Innovations in Trunked & Conventional 2-Way Radios

VERY   COMPACT   PROFESSIONAL   TWO-WAY   RADIOS

PATRIOT®PLUS
BY RITRON

- **Synthesized and Programmable**

- **Conventional and/ or Trunked Operation (LTR® and PassPort® Protocols), Programmable on a Per-channel Basis**

- **Ultra-small Size**

- **1-, 2- or 3-Watt Transmitter Power**

- **Ten Channels**

- **In Trunking Mode: Flexible Dynamic Allocation allows up to 100 Channels in any number of System Configurations**

- **Large Speaker enables Louder Audio Output, even in Noisy Environments**

- **20 Megahertz Bandwidth**

- **Multi-Mode Capability Transmitter: Wide or Narrow Bandwidth Switching, Programmable on a Per-channel Basis**

- **Programmable Quiet Call® Tone Squelch, Digital Quiet Call^{tm} and DTMF Encode**

- **Channel Scan, Normal and Priority**

- **Battery Saver**

- **Channel Display**

MADE IN THE USA

PATRIOT HANDHELD
OWNER'S MANUAL

Model:
SST-454D

ACCESSORIES

BPS-6N-SC .... Spare/ Replacement SST Battery
BPS-6N-MH .... Replacement High Capacity Battery

AFS-450 .... UHF Molded Flex Antenna

RHD-1X .... Single Ear Headset
RHD-4X .... Dual Ear Headset
RHD-5X .... Lightweight Over-the-ear Earset /w In-line PTT
RHD-6X .... Lightweight Behind-the-head Earset w/ In-line PTT

RSM-3X .... Remote Speaker Microphone
REP-2 .... Low Profile Earphone

CCL-B .... Cigarette Lighter Charger

MHS-A .... Cordura Holster w/quick release

BCPS-4AD .... 4-Well Drop-in Charger: SST
BCPS-AD .... Single-Well Drop-in Charger: SST (Overnight)
BCC-PS .... Drop-in High-rate Charger/Conditioner

CALL RITRON for complete listings.

BCJS-4AD
4-Well Drop-in Charger

BPS-6N-SC
Spare Battery

BCPS-AD
Single-Well Drop-in Charger

RHD-4X
Dual Ear Headset

RHD-5X
Over-the-ear Earset

MHS-A
Swivel Holster

RSM-3X
Remote Speaker Mic

RHD-1X
Single Ear Headset

RHD-6X
Behind-the-ear Earset

TABLE OF CONTENTS

NOTE: Refer to page ii for Accessory information. Call RITRON at 1-800-USA-1-USA for a complete Accessory listing.

INTRODUCTION

Congratulations on your purchase of the SST-454D radio. Your new radio is the culmination of Ritron's 25 years of designing, manufacturing, and supplying reliable, professional wireless communication products. Ritron wireless products will improve the operation, safety, and profitability of any organization by providing instant voice communications between employees throughout the workplace.

The PATRIOT Plus SST-454D handheld is a compact, synthesized, PC programmable, ten-channel two-way radio. It is designed to operate in both Trunking and Conventional modes in the professional UHF FM Business Band. The model number, indicating the radio's operating band, is stamped on the label attached to the case back.

Model	Band	Operating Frequency
SST-454	UHF	450 - 470 MHz

Make sure the package includes:

- PATRIOT Plus SST-454D radio
- Antenna
- Rechargeable battery pack
- Belt clip and screw
- Optional accessories as ordered

Examine the equipment upon delivery and report any damage to your shipping company.

CONTROL & OPERATION

1   ANTENNA

The flexible antenna radiates and receives radio signals. Screw the antenna base all the way into the threaded bushing on top of the radio.

NOTE: Use only the type of antenna furnished with the radio.

2   ON/ VOLUME UP

To switch the unit On, press the On/ Volume Up button; the speaker will emit a turn on beep. If the radio turns on to the Scan Channel it will emit the Resume Scan Beep.   Once the radio is On, press this button to increase volume.

3   VOLUME DOWN/ OFF

Press the Volume Down/ Off button to decrease volume. To switch Off the unit, press and hold this button until the speaker emits a double beep.

4   PUSH-TO-TALK SWITCH (PTT)

Press and hold the PTT when transmitting; release it to receive.

5   CHANNEL SELECTOR

Press the button and the radio will advance the channel, and the channel display will show the new operating channel. When the Scan Channel is selected the radio will emit the Resume Scan Beep and the radio will begin scanning.

**6   BATTERY ACCESS DOOR
      (CASE BOTTOM)**
The battery access door may be removed to access the battery pack. Refer to Battery Access & Installation, FIG-2, page 6.

