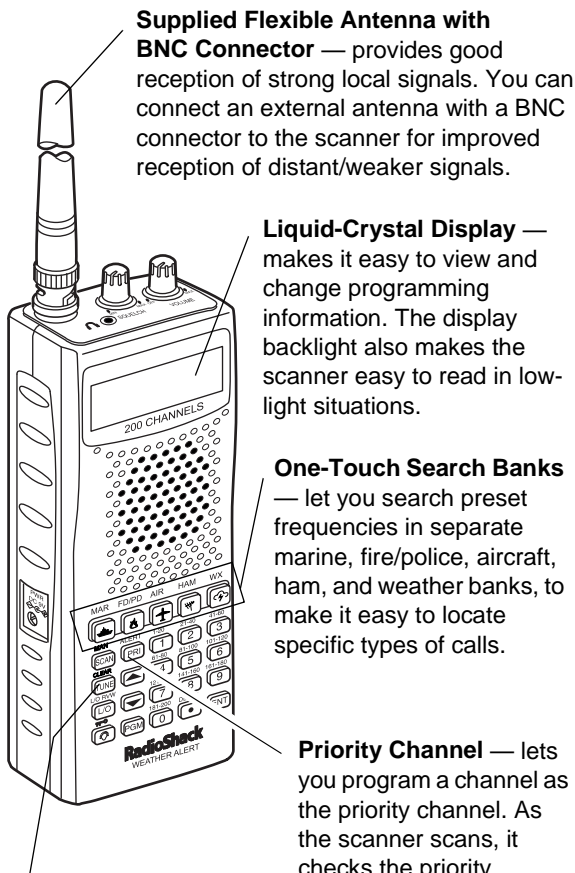


# PRO-82 200-Channel VHF/Air/UHF Handheld Scanner

20-315

OWNER'S MANUAL — Please read before using this equipment.



**Supplied Flexible Antenna with BNC Connector** — provides good reception of strong local signals. You can connect an external antenna with a BNC connector to the scanner for improved reception of distant/weaker signals.

**Liquid-Crystal Display** — makes it easy to view and change programming information. The display backlight also makes the scanner easy to read in low-light situations.

**One-Touch Search Banks** — let you search preset frequencies in separate marine, fire/police, aircraft, ham, and weather banks, to make it easy to locate specific types of calls.

**Priority Channel** — lets you program a channel as the priority channel. As the scanner scans, it checks the priority channel every 2 seconds so you do not miss transmissions on that channel.

**Tune** — lets you tune for new and unlisted frequencies starting from a specified frequency.



**RadioShack**®






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**! IMPORTANT !**

If an icon appears at the end of a paragraph, go to the box on that page with the corresponding icon for pertinent information.

-  — Warning
-  — Important
-  — Caution
-  — Hint
-  — **Note**

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**INTRODUCTION**

Your new RadioShack PRO-82 200 Channel VHF/Air/UHF Handheld Scanner lets you scan conventional transmissions, and is preprogrammed with search banks for convenience. By pressing a one touch search key, you can quickly search those frequencies most commonly used by public service and other agencies without tedious and complicated programming.

This scanner gives you direct access to over 25,000 exciting frequencies, including those used by police and fire departments, ambulance services, aircraft, and amateur radio services, and you can change your selection at any time.

Your scanner also has these special features:


**Ten Channel-Storage Banks** — you can store 20 channels in each bank (200 total channels), letting you group channels so you can more easily identify calls.

**Weather Alert** — the scanner automatically sounds an alert when it receives a weather emergency signal, providing more complete information about weather conditions in your immediate area.

**HyperSearch™ and HyperScan™** — let you set the scanner to search at up to 50 steps per second (in frequency bands with 5 kHz steps) and scan at up to 25 channels per second, to help you quickly find interesting broadcasts.

**Lockout Function** — lets you set your scanner to skip over specified channels or frequencies when scanning or searching.

