

About Your SP-150 Radio

Maxon's SP-150 portable radios are compatible with LTR* Trunked Systems and Conventional radio system operation. The SP-150 is capable of sixteen (16) Systems/Groups combined. Operation and functions for Maxon's SP-150 radios are described in this manual.

We urge you to thoroughly read this manual before operating the radio.

Application of some of the functions described in this manual are determined by the System in use. Your Maxon Dealer will program your radio so that you have the greatest number of functions possible relative to your needs.

Should you have questions regarding the operation of the radio, please consult your Maxon Dealer.

About Maxon America, Inc.

Maxon America, Inc. designs and manufactures professional FM two-way radio equipment to serve a wide variety of communication needs. Maxon produces equipment for the Land Mobile Radio and Specialized Mobile Radio markets (business, industrial, government and public safety).

LTR is a registered trademark of E.F. Johnson Company

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Safety Information

The Federal Communications Commission (FCC), with its action in General Docket 79-144, March 13, 1985, has adopted a safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Maxon subscribes to the same safety standard for the use of its products. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act (OSHA) and Federal Communications Commission limits.

WARNING - 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.

WARNING - DO NOT allow children to operate transmitter - equipped radio equipment.

CAUTION - DO NOT operate the radio near unshielded electrical blasting caps or in an explosive atmosphere unless it is a type especially designed and qualified for such use.

CAUTION - DO NOT press and hold the transmit switch (P-T-T) when not actually wishing to transmit.

NOTE: This radio operates in FCC regulated frequency bands. All radios must be licensed by the FCC before use. Because this radio contains a transmitter, Federal law prohibits unauthorized use or adjustments of this radio.

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Unpacking Information

Remove and carefully inspect the contents of your package(s) for the following items:

- Radio
- Battery Pack
- Antenna
- Spring Belt Clip
- Operating Instructions

If any items are missing, please contact your Dealer or Maxon.

SP-150 Features

- LTR* Trunked radio operation
- Conventional radio operation
- Wideband frequency separation
- 1 Watt / 5 Watts Programmable output power
- Programmable 12.5/25 kHz channel spacing
- Two programmable option buttons
- Talk-around (Trunked operation)
- Busy System queuing
- Scanning function, including priority scanning
- Look back channel
- Scan list editing
- CTCSS/DCS (Conventional operation)
- Busy channel lockout
- Time-out-timer

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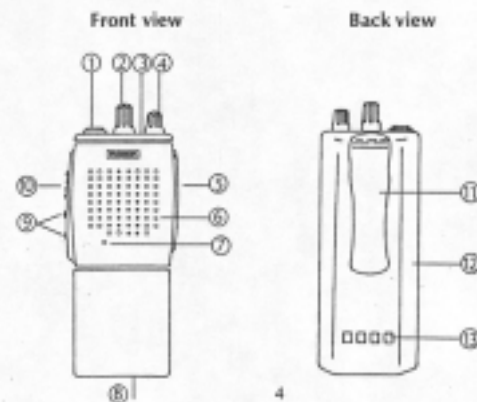
Description of Radio Components

Front view:

- 1) Antenna Receptacle
- 2) System/Group/Channel Selector Knob
- 3) Busy/TX/RT Indicator (top plate of radio)
- 4) On/Off - Volume Control Knob
- 5) Accessory Port
- 6) Speaker
- 7) Microphone
- 8) Battery Latch (bottom of radio)
- 9) Option Buttons
- 10) Push-To-Talk (P-T-T) Button

Back view:

- 11) Belt Clip
- 12) Battery
- 13) Battery Charge Contacts



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Antenna Installation

Attach the antenna by turning clockwise into the antenna receptacle on top of the radio.

Installing and Removing the Battery Pack

Hold the radio face down in your hand. To **attach the battery pack**, pick up the pack by the sides and hold it so that the four charging contacts are facing upward, positioned toward the bottom. Visually locate the "up" arrows embossed inside the radio, then place the pack onto the radio, positioning the top of the pack to slightly cover the arrows. Using your fingertips, ensure the pack is flush with the radio sides. The channels in the pack will align with guides on the radio.

Slide the battery pack upward slowly. A click will verify that the battery pack is securely positioned.

Remove the battery pack by holding the radio face down in your hand. Slide and hold the battery latch (at the base of radio) then gently apply pressure to move the battery pack slightly downward. The pack will release from the radio's guide rails. Lift the battery pack straight up and away from the radio.