7   JACK COVER

This rubber cover seals out dust and moisture, etc. Snap the cover into the audio accessory jack and charge jack openings when the jacks are not in use.
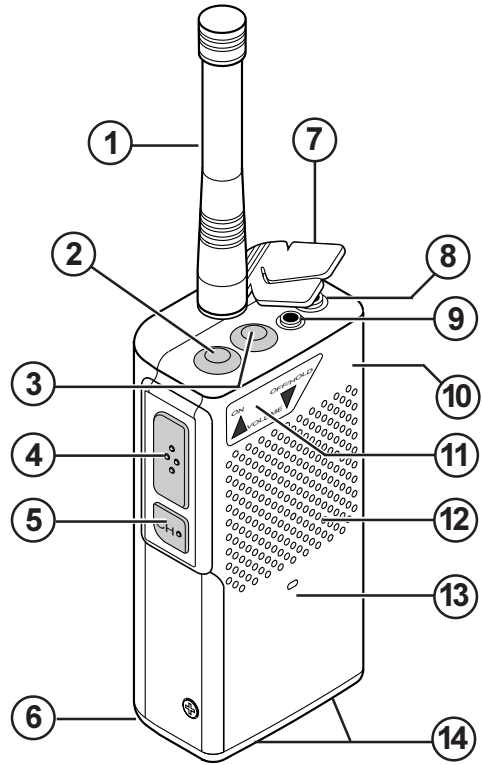
8   AUDIO ACCESSORY JACK

The audio accessory jack is used to plug in earphone options, and, in conjunction with the charge jack, to connect an optional remote speaker/ microphone or a single- or dual-ear headset. This jack is also used for PC programming.

9   CHARGE JACK

The battery pack may be charged through this jack using the RITRON charger cube. Refer to Accessories, page ii, for additional charging options.

10   CHANNEL DISPLAY

The channel display will indicate the current operating channel. When the Scan Channel is selected the display will rapidly flash the channels being scanned, and will stop when a channel is received.

FIG-1: RADIO CONTROLS & CONNECTORS

11   TX/BUSY INDICATOR LAMP

The LED flashes GREEN when the radio is receiving, and glows RED when it is transmitting.

12   SPEAKER

The speaker, located behind the front grille, allows you to hear calls on your channel.

13   MICROPHONE

The microphone allows your voice to be heard in transmissions to other radios. Speak in a normal tone; shouting does not improve your listener's reception.

14   DROP-IN CHARGING CAPABILITY

Two contacts, in the bottom of the radio, permit charging the battery pack with an optional drop-in charger. Refer to Optional Charging Accessories, page 6.

1

IMPORTANT: **CHARGE THE BATTERY PACK before using the radio for the first time.
Refer to Batteries, pages 5 and 6.**

CONVENTIONAL OPERATION

ON-OFF / VOLUME ADJUST

To switch on the radio - press the On/Volume Up button. The radio will emit the Channel beep. If the radio turns on to the Scan Channel it will emit the Scan Beep. The radio will turn on to the channel that was selected when it was last turned off, or can be programmed to always turn on to channel 1.

To adjust the volume - press the volume up or the volume down button until you reach the desired level. You should hear noise or any broadcasts on the channel. On Trunked radio channels you will hear a tone when adjusting the volume.

To turn off the radio - press and hold the Off/Volume Down button until a two tone "turn-off" beep is heard. For instant turn-off, press the PTT button while holding the Off/Volume Down button.

CHANNEL SELECTION

To change channels - press and release the Channel Selector button. The radio will emit a short Channel beep, increment the channel, and the Channel Display will show the new operating channel. If the highest channel number is selected and you press the Channel Selector button, the radio resets to channel 1 and the Channel beep is heard on the speaker.

If the Scan Channel is selected - the radio will emit the Scan Beep and the Channel Display will rapidly flash the channel numbers as they are scanned. If a signal is received the channel display will indicate the channel number, and when the received signal is removed the radio will wait briefly, sound the Scan Beep, then scanning will resume as normal.

RECEIVE

To hear calls from other users - adjust the volume as desired. The radio can receive broadcasts while the Push-To-Talk button is not being pressed. Whether or not you hear these broadcasts depends upon the squelch settings.

There are three squelch modes that can be used in the SST-454D portable on a conventional 2-way channel.

- **Carrier squelch** lets you hear all broadcasts on your channel strong enough for the radio to detect, and silences noise.

- **Tone squelch** uses one of the QC or DQC "tone squelch" formats available on the SST-454D. This allows you to screen out "on-channel" broadcasts that do not carry the correct code programmed for the radio.

- **No squelch** disables all squelch operation and allows you to hear even the weakest broadcasts on your channel.

Once a squelch type has been selected by the user, all channels will operate in that mode. The SST-454D radio will operate in tone squelch mode when it is 1st turned on.

To monitor the channel - press one of the volume control buttons. When you press the volume up or the volume down button, squelch turns off and all radio traffic on the channel (or noise) sounds in the speaker.

To activate carrier squelch - simultaneously press both of the volume buttons and hold briefly before releasing. When carrier squelch is on, the radio emits a "double beep." The radio will now let you hear all broadcasts on your channel.

