

PRO-63 100-Channel Portable Event Scanner

Please read before using this equipment.



Radio Shack

INTRODUCTION

Your new Radio Shack PRO-63 100-Channel Portable Event Scanner lets you in on all the action — in the pits at the big race, on the sidelines at a pro football game, or on the streets of your home town. This scanner gives you direct access to over 24,000 exciting frequencies, including those used by participants and staff at sporting events and air shows, police and fire departments, ambulance services, and amateur radio services. You can select up to 100 channels to scan and you can change your selections at any time.

The secret to your scanner's ability to scan so many frequencies is its custom-designed microprocessor — a tiny, built-in computer.

Your scanner has all these special features.

Ten Preprogrammed Search Bands — let you search for transmissions within preset frequency ranges, so you can find interesting frequencies more quickly.

Ten Preprogrammed Weather Frequencies — keep you informed about current weather conditions.

Ten Channel-Storage Banks — let you store 10 channels in each bank to group channels so calls are easier to identify.

Two-Second Scan Delay — delays scanning for about 2 seconds before moving to another channel, so you can hear more replies.

Channel Skip — lets you set your scanner to keep channels you select from being scanned.

Memory Bank Scan — lets you scan frequencies you stored in any of the scanner's channel-storage banks.

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Direct Channel Access — lets you directly access any stored channel while you scan the banks.

🔑 Button — lets you lock the scanner's keys to help prevent accidentally changing the scanner's programming.

Priority Channel — you can set the scanner to check one channel every 2 seconds so you do not miss important calls.

Auto Lock — lets you lock the scanner's programmed channels to keep you from accidentally erasing frequencies stored in the channels.

ATT (Attenuate) Button — reduces the scanner's sensitivity to strong local signals, to reduce interference or noise caused by these signals.

Liquid Crystal Display — makes it easy to view and change programming information.

Display Backlight — makes the display easy to read in dimly-lit areas.

Three Power Options — let you power the scanner from alkaline or rechargeable nickel-cadmium batteries, or external AC or DC power.

Flexible Antenna with BNC Connector — provides excellent reception and is designed to help prevent antenna breakage.

Memory Backup — keeps channel frequencies stored in memory for up to 10 years during a power loss.

For your records, we urge you to record your scanner's serial number in the space below. The serial number is located on the scanner's back panel.

Serial Number: _____

Your PRO-63 scanner can receive all of these frequencies.

- 29-54 MHz (10-Meter Amateur Radio, VHF Lo, 6-Meter Amateur Radio)
- 108-136.975 MHz (Aircraft/Air Shows)
- 137-174 MHz (Aircraft/Air Shows, Auto Racing, Government, Motion Picture/Video Industry, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, Stadiums/Venues, 2-Meter Amateur Radio, VHF Hi)
- 380-512 MHz (Aircraft/Air Shows, Auto Racing, Government, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, 70-Centimeter Amateur Radio, Stadiums/Venues, UHF Lo, UHF "T" Band)

Your PRO-63 scanner contains the following preprogrammed search bands.

- 29-50 MHz (10-Meter Amateur Radio, VHF Lo)
- 50-54 MHz (6-Meter Amateur Radio)
- 108-136.975 MHz (Aircraft/Air Shows)
- 137-144 MHz (Aircraft/Air Shows, Government)
- 144-148 MHz (2-Meter Amateur Radio)
- 148-174 MHz (Auto Racing, Motion Picture/Video Industry, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, Stadiums/Venues)
- 380-420 MHz (Military Aircraft/Air Shows)
- 420-450 MHz (70-Centimeter Amateur Radio)
- 450-470 MHz (Auto Racing, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, Stadiums/Venues)
- 470-512 MHz (UHF "T" Band)

This owner's manual also includes the section "A General Guide to Scanning," which helps you find frequency ranges to scan for a wide variety of broadcasters.

Note: Mobile use of this scanner is unlawful or requires a permit in some areas. Check the laws in your area.

FCC NOTICE

Your scanner might cause TV or radio interference even when it is operating properly. To determine whether or not your scanner is causing the interference, turn off your scanner. If the interference goes away, your scanner is causing it. Try to eliminate the interference by:

- Moving your scanner away from the receiver.
- Connecting your scanner to an outlet that is on a different electrical circuit from the receiver.
- Contacting your local Radio Shack store for help.

If you cannot eliminate the interference, the FCC requires that you stop using your scanner.

SCANNING LEGALLY

Your scanner covers frequencies used by many different groups including police and fire departments, ambulance services, government agencies, private companies, amateur radio services, military operations, pager services, and wireline (telephone and telegraph) service providers. It is legal to listen to almost every transmission your scanner can receive. However, there are some transmissions you should never intentionally listen to. These include:

- Telephone conversations (either cellular, cordless, or other private means of telephone signal transmission)
- Pager transmissions
- Any scrambled or encrypted transmissions

According to the Electronic Communications Privacy Act (ECPA), you are subject to fines and possible imprisonment for intentionally listening to, using, or divulging the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal).

Radio Shack encourages responsible, legal scanner use.

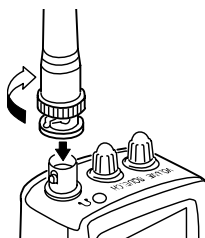
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PREPARATION

CONNECTING THE FLEXIBLE ANTENNA



1. Hold the antenna so it stands straight up.
2. Slip the slots in the antenna's connector over the tabs on the **ANT** jack on top of the scanner.
3. Press down and turn the antenna's base clockwise until it locks into place.

Note: Instead of the supplied flexible antenna, you can connect a mobile or base-station antenna (not supplied) to your scanner. For more information, see “Connecting a Mobile or Base-Station Antenna” on Page 35.

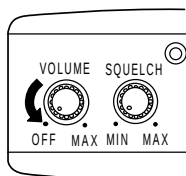
INSTALLING BATTERIES

You can power your scanner with six AA batteries. For the longest operation and best performance, we recommend alkaline batteries, such as Cat. No. 23-552. Or, you can use rechargeable nickel-cadmium batteries (Cat. No. 23-125).

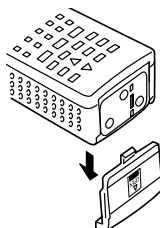
Note: You can also power your scanner from either standard AC power (using an optional AC adapter) or vehicle battery power (using an optional DC cigarette lighter adapter). See “Connecting Optional Power Sources” on Page 33 for more information.

Follow these steps to install or replace batteries.

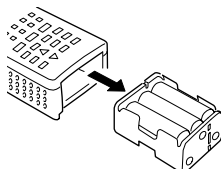
1. If the scanner is on, turn **VOLUME OFF/MAX** fully counter-clockwise until it clicks to turn it off.



