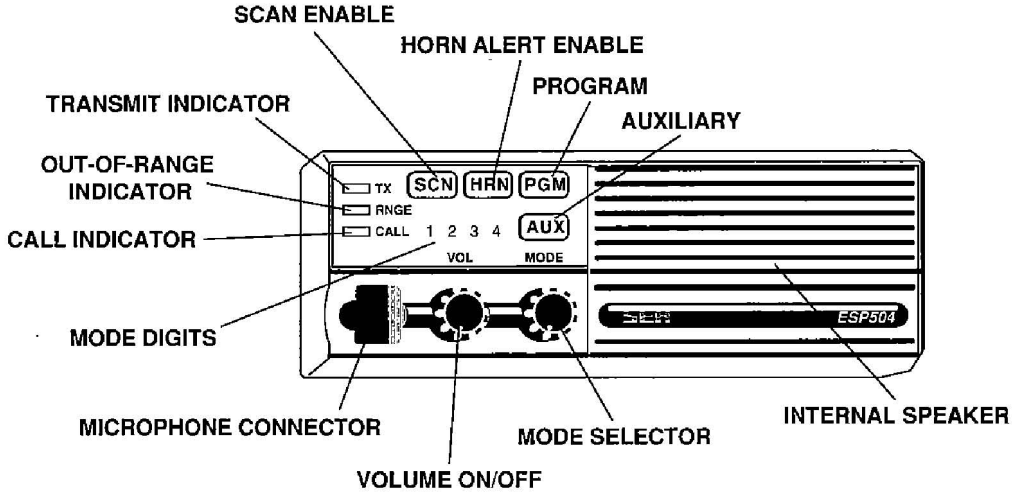
ESP504 FEATURES

- Trunked system operation
- Conventional system operation
- Repeater talk around
- Four selectable modes
- Mode scan
- User programmable scan
- Volume reference tone
- Out-of-range indicator
- User selectable ringback if mode is busy
- User selectable courtesy tone to indicate when talking may begin in trunking modes
- Call indicator
- Ignition Sense
- Battery Saver
- Horn Alert
- Transmit Time-out Timer

CONTROLS AND INDICATORS



CONTROLS

VOL **Turns mobile on/off**
Adjusts volume

A reference tone sounds for two seconds after power is applied to the mobile. Adjust the reference tone volume to the desired level with the volume control. The reference tone can be disabled /enabled by pressing and holding the "AUX" button while the mobile is turned on.

MODE **Changes the operating mode of the mobile**

A mode is the equivalent of a channel position in conventional operation or a system/group combination in trunked operation.

SCN **Enables scan function**

HRN **Enables horn alert function**

PGM **Enables user scan list programming**

AUX **Performs five functions:**

1. **Volume reference tone**
   While holding the AUX button in the depressed position, turn on radio power to enable or disable the volume reference tone.

2. **Temporary scan list modification**
   ***With scan on** and locked to an active mode, or after manually selecting a mode to be deleted, press the PGM button into the depressed position, then press the AUX button to temporarily delete the selected mode from the scan list. Turning scan off and on again restores the deleted mode to the scan list.*

3. **Permanent scan list modification**
   ***With scan off**, select the mode to be deleted, press the PGM button into the depressed position, then press the AUX button to permanently delete the selected mode from the scan list. Repeat the procedure to restore the deleted mode to the scan list.*

4. Talkaround enable

Press the AUX button to enable talkaround in the selected conventional mode. A flashing mode digit indicates talkaround is active.

5. Free system ringback

While holding the PTT in a depressed position, press the AUX to enable free system ringback if a busy tone is sounding. Release PTT.

PTT **Enables transmitter. Located on the microphone.**

INDICATORS

TX **Indicates when the mobile is transmitting**

CALL **Indicates that a call was received**

The call indicator will extinguish when the user operates any radio control.

RNGE **Indicates that the mobile is out of range of a repeater.**

The out-of-range indicator illuminates when the mobile has not received a valid update from a repeater for at least 30 seconds, or when attempting to transmit from an out-of range location.

Mode Digits **Indicate the selected mode (1-4)**

During scan, each number illuminates as it is selected by the radio.

DISPATCH (MOBILE-TO-MOBILE) CALLING

To Receive a Dispatch Call

Switch the unit on by turning the VOL control clockwise.

