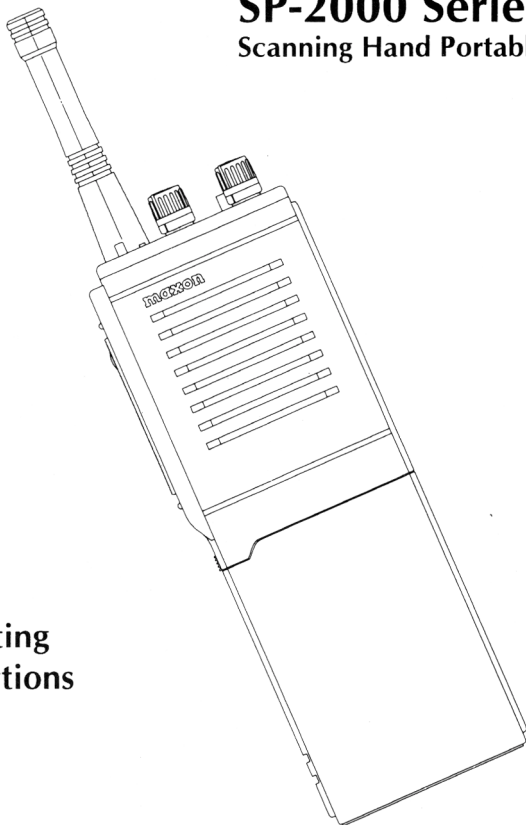

maxon[®]

SP-2000 Series Scanning Hand Portable



**Operating
Instructions**

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Safety and Caution Information

To ensure optimum performance of your new SP-2000 Series Radio, please read these Operating Instructions completely.

CAUTION

Do not tamper with internal adjustments. Damage to the equipment and/or improper operation may result. There are no user serviceable items inside the radio.

It is recommended that you return your radio to a qualified Maxon Dealer for any services or repairs.

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 far below the FCC recommended limits.

DO NOT hold the radio in such a manner that the antenna is very close to, or touching, exposed parts of the body, especially the face or eyes, while transmitting.

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

DO NOT allow children to play with any radio equipment containing a transmitting device.

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

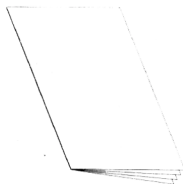
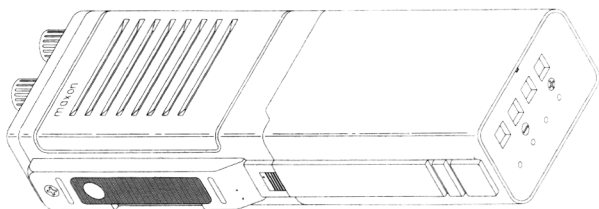
NOTE: This radio operates in FCC regulated frequency bands. All radios must be licensed by the FCC before use. Because this radio contains a transmitter, Federal Law prohibits unauthorized usage or adjustments of this radio.

Unpacking Information

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

- 1 - Radio
- 2 - Battery
- 3 - Antenna
- 4 - Belt Clip
- 5 - Operating Instructions

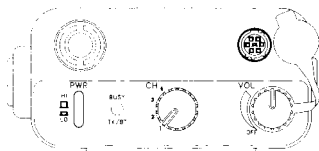
If any items are missing, please contact your Dealer or Maxon.