2. While pressing and holding down the battery compartment cover on the bottom of the scanner, slide the cover in the direction of the arrow to remove it.



3. Remove the battery holder from the battery compartment.

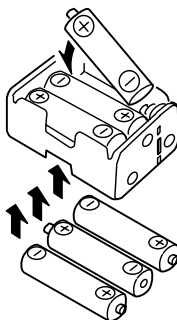


4. Remove any old batteries from the battery holder.

Cautions:

- Always dispose of old non-rechargeable batteries promptly and properly. Do not bury or burn them.
- Never leave dead or weak batteries in the battery holder.

-
- Never mix rechargeable and non-rechargeable batteries, or rechargeable batteries of different capacities.
5. Insert six batteries in the battery holder as indicated by the polarity symbols (+ and -) marked on the battery holder and inside the battery compartment.



6. Replace the battery holder in the battery compartment.

Caution: The battery holder fits only one way inside the battery compartment. Do not force it.

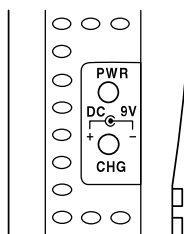
7. Replace the battery compartment cover.

If **BATT** flashes on the display and the scanner beeps, immediately replace all six non-rechargeable batteries, or recharge all six rechargeable batteries. See “Important Information About the PWR and CHG Jacks” and “Charging Nickel-Cadmium Batteries” on Page 12.

Important: This product is capable of using rechargeable nickel-cadmium batteries. At the end of the batteries’ useful life, they must be recycled or disposed of properly. Contact your local, county, or state hazardous waste management authorities for information on recycling or disposal programs in your area. Some options that might be available are: municipal curb-side collection, drop-off boxes at retailers, recycling collection centers, and mail-back programs.

Important Information About the PWR and CHG Jacks

There are two external jacks on the left side of the scanner — **PWR** and **CHG**. It is important that you understand the purpose of each jack before you connect any adapter to the scanner.



The **PWR** jack powers the scanner and disconnects the internal batteries. You can use this jack with either an AC adapter or DC cigarette lighter adapter, regardless of the type of batteries you installed.

The **CHG** jack powers the scanner and also charges the internal batteries. The **CHG** jack is covered by a plastic plug. Use the **CHG** jack only when rechargeable nickel-cadmium batteries are installed.

Warning: Never use the **CHG** jack with non-rechargeable batteries installed. If you try to recharge non-rechargeable batteries, they become very hot and could explode.

Charging Nickel-Cadmium Batteries

The scanner has a built-in charging circuit that lets you recharge nickel-cadmium batteries while they are in the scanner. To charge the batteries, simply connect an AC or DC adapter to the scanner's **CHG** jack (see "Connecting Optional Power Sources" on Page 33).

Warning: Do not connect either adapter to the scanner's **CHG** jack if you installed non-rechargeable batteries (standard, extra-life, or alkaline). Non-rechargeable batteries become hot and can explode if you try to recharge them.

It takes about 10 to 18 hours to recharge batteries that are fully discharged. You can operate the scanner while recharging nickel-cadmium batteries, but the charging time is lengthened.

Cautions:

- Do not overcharge nickel-cadmium batteries.
- To prevent damaging nickel-cadmium batteries, never charge them in an area where the temperature is above 90°F or below 40°F.

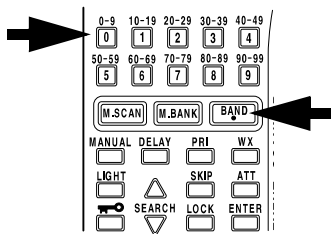
Note: Nickel-cadmium batteries last longer and deliver more power if you occasionally let them fully discharge. To do this, simply use the scanner until **BATT** flashes on the scanner's display and the scanner beeps. Then fully charge the batteries.

RESETTING THE SCANNER

If the scanner's display locks up or does not work properly after you connect a power source, you might need to reset the scanner.

Caution: This procedure clears all the information you programmed into the scanner. Use this procedure only when you are sure your scanner is not working properly.

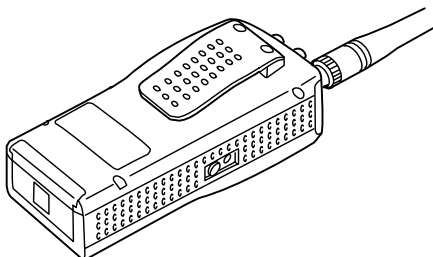
1. If the scanner is on, turn **VOLUME OFF/MAX** counterclockwise until it clicks to turn it off.
2. While you press and hold down the **BAND/•** and **0** keys, turn on the scanner.



3. After 2 seconds, release **BAND/•** and **0**.

USING THE BELT CLIP

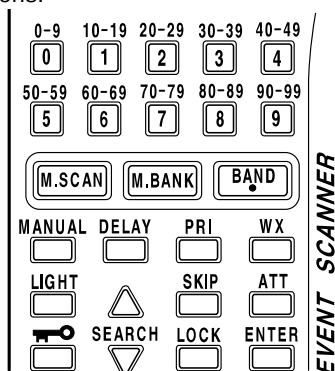
You can use the belt clip attached to the back of the scanner for hands-free carrying when you are on the go. Simply slide the belt clip over your belt or waistband.



UNDERSTANDING YOUR SCANNER

A LOOK AT THE KEYPAD

A quick look at the scanner's keys will help you understand the scanner's functions.



Number Keys — each key has a single digit on it and a range of numbers printed above it. The single digits refer to the number of a channel or a frequency. The range of numbers (80-89, for example) shows the channels that make up a channel storage bank. In addition, the keypad has different functions in the manual and scan modes.

M.SCAN — scans through the channels you have stored.

M.BANK — scans a channel storage bank you select.

BAND/• — selects a preprogrammed search band or enters the decimal point when programming frequencies.

MANUAL — stops scanning and lets you directly enter a channel number or frequency.

DELAY — turns the delay function on or off.

PRI — turns the priority channel function on or off.

WX — scans through the 10 preprogrammed weather channels.

LIGHT — a quick press turns on the display's backlight for 5 seconds, or turns off the backlight if it is on.

SEARCH Δ / ∇ — starts searching for active frequencies so you can find ones you want to store, or selects the search direction when you scan channels or manually step through them.

SKIP — selects channels to skip during scanning.

ATT — turns attenuation on to reduce the scanner's sensitivity, or turns it off to increase it.

 — locks/unlocks the keypad (except **LIGHT**) to prevent accidental entries.

LOCK — locks the stored channels to prevent accidental changes.

ENTER — enters frequencies into channels.

A LOOK AT THE DISPLAY



A quick look at the display should help you understand what the scanner can do.

 — appears when you lock the keypad.

M.BANK — appears with numbers (0-9) to show when the scanner scans through a selected channel storage bank. A bar under the number shows that the bank is selected.