Unless the reference tone function has been disabled, you will hear a tone for two (2) seconds after the radio is turned on. Use this reference tone to adjust the volume to a comfortable listening level with the volume control knob.

Select the desired mode using the MODE knob. You are now prepared to receive messages on the selected mode.

When a call is received, the CALL indicator will light (if programmed) and the message will be heard through the speaker.

You may respond by removing the microphone from its hanger (off-hook) and pressing the push-to-talk (PTT) button. Speak slowly and clearly into the microphone. Release the PTT to listen. When the conversation is completed, replace the microphone in its hanger (on-hook).

To Scan Modes for a Call

Press the SCN button on the front panel to begin scanning. You are now prepared to receive messages on any of the modes programmed into the scan list.

Press SCN again to stop scanning.

To Make a Dispatch Call on a Trunked System

Take the microphone off-hook. Scanning, if enabled, will temporarily stop (see Scan Resume and Interval Scan Delay - p. 12).

Select the desired mode if necessary.

Press the PTT (push-to-talk) button on the microphone. If programmed, a courtesy tone will sound to indicate that the communication path is complete and you may begin speaking. If a busy or intercept tone sounds, the path is not complete.

Hold the microphone 1/2 to 2 inches from your mouth and speak into the grill of the microphone at a normal voice level.

Release the PTT button to receive a reply.

To Make a Dispatch Call on a Conventional System

Take the microphone off-hook. Scanning, if enabled, will stop.

Select the desired mode if necessary.

Monitor (listen to) the mode (channel) to insure no one else is talking; when the mode is clear of traffic, you may transmit.

If busy channel lockout is enabled, you do not need to, nor will you be able to, monitor the channel. The transceiver will not allow you to transmit if the channel is busy (see Busy Channel Lockout - p. 14).

Hold the microphone 1/2 to 2 inches from your mouth and speak into the grill of the microphone at a normal voice level.

Release the PTT button to receive a reply.

INTERCONNECT (TELEPHONE) CALLING

Interconnect calling is an optional feature offered by your system operator. This capability may not be available to you.

To Receive an Interconnect Call
(Trunked System)

Switch the radio on. Adjust the volume and mode selection as outlined above.

When "ringing" is heard through the radio speaker, answer the call in a normal manner by taking the microphone off-hook, pressing the PTT to talk and releasing the PTT to listen.

When your telephone conversation is finished, hang up by pressing the # key on the microphone keypad.

Replace the microphone on the hanger.

To Make an Interconnect Call
(Trunked System)

Switch the unit on by turning the VOL control clockwise.

Unless the reference tone function has been disabled, you will hear a tone for two (2) seconds after the radio is turned on. Use this reference tone to adjust the volume to a comfortable listening level with the volume control knob.

Select a mode programmed for interconnect operation using the MODE knob. Enable or disable the mode scan function as desired.

Take the microphone off-hook. Scanning, if enabled, will stop.

Momentarily press the PTT (push-to-talk) button on the microphone. Release the PTT to acquire a dial tone. Dial the telephone number using the keypad on the microphone. Listen for the called party to answer.

When the party answers, press the PTT button to talk.

If programmed, at the first press of the PTT, a courtesy tone will sound to indicate that you have accessed the telephone system. During the call, the tone will not sound at subsequent presses of the PTT button.

Hold the microphone 1/2 to 2 inches from your mouth and speak into the grill of the microphone at a normal voice level.

Release the PTT button to listen.

When your telephone conversation is finished, hang up by pressing the # key on the microphone keypad.

Replace the microphone on the hanger.

MODE SCAN OPERATION

To Enable the Scan Function

Press the SCN button on the front panel to begin scanning.

Press SCN again to stop scanning.

SCAN LIST PROGRAMMING

Scan list programming deletes or restores the selected mode from/to the list of modes that are scanned by the mobile when scan is enabled.

NOTE: While the program button allows editing of the scan list, it also disables all radio transmit and receive functions, effectively taking the radio off-line. A beep will sound as long as the PGM button is in the depressed position (see page 18).

To Temporarily Delete a Mode from the Scan List:

With scan on and locked to an active mode, or after selecting the mode to be deleted, press the PGM button into the depressed position. The programming alert beep will sound and all mode digit indicators currently in the scan list will light.

Press the AUX button. The mode that was active, or manually selected, prior to pressing PGM will be temporarily deleted from the scan list. The indicator for the deleted mode digit will turn off.