Attaching and Removing the Belt Clip

The belt clip attaches to the radio's battery pack. To **attach the belt clip**, hold the clip and slide it into the recessed area at the top of the pack. A click will verify the clip is securely positioned. To **remove the clip**, press and hold the release tab toward the clip while gently pulling the belt clip assembly off the radio.

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SP-150 Operation

Your Maxon SP-150 can be programmed to operate in both Trunked and Conventional modes. Each System can be individually programmed to operate in either Trunked or Conventional Systems. There are only a few differences in their operation and these are detailed as follows:

Channel Monitoring

While on a Trunked System, channel monitoring is performed automatically by the radio transceiver. In accordance with the FCC Rules, while operating on a Conventional System, the channel must be monitored prior to transmitting. In both Trunked and Conventional Systems, operation may vary from System to System. Your Maxon Dealer will be able to assist with particular operational parameters and procedures for the various Systems and functions.

System "Handshaking"

In a Trunked System, when the P-T-T is pressed, the red TX indicator flashes momentarily to allow the transceiver and System to connect properly. When the red TX indicator glows steady, voice transmission may begin. If your Maxon Dealer has enabled the "Clear-to-Talk" tone option, the radio will emit a short tone signaling voice transmission may occur. In Conventional Systems, there is no System "handshaking" and voice transmission may start immediately upon pressing the P-T-T.

Busy System Queuing (Dealer Programmable Option)

If enabled by your Dealer, busy System queuing will monitor the System for activity. Once the System becomes available, the System will automatically be accessed and held for a period of time (determined by your Dealer), allowing you to transmit on the System. A tone will sound and a flashing

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Battery Charging and Care

To ensure maximum performance from your radio, the battery pack must be fully charged before initial use. For continued performance, periodically discharge the battery completely and then fully recharge the pack. Proper care and charging will extend life of your battery pack.

Maxon offers two chargers for use with the SP-150 radio. Each model is sold separately and is available through your original purchasing Dealer.

The QPA-1135 Pedestal Charger provides a slow overnight charge of 12-16 hours. The charger has a single well which charges a radio with battery attached.

The QPA-1130 Desktop Charger provides quick charging in 1.5 hours and normal "slow" charging. The charger has two wells, one accommodates a radio with battery attached; the other is for a battery removed from the radio.

Refer to the instructions accompanying each of these Maxon chargers for more information.

Accessory Connector

Your SP-150 radio has an accessory port located on the side of the unit. If you do not plan to use accessories when you initially purchase the radio, keep the protective cover plate installed to keep dust/debris from entering the radio.

If you choose to use accessories, remove the protective cover plate and follow the instructions provided with your accessory item to attach it to the radio. **Note:** Replace the cover plate if you remove the accessory from the radio.

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yellow TX/Call LED will indicate when queuing has begun. The tone will sound again and the LED will flash red when the System has been acquired.

Talk-Around (Dealer Programmable Option)

Talk-around mode, if enabled by your Dealer, allows you to bypass the System and talk from radio to radio. This is useful when your radios are out of range of any System. Talk-around can be enabled by pressing one of the two option buttons* located on the side of the unit. An audible alert will sound (if enabled) when key is pressed, indicating the radio is active for talk-around mode.

* The option button designated to enable talk-around is determined by your Dealer.

Transpond Mode (Dealer Programmable Option)

If transpond has been enabled by your Dealer, your radio will automatically send (transpond) an acknowledgment to the System indicating that your radio has received a transmission.

Power On - Volume - Power Off

Turn the radio on by rotating the off/on - volume control clockwise. You will hear a click and (if enabled via Dealer programming) the radio's self-test alert tones. Increase the radio volume by continuing the clockwise rotation. To turn the radio off, rotate the control counter-clockwise to detent.

Transmitting on a Trunked System

- 1) Turn the radio on and adjust the volume to desired level.
- 2) Select the desired System and/or Group using the System/Group/Channel selector knob, located on top of the unit.
- 3) Press and hold the P-T-T button on the side of the radio. (If a "Busy", "Intercept" or "Ringback" tone is heard, refer to "Status Indicators and Audible Alert Tones" section for more information).