M.SCAN — appears with numbers (0-9) to show which channel-storage banks are turned on for scanning. A bar under the number shows that the channel-storage bank is selected. See “Bands and Banks” on Page 18.

BATT — flashes when the batteries are low.

CH — appears with a number (00-99) to show which of the 100 channels the scanner is tuned to.

P — appears when the scanner is tuned to the priority channel.

888.8888 — digits in the middle of the display show which frequency the scanner is tuned to.

WX — appears when you scan or search the 10 preprogrammed weather channels.

▲ and **▼** — indicate the search or scan direction.

SRCH — appears during a frequency search.

SKIP — appears when you manually select a channel you skipped while scanning.

MAN — appears when you manually select a channel.

PRI — appears when the priority feature is selected.

DLY — appears when you turn on the scanner's 2-second delay feature.

ATT — appears when you turn on the scanner's attenuate feature.

L — appears beside the channel number when you lock the channel.

BANDS AND BANKS

SEARCH BANDS

Your scanner can tune over 24,000 different frequencies. Each of these frequencies is contained within a group of frequencies called a band. The scanner uses permanent memory locations called search bands (0-9) to group these bands. You can search these bands to quickly find active frequencies you might want to store into the scanner's channels (see "Channel-Storage Banks" on Page 19).

The scanner has the following search bands.

Search Band	Search Range (MHz)
0	29–50
1	50–54
2	108–137
3	137–144
4	144–148
5	148–174
6	380–420
7	420–450
8	450–470
9	470–512

For example, if you wanted to search for transmissions between pilots and the control tower at an air show, you could search only the search bands where you are most likely to hear the transmissions (2, 3, and 6).

Notes:

- The frequencies in the scanner's search bands are preset. You cannot change them.
- "Band Allocation" on Page 42 lists frequency ranges and the broadcasters you are likely to hear on those frequencies.
- Although the scanner displays **108-137** when you select search band 2, it receives frequencies of 108 to 136.975 MHz in the search band.

CHANNEL-STORAGE BANKS

You can store up to 100 frequencies into memory locations within the scanner called channels. You can store one frequency in each of the 100 channels.

To make it easier to identify and select the frequencies you want to listen to, the scanner's channels are divided into 10 channel-storage banks (0–9). Each channel-storage bank contains ten channels.

You can use each channel-storage bank to group frequencies of the same type, such as those used by racing teams, aircraft and the control tower, the police department, and ambulance services (see "A General Guide to Scanning" on Page 39).

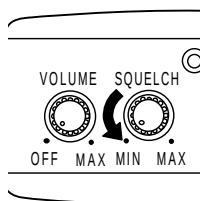
For example, you might want to listen to communications between the driver of Car 26 and his pit crew at a stock car race. Additionally, there might be other broadcasters at the race you want to listen to, such as the medical center, pace car, and crowd security. To make it easier to remember where you stored the driver's frequency, you could program the frequency into Channel 26 (the same number as his car), then program frequencies for the other broadcasters in the same bank (starting with Channel 20).

BASIC OPERATION

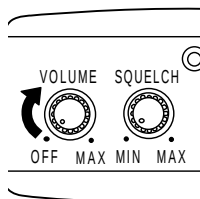
TURNING ON THE SCANNER AND SETTING SQUELCH

Note: Make sure the scanner's antenna is connected before you turn it on.

1. Turn **SQUELCH MIN/MAX** fully counterclockwise.



2. Turn **VOLUME OFF/MAX** clockwise until it clicks and you hear a hissing sound.



3. Turn **SQUELCH MIN/MAX** clockwise, then leave it set to a point just after the hissing sound stops.

The scanner automatically starts scanning channels. Press **MANUAL** to stop scanning.

Note: If you have not stored frequencies into any channels (see "Searching For and Storing Active Frequencies" on Page 21), the scanner does not scan.

Notes:

- If the scanner picks up unwanted, partial, or very weak transmissions, turn **SQUELCH MIN/MAX** clockwise to decrease the scanner's sensitivity to these signals. If you want to listen to a weak or distant station, turn **SQUELCH MIN/MAX** counter-clockwise.
- If **SQUELCH MIN/MAX** is adjusted so you always hear a hissing sound, the scanner does not scan properly.

SEARCHING FOR AND STORING ACTIVE FREQUENCIES

You can store up to 100 frequencies into your scanner's channels using either of the following methods.

- Limit search within a range of preprogrammed frequencies
- Manual storage

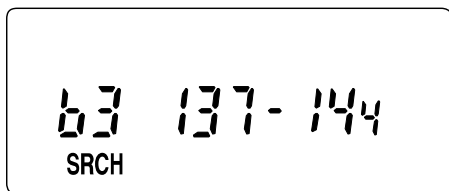
Good references for active frequencies are Radio Shack's "Beyond Police Call," "Police Call Radio Guide Including Fire and Emergency Services," "Aeronautical Frequency Directory," and "Radio!" magazine. We update these references often, so be sure to get a current copy. See also "A General Guide to Scanning" on Page 39.

If you do not have a reference to frequencies in your area, follow the steps in "Limit Search" on Page 22 to search for transmissions.

Limit Search

If you do not know a frequency to store, you can select a search band containing a preprogrammed frequency range and search that range for active frequencies. Then you can store frequencies you find there into channels. **SRCH** appears on the display during a search.

1. Press **BAND/•**.
2. Within about 2 seconds, enter the search band number. The band's number appears next to **b** on the left side of the display and the frequency range of the search band appears on the right. Then the next available channel flashes.



Notes:

- If you do not press a number key within 2 seconds after you press **BAND/•**, the number for the previously selected search band is displayed, then the scanner displays the next available channel number (or **00** if you have not stored frequencies into any channels). If this happens, simply press the search band's number key again to select the band you want.
- You can also repeatedly press **BAND/•** in Step 2 instead of entering a number to select a search band.

After you select a search band, the scanner automatically searches from the lower limit to the upper limit through all frequencies in the search band.

When the scanner stops on an active frequency, press **ENTER** to store it in the flashing channel or press and hold Δ or ∇ for about a second to continue the search.

Notes:

- To search the frequency band upward or downward step by step (5, 12.5, or 25 kHz), quickly press and release Δ or ∇ . $\blacktriangle$ or $\blacktriangledown$ disappears from the display. See “Specified Intervals” on Page 42.
- To quickly move upward or downward through the range of frequencies, press and hold down Δ or ∇ . The scanner tunes through the frequencies until you release Δ or ∇ .
- If you try to store a frequency you already stored in another channel, **DUPL** flashes on the display for about 3 seconds, and the channel number where the frequency was previously stored appears for about 3 seconds. Select another frequency or press **ENTER** again to store the frequency into the channel.
- After you store a frequency into the last available channel, the scanner displays **Ch FULL** when you press Δ or ∇ . If you press Δ or ∇ again, the scanner continues the search but -- flashes on the display. To store more frequencies, you must unlock some channels. See “Using Channel Lock” on Page 30.