**Memory Backup** — keeps the channel frequencies stored in memory for about an hour in the event of a power loss.

**Wired Programming** — you can connect your scanner to a personal computer and program frequencies into it using an optional cable and software. 

**Scan Delay** — delays scanning for about 2 seconds before moving to another channel, so you can hear more replies that are transmitted on the same channel.

**Duplicate Channel Alert** — warns you when the frequency you are storing already exists in memory.

**Manual Access** — you can directly access any stored channel by entering that channel's number.

**Key Lock** — lets you lock the scanner's keys to prevent accidentally changing the scanner's programming.

**Key Confirmation Tones** — the scanner sounds a confirmation tone when you perform an operation correctly, and an error tone if you make an error.

**Three Power Options** — you can power the scanner from internal (rechargeable or non-rechargeable batteries) or external AC or DC power (using an optional AC or DC adapter).

 **NOTE** 

You can get the cable, software, and additional information about using your personal computer to program your scanner from your local RadioShack store.

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**NOTE**

See "Specifications" on Page 53 for more information about the scanner's frequency steps.

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Your PRO-82 scanner can receive these bands:

Frequency Range (MHz)	Types of Transmissions
29 – 54	10-Meter Ham Band, VHF Lo, 6-Meter Ham Band
108 – 136.9875	Aircraft
137 – 174	Military Land Mobile, 2-Meter Ham Band, VHF Hi
380 – 512	UHF Aircraft, Federal Government, 70-cm Ham Band, UHF Standard Band, UHF "T" Band

**THE FCC WANTS YOU TO KNOW**

This equipment has been tested and found to comply with the limits for a scanning receiver, pursuant to Part 15 of the *FCC Rules*.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a

particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

This device complies with Part 15 of the *FCC Rules*. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

## **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 (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).

This scanner has been designed to prevent reception of illegal transmissions. This is done to comply with the legal requirement that scanners be manufactured so as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that it is not legal to listen to. Doing so could subject you to legal penalties.

We encourage responsible, legal scanner use.


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

# PREPARATION


You can power your scanner from any of three sources: 

- internal non-rechargeable batteries or rechargeable batteries (not supplied – see “Installing Batteries”).
- standard AC power (with an optional AC adapter - see “Using AC Power” on Page 9).
- vehicle power (with an optional DC adapter – see “Using Vehicle Battery Power” on Page 10).

## Installing Batteries

Your scanner uses four AA batteries (not supplied) for power. You can use either the supplied non-rechargeable battery holder (black), or the supplied rechargeable battery holder (yellow) to install the batteries. 

If you install the rechargeable battery holder, you can operate the scanner and recharge the rechargeable batteries at the same time. See “Charging Rechargeable Batteries” on Page 8.

For the best performance and longest life, we recommend RadioShack batteries. 

Follow these steps to install batteries.

1. Press in on the battery compartment cover on the back of the scanner and slide the cover down to remove it.

### **WARNING**

Never install non-rechargeable batteries in the rechargeable yellow battery holder. Non-rechargeable batteries can get hot or explode if you try to recharge them.

### **CAUTION**

- The battery holder fits only one way. Do not force it.
- Use only fresh batteries of the required size and recommended type.
- Do not mix old and new batteries, different types of batteries (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities.

### **NOTE**

Connecting an AC or DC adapter to the scanner disconnects internal batteries when you use the supplied non-rechargeable battery holder, but it does not disconnect internal batteries when you use the supplied rechargeable battery holder.

 **WARNING** 

Dispose of old batteries promptly and properly. Do not burn or bury them.

 **CAUTION** 

If you do not plan to use the scanner with batteries for a month or more, remove the batteries. Batteries can leak chemicals that can destroy electronic parts.

 **NOTE** 



**Installing Batteries**


You must charge rechargeable batteries before you use them the first time. See "Charging Rechargeable Batteries".

**Charging Rechargeable Batteries**

It takes about 15 hours to recharge fully discharged 1500mAh Ni-MH rechargeable batteries. You can operate the scanner while recharging the rechargeable batteries, but charging takes longer.