To activate tone squelch - simultaneously press both of the volume buttons and hold briefly before releasing. When tone squelch is turned on, the handheld sounds one beep. You will only hear broadcasts that carry the same QC or DQC code programmed into your radio.

To activate no squelch - simultaneously press both of the volume buttons and continue to hold them down. About 3 seconds after the beep (or double beep), the radio will start beeping repeatedly. This means that squelch is turned off. Release the buttons. To restore squelch, press and hold both of the volume buttons until the radio sounds a beep or double beep.

If you are unable to activate carrier or no squelch the radio has been optionally programming for Monitor Lockout. See your Ritron dealer or contact Ritron directly to disable this option.

Note: It is possible that the beginning of a call might be missed while the radio is in battery saver mode. If this happens, ask the caller to repeat the message.

TRANSMIT

Normally, you should not transmit until no one is talking on the channel. Check the Busy/TX Indicator Lamp before transmitting to confirm the channel is clear. Do not transmit when the indicator flashes GREEN, showing the channel is busy. When the indicator lamp stops flashing GREEN, the channel is open.

To transmit - hold down the Push-To-Talk button and with the radio four inches away talk into the microphone. Speak in a normal tone, since talking louder will not improve the listener's reception.

Keep talk times as short and infrequent as possible to conserve battery, minimize radio frequency exposure, and allow others to use the channel.

Have questions? Call *800-USA-1-USA* (800-872-1872)
or visit our website at *www.ritron.com*

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SCAN OPERATION

SCAN CHANNEL OPERATION

Channel scanning allows you to listen to broadcasts on all your radio channels. The SST-454D can scan all channels in your radio except those programmed for PassPort Trunking.

HOW SCANNING WORKS

Using the Channel Selector button, select the Scan Channel. The radio sounds the Scan Beep, and then repeatedly checks each channel in the scan list. The channel display will show the channel numbers as they are scanned.

When receiving a call on a channel being scanned, the radio will stop scanning to let you hear communications on that channel. After the transmission has ended the radio will pause before it resumes scanning to allow you time to respond.

When transmitting from the Scan Channel, the handheld will go to the last channel on which a signal was received, then transmit. After you release the PTT the radio will pause to allow time for a response, and then resume scanning.

TEMPORARY BUSY CHANNEL BLOCKING

If one of the channels in the scan list is so busy that you want to temporarily block it out, press the Channel Selector button while the radio is stopped on the channel to be blocked and hold it until scanning resumes. The blocked channel will now be skipped in the scan list.

The blocked channel will be returned to the scan list if the radio is turned off, or when the radio channel is changed using the Channel Selector button. The 1st channel in the scan list cannot be blocked.

LAST CHANNEL SCANNED ALERT TONE

When changing channels with the Channel Selector button, an alert tone will sound to indicate the last channel that received a message when the radio was scanning. This will identify the channel on which the last message was received, and allow uninterrupted transmission on that channel without the constraints of scanning. You can then press the Channel Selector button to return to the scan channel.

PRIORITY SCANNING

The SST-454D radio can be optionally pro-grammed for priority scanning. Priority Scan allows you to periodically monitor a Priority Channel, even if the radio has stopped on another channel. This will prevent missed calls on the primary operating channel when in scan mode.

With Priority Scan enabled:

• The first channel in the scan list is the Priority Channel.

• The radio checks the Priority Channel every two seconds to check for activity. This time is programmable and can be set for 1 - 8 seconds.

• The radio can be programmed to transmit only on the Priority Channel when scanning.

• The radio can be programmed to sound a Priority Channel Beep whenever the radio receives on the Priority Channel when scanning.

See your Ritron dealer or contact Ritron directly for PC programming of this option.

TRUNKED OPERATION

RECEIVING A DISPATCH CALL

1. Turn On the radio by pressing the On/ Volume Up Button. The TX/ Busy Indicator will flash GREEN.

2. Select the desired system/ group by pressing the Channel Select button.

3. Adjust the volume by pressing either the On/ Volume Up or the Volume Down/ Off button for the desired volume setting as indicated by a tone heard in the speaker.

PLACING A DISPATCH CALL

1. Select the desired system/ group with the Channel Select button.

2. Press and hold the PTT Button. You will hear one of the following:

  • Clear-to-Talk Tone — a short high tone indicates you may begin speaking into the radio.

  • System Busy Tone — a series of low tones indicates all channels are busy. Release the PTT and try again.

  • Out-of-Range Tone — alternating high/ low tones indicate you should move to within range of the system and try again.

Have questions? Call

WHAT THE RADIO TONES MEAN

RADIO ALERT TONES

The handheld responds to certain instructions by sounding a beep or series of tones. These tones can tell you that the radio is working as you expect.

Power On/Self Check "OK"

When it is first turned on, the radio runs a quick "self test" to confirm basic functions. When complete the radio will emit the channel beep and the Channel Display will show the operating channel. The radio is then ready to use.