Manually Storing Frequencies

If you know a frequency you want to store, follow these steps to store it manually.

1. Press **MANUAL**. **MAN** appears.
2. Use the number keys to enter the channel number (00 to 99) where you want to store the frequency, then press Δ or ∇ .

Hint: If you are storing a frequency used by a specific broadcaster (such as a racing team), you can remember where you stored the frequency by storing it in the same channel number as the team's car number.

Note: If you enter an invalid channel number, the scanner beeps three times and **Error** flashes on the display for about 4 seconds. Simply repeat this step.

3. Using the number keys, enter the frequency you want to store into that channel. Use **BAND/•** to enter the decimal point.
4. Press **ENTER** to store the frequency.

Notes:

- If you entered an invalid frequency in Step 3, the scanner beeps three times and **Error** flashes on the display for about 4 seconds. Simply repeat Steps 3 and 4.
- Your scanner automatically rounds the entered frequency down to the closest valid frequency. For example, if you try to enter a frequency of 151.4730, your scanner accepts it as 151.4700.
- If you entered a frequency that is already stored in another channel, the scanner beeps and **dupl** flashes on the display for about 5 seconds, then the channel number where you tried to store the duplicate frequency appears (next to the flashing frequency).
 - To store the frequency, press **ENTER** again.
 - To store a different frequency, repeat Steps 3 and 4 to enter another frequency and store it.

-
- If you tried to store a frequency in a locked channel, the scanner beeps once and **L** (next to the channel number) and **LOC** flash on the display, then the frequency flashes. To store the frequency, either unlock the channel (see “Using Channel Lock” on Page 30) and repeat Steps 1-4, or repeat Steps 2-4 to select another channel and store the frequency.

Repeat Steps 2-4 to store more frequencies into channels. Or, if you want to program the next channel in sequence, press Δ or ∇ , then repeat Steps 3-4.

Note: When you store a frequency in a channel, the scanner automatically locks that channel (see “Using Channel Lock” on Page 30).

SCANNING THE STORED CHANNELS

Scanning All Channels

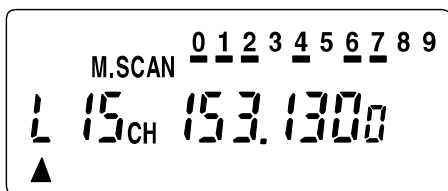
To begin scanning all the stored channels in your scanner, press **M.SCAN**. The scanner scans through all channels in the activated banks which are not skipped (see “Skipping Channels” on Page 28).

Note: Press Δ or ∇ to change the scan direction.

Turning Channel-Storage Banks On and Off

You can turn each channel-storage bank on and off. When you turn off a bank, the scanner does not scan any of the 10 channels in that bank.

While scanning, press the number key of the bank you want to turn on or off. If the memory bank indicator bar is on, the bank is turned on and the scanner scans all channels within that bank that are not skipped. If the indicator is off, the scanner does not scan any of the channels within that bank.



Notes:

- You can manually select any channel in a bank, even if the bank is turned off.
- You cannot turn off all banks. There must be at least one active bank.
- You cannot turn on a bank where all the channels in the bank are skipped (see “Skipping Channels” on Page 28).

Scanning a Channel-Storage Bank

You can scan a single channel-storage bank. Select the channel-storage bank you want to scan, then press **M.BANK**. The scanner starts scanning channels in the selected bank that are not skipped.

To select and scan another bank, repeatedly press **M.BANK** to move the bar on the top of the display under the bank you want.

To select a channel within the bank, enter the channel number.

MANUALLY SELECTING A CHANNEL

You can continuously monitor a specific channel without scanning. This is useful if you want to hear a broadcast on a channel and do not want to miss any details (even though there might be periods of silence) or if you want to monitor a locked-out channel (see “Skipping Channels” on Page 28).

Follow these steps to manually select a channel.

1. Press **MANUAL**. **MAN** appears on the display.
2. Enter the channel number.
3. Press **MANUAL**.
4. To select another channel within the bank, repeatedly press Δ to select higher channels or ∇ to select lower channels.

Or, if your scanner is scanning and stops at the desired channel, press **MANUAL** once before the scanner continues to scan.

LISTENING TO THE WEATHER BAND

The FCC (Federal Communications Commission) has allocated 11 channels for use by the National Oceanic and Atmospheric Administration (NOAA). NOAA broadcasts your local forecast and regional weather information on one or more of these channels. We have preprogrammed your scanner with 10 of the U.S. frequencies available to NOAA.

To scan the preprogrammed weather channels, press **WX**.

To manually tune through the preprogrammed weather channels, repeatedly press **WX** until **MAN** appears on the display. Then repeatedly press Δ to select higher channels or ∇ to select lower channels.

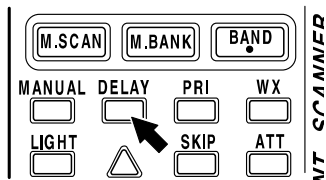
Note: For a list of all 11 national weather frequencies, see “National Weather Frequencies” on Page 47.

ADVANCED OPERATION

DELAY

Many agencies use a two-way radio system that might have a pause of several seconds between a query and a reply. Your scanner's delay feature lets it wait for 2 seconds after each transmission on a channel or frequency while scanning or searching.

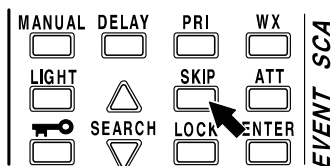
To program a 2-second delay, press **DELAY** while the channel or frequency is selected. **DLY** appears. When your scanner stops on the channel or frequency while scanning or searching, it waits for 2 seconds after each transmission on that channel or frequency before it resumes scanning or searching.



SKIPPING CHANNELS

You can increase the scanner's effective scanning speed by skipping those channels that have a continuous transmission, such as a weather channel.

To skip a channel while scanning, press **SKIP** while the channel is selected. **SKIP** appears on the display.



To remove the skip from a channel, manually select the channel, then press **SKIP**. **SKIP** disappears from the display.

Notes:

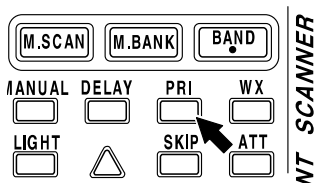
- The scanner automatically skips empty channels.
- You cannot remove the skip from an empty channel.

PRIORITY

You can scan through channels and still not miss an important or interesting call on a specific channel. Channel 00 (the first channel in Bank 0) is preset as the priority channel.