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- 4) Listen for the "Clear-to-Talk" tone (or wait for the TX indicator to glow steady) and begin talking. Hold the radio 1 to 2 inches from your mouth, speak clearly and distinctly into the microphone area of the front grill.
- 5) Release the P-T-T button as soon as the message is complete. The P-T-T button must be pressed continuously while speaking.

Receiving on a Trunked System

- 1) Confirm that the radio is on and receiving power. Select the desired System and Group.
- 2) When a message is received, the TX/Call indicator will glow green.
- 3) Respond to a message by pressing the P-T-T button on the side of the radio. Press the P-T-T continuously while talking and release to listen.

Conventional Mode Operation

Your Maxon SP-150 may be programmed to operate in Conventional modes. Conventional mode may or may not require a Conventional repeater System. Radio to radio communications can also be accomplished in Conventional operation. How the Conventional mode is programmed is determined by your Dealer.

Transmitting on a Conventional System

- 1) Turn the radio on and adjust the volume to desired level.
- 2) Select the desired channel using the System/Group/Channel selector knob, located on top of the unit.
- 3) In a Conventional System it is necessary to monitor the channel for activity before a transmission. Monitor by pressing one of the two option buttons** located on the side of the unit or by observing the TX/Call indicator for a solid yellow or green color. If solid yellow or green is observed, you must wait for the indication to leave before

a transmission can be made. ** The option button designated to enable monitor is determined by your Dealer.

- 4) Press and hold the P-T-T button on the side of the radio. Hold the radio 1 to 2 inches from your mouth, speak clearly and distinctly into the microphone area of the front grill.
- 5) Release the P-T-T button as soon as the message is complete. The P-T-T button must be pressed continuously while speaking.

Receiving on a Conventional System

- 1) Confirm that the radio is on and receiving power. Select the desired channel.
- 2) When a message is received, the TX/Call indicator will glow solid yellow or green (depending if CTCSS or DCS tone has been programmed).
- 3) Respond to a message by pressing the P-T-T button on the side of the radio. Press the P-T-T continuously while talking and release to listen. If scanning modes are enabled, be sure to respond before scanning resumes. If you do not, another call may be received and the selected channel may have to be changed. Scanning is indicated by flashing green TX/Call indicator. Refer to "Scan Modes" section for more information.

Option Buttons

Your SP-150 has two programmable option buttons located on the side of the unit. These buttons can be programmed by your Dealer to enable a number of features, including:

- **Monitor:** (Conventional Systems) When programmed, pressing and holding the appropriate option button will open the squelch of the radio, defeating the CTCSS/DCS tone squelch and allowing you to listen for channel activity.
- **Nuisance Delete:** This function will allow you to temporarily

delete an unwanted channel from the scan list. Nuisance delete can be activated only when receiving the unwanted channel. The feature can be programmed alone on a single option button or combined with the monitor function. Turning the unit off and on will return the unit to the original scan list.

• **Talk-around:** When programmed, pressing the appropriate option button once will activate talk-around mode. Pressing the option button again, or rotating the channel selection knob will disable talk-around function.

• **Scan:** When programmed, pressing the appropriate option button will enable the radio's programmed scan function.

• **Edit Group Scan List:** When programmed, allows editing of channels you wish to scan.

Status Indicators and Audible Alert Tones

Your SP-150 has a sophisticated microprocessor control which provides a series of audible alert tones. Upon initial power up, a single tone indicates that the self-test of the microprocessor functions have been completed satisfactorily. A series of tones may sound with any of these conditions:

- **Busy System Queuing,** indicates your radio has been placed in the queuing mode and is attempting to access the System
- **Low battery condition** • Selecting a Channel with no programmed frequency

(The following are all initially programmed into the radio by your Dealer) • **Attempt to transmit on a System/Channel that is already in use when busy channel lockout has been programmed** • **Call Received** • **Clear-to-Talk/Transmit indicates you may begin speaking** • **Transmit not available** indicates you are denied transmission on that System/Channel • **Time-Out-Timer** indicates you have exceeded the maximum transmission time