2. Pull the battery holder out of the battery compartment.
3. If you are using non-rechargeable batteries, place them into the black holder, as indicated by the polarity symbols (+ and -) marked on the holder. Or, if you are using rechargeable batteries, place them into the yellow holder, as indicated by the polarity symbols (+ and -) marked on the holder.
4. Place the battery holder into the battery compartment.
5. Replace the cover.

When **B** appears and the scanner beeps or the scanner stops operating properly, replace or recharge the batteries.  


If the scanner stops working properly after connecting it to power, try resetting it. See "Resetting the Scanner" on Page 39. 

**Charging Rechargeable Batteries**

Your scanner has a built-in charging circuit that lets you charge nickel-metal hydride (Ni-MH) or nickel cadmium (Ni-CD) rechargeable batteries (not supplied) while they are in the scanner. To charge rechargeable batteries, you need to use a 9V AC adapter (RadioShack Cat. No. 273-1767) or 10V DC adapter (Cat. No. 273-1830) and a size C Adaptaplug™ adapter (neither supplied). Both are available at your local RadioShack store.






Connect a size C Adaptaplug to the adapter's cable with the tip set to positive then insert the Adaptaplug into the scanner's **PWR DC 9V** jack. For best results, we recommend RadioShack rechargeable nickel-metal hydride (Ni-MH) 1500mAh batteries. 

The scanner can also charge Ni-Cd batteries. 600mAh batteries require 6 hours and 850mAh batteries require 8 hours to charge.

Rechargeable batteries last longer and deliver more power if you let them fully discharge once a month. To do this, use the scanner until **B** appears. Then fully charge the rechargeable batteries.

## Using AC Power

You can power the scanner using a 9V, 300 mA AC adapter (Cat. No. 273-1767) and a size C Adaptaplug™ adapter (neither supplied). Both are available at your local RadioShack store. 

To power the scanner using an AC adapter, attach the Adaptaplug to the AC adapter so the tip reads positive (+), then insert the Adaptaplug into the scanner's **PWR DC 9V** jack. Then connect the other end of the adapter to a standard AC outlet.

### **CAUTION**



You must use a Class 2

power source that supplies 9V DC and delivers at least 300 mA. Its center tip must be set to positive and its plug must fit the scanner's **PWR DC 9V** jack. Using an adapter that does not meet these specifications could damage the scanner or the adapter.

- Always connect the AC adapter to the scanner before you connect it to AC power. When you finish, disconnect the adapter from AC power before you disconnect it from the scanner.


### **NOTE**

When you charge Ni-Cd batteries, pay attention not to overcharge. Overcharging shortens battery life.

## CAUTION

Always connect the DC adapter to the scanner before you connect it to the power source. When you finish, disconnect the adapter from the power source before you disconnect it from the scanner.

## Using Vehicle Battery Power

You can power the scanner from a vehicle's 12V power source (such as a cigarette-lighter socket) using a 9V, 300 mA DC adapter and a size C Adaptaplug™ adapter (neither supplied). Both are available at your local RadioShack store. 

To power the scanner using a DC adapter, attach the Adaptaplug to the DC adapter so the tip reads positive (+) and set the adapter's voltage switch to 9V. Next, insert the Adaptaplug into the scanner's **PWR DC 9V** jack. Plug the other end of the DC adapter into your vehicle's cigarette-lighter socket.



## Connecting the Supplied Antenna

To attach the supplied flexible antenna to the antenna jack on top of your scanner, align the slots around the antenna's connector with the tabs on the antenna jack. Press the antenna down over the jack and turn the antenna's base clockwise until it locks into place.

### NOTE

If you use a cigarette-lighter power cable and your vehicle's engine is running, you might hear electrical noise from the engine while scanning. This is normal.