Error Tones

However, if the "self test" detects a diagnostic error, an error tone sounds. The error tone indicates the radio frequency synthesizer is malfunctioning. Turn off the radio and try again. The error tone will also sound if a channel has been programmed for an invalid frequency. A long, low-pitched tone means the battery voltage is too low to operate the radio. In this case, recharge the battery. If you cannot correct a problem, consult an authorized Ritron service facility or Ritron.

Channel Select

When the Channel button is pressed, the radio will emit a short channel beep, increment the channel, and the channel display will show the new operating channel.

Scan Channel

When the Scan channel is selected by pressing the Channel button, the radio will emit the Scan beep and begin scanning.

Squelch Mode

When you press and hold both Volume buttons at the same time, a single beep will sound to indicate that tone squelch is on. A "double beep" means that carrier squelch is on. The radio "beeps" rapidly if you press the Monitor Button for 3 seconds to put the radio in open squelch.

Transmitter Time Out

A low tone followed by a higher-pitched tone sounds and the transmitter automatically shuts off if you hold down the PTT button longer than 60 seconds. The radio automatically switches to receive mode.

Recharge Battery Alert

As the battery voltage approaches the minimum required "operating voltage" the radio will emit a short beep every 20 seconds to alert the user that the battery will soon need recharging. Once the battery charge drops below the required "operating voltage," the radio emits a long, low tone and turns itself off. If you turn the radio back on, it will beep again and shut itself off. Recharge the battery.

OPTIONAL ALERT TONES

The SST-454D radio can be programmed using the RITRON PC Programmer for optional alert tones. See your Ritron dealer or contact Ritron directly for programming of these options.

Courtesy Beep

A short tone sounds at the end of each received transmission to indicate that the channel is clear and you may transmit.

Busy Channel TX Inhibit

If a user is transmitting on your radio frequency without your tone, you will not be allowed to transmit. The radio will beep a series of long, low tones while the PTT is held down (like a busy signal).

Transmit Clear To Talk Beep

A short tone sounds after the PTT has been pressed to indicate that the radio is ready for you to begin talking.

TRUNKED OPERATION

You will hear one of the following tones when you press and hold the PTT:

Clear-To-Talk Tone (LTR/ PassPort)

A short high tone indicates you may begin speaking into the radio.

System Busy Tone (LTR/ PassPort)

A series of low tones indicates all channels are busy. Release the PTT and try again.

Out-Of-Range Tone (LTR/ PassPort)

Alternating high/ low tones indicate you should move within range of the system and try again.

Your radio may emit one of the following tones without your activating the PTT:

Registration Tones (PassPort)

When you turn the radio on and select a channel with a valid PassPort ID, the radio will emit three short high tones, indicating a successful automatic registration.

NOTE: If you press the PTT before the unit registers, you will hear the System Busy Tone (see above).

Roaming Tone (PassPort)

If the radio is out of range of the system, the radio will emit a short high tone, to let the user know the radio is searching for a valid system to register with.

BATTERIES

GENERAL

The SST-454D radio is powered by a rechargeable battery pack.

CHARGING

Because the battery pack loses its charge during storage and shipment, fully charge it before first use. To ensure peak radio performance for the next day, charge the battery overnight after each day of use. It completely charges in about twelve hours.

To charge the battery with a RITRON cube charger: Plug the charger cord into the charge jack (marked "CHG") on top of the radio. Then plug the cube into an 110 VAC outlet. The green lamp lights while the battery is charging, and should go out only when the cube or cord is unplugged.

To charge the battery with a RITRON drop-in charger: Two charger contacts, visible through the radio case bottom, permit charging the battery with an optional Ritron drop-in charger. The battery pack may be either removed from the radio case for charging, or charged inside the radio case.

Each drop-in charger comes with a spacer to permit charging a "spare" battery while the radio is in use.

To use the drop-in charger, plug it into a 110 VAC outlet. Set either the radio with the battery installed, or battery with the battery spacer, into the charger. Refer to Optional Charging Accessories, page 6. Each battery contact must rest on a charger contact pin.

PRECAUTIONS AND NOTES

NOTE: Use only RITRON-supplied chargers; other chargers may cause fire, explosion or other damage. Battery pack life averages one year. Follow these guidelines to maximize service life:

• FULLY DISCHARGE the battery before recharging it.

• Condition battery packs once a month as directed in Battery Maintenance & Conditioning, at right.

• Condition batteries that are run down.

• Charge batteries for 16 hours before storage, and for 16 hours once a month thereafter.

• Do not overcharge batteries. Unplug the cube charger after 16 hours to avoid overcharging.

• Do not "fast" charge a brand new battery pack, because this may damage the battery. Once the battery has been charged using the "trickle" rate, the fast rate may be used thereafter.

• Do not "fast" charge a fully charged battery. This can shorten battery life.

• Do not charge batteries in temperatures colder than about 45°F. Charging batteries in temperatures above 95°F. does not harm them, but can reduce charge capacity.