When the priority feature is turned on, the scanner checks Channel 00 every 2 seconds, and stays on the channel if there is activity. If there is no activity, **P** flashes on the display every 2 seconds.

To turn on the priority feature, press **PRI**. **PRI** appears on the display. To turn off the priority feature, press **PRI** again. **PRI** disappears from the display.



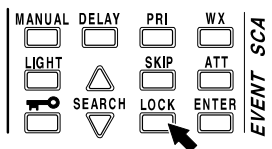
Notes:

- Channel 00 is preset as the priority channel. You cannot change it.
- The scanner automatically skips the priority channel when there is no transmission on the channel. If there is a transmission on the channel, you must turn off the priority feature to skip the priority channel.

USING CHANNEL LOCK

When you enter a frequency into a channel, the scanner automatically locks the channel to prevent it from being overwritten by another frequency. **L** appears to the left of the channel number.

To unlock a channel, press **LOCK**. **L** disappears from the display.

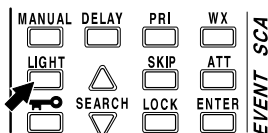


Follow these steps to unlock all channels.

1. Press **MANUAL**.
2. While pressing and holding down **ENTER**, press and hold down **LOCK** until the scanner beeps three times.

To manually lock a channel, select the channel, then press **LOCK**. **L** appears to the left of the channel number.

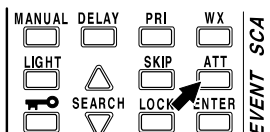
USING THE DISPLAY BACKLIGHT



You can turn on the display's backlight for easy viewing in dimly-lit areas. Press **LIGHT** to turn on the display light for 5 seconds. To turn off the light before it automatically turns off, press **LIGHT** again.

USING THE ATTENUATOR

To reduce interference or noise caused by strong signals, you can reduce the scanner's sensitivity to these signals. Press **ATT** until **ATT** appears on the display to reduce the scanner's sensitivity.



Note: If you turn on this feature, the scanner might not receive weak signals.

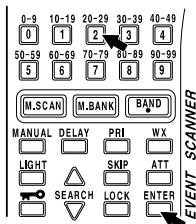
To turn off the attenuator, press **ATT** again. **ATT** disappears from the display.

TURNING THE KEY TONE ON AND OFF

Each time you press any of the scanner's keys (except  and **LIGHT**), the scanner sounds a tone.

Follow these steps to turn the scanner's key tone on or off.

1. If the scanner is on, turn **VOLUME OFF/MAX** counterclockwise until it clicks to turn it off.
2. While you press and hold down the **2** and **ENTER** keys, turn on the scanner.

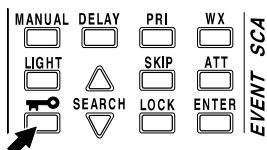


3. After a second, release **2** and **ENTER**.

USING THE KEYLOCK

Once you program your scanner, you can protect it from accidental program changes by turning on the keylock feature. When the keypad is locked, the only controls that operate are **LIGHT**, **VOLUME OFF/MAX**, and **SQUELCH MIN/MAX**. (However, the scanner continues to scan channels).

To turn on the keylock, press and hold down  for about 3 seconds until the scanner beeps three times and  appears on the display. To turn it off, press and hold down  for about 3 seconds until the scanner beeps three times and  disappears from the display.



OPTIONS

CONNECTING OPTIONAL POWER SOURCES

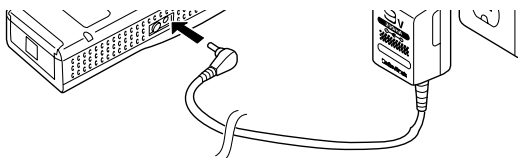
Using AC Power

To operate the scanner from AC power, you need an AC adapter such as Radio Shack Cat. No. 273-1665.

Cautions:

- To prevent electric shock, the plug's blades are polarized and fit only one way. If the plug does not fit easily, turn it over and try again. Do not force the plug into the AC outlet.
- You must use an AC adapter that supplies 9 volts and delivers at least 300 milliamps. Its center tip must be set to negative, and its plug must correctly fit the scanner's **PWR** and **CHG** jacks. The recommended adapter meets these specifications. Using an adapter that does not meet these specifications could seriously damage the scanner or the adapter.
- Always plug the AC adapter's barrel plug into the scanner before you plug the adapter's power module into the AC outlet. Always unplug the adapter's power module from the AC outlet before you unplug the adapter's barrel plug from the scanner.

Plug the adapter's barrel plug into the scanner's **PWR** jack. Then plug the adapter's power module into a standard AC outlet.



Note: If you installed rechargeable nickel-cadmium batteries in the scanner, you can connect the AC adapter to the **CHG** jack. Simply remove the rubber cap from the **CHG** jack, connect the AC adapter's barrel plug to the jack, then plug the adapter's power module into a standard AC outlet. This powers the scanner and recharges the batteries at the same time. See "Charging Nickel-Cadmium Batteries" on Page 12.

Using Vehicle Battery Power

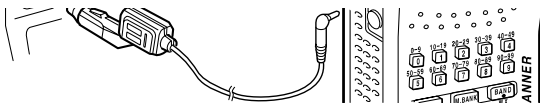
To operate the scanner from your vehicle's battery, you need a DC cigarette lighter adapter such as Cat. No. 270-1560.

Cautions:

- You must use a DC adapter that supplies (regulated) 9-volt power and delivers at least 300 milliamps. Its center tip must be set to negative, and its plug must correctly fit the scanner's **PWR** and **CHG** jacks. The recommended adapter meets these specifications. Using an adapter that does not meet these specifications could seriously damage the scanner or the adapter.
- To protect your vehicle's electrical system, always plug the adapter into the scanner before you plug it into your vehicle's cigarette-lighter socket. Always unplug the adapter from the vehicle's cigarette-lighter socket before you unplug it from the scanner.

Follow these steps to connect the DC adapter.

1. Connect the DC adapter's orange barrel plug to the adapter's cable, with the tip set to – (negative).
2. Set the adapter's voltage switch to **9V**.
3. Plug the adapter's barrel plug into the scanner's **PWR** jack. Then plug the other end of the adapter into your vehicle's cigarette lighter socket.



Notes:

- If you installed rechargeable nickel-cadmium batteries in the scanner, you can connect the DC cigarette lighter adapter to the **CHG** jack. Simply remove the rubber cap from the **CHG** jack, connect the adapter's barrel plug to the jack, then plug the other end of the adapter into your vehicle's cigarette lighter socket. This powers the scanner and recharges the batteries at the same time. See "Charging Nickel-Cadmium Batteries" on Page 12.
- If the scanner does not operate properly when you use a DC cigarette lighter adapter, unplug the adapter from the lighter socket and clean the socket to remove ashes and other debris.