## CONNECTING AN OUTDOOR ANTENNA

The antenna connector on your scanner makes it easy to use the scanner with a variety of antennas, such as an external mobile antenna or outdoor base station antenna. Your local RadioShack store sells a variety of antennas.

Always use 50 Ohm coaxial cable, such as RG-58 or RG-8, to connect an outdoor antenna. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. If the antenna cable's connector does not have a BNC connector, you will also need a BNC adapter (not supplied, available at your local RadioShack store).

Follow the installation instructions supplied with the antenna, route the antenna cable to the scanner, then connect it to the antenna jack. ⚠

## Connecting an Earphone/Headphones

For private listening, you can plug a 1/8-inch (3.5-mm) mini-plug earphone or headphones (not supplied), available at your local RadioShack store, into  on the top of the scanner. This automatically disconnects the internal speaker.

## 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.

### **WARNING**

Use extreme caution when installing or removing 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.



- 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 use an earphone or headphones with your scanner when operating a motor vehicle or riding a bicycle in or near traffic. Doing so can create a traffic hazard and could be illegal in some areas.

If you use an earphone or headphones with your scanner while riding a bicycle, be very careful. Do not listen to a continuous broadcast. Even though some earphones/headphones let you hear some outside sounds when listening at normal volume levels, they still can present a traffic hazard.

## **Connecting an Extension Speaker**

In a noisy area, an amplified extension speaker (not supplied) available at your local RadioShack store, might provide more comfortable listening. Plug the speaker cable's  $\frac{1}{8}$  inch (3.5 mm) mini-plug into . 

## **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. Slide the belt clip over your belt or waistband.

### **NOTE**

You must use an amplified speaker with this scanner. Non-amplified speakers do not provide sufficient volume for comfortable listening.

## ABOUT YOUR SCANNER

Once you understand a few simple terms used in this manual and familiarize yourself with your scanner's features, you can put the scanner to work for you. You simply determine the type of communications you want to receive, then set the scanner to scan them.

A *frequency* is the receiving signal location (expressed in kHz or MHz). To find active frequencies, you can use the search function.

You can also search the One Touch Search Banks, which are preset groups of frequencies categorized by type of service.

When you find a frequency, you can store it into a programmable memory location called a channel, which is grouped with other channels in a channel-storage bank. You can then scan the channel-storage banks to see if there is activity on the frequencies stored there. Each time the scanner finds an active frequency, it stays on that channel until the transmission ends.

# A LOOK AT THE KEYPAD

**PRI/ALERT** Turns the priority feature and WX alert mode on and off.

**MAR** Lets you search the scanner's preprogrammed marine band.

**FD/PD** Lets you search the scanner's preprogrammed fire/police band.

**AIR** Lets you search the scanner's preprogrammed aircraft band.



**HAM** Lets you search the scanner's preprogrammed amateur radio band.

## SCAN/MAN

Scans any preprogrammed channels; stops scanning and lets you directly enter a channel number.

## TUNE/CLEAR

Lets you tune a frequency along with ▲ or ▼; clears an incorrect entry.

 /   
Locks (and unlocks) the keypad to prevent accidental entries; turns the backlight on and off.

## L/O RVW/L/O

Reviews locked-out frequencies; lets you lock out selected channels or frequencies.

## PGM

Programs frequencies into channels.

## DELAY/●

Programs a 2-second delay for the selected channel; enters a decimal point.

▲ or ▼  
Searches up or down for active frequencies or selects the direction when scanning channels.

## WX

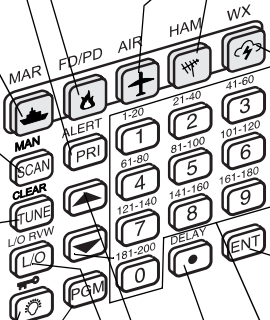
Lets you search the scanner's preprogrammed weather channels.

## ENT (enter)

Enters frequencies into channels.

## Number Keys

Each key has a single digit (0 to 9) and a range of numbers. Use the range of numbers above the key (21-40 for example) to select the channel in a channel-storage bank. See "Understanding Banks" on Page 20.