• Do not charge or replace a battery in an explosive atmosphere. Contact sparking can ignite an explosion.

• Do not dispose of a battery in a fire. An explosion might result.

BATTERY MAINTENANCE & CONDITIONING

Due to the extended run time of the SST-454D radio, some users may never fully discharge the battery pack during normal use. Achieve maximum battery life by fully discharging the battery periodically to condition it.

After exposing the battery pack to many cycles of not fully discharging it before recharging, the radio may exhibit reduced battery capacity. This reduced capacity is evident when, after several hours of use, battery voltage drops while the radio is transmitting, causing the radio to emit a dead battery warning tone and shut itself off.

Condition battery packs by the following procedure as either a preventive measure, or if you suspect reduced capacity:

To condition the battery pack:

1. Use your radio for a normal work day without charging it.

2. **If your radio is used only in the Trunked Mode,** you need only leave the radio turned On.

   If your radio is used in Conventional Mode, with the radio turned ON, press and hold the On/ Volume Up and Volume Down/ Off buttons simultaneously for 3 seconds to place the radio (on a Conventional Channel) in "open squelch" mode. Release both buttons when you hear the radio beep rapidly; it will then emit a loud "rushing" noise. Press On/ Volume Up to maximize this noise.
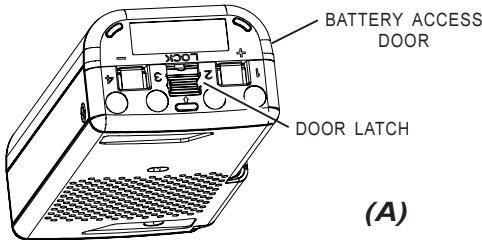
3. Put the radio away in a secure place (possibly a desk drawer), where nothing can press against the buttons to accidentally turn it off or cause it to transmit. Allow the radio to run until it shuts off when the battery is completely discharged. A typical battery pack may require about 8 hours to completely discharge.

4. When the radio has shut off, charge it overnight for 12-14 hours. The battery will be ready for use with renewed capacity.

NOTE: **A new battery** must be fully discharged, then recharged several times before it can reach its maximum charge capacity.
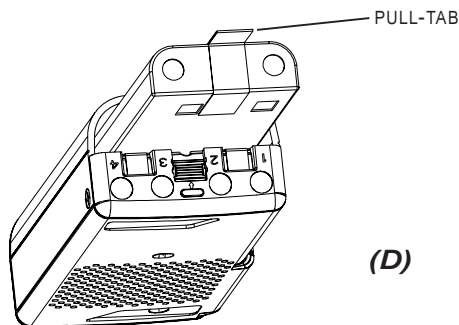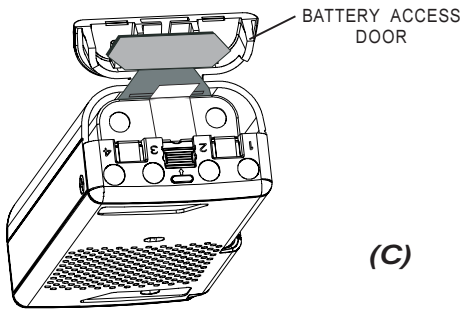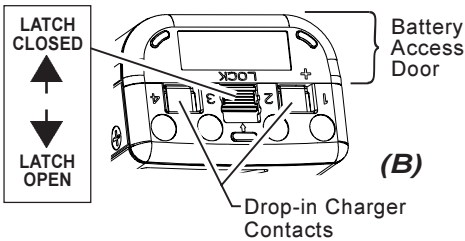
BATTERIES

FIG-2: BATTERY ACCESS & INSTALLATION

BATTERY ACCESS DOOR

DOOR LATCH

(A)

BOTTOM VIEW OF THE RADIO

LATCH CLOSED

LATCH OPEN

Battery Access Door

Drop-in Charger Contacts

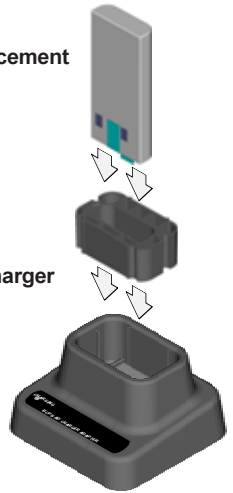**(B)**

BATTERY ACCESS DOOR

(C)

PULL-TAB

(D)

1. Hold the radio as shown in figure (A) at left.

2. Use your thumbnail to open the Door Latch, as shown in figure (B) at left.

3. Lift and rotate the Battery Access Door to release it as shown in figure (C) at left.

4. Use the Pull-tab to pull the battery pack out of the case as shown in figure (D) at left.

5. Insert the replacement battery pack, being certain to POSITION IT RELATIVE TO THE CASE AS SHOWN IN FIGURE (D). Push the Battery Pack in as far as possible.