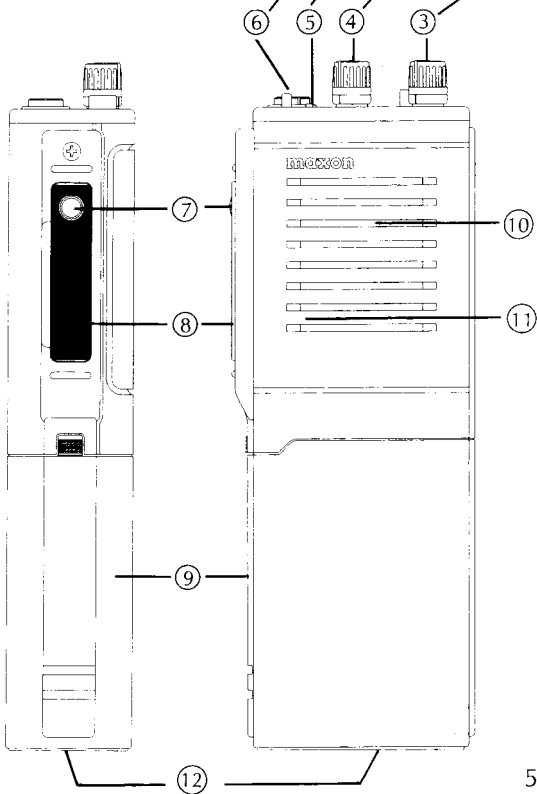
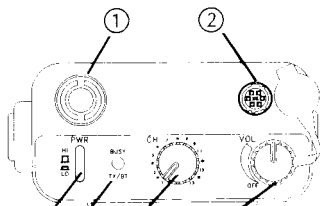
Description of Radio Components

- 1) **Antenna Receptacle:** Attaches the antenna to the radio.
- 2) **Accessory Jack:** For use with optional Speaker Microphone or Mini-VOX unit. May be used for an external 8 Ohm Speaker or an Earphone.
- 3) **On / Off - Volume Control:** Turns the radio "On" and "Off" and adjusts the volume level.
- 4) **Channel Selector Switch:** Selects the operating channel (4 or 16). Also initiates "Scan" mode if programmed.
- 5) **BUSY / TX / BT Indicator:** A tri-color Light Emitting Diode (LED) identifies: (See Table 1 on page 10 for more information)
 - Red LED** signals normal transmission.
 - Amber LED** signals "Busy Channel" status - the selected receiver channel has traffic on it.
 - Green LED** identifies tone-coded squelch calls are being received on the selected receiver channel.
- 6) **HI/LO "TX" Power Switch:** HI power position for full 5 watts output, LO power position for approximately 1.5 watts output.
- 7) **Monitor Button:** Located at the top portion of the P-T-T bar. This is a tone-coded squelch defeat switch. It can also be used for "Scan Channel Delete" when in "Scan" mode.
- 8) **P-T-T Bar:** When depressed and held, engages the transmitter / encoder and puts radio in the "Transmit" mode. When released, the radio operates in the "Receive" mode.
- 9) **Slide-on Battery Pack:** 600 mAh or optional 1200 mAh battery packs.
- 10) **Speaker:** 8 Ohm internal speaker.
- 11) **Microphone:** Note the location of the microphone. To transmit clear messages, talk about two inches away from the microphone at normal voice levels.
- 12) **Battery Charge Contacts:** Charging contacts for pedestal charger or desktop quick charger.

4 Channel "Top View"



16 Channel "Top View"



Antenna Installation

Fasten the antenna to the radio by screwing the antenna into the antenna receptacle on top of the radio.

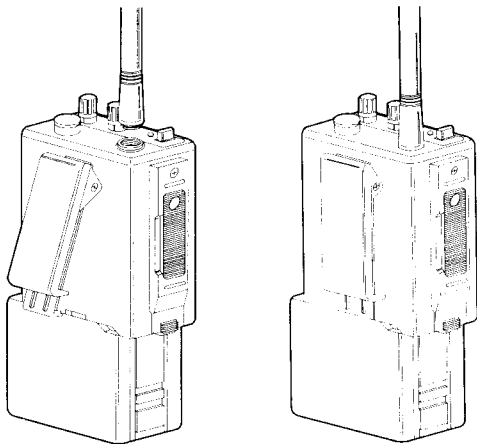
Belt Clip Installation

Remove slide-on battery pack. Insert top portion of belt clip into recessed hole located on rear top of radio body. Position bottom of belt clip against radio back and re-install battery. Once the battery is re-installed, the belt clip can not be removed without first removing the battery pack.

Battery Pack Removal

To remove battery pack, place thumb under latch at side of radio. Lift upward while sliding battery away from thumb.