CONNECTING A MOBILE OR BASE-STATION ANTENNA

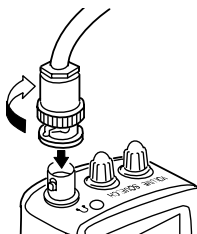
Instead of the supplied flexible antenna, you can connect a mobile or base-station antenna (not supplied) to your scanner. Your local Radio Shack store sells a wide variety of antennas. Choose the one that best meets your needs.

When deciding on a mobile or base-station antenna and its location, consider the following:

- The antenna should be mounted as high as possible.
- The antenna and antenna cable should be as far as possible from sources of electrical noise (appliances, ignition systems, gauges, and so on).
- The antenna should be vertical for the best performance.

When connecting an optional antenna, always use 50-ohm coaxial cable, such as RG-58 (Cat. No. 278-1314) or RG-8/M (Cat. No. 278-1313). For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable (Cat. No. 278-1312). If the coaxial cable's connector does not fit in the scanner's **ANT** jack, you might also need a PL-259-to-BNC antenna plug adapter, such as Cat. No. 278-120. Your local Radio Shack store carries a wide variety of coaxial antenna cable and connectors.

Follow the mounting instructions supplied with the antenna. Then route the antenna cable to the scanner, and connect it to the **ANT** jack on the top of the scanner.



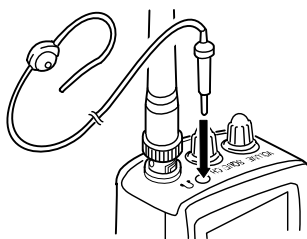
Cautions:

- Do not route the cable over sharp edges or moving parts.
- Do not run the cable next to power cables.
- Do not run the cable through a vehicle's engine compartment or other areas that produce extreme heat.

Warning: Use extreme caution when you install or remove an outdoor antenna. If the antenna starts to fall, let it go! It could contact overhead power lines. If the antenna touches a power line, contact with the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. DO NOT attempt to do so yourself.

CONNECTING AN EARPHONE/HEADPHONES

For private listening, you can plug an optional earphone or monaural headphones (such as Cat. No. 33-175 or Cat. No. 20-210, not supplied) into the  jack on top of your scanner. This automatically disconnects the internal speaker. Your local Radio Shack store has a wide selection of earphones.



Note: In a noisy area, monaural headphones might provide more comfortable listening.

Listening Safely

To protect your hearing, follow these guidelines when you use an earphone or headphones.

- Set the volume to the lowest setting before you begin listening. After you begin listening, adjust the volume to a comfortable level.

-
- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
 - Once you set the volume, do not increase it. Over time, your ears adapt to the volume level, so a volume level that does not cause discomfort might still damage your hearing.

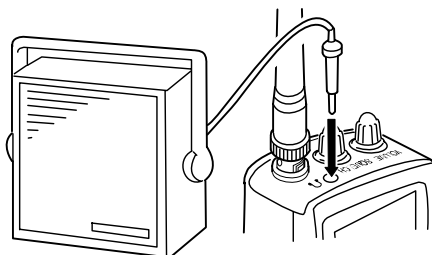
Traffic Safety

Do not wear an earphone or headphones while operating a motor vehicle or riding a bicycle. This can create a traffic hazard and is illegal in some areas.

Even though some earphones and headphones are designed to let you hear some outside sounds when listening at normal volume levels, they still present a traffic hazard.

CONNECTING AN EXTENSION SPEAKER

In a noisy area, an extension speaker (such as Cat. No. 21-549) or an amplified speaker (such as Cat. No. 21-541), positioned in the right place, might provide more comfortable listening. Plug the speaker cable's $\frac{1}{8}$ -inch mini-plug into your scanner's  jack.



A GENERAL GUIDE TO SCANNING

Reception of the frequencies covered by your scanner is mainly “line-of-sight.” This means you cannot usually hear stations that are beyond the horizon.

UNITED STATES BROADCAST BAND

In the United States, there are several broadcast bands. The standard AM and FM bands are probably the most well known. There are also four television audio broadcast bands — the lower three transmit on the VHF band and the fourth transmits on the UHF band. You can use your scanner to monitor the 470–512 MHz portion of the UHF band.

TYPICAL BAND USAGE

The following charts show the types of broadcasts you can hear in each band, the number of the search band where you can search for them, and the frequency range of the broadcasts.

VHF Band (30.00-300.0 MHz)

Broadcast Type	Search Band	Frequency Range (MHz)	
10-Meter Amateur, VHF Lo	0	29.00	50.00
6-Meter Amateur	1	50.00	54.00
Aircraft/Air Shows	2	108.00	136.975
Aircraft/Air Shows/Government	3	137.00	144.00

Broadcast Type	Search Band	Frequency Range (MHz)	
2-Meter Amateur	4	144.00	148.00
Auto Racing, Motion Picture/Video Industry, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, Stadiums/Venues	5	148.00	174.00

UHF Band (300.00 MHz — 3.0 GHz)

Broadcast Type	Search Band	Frequency Range (MHz)	
Military Aircraft/Air Shows	6	380.00	384.00
US Government	6,7	406.00	450.00
70-Centimeter Amateur	7	420.00	450.00
Auto Racing, Pro Sports Teams, Radio/TV Remote Broadcast Pickup, Stadiums/Venues	8	450.00	470.00
FM-TV Audio Broadcast, Wideband	9	470.00	512.00

PRIMARY USAGE

As a general rule, most radio activity is concentrated on the following frequencies:

VHF Band

Broadcast Type	Search Band	Frequency Range (MHz)	
Government, Police, and Fire	5	153.785	155.980
Emergency Services	5	158.730	159.460
Railroad	5	160.000	161.900

UHF Band

Broadcast Type	Search Band	Frequency Range (MHz)	
Land-Mobile Paired Frequencies	8	450.000	470.000
Base Stations	8	451.025	454.950
Mobile Units	8	456.025	459.950
Relay Repeater Units	8	460.025	464.975
Remote Control Stations	8	465.025	469.975

Note: Remote control stations and mobile units operate at 5 MHz higher than their associated base stations and relay repeater units.

SPECIFIED INTERVALS

All the frequencies in the scanner’s search bands are accessible only at specific intervals. For example:

Search Band	Interval (kHz)
0, 1, 3, 4, 5	5.0
6, 7, 8, 9	12.5
2	25.0

Note: Your scanner automatically rounds the entered frequency down to the closest valid frequency. For example, if you try to enter a frequency of 151.473, your scanner accepts it as 151.470.

BAND ALLOCATION

To help decide which frequency ranges to scan, use the following listing of the typical services that use the frequencies your scanner receives. These frequencies are subject to change, and might vary from area to area. For a more complete listing, refer to “Beyond Police Call,” “Police Call Radio Guide Including Fire and Emergency Services,” and “Radio!” magazine, available at your local Radio Shack store.