# A LOOK AT THE DISPLAY

The display has indicators that show the scanner's current operating status. This quick look at the display will help you understand how your scanner operates.



Appears when you lock the keypad.

## MAR

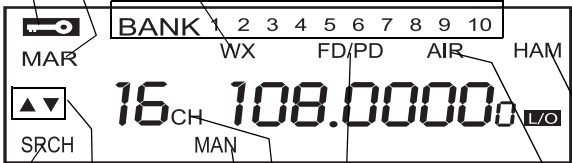
Indicates that the scanner is searching the marine bank (see "Listening to the Marine Bank" on Page 30).

## WX

Indicates that the scanner is searching the weather channels.

## BANK

Appears with numbers (1-10) to indicate the scan bank. Bank numbers with a bar under them show which banks are turned on for scanning (see "Understanding Banks" on Page 20).



Indicates the search or scan direction.

## MAN

Appears when you manually select a channel.

## FD/PD

Indicates that the scanner is searching the fire/police bank.

## AIR

Indicates that the scanner is searching the aircraft bank.

## SRCH

Appears during service bank searches.

## CH

Appears with digits (1-200) or **P** to show which channel the scanner is tuned to.

## HAM

Indicates that the scanner is searching the amateur radio bank.

**B**

Appears when the batteries are low.

**L/O (lockout)**

Appears when you manually select a channel that was previously locked out during scanning or when you review a locked-out frequency.

**SCAN**

Appears when the scanner scans channels.

**PGM**

Appears when you program frequencies into the scanner's channels.

**PRI**

Appears when the priority feature is turned on.

**DLY**

Appears when you program a 2-second delay.

**ALL CH Lo.-out**

Appears when you lock out the all marine channel.

**b X -FULL**

Appears when you try to enter a frequency during a search when all displayed banks channels are full.

**-dUPL-**

Appears when you try to store a frequency that is already stored in another channel.

**DEFAULT**

Appears when you remove all the lock-outs from the FD/PD, AIR, or HAM bank frequencies.



**D-Error**

Appears when the scanner receives a data error during wired programming.

**End**

Appears when the scanner has finished wired programming.

**Error**

Appears when you make an entry error.

**FLo ALL-CL**

Appears when you remove all the locked-out frequencies during a FD/PD, AIR, or HAM bank or tune search.

**FLo-FULL**

Appears when you try to lock out a frequency during a tune when 50 frequencies are already locked out.

**F L-out**

Appears when you start a tune from a locked-out frequency.

**L-r**

Appears when you review locked-out frequencies.

**oFF tonE**

Appears when you turn the key tone off.

**on tonE**

Appears when you turn the key tone on.

**P**

Appears when the scanner is tuned to the priority channel.

**StArt**

Appears when the scanner starts wired programming.

**-t-**

Appears when the scanner is tuning frequencies.

**WirEd**

Appears when you set the scanner to its wired programming mode to program frequencies into it.

**MAR**

Appears about 2 seconds after you press **MAR**.

**Fire / PoLICE**

Appears about 2 seconds after you press **FD/PD**.

**Air**

Appears about 2 seconds after you press **AIR**.

**HAM**

Appears about 2 seconds after you press **HAM**.

**WErthEr**

Appears about 2 seconds after you press **WX**.

**Lo VHF**

Appears when you turn on the low VHF sub-bank while searching in the fire/police bank.

**Hi VHF**

Appears when you turn on the high VHF sub-bank while searching in the fire/police bank.

**UHF**

Appears when you turn on the UHF sub-bank while searching in the fire/police bank.

**10 m**

Appears when you turn on the 10m sub-bank while searching in the ham bank.

**6 m**

Appears when you turn on the 6m sub-bank while searching in the HAM bank.

**2 m**

Appears when you turn on the 2m sub-bank while searching in the HAM bank.