To re-assemble, follow the reverse of above.



General Description

Maxon's SP-2000 Series Radios are designed specifically for Professional Two-Way Radio operations and are available in both 4 or 16 channel models. They offer a wide variety of advanced programmable features - including several different "Scan" modes - permitting the user to "customize" the radio to his communication requirements.

A wide selection of accessories is available for use with the SP-2000 Series, including a voice-operated (VOX) unit, speaker/microphone, and OMNI housing/keypad kit for optional telephone interconnect capabilities. A choice of battery capacity (600 mAh or 1200 mAh) and chargers (single or dual unit) offer additional versatility.

Please review this manual and contact your Maxon Dealer if additional information is required.

Battery Charging and Care

To ensure peak performance from your radio, the battery pack must be fully charged. Proper care and charging will allow maximum performance and life of your battery pack.

The SA-1120 Pedestal Charger, available optionally for your SP-2000 Series Radio, offers convenient charging capabilities. The charging cycle with this charger is overnight (12-16 hours). For longest battery life try to avoid charging the radio for more than 24 hours at a time.

The optional SA-1125 Desktop Quick Charger provides "one hour" charging and normal "slow" charging to two units simultaneously. The high capacity 1200 mAh battery pack will take longer to fully charge. See accompanying instructions included with the SA-1125 Desktop Quick Charger for charging with this accessory.

To receive maximum performance from your radio and battery pack, periodically completely discharge and recharge the battery pack.

CAUTION: To ensure maximum charge, the transceiver should NOT be left on when charging in either the SA-1120 or the SA-1125 chargers.

Operation

Radio ON/OFF

Turn the radio "On" by rotating the Volume Control clockwise (to the right) until you hear a click and the "Self Test" alert tone.

Turn the radio "Off" by rotating the Volume Control fully counter-clockwise (to the left) until you hear a click and feel the switch go to the detent position.

To Receive

- 1) Turn the radio "On" and set the Channel Selector Switch to the desired channel.
- 2) Adjust the volume to the desired listening level with the On/Off-Volume Control. Unsilence the radio by depressing the Monitor Switch on the side of radio. When the radio is unsilenced (a rushing sound coming from the speaker), the volume may be adjusted to the desired level.

To Transmit

WARNING
OPERATION OF THE TRANSMITTER WITHOUT
A PROPER ANTENNA INSTALLED MAY RESULT IN
PERMANENT DAMAGE TO THE RADIO

- 1) Hold the radio upright with the antenna in a vertical position with the front grille 2 to 3 inches away from the mouth. Keep the antenna away from the face and eyes.
- 2) Tap the Monitor Button to monitor the channel for activity. To avoid interrupting another user, make sure the channel is clear before you begin transmitting.

NOTICE:

It is necessary to monitor a channel for activity before transmitting.
TRANSMITTING ON AN ACTIVE CHANNEL MAY INTERFERE WITH OTHERS.

The Tri-Color LED located on the top panel can help with channel monitoring. It will glow amber if RF activity is present; or green if the transmission has a CTCSS or DCS tone that matches a tone programmed for receive in your radio. When this LED is "Off" or not present, the radio is indicating a "clear channel".

- 3) When the channel is clear, press and hold the P-T-T bar on the side of the radio, and speak slowly and clearly into the grille area. When you have finished transmitting, release the P-T-T bar to receive. The LED will glow red when transmitting. This red indicator should be on continuously while the P-T-T bar is being pressed and the radio is transmitting.

Should the red LED be "flashing", this is an indication that the battery needs to be recharged and transmission will cease. Recharge the battery before attempting more than one transmission.

When finished transmitting, receiving, monitoring, etc., turn the radio "Off" by rotating the On/Off/Volume Control fully counter-clockwise, to the detent position.

NOTE: See Table 1 on page 10 for more information.

Status Indications and Audible Alert Tones

Your SP-2000 Series with its sophisticated microprocessor control provides a series of audible alert tones.