Press the PGM button again to exit scan list programming.

To Restore a Temporarily Deleted Mode to the Scan List:

Turning off either the mobile or the scan function restores the deleted mode to the scan list.

To Permanently Delete a Mode from the Scan List:

With scan off, select the mode to be deleted. Press the PGM button into the depressed position. The programming alert beep will sound and all mode digit indicators currently in the scan list will light.

Press the AUX button. The mode that was selected prior to pressing PGM will be permanently deleted from the scan list. The indicator for the deleted mode digit will turn off.

Press the PGM button again to exit scan list programming.

To Restore a Permanently Deleted Mode to the Scan List:

With scan off, select the mode to be restored. Press the PGM button into the depressed position. The programming alert beep will sound and all mode digit indicators currently in the scan list will light.

Press the AUX button. The mode that was selected prior to pressing PGM will be restored to the scan list. The indicator for the deleted mode digit will turn on.

Press the PGM button again to exit scan list programming.

MODE SCAN FEATURES

The features described below are related to mode scan operation.

Your mobile will be programmed for either Scan Revert or Fixed Revert.

SCAN REVERT

When the microphone is taken off-hook or the PTT is pressed, the mobile reverts either to the mode where the last call was received, or to the mode that was last selected with the mode control, whichever occurred most recently. In scan revert, when a call is received, the CALL indicator will light (if enabled), and will remain lit when scanning resumes.

FIXED REVERT

When the microphone is taken off-hook or the PTT is pressed, the mobile will revert to the mode last selected with the mode control. In fixed revert, when a call is received, the CALL indicator will light (if enabled), and will extinguish when scanning resumes.

SCAN RESUME AND INTERVAL SCAN DELAYS

Scanning will stop when a call is received. When the call terminates, scanning will resume after the scan resume delay period expires.

In addition, scanning will stop when the microphone is taken off-hook. Scanning resumes when the microphone is placed back on-hook. If the microphone is not placed back on-hook, the radio will resume scanning after a dealer-programmed time period called interval scan delay (if enabled).

ADDITIONAL FEATURES

FREE SYSTEM RINGBACK

If a busy tone sounds when the PTT is pressed, Free System Ringback can be enabled to signal automatically when the radio system is no longer busy.

To enable the Free System Ringback feature, press the AUX button while the PTT is depressed until a short tone is heard. Release the PTT.

When the system is available, the radio will emit a ringing tone. The call can then be completed.

Free System Ringback is automatically disabled when the operator attempts to transmit again, changes modes, or initiates scanning.

BUSY CHANNEL LOCKOUT

The Busy Channel Lockout feature is recommended for conventional systems and is similar to the trunked system's busy feature operation. All conventional modes have the capability of being programmed with this operational feature.

When the conventional channel is busy and the PTT is pressed, Busy Channel Lockout prevents the radio from transmitting.

When the Busy Channel Lockout feature is enabled, the operator does not have to monitor the channel prior to attempting a transmission. The busy tone will sound if the transmitter is locked out.

IGNITION SENSE

Ignition sense is a wiring configuration that provides capabilities dependent upon the status of your vehicle's ignition. After the vehicle ignition is turned off, the mobile will remain on for the dealer-programmed Ignition Delay period. By implementing ignition sense wiring, the ESP504 provides the Horn Alert function and Battery Saver feature.

Horn Alert

If the Horn Alert (HRN) is enabled during the Ignition Delay period, the horn will sound when a valid call is received. **If the ignition is on, the horn will not sound when a call is received.**

To enable the Horn Alert, press the HRN button.

Battery Saver

When the Ignition Delay period expires, the mobile will turn off, preventing an unattended radio from draining the vehicle battery.

SUPERVISORY TONES

The tones described below provide an audible indication of radio operation status. During interconnect telephone calls, you may hear tones not described here. These progress tones are part of the telephone system.

BUSY TONE

The busy tone sounds similar to a busy telephone signal and is used to indicate that the radio system is busy. It will sound as long as the PTT is depressed or until the system is no longer busy. *This feature is available for conventional system operation only if Busy Channel Lockout is enabled by the dealer.*

COURTESY TONE

(TRUNKED DISPATCH MODES ONLY)

When the Courtesy Tone is enabled, a short beep will sound after the PTT is pressed to indicate when speaking may begin. This courtesy tone helps prevent the first word or syllable from being missed by the receiving party because the sender began speaking too quickly after pressing the PTT.