Abbreviations

AIR	Aircraft/Air Show
AUTO	Auto Racing
CAP	Civil Air Patrol
FIRE	Fire Department
HAM	Amateur (Ham) Radio
GOVT	Federal Government

MARI.....	Maritime Limited Coast (Coast Guard, Marine telephone, Shipboard Radio, Private stations)
MED.....	Emergency/Medical Services
MIL.....	U.S. Military
MOV	Motion Picture/Video Industry
NET	Notification Nets (Public Safety)
NEWS.....	Relay Press (Newspaper reporters)
POL	Police Department
PUB	Public Services (Public Safety, Local Government, Forestry Conservation)
PSB	Public Safety
RTV.....	Radio/TV Remote Broadcast Pickup
SPORT	Pro Sports Teams
STAD	Stadiums/Venues
TELB.....	Mobile Telephone (Aircraft, Radio Common Carrier, Landline companies)
TVn.....	FM/TV (Audio Broadcast)
WTHR.....	Weather

High Frequency (HF) — (29 MHz–30 MHz)

10-Meter Amateur Band — (28.0–29.7 MHz)

29.000-29.700 HAM

Very High Frequency (VHF) — (30 MHz–300 MHz)

Low Band — (30–50 MHz in 5 kHz steps)

29.900-30.550	GOVT, MIL
30.580-31.980	PUB
32.000-32.990	GOVT, MIL
33.020-33.980	IND,PUB
34.010-34.990	GOVT, MIL
35.020-35.980	PUB
36.000-36.230	GOVT, MIL
36.270-36.990	GOVT, MIL

37.020-37.980	PUB
38.000-39.000	GOVT, MIL
39.020-39.980	PUB
40.000-42.000	GOVT, MIL
42.020-42.940	POL
43.220-43.680	PUB
44.620-46.580	POL, PUB
46.600-46.990	GOVT
47.020-47.400	PUB
47.440-49.580	IND, PUB
49.610-49.990	MIL

6-Meter Amateur Band — (50–54 MHz)

50.00-54.00	HAM
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Aircraft Band — (108–136 MHz)

108.000-121.490	AIR
121.500	AIR Emergency
121.510-136.975	AIR

U.S. Government Band — (137–144 MHz)

137.000-144.000	AIR, GOVT, MIL
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2-Meter Amateur Band — (144–148 MHz)

144.000-148.000	HAM
-----------------	-----

VHF Hi Band — (148–174 MHz)

148.050-150.345	CAP, MIL
150.775-150.790	MED
151.145-151.475	POL
151.625-151.955	AUTO, SPORT, STAD
152.0075	MED
152.030-152.240	TELB
152.510-152.840	TELB
152.870-153.020	MOV
153.740-154.445	PUB, FIRE, STAD

154.540-154.570	AUTO, SPORT, STAD
154.600	SPORT, STAD
154.655-156.240	AUTO, MED, POL, PUB, STAD
156.275-157.425	MARI
157.450	MED
157.710	AUTO
157.770-158.100	TELB
158.490-158.700	TELB
158.730-159.465	POL, PUB
161.640	AUTO
161.600-162.000	MARI, RTV
162.0125-162.35	GOVT, MIL
162.400-162.550	WTHR
162.5625-162.6375	GOVT, MIL
162.6625	MED
162.6875-163.225	GOVT, MIL
163.250	MED
163.275-166.225	GOVT, MIL
166.250	FIRE, GOVT, RTV
166.275-169.400	GOVT
169.445	Wireless Mikes
169.500	GOVT
169.505	Wireless Mikes
169.55-169.9875	GOVT, MIL
170.025-170.150	FIRE, GOVT, RTV
170.175-170.225	GOVT
170.245-170.305	Wireless Mikes
170.350-170.400	GOVT, MIL
170.475	PUB
170.4875-173.175	GOVT, PUB, Wireless Mikes
173.225-173.375	MOV, NEWS
173.3875-173.5375	MIL
173.5625-173.5875	MIL, Medical/Crash Crews
173.60-173.9875	GOVT

Ultra High Frequency (UHF) — (300 MHz–3 GHz)

Military Aircraft Band — (319.1–406 MHz)

380.000-383.900	AIR, Coast Guard
384.000-406.000	AIR, GOVT

U.S. Government Band — (406–450 MHz)

406.125-419.975	GOVT
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70-cm Amateur Band — (420–450 MHz)

420.000-450.000	HAM
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Low Band — (450–470 MHz)

450.050-450.925	RTV
452.0375-453.00	NEWS
453.0125-453.9875	PUB, STAD
454.025-454.975	TELB
455.050-455.925	RTV
457.550-457.600	AUTO
458.025-458.175	MED
460.0125-460.6375	FIRE, POL, PUB
460.6400-462.9350	AUTO, STAD
462.9375-463.1875	MED
463.2000-470.00	AUTO, NET, SPORT, STAD

FM-TV Audio Broadcast, UHF Wide Band — (470–512 MHz) (Channel 14 through 69 in 6 MHz steps)

475.750	Channel 14
481.750	Channel 15
487.750	Channel 16
493.750	Channel 17
499.750	Channel 18
505.750	Channel 19
511.750	Channel 20

Note: Some cities use the 470-512 MHz band for land/mobile services.

HAM RADIO FREQUENCIES

Ham radio operators often broadcast emergency information when other means of communications break down.

The following chart shows the voice frequencies you can monitor.

Wavelength (meters)	Search Band	Frequency Range (MHz)	
10 meters	0	29.000	29.700
6 meters	1	50.100	54.000
2 meters	4	144.100	148.000
70 centimeters	7	420.000	450.000

NATIONAL WEATHER FREQUENCIES

All of the following frequencies except 162.440 are programmed into your scanner's weather band.

161.650 MHz	162.425 MHz	162.475 MHz	162.550 MHz
161.775 MHz	162.440 MHz	162.500 MHz	163.275 MHz
162.400 MHz	162.450 MHz	162.525 MHz	

Note: You can still manually tune to 162.440 (see "Searching For and Storing Active Frequencies" on Page 21).

BIRDIE FREQUENCIES

Birdies are frequencies your scanner uses when it operates. These operating frequencies might interfere with broadcasts on the same frequencies. If you program one of these frequencies, you might hear only noise on that frequency.