6. Replace the Battery Access Door. Secure it by closing the Door Latch as shown in figure (B).

7. Be certain to firmly lock the Door Latch, as shown in figure (B).

OPTIONAL CHARGING ACCESSORIES

Spare/ Replacement Battery Pack

Drop-in Battery Charger with Spacer

PATRIOT SST Plus Accessories:

BPS-6N-SC ...... 800 mAH Spare Battery Pack
BPS-6N-MH ..... 1500 mAH Spare Battery Pack
BCPS-AD .... Drop-in Charger Adapter
BCC-PS .... Drop-in Charger/ Conditioner

Have questions? Call *800-USA-1-USA* (800-872-1872)
or visit our website at *www.ritron.com*

6

TROUBLESHOOTING

Problem	Possible Solution(s)
GENERAL	
The radio does not work at all.	■ Make sure that the battery is installed correctly, as shown in FIG—2. ■ Recharge or replace the battery. (Note 1.)
Operating features do not work exactly as expected.	■ The radio has been dealer programmed for customized operation — consult dealer.
Reception is poor.	■ Move to a different location. (Note 2.) ■ Confirm that the proper antenna is connected to the radio. (See p. 1, "Antenna.")
You cannot hear calls from other radios.	■ Turn Off Quiet Call (coded) squelch. (Note 3.) ■ Be certain your radio receives on the same frequency as the caller transmits. (Note 4.) ■ Recharge the battery. (Note 1.)
Battery **Your calls cannot be heard in other radios.**	■ Make sure your radio transmits on the receive frequency of radio(s) you want to call. (Note 4.) ■ Recharge the battery.
The battery loses its charge sooner than expected.	■ Review the battery charging instructions. ■ Conserve the battery. (Note 5.) ■ If the radio is used in extreme cold, warm the radio under your coat. (Note 6.) ■ Replace the battery. (Note 1.)
Error Tones **An error tone sounds when the radio is first switch On.**	■ See "Error Tones" on p. 4.
An error tone occurs while you are transmitting.	■ Refer to "Transmitter Time-Out", p. 4.
Quiet Call **You cannot screen out calls from outside your QC group.**	■ Make sure that the channel is programmed with Quiet Call. ■ Activate coded squelch. (Note 7.)
You cannot hear QC messages while in QC (coded) squelch.	■ Verify the channel is programmed to detect the same code the calling radio(s) transmits. (Note 7.)
Others in your QC group cannot hear your QC messages.	■ Verify you transmit the same code as the radio(s) you call is programmed to detect. (Note 7.)

Have questions? Call

TROUBLESHOOTING NOTES

1. Try a battery pack from a working radio. If the radio in question works with that pack, the original battery is suspect. Charge the suspect battery as recommended in this manual. Then, if the charged original battery cannot power an SST-454D handheld, try charging again with another charger. If the battery still doesn't hold a charge, the pack should probably be replaced. However, if the battery appears to be "good" after you try the second charger, the first charger might be faulty. If you think that an accessory is not operating properly, contact your dealer or RITRON.

2. Reception can often be improved by moving a short distance. This effect is more noticeable inside buildings. The range of a SST-454D portable equipped with a standard battery pack is about two miles (line-of-sight).

3. If your radio does not detect calls from other radios On the channel, turn Off Quiet Call squelch. (Press both volume buttons at the same time—a double beep means that Quiet Call squelch is Off.)

4. *CONVENTIONAL OPERATION:* To hear a call, select a channel programmed to receive your caller's transmit frequency. To call another unit, select a channel programmed to transmit the other radio's receive frequency.

   TRUNKED/ REPEATER OPERATION: To operate in a repeater system, your channel(s) must be programmed to work with the repeater's transmit and receive frequencies. (A radio channel can hold two separate operating frequencies, one for receive, the other for transmit.)

5. Because maximum power drain occurs while the radio transmits, do not hold down the Push-To-Talk button longer than necessary to transmit each call. Battery power is used while the handheld is left On to receive calls. If practical, switch Off the unit.

6. In extreme cold, a battery's charge capacity is greatly reduced. If you use the radio in very cold weather, periodically warm it underneath your coat if possible. An optional remote speaker/ microphone allows you to keep the radio under your coat while transmitting and receiving.

7. In order for radios to communicate using Quiet Call, they must be programmed with the same Quiet Call code. Each code is unique, and your radio will respond only to the code programmed for the channel.

   Press and hold both volume buttons at the same time. A **single beep** means that Quiet Call squelch is On. A **double beep** means that Quiet Call squelch is Off.
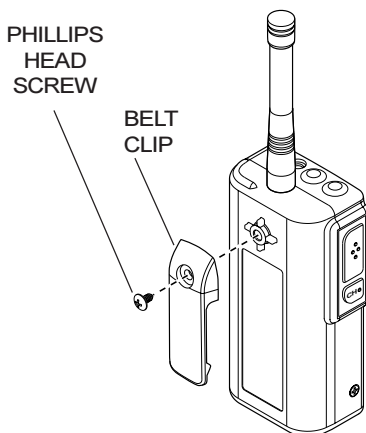

FIG—3: BELT CLIP INSTALLATION

PHILLIPS
HEAD
SCREW

To attach the belt clip to the radio—
Place the clip on the back of the radio case, aligning the screw hole in the clip with the hole in the case. Tighten the screw. See FIG—3 at right.