**70C m**

Appears when you turn on the 70cm sub-bank while searching in the HAM bank.

# UNDERSTANDING BANKS

## Channel Storage Banks

A bank is a storage area for a group of channels. Channels are storage areas for frequencies. Whereas a channel can only contain one frequency, a bank can hold numerous channels.

To make it easier to identify and select the channels you want to listen to, your scanner divides the channels into 10 banks (1 to 10) of 20 channels each, a total of 200 channels. You can use each channel-storage bank to group frequencies. ✓

## One Touch Banks

The scanner is preprogrammed with the frequencies allocated by marine, fire/police, aircraft, ham radio, and weather services. This is handy for quickly finding active frequencies instead of searching through an entire band (see "Searching the One Touch Banks" on Page 25). ✓

## Marine

Channel	Frequency (MHz)
01	156.0500
05	156.2500
06	156.3000
07	156.3500
08	156.4000
09	156.4500
10	156.5000
11	156.5500

### NOTE

#### Channel Storage Banks

The scanner is preset so each bank is turned on (see "Turning Channel-Storage Banks Off and On" on Page 29).

#### One-Touch Banks

The frequencies in the scanner's one touch banks are preset. You cannot change them.

### NOTE

Both frequencies (transmission and reception) are shown for marine channels used for duplex transmission.

<b>Channel</b>	<b>Frequency (MHz)</b>
12	156.6000
13	156.6500
14	156.7000
15	156.7500
16	156.8000
17	156.8500
18	156.9000
19	156.9500
20	157.0000/161.6000
21	157.0500
22	157.1000
23	157.1500
24	157.2000/161.8000
25	157.2500/161.8500
26	157.3000/161.9000
27	157.3500/161.9500
28	157.4000/162.0000
63	156.1750
64	156.2250/160.8250
65	156.2750
66	156.3250
67	156.3750
68	156.4250
69	156.4750
70	156.5250
71	156.5750
72	156.6250
73	156.6750
74	156.7250
77	156.8750
78	156.9250
79	156.9750
80	157.0250
81	157.0750
82	157.1250
83	157.1750

Channel	Frequency (MHz)
84	157.2250/161.8250
85	157.2750/161.8750
86	157.3250/161.9250
87	157.3750/161.9750
88	157.4250

### Fire/Police

Group	Frequency Range (MHz)	Step (kHz)
1	33.420 – 33.980	20
	37.020 – 37.420	20
	39.020 – 39.980	20
	42.020 – 42.940	20
	44.620 – 45.860	40
	45.880	–
	45.900	–
	45.940 – 46.060	40
	46.080 – 46.500	20
2	153.770 – 154.130	60
	154.145 – 154.445	15
	154.650 – 154.950	15
	155.010 – 155.370	60
	155.415 – 155.700	15
	155.730 – 156.210	60
	158.730 – 159.210	60
	166.250	–
	170.150	–
3	453.0375 – 453.9625	12.5
	458.0375 – 458.9625	12.5
	460.0125 – 460.6375	12.5
	465.0125 – 465.6375	12.5

## Air

Frequency Range (MHz)	Step (kHz)
108.000-136.9875	12.5

## Ham Radio

Group	Frequency Range (MHz)	Step (kHz)
1	29.000 – 29.700	5
2	50.000 – 54.000	5
3	144.000 – 148.000	5
4	420.000 – 450.000	12.5

## Weather

Channel	Frequency (MHz)
1	162.400
2	162.425
3	162.450
4	162.475
5	162.500
6	162.525
7	162.550

☑ **NOTE** ☑

### **Turning On the Scanner/Setting Volume and Squelch**

- To listen to a weak or distant station, turn **SQUELCH** counterclockwise. If reception is poor, turn **SQUELCH** clockwise to cut out weak transmissions.
- If **SQUELCH** is adjusted so you always hear a hissing sound, the scanner will not scan or search properly.

### **Storing Known Frequencies Into Channels**

- If you made a mistake in Step 