If the interference is not severe, you might be able to turn **SQUELCH MIN/MAX** clockwise to cut out the birdie. These are the most common birdies to watch for:

29.800 MHz	140.175 MHz	381.6625 MHz	451.4375 MHz
32.000 MHz	140.800 MHz	388.3875 MHz	454.5875 MHz
38.400 MHz	144.625 MHz	396.800 MHz	455.450 MHz
46.370 MHz	148.525 MHz	419.3625 MHz	458.2625 MHz
51.200 MHz	152.750 MHz	422.400 MHz	459.475 MHz
112.375 MHz	153.600 MHz	426.025 MHz	462.600 MHz
115.200 MHz	156.540 MHz	427.325 MHz	463.4875 MHz
121.600 MHz	157.050 MHz	435.200 MHz	467.5125 MHz
128.000 MHz	160.555 MHz	438.5375 MHz	471.525 MHz
131.025 MHz	162.200 MHz	442.100 MHz	479.6625 MHz
134.400 MHz	166.400 MHz	443.400 MHz	487.700 MHz
136.675 MHz	173.925 MHz	447.500 MHz	512.000 MHz

To find your specific scanner's birdies, begin by disconnecting the antenna and moving it away from the scanner. Make sure that no other nearby radio or TV sets are turned on. Search each search band from its lowest frequency to its highest. Occasionally, the scanner will stop as if it had found a signal, often without any sound. That is a birdie. Make a note of that frequency, then continue. Make a list of all the birdies in your scanner for future reference.

FREQUENCY CONVERSION

The tuning location of a station can be expressed in frequency (kHz or MHz) or in wavelength (meters). The following information can help you make the necessary conversions.

1 MHz (million)=1,000 kHz (thousand)

To convert MHz to kHz, multiply by 1,000.

30.62 MHz x 1000=30620 kHz

To convert from kHz to MHz, divide by 1,000.

$$\frac{127,800 \text{ kHz}}{1000} = 127.8 \text{ MHz}$$

To convert MHz to meters, divide 300 by the number of megahertz.

$$\frac{300}{171 \text{ MHz}} = 1.75 \text{ meters}$$

TROUBLESHOOTING

If your scanner is not working as it should, these suggestions might help you eliminate the problem. If the scanner still does not operate normally, take it to your local Radio Shack store for assistance.

Problem	Suggestion
Scanner is on but will not scan.	• If SQUELCH MIN/MAX is adjusted so you always hear a hissing sound, the scanner will not scan properly. Be sure SQUELCH MIN/MAX is adjusted properly. See "Turning On the Scanner and Setting Squelch" on Page 20. • Be sure scanner is set to the scan mode (MANUAL is not displayed). See "Scanning the Stored Channels" on Page 25. • Be sure you have stored frequencies into the scanner's channels. See "Searching For and Storing Active Frequencies" on Page 21.
Scanner does not work at all.	• Replace the batteries with fresh ones or recharge them. • Be sure the AC adapter or DC cigarette lighter adapter is connected properly.
Error appears on the display.	You programmed a frequency incorrectly. Try again.

Problem	Suggestion
Scanner receives stations poorly or not at all.	• Check the antenna (indoor or outdoor). See “Connecting the Flexible Antenna” on Page 9 and “Connecting a Mobile or Base-Station Antenna” on Page 35. • Signals may be blocked from being received by the scanner due to metal frames or material in the building. Change the scanner’s location and try again.
Scanner’s keys or display work poorly or not at all.	• The scanner’s keys are locked. Unlock the scanner’s keys. See “Using the Keylock” on Page 32. • Reset the scanner. See “Resetting the Scanner” on Page 13.
Scanner locks on frequencies that have an unclear transmission.	You might have tuned to a birdie frequency. Avoid programming frequencies listed under “Birdie Frequencies” on Page 48, or only select them manually.

CARE AND MAINTENANCE

Your Radio Shack PRO-63 100-Channel Portable Event Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for your scanner so you can enjoy it for years.



Keep the scanner dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode the electronic circuits.



Handle the scanner gently and carefully. Dropping it can damage circuit boards and cases, and can cause the scanner to work improperly.



Use and store the scanner only in normal temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.



Keep the scanner away from dust and dirt, which can cause premature wear of parts.



Wipe the scanner with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean it.

Modifying or tampering with the scanner's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your scanner is not operating as it should, take it to your local Radio Shack store for assistance.

SPECIFICATIONS

Frequency Coverage

VHF Lo	29.7–50 MHz (in 5 kHz steps)
Amateur Radio	29–29.7 MHz (in 5 kHz steps) 50–54 MHz (in 5 kHz steps) 144–148 MHz (in 5 kHz steps) 420–450 MHz (in 12.5 kHz steps)
Amateur Radio/Government	450–470 MHz (in 12.5 kHz steps)
Aircraft	108–136.975 MHz (in 25 kHz steps)
Government	137–144 MHz (in 5 kHz steps) 380–420 MHz (in 12.5 kHz steps)
VHF Hi	148–174 MHz (in 5 kHz steps)
UHF “T”	470–512 MHz (in 12.5 kHz steps)
Channels of Operation	100 Channels in Any Band Combinations (10 channels per bank x 10 banks)
Sensitivity (20 dB S/N)	0.7 mV
Selectivity:	
±10 kHz	–6 dB
±18 kHz	–50 dB
Spurious Rejection:	
30–54 MHz	50 dB at 40 MHz
108–136.975 MHz	50 dB at 124 MHz
137–174 MHz	50 dB at 154 MHz
380–512 MHz	40 dB at 450 MHz
Scanning Rate	Up to 25 channels/second
Search Rate	Up to 50 steps/second
Delay Time	2 seconds
Priority Sampling	2 seconds

Intermediate Frequencies (IF):

1st	10.7 MHz
2nd	455 kHz

IF Rejection (10.7 MHz) 70 dB at 154 MHz

Squelch Sensitivity:

Threshold	Less than 0.5 mV
Tight (VHF Lo, Hi, UHF)	(S+N)/N 25 dB
Tight (Aircraft)	(S+N)/N 20 dB

Antenna Impedance 50 Ohms

Built-in Speaker1³/₈ Inches (36 mm), 8 Ohms, dynamic type

Audio Output Power (10% THD)240 mW Nominal

Power Requirements +9 VDC

(6 AA alkaline batteries,
6 AA rechargeable nickel-cadmium batteries,
AC adapter (Cat. No. 273-1665),
or DC cigarette-lighter adapter (Cat. No. 270-1560))

Current Drain (Squelched) 65 mA

Dimensions 5⁷/₈ ¥ 2¹/₂ ¥ 1³/₄ Inches HWD
(149 ¥ 64 ¥ 45 mm)

Weight 8.8 Oz (250 g)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

NOTES

U.S. PATENT NOS.

3,794,925

3,801,914

3,961,261

3,962,644

4,027,251

4,092,594

4,123,715

4,245,348

RADIO SHACK LIMITED WARRANTY

This product is warranted against defects for 1 year from date of purchase from Radio Shack company-owned stores and authorized Radio Shack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your Radio Shack sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage. EXCEPT AS PROVIDED HEREIN, RADIO SHACK MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

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