BELT
CLIP

CAUTION:
Use only the included Phillips head screw, because a longer screw could damage radio electronics.

Have questions? Call *800-USA-1-USA* (800-872-1872)
or visit our website at *www.ritron.com*

8

!! CAUTIONS— ALL RADIOS !!

EXPOSURE TO RADIO FREQUENCY ENERGY

The SST-454D handheld radio generates RF electromagnetic energy during transmit mode. The transmit mode is active when the PTT switch is depressed. This radio is designed for, "Occupational Use Only", meaning that it must be used only during the course of employment by individuals who are aware of the hazards and the ways to minimize such hazards. This series of radios is NOT intended for use by the "General Population" in an uncontrolled environment.

When used as directed, this series of radios is designed to comply with the FCC's RF exposure limits for "Occupational Use Only". In addition, they are designed to comply with the following Standards and Guidelines:

• FCC OET Bulletin 65, Edition 97-01, Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

• American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

• American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazard-ous Electromagnetic Fields-RF and Microwave.

To ensure that exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

• Use only the antenna(s) available from RITRON for these models. **DO NOT** attempt to substitute any other antenna. **DO NOT** operate the radio without an antenna.

• Keep talk times as short and infrequent as possible. **DO NOT** depress the PTT button when not actually wishing to transmit. These radios are equipped with an internal timer to limit continuous transmit times. **DO NOT** exceed a 50% transmit duty cycle.

• When transmitting, hold the radio in front of the mouth at a distance of at least 4 inches. **DO NOT** hold the radio in such a manner that the antenna is next to, or touching, exposed parts of the body, especially the face or eyes while transmitting.

• In belt mounted applications, when transmitting, remove the radio from the belt and hold away from the body at least 4 inches.

• When using external headset accessories, hold the unit away from the body at least 4 inches while transmitting.

• **DO NOT** allow children to operate the radio.

OBSERVE CAUTION IN THE FOLLOWING ENVIRONMENTS TO MAXIMIZE THE LIFE OF YOUR RADIO EQUIPMENT:

MOISTURE: SST Series radios are not waterproof. DO NOT directly expose them to rain or excessive moisture.

CHEMICALS: Detergents, alcohol, aerosol sprays or petroleum products can damage the radio case. DO NOT use petroleum solvents of any kind; use a soft cloth moistened with water to clean the case.

EXTREME HEAT: High temperatures can damage the battery and other components. DO NOT expose the units to extreme heat or leave them in direct sunlight.

LOW TEMPERATURES: The capacity of the rechargeable battery is greatly reduced in extreme cold. When using the unit in very cold environments, periodically warm the radio under your coat.

EXCESSIVE TRANSMISSIONS: Maximum drain on battery power occurs when you are transmitting. DO NOT hold the Push-To-Talk switch down longer than necessary during transmission intervals. DO NOT reduce battery service life by attempting to power a radio with a depleted battery; always charge batteries overnight after each day of use.

VIBRATION/ SHOCK: Although your SST Series radio is designed to be rugged, it will not survive excessive abuse. Avoid dropping the radio.

NOTE: The optional MH-A holster provides added protection from weather and shock.

NOTES

Have questions? Call *800-USA-1-USA* (800-872-1872)
or visit our website at *www.ritron.com*

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FCC LICENSE REQUIRED

FCC REGULATIONS

Licensing —

The FCC requires the owners of the radios to obtain a station license before using them.

The station licensee is responsible for ensuring that transmitter power, frequency and deviation are within the limits specified by the station license. The station licensee is also responsible for proper operation and maintenance of the radio equipment. This includes checking the transmitter frequency and deviation periodically, using appropriate methods.

To get a FCC license for VHF or UHF frequencies, submit FCC application Form 600 as indicated in the block at right. Your Ritron dealer can help you with this process.

Safety Standards —

The FCC (with its action in General Docket 79-144, March 13, 1985) has adopted a safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated equipment. Ritron observes these guidelines and recommends that you do also:

- DO NOT hold the radio so that the antenna is very close to or touching exposed parts of the body, especially the face or eyes, while transmitting. Keep the radio vertical, two to three inches away while talking into the front panel.

- DO NOT press the Push-To-Talk except when you intend to transmit.

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

- DO NOT allow children to play with any radio equipment that contains a transmitting device.

- Repair of Ritron products should be performed only by Ritron authorized personnel.

Service

Federal law prohibits you from making any internal adjustments to the transmitter, and/ or from changing transmit frequencies unless you are specifically designated by the licensee.

If your radio equipment fails to operate properly, or you wish to have the radio programmed, contact your authorized dealer or Ritron.

RITRON, INC., Repair Department	**Phone:**	**317-846-1201**
505 West Carmel Drive	**FAX:**	**317-846-4978**

HOW TO OBTAIN AN FCC RADIO LICENSE

Federal Communications Commission   (FCC) Licensing Information

Because your Ritron radio operates on Private Land Mobile frequencies, it is subject to the Rules and Regulations of the FCC, which requires all operators   of these frequencies to obtain a station license before operating their equipment. Make application for your FCC license on FCC Forms 600 and 159.

To have forms and instructions faxed to you by the FCC, call the **FCC Fax-On-Demand** *system at* **202-418-0177** *from your fax machine; request Document 000600 & Form 159.*

To have Document 000600 & Form 159 mailed to you, call the **FCC Forms Hotline** *at*

800-418-FORM (1-800-418-3676).

For **help with questions** *concerning the license application, contact the FCC at*

888-CALL-FCC (1-888-225-5322).

You must decide which radio frequency(ies) you can operate on before filling out your application. For **help determining your frequencies***, call Ritron at*

800-USA-1-USA (1-800-872-1872).

RITRON, INC. LIMITED WARRANTY

WHAT THIS WARRANTY COVERS

RITRON, INC. ("RITRON") provides the following warranty against defects in materials and/or workmanship in RITRON Radios, Rechargeable Batteries and Accessories under normal use and service during the applicable warranty period (as stated below). "Accessories" means antennas, holsters, chargers, earphones, speaker/microphones and items contained in the programming and programming/service kits. Rechargeable batteries will be replaced during the applicable warranty period only if leakage occurs or the batteries drop below 75% of rated capacity.

What is Covered	For How Long	What RITRON Will Do
PATRIOT Plus SST-454D Series Radios	1 year *	During the first year after date of purchase, Ritron will repair or replace the defective product, at RITRON's option, parts and labor included at no charge.
Ritron Rechargeable Batteries	1 year *	Ritron will replace the defective battery
Accessories	90 days *	* After date of purchase

WHAT THIS WARRANTY DOES NOT COVER:

- Any technical information provided with the covered product or any other RITRON products;
- Installation, maintenance or service of the product, unless this is covered by a separate written agreement with RITRON;
- Any products not furnished by RITRON which are attached or used with the covered product, or defects or damage from the use of the covered product with equipment that is not covered (such as defects or damage from the charging or use of batteries other than with covered product);
- Defects or damage, including broken antennas, resulting from:
  - misuse, abuse, improper maintenance, alteration, modification, neglect, accident or act of God,
  - the use of covered products other than in normal and customary manner or,
  - improper testing or installation;
- Defects or damages from unauthorized disassembly, repair or modification, or where unauthorized disassembly, repair or modification prevents inspection and testing necessary to validate warranty claims;
- Defects or damages in which the serial number has been removed, altered or defaced.
- Batteries if any of the seals are not intact.

IMPORTANT: This warranty sets forth the full extent of RITRON's express responsibilities regarding the covered products, and is given in lieu of all other express warranties. What RITRON has agreed to do above is your sole and exclusive remedy. No person is authorized to make any other warranty to you on behalf of RITRON. Warranties implied by state law, such as implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of this limited warranty as it applies to the covered product. Incidental and consequential damages are not recoverable under this warranty (this includes loss of use or time, inconvenience, business interruption, commercial loss, lost profits or savings). Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. Because each covered product system is unique, RITRON disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

WHO IS COVERED BY THIS WARRANTY

This warranty is given only to the purchaser or lessee of covered products when acquired for use, not resale. This warranty is not assignable or transferable.

HOW TO GET WARRANTY SERVICE

To receive warranty service, you must deliver or send the defective product, delivery costs and insurance prepaid, within the applicable warranty period, to RITRON, INC., 505 West Carmel Drive, Carmel, Indiana 46032, Attention: Warranty Department.

Please point out the nature of the defect in as much detail as you can. You must retain your sales or lease receipt (or other written evidence of the date of purchase) and deliver it along with the product. If RITRON chooses to repair or replace a defective product, RITRON may replace the product or any part or component with reconditioned product, parts or components. Replacements are covered for the balance of the original applicable warranty period. All replaced covered products, parts or components become RITRON's property.

RIGHTS TO SOFTWARE RETAINED

Title and all rights or licenses to patents, copyrights, trademarks and trade secrets in any RITRON software contained in covered products are and shall remain in RITRON. RITRON nevertheless grants you a limited non-exclusive, transferable right to use the RITRON software only in conjunction with covered products. No other license or right to the RITRON software is granted or permitted.

YOUR RIGHTS UNDER STATE LAW

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

WHERE THIS WARRANTY IS VALID

This warranty is valid only within the United States, the District of Columbia and Puerto Rico.