Upon initial power up, a quick four tone melody indicates that the self test of the microprocessor functions have been completed satisfactorily. A series of tones may be sounded with any of the following conditions:

- Attempt to "Transmit" on a channel set for "receive only".
- Attempt to "Transmit" on a channel that is already in use when "Busy Channel Lockout" has been programmed into the radio.*
- Transmitting time has exceeded "Time-Out Timer" programmed length.*
- Low Battery Condition.
- Selecting a channel with no programmed frequency.

* Indicates a function that is initially programmed into the radio by your Maxon Dealer. **NOTE: All audible tones can be programmed "Off" for silent operation**

Table 1

STATUS	DESCRIPTION	LED COLOR	AUDIBLE TONE
NORMAL	Power "On"- Ready	N/A	Melody
	Busy	Amber	N/A
	Correct Call	Green	N/A
	Transmit	Red	N/A
	Busy Lock	Amber, Flashing	Single Tone
IN SCAN	Scan is initiated	Green, Flashing	N/A
WARNING	Time-Out Timer	N/A	Single Tone
	Battery Low	Red, Flashing	Four Tone, Repeated
ERROR	EEPROM Error	Red, Flashing	Single Tone, Repeated
	PLL Error	Red, Flashing	Double Tons, Repeated
	Filtering Error	Red, Flashing	Three Tone, Repeated

Channel Scan

Channel Scan is a Dealer programmable feature that allows you to monitor a number of channels. Your Dealer will help you define a channel "scan list" and a scan channel location (any channel, 1-4 or 1-16) that the list is to be programmed into. Once that channel location is selected, scan is initiated.

Normal Scan

Once the "Scan List" is programmed into a channel scan position, the user can initiate "Scan". Simply move the channel selector knob to that position and the radio will start to "Scan". The status LED on the top panel can be programmed to flash green as the radio is scanning.

If a conversation is detected on any of the channels in the "Scan List", the radio will stop on that channel and you will be able to hear the conversation. If programmed for "Normal Scan TX" you will be able to transmit on that active channel during the programmable "Scan Delay" time. The "Scan Delay" time is the amount of time the radio will stay on that channel once activity has ceased (Dealer programmable, 4-7 seconds is typical). The radio will resume scanning once the "Scan Delay" time has expired.

"Priority" Channel Scan

A single channel may be programmed as the "Priority" channel. The radio will constantly monitor this channel while scanning and when the radio has stopped on an active channel. If a call is detected on the "Priority" channel, the radio will automatically move to, and remain on, the "Priority" channel for as long as the priority conversation takes place. "Priority" channel activity takes precedence over all other conversations.

Note: "Priority" channel scan and "Look Back" requires that the radio leave the active channel for a fraction of a second (at regular intervals) to check the priority channel for a message. Depending upon how the radio is programmed (Scan Speed, etc.) this may or may not be noticeable as "breaks" on the active channel for that same fraction of a second.

Other Scanning Features

- **"Look Back":** Any channel when not in the scan mode, can be programmed to "Look Back" at the "Priority" channel. This feature is ideal for those who do not need scan as defined above, but want to make sure that they never miss a call on the "Priority" channel if another channel has been selected. Once a "Look Back" channel has been selected, the radio will constantly scan the priority channel. If activity is detected on the "Priority" channel, the radio will move to that channel for as long as it remains active.
- **Scan Channel Delete:** From time to time you may wish to temporarily delete a channel from the "Scan List". To do so, simply press the monitor button while scanning and stopped on the channel to be deleted. This will remove that channel from the "Scan List" until the selector is moved from the "Scan List" channel position or the radio's power is reset. When power is restored or the "Scan List" channel position is again selected, the original Dealer programmed "Scan List" will be activated.
- **CTCSS/DCS Scanning:** The SP-2000 can be programmed by your Dealer to scan for tone. This will help block out unwanted calls.
- **"Priority" Scan TX:** Your radio can be Dealer programmed to transmit on the "Priority" channel when scanning and not stopped on an active channel. It can also be programmed to always transmit on the "Priority" channel if scanning or stopped on an active channel.
- **"Receive Only" Scan:** If programmed for "Receive Only" Scan, the radio will not allow the user to transmit while the radio is in the "Scan" channel position.