FAULT TONE

The Fault Tone is a two-tone alert (bee-boop) that will sound in two-second intervals if the radio

detects certain low-performance conditions. If you hear a continuous Fault Tone, contact your dealer for service.

FREE SYSTEM RINGBACK ENABLED TONE

The Free System Ringback Enabled Tone is a short tone that indicates the ringback function has been enabled.

FREE SYSTEM RINGBACK TONE

The Free System Ringback Ring is a one second "ringing" tone that sounds in the Free System Ringback mode to indicate that a channel is available.

INTERCEPT TONE

(TRUNKED MODES ONLY)

The Intercept Tone may be heard when attempting to transmit. A siren-like tone that indicates transmission is inhibited, the Intercept Tone is usually the result of an out-of-range condition. The radio will attempt to access a system several times. If the attempts are unsuccessful, the intercept tone will sound. When the intercept tone sounds, release the PTT and try your call again later.

PROGRAM ENABLED TONE

The Program Enabled Tone is a half second on, full second off cycle that will sound for as long as the program (PGM) button is in the depressed position. While the program button allows editing of the scan list, it also disables all radio transmit and receive functions, effectively taking the radio off-line.

TIME-OUT TIMER TONE

The Time-out Timer Tone is an electronic warble that will sound when the radio transmits continuously up to the maximum, dealer-programmed time. The timer will stop the radio from transmitting if the PTT button becomes stuck or the operator talks for an extended period.

OPERATIONAL TIPS

SPEAKING INTO THE MICROPHONE

For best results, hold the microphone 1/2 to 2 inches from your mouth and speak into the grill of the microphone at a normal voice level. Speak slowly and distinctly at a normal conversational level. Do not shout into the microphone. Press the microphone push-to-talk (PTT) button before you begin to speak. Release the PTT as soon as your message is complete.

OPERATION AT EXTENDED RANGE

When operating at the limit of the radio system's range, there may be an increase in background noise when messages are received. The incidence of intercept may also increase. You may improve your effective communications range by driving your vehicle to higher ground or out from behind buildings or hills.

BATTERY DISCHARGE

When the radio is on but not receiving or transmitting, the power consumption is fairly low. The radio can be left on for long periods of time without the operator having to start the vehicle to recharge the battery. However, when the temperature is cold enough to affect battery capacity, the radio should be turned off when not in use.

Electrical power consumption is significantly higher when the radio is transmitting. To prevent a dead battery, it is best to keep the vehicle running when transmitting frequently or for extended periods of time.

FACTORY LIMITED WARRANTY

SEA Inc. warrants to the original purchaser that each SEA land mobile radio product, or SEA branded accessory is free of defects in material and workmanship for a period of one year from the date of delivery, except as noted below*. SEA Inc. will provide through its authorized service agent, supplier, or directly, the parts and labor to repair such products found defective.

The purchaser is responsible for any cost of travel or transportation connected with warranty repair. The purchaser is also responsible for all costs of investigating or correcting a failure caused by the purchaser's misuse, abuse, or neglect, by unauthorized alteration or repair, by accidents or other factors beyond the control of SEA Inc. No warranty is made as to availability of the radio repeater system provided by the carrier or repeater operator or the system's coverage, grade of service or operation.

SEA reserves the right to make changes in design and/or improvements to its products, at any time, without any obligation to include these changes in previously manufactured products. Correction of defects by repair or replacement shall constitute fulfillment of all warranty obligations on the part of SEA. Corrective actions may include replacement of defective modules with factory rebuilt modules which are warranted for the remainder of the product's warranty period. Peripheral equipment purchased from other manufacturers or vendors which are incorporated into radio systems carry the original equipment manufacturer's warranty.

This is the sole and exclusive express warranty offered by SEA for any claim of damages arising from any defect in the SEA product. Implied warranties, including any warranty of merchant ability or fitness for a particular purpose, are limited to the duration of this written warranty, and are excluded to the extent permitted by law. SEA shall have no liability for consequential damages or personal injury or for loss, damage or expense directly or indirectly arising from the use of its products. Some states do not allow limitations on how long an implied warranty lasts, or exclusion of incidental or consequential damages, so the above limitations may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

* 90 days - Portable radio batteries
No warranty on expendable parts, such as fuses and lamps.

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