STATUS	DESCRIPTION	LED COLOR	AUDIBLE TONE
NORMAL	Power On - Ready	Red, Yellow, Green (Single Flash Sequenced)	Single Beep
	Call Received w/ Audio	Yellow	Single Beep
	Call Received w/ Tone	Green	Single Beep
	Transmit	Red	Single Beep
	Busy Channel No Audio	Yellow	NA
TRUNKED	Transmit Not Allowed	Yellow - Flashing	Busy Tone - Repeated
	Clear-To-Talk	Red	Single Beep
	Talk Around	Yellow - Flashing	NA
SCANNING	Out of Range	Red, Yellow - Flashing	Single Beep
	In Scan Mode	Green - Flashing	NA
	Enter Scan List Edit	Green - Flash four times	Four Beeps
	Exit Scan List Edit	Red - Flash four times	Four Beeps
	In Scan List	Green - Flash two times	Two Beeps
WARNING	Not in Scan List	Red - Flash two times	Two Beeps
	Busy System Queuing	Yellow - Flashing	Three Beeps then a Single Beep every 10 seconds
	Busy System Access	Red - Flashing	Five Beeps
	Queue Time-out	NA	Single Tone
	Time-Out-Timer	Yellow - Flashing	Single Tone
ERROR	Low Battery	Red - Flashing	Four Beeps - Repeated
	EEPROM Error	Red - Flashing	Single Beep - Repeated
	Out of Lock Error	Red - Flash two times	Two Beeps - Repeated
	Hardware Error	Red - Flash three times	Three Beeps - Repeated
	WRAM Error	Red - Flash five times	Five Beeps - Repeated

Note: LED and/or tones may be programmed off.

Scan Modes

Your SP-150 radio may be Dealer-programmed for one or more scan modes depending upon your requirements.

LTR® Manual Group Scan

To enable LTR® Manual Group Scan, press the appropri-

ate option button on the side of the radio. In this scan mode, the radio will scan all LTR* receive Group ID's located in each selector knob position. Upon receiving the correct ID the radio will allow transmission on that Group ID until scanning resumes.

LTR* Auto Group Scan

To enable LTR* Auto Group Scan, rotate the selector knob to the LTR* System which has Auto Group Scan enabled, determined by your Dealer programming. Operation is the same as for LTR* Manual Group Scan with the exception each rotary switch position can be programmed by your Dealer for Auto Group Scan.

System Scan

To enable System Scan, press the appropriate option button on the side of the radio. During System Scan the radio will scan all Systems in the scan list programmed by your Dealer.

To enable Conventional Group Scan, press the appropriate option button on the side of the radio. Conventional Group Scan performs in the same manner as LTR* Manual Group Scan with the exception that ID codes are not required. Only those Groups enabled in the Group scan list will be scanned.

Editing Group Scan List

As a user, you can edit your pre-programmed Group scan list by adding or deleting Groups from the Group Scan List for a given System. To activate scan list editing, press the appropriate option button on the side of the radio. (Note: In order to edit the Group scan list, the remaining option button must be programmed to activate scan mode.) Upon entering the edit scan list function, the LED located on top of the unit will

flash green four times and a beep will be heard with each LED flash. To exit the edit scan list function, press the appropriate option button again. The LED will flash red four times and a beep will be heard with each LED flash.

Adding to Scan List

Once the option button has been enabled for scan list editing, rotate the selector knob to the desired System Group to be edited. To add this Group to the scan list, press the option button programmed for scan. When a Group is added, the LED will flash green two times and a beep will sound with each flash.

Deleting from Scan List

Once the option button has been enabled for scan list editing, rotate the selector knob to the desired System Group to be edited. To delete this Group from the scan list, press the option button programmed for scan. When deleted, the LED will flash red two times and a beep will sound with each flash.

Note: Priority and Priority Look Back Groups cannot be edited from the scan list.

Priority Look Back

If Dealer-programmed, your SP-150 will "look back" to the programmed priority channel if the selector knob is positioned on a System / Channel other than the programmed priority channel.

Conventional Scanning

Your SP-150 can be programmed for one of six different scan types, as determined by your Dealer. To enable scan, press the appropriate option button on the side of the radio. Only those channel Groups pre-programmed by your Dealer will be in the scan list.

Talk Back Scan

RX: The radio only receives calls from its selected channel and channels in the selected channel scan list.

TX: The radio will transmit on the selected channel if a call is not received. If a scanned call is received, the radio will transmit on that scanned channel until scanning resumes.

RX Only/TX Disable

RX: The radio will only receive calls on the selected channel and channels in the selected channel scan list.

TX: No transmissions are allowed. If transmission is attempted, an alert will sound.

Priority TX Scan

RX: The radio will receive calls from its selected channel and channels in the selected channels scan list.

TX: All transmissions will be made on the programmed priority channel, no matter where the selector knob is positioned. Transmissions can also be made only on those scanned calls which have been received before scanning resumes.

Priority Only TX

RX: The radio will receive calls from its selected channel and channels in the selected channel scan list.

TX: All transmissions will be made on the programmed priority channel, no matter where the selector knob is positioned. No transmissions will be allowed on scanned calls.

Priority Look Back Scan

RX: The radio will receive calls on its selected and priority channel. While the radio is receiving a call on its selected channel, it will look for a call from the programmed priority channel. If a call is detected on the priority channel, the radio will leave the current call and receive

the priority call. After the priority call has ended, the radio remains on the priority channel for the scan wait time. When look back time expires, the radio will go back to the selected channel and resume priority look back operation.

TX: The radio will only transmit on the selected channel. While transmitting, all receive operations will be disabled. Transmission will be allowed on the priority channel only after receiving a priority call.

Vacant Channel Scan

RX: Conventional operation on the selected channel occurs.

TX: The radio will step through the scan list and transmit on the first non-busy channel.

Nuisance Delete

If a channel contained in the scan list is constantly being scanned because of unwanted "chatter", you can temporarily delete the channel from your list by pressing the appropriate option button, (usually the monitor button). Nuisance delete can only be initiated when scan is active and the radio has finished receiving the call on the channel to be deleted. Nuisance delete can be deactivated for all channels by turning scan off.

Licensing and Service Information

FCC Licensing

The Federal Communications Commission requires the operator of this radio be properly licensed under the applicable Part and/or Parts of the FCC Rules and Regulations.

Consult with your Maxon Dealer, or contact the nearest FCC field office for information about obtaining a license.

Service

Do not tamper with internal adjustments. Damage to the equipment and/or improper operation may result. There are no serviceable items inside the radio. It is recommended that you return your radio to a qualified Maxon Dealer for any service or repairs.

Recycling/Disposal of Batteries

The U.S. Environmental Protection Agency (EPA) classifies used Ni-Cd batteries as hazardous waste, unless certain exemptions apply.

The battery should be recycled at the end of its useful life. Under various state and local laws, such batteries must be recycled or disposed of properly and cannot be dumped in landfills or incinerators. Maxon America, Inc. fully-endorses and encourages the recycling of Ni-Cd batteries.

A national program to collect and recycle used Ni-Cd batteries has been implemented by the Rechargeable Battery Recycling Corporation (RBRC™). This program is being funded through the use of license fees paid by the battery and product manufacturers to place the RBRC™ Seal on the batteries. Following is a partial list of facilities where the batteries can be shipped to be recycled. Contact these facilities for proper packaging and shipping guidelines.

INMETCO
245 Portersville Road
Elkwood City, PA 16117
TEL: (724) 758-2800
FAX: (724) 758-2845

Kinsbursky Brothers Inc.
1314 N. Lemon Street
Anaheim, CA 92801
TEL: (714) 738-8516
(800) 548-8797
FAX: (714) 441-0857

Software Copyrights

The Maxon product(s) described in this operating instruction manual may include copyrighted Maxon software programs stored in semi-conductor memories or other media. Laws in the United States and other countries preserve for Maxon certain exclusive rights for copyrighted software programs, including the exclusive right to copy or reproduce in any form the copyrighted software program. Accordingly, the copyrighted Maxon software programs contained in the Maxon products described in this operating manual may not be copied or reproduced without the express written permission of Maxon. Furthermore, the purchase of Maxon products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents or patent applications of Maxon, except for normal non-exclusive royalty free license to use that arises by operation of law in the sale of a product.

Maintenance

Your SP-150 radio is designed to be maintenance-free. To keep your radio in good working condition:

- Clean external surfaces with a clean cloth dampened in a solution of dishwasher detergent diluted in water. Apply the solution sparingly to avoid any moisture leaking into cracks and crevices - DO NOT submerge the radio. Use only a non-metallic brush to dislodge particles, if necessary. Dry the surface thoroughly with a soft, lint-free cloth.
- DO NOT use solvents or spirits for cleaning - they may permanently damage the housing.
- Clean the battery and accessory port contacts with a lint-free cloth to remove dirt, grease or foreign materials.