Operational Precautions

In either repeater or simplex operation, the positioning of the transceiver will change the "talkable distance" significantly. Hold the unit firmly in the palm of your hand to get a good body ground, and find the best positioning to get better receiver quieting; this is likely to provide the best path to reach the other party. Sometimes moving a few feet in the right direction can produce a much better result. In a marginal area, placing the unit on a metal surface, such as a car roof will also help.

Some repeater systems (when using subaudible tone control) require as much as 250 milliseconds for tone recognition. Rapid operation of the P-T-T may cause the first syllables of words to be clipped.

The unit is designed for use under a variety of environmental conditions and is MIL-STD 810 D and E approved. However, a few precautions will ensure long life of this transceiver, and they should be heeded without fail.

- * **High Humidity:** The SP-2000 Series radios are not waterproof. Therefore, do not expose directly to continuous rain or submerge in water.
- * **Extreme Heat:** Avoid direct exposure to extreme heat. At very high temperatures the nickel cadmium battery tends to self discharge and reduce operating time.
- * **Low Temperature:** The unit can operate in temperatures down to -30 degrees C (-22 deg. F.). However, in extreme cold, nickel cadmium battery capacity is reduced. Try to keep the unit inside your coat if using in a very cold environment for an extended period of time.

Maintenance

Your SP-2000 Series Radio is designed to be maintenance free. However, there are a few suggestions to keep your radio in top shape:

Clean external surfaces of the radio with a mild solution of dishwasher detergent diluted in water. Apply sparingly to avoid excessive moisture contact into cracks and crevices. Do not submerge the radio, but instead, use a nonmetallic brush to dislodge stubborn particles. Thoroughly dry the surfaces with a soft, lint free cloth.

DO NOT use solvents or spirits for cleaning purposes as they may permanently damage the housing.

Clean the battery contacts on the bottom of the radio with a lint free cloth to remove dirt, grease, or other foreign material that may impede good electrical contact.

Avoid heavy physical abuse of the radio.

DO NOT pound or drop the radio.

DO NOT carry the radio by the antenna.

DO NOT disassemble the radio for purposes other than changing the battery pack as there are no user serviceable adjustments inside.

In case of difficulty, reread the instruction manual thoroughly.

Check the battery and recharge if necessary.

Check that the antenna is properly installed.

Reposition the radio and try different operating locations; performance may be improved by slight movement changes.

LIMITED WARRANTY

Maxon America, Inc. ("Maxon") warrants the Maxon SP-2550 and SP-2850 Model Radios ("Product") manufactured by it against defects in material and workmanship under normal use and service for a period of two (2) years from the date of delivery to the original end user, provided that the user has complied with the requirements stated herein. This warranty is not assignable or transferable. Maxon is not responsible for any ancillary equipment which is attached or used in connection with Maxon Products.

Maxon shall have no obligation to make repairs or to cause replacement required which result from normal wear and tear or necessitated in whole or in part by catastrophe, fault or are the negligence of the user, improper or unauthorized alterations, repairs to the Product, or use of the Product in a manner for which it was not designed, or by causes external to the Product. This warranty is void if the serial number is altered, defaced or removed.

Maxon's sole obligation hereunder shall be to repair or replace the Product covered in the above warranty.

To receive warranty service, deliver or send the Product, transportation and insurance prepaid, to the place of purchase along with your proof of purchase. Alternatively, call 1-800-821-7848 for other locations or authorization to return the product directly to Maxon.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FOR ANY PRODUCT WHICH DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR OR REPLACEMENT. IN NO EVENT WILL MAXON BE LIABLE TO THE BUYER OR ITS CUSTOMERS FOR ANY DAMAGES, INCLUDING ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR FOR THE LOSS OF PROFIT, REVENUE OR DATA ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT.

This warranty is void for sales and deliveries outside of the United States.

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A World of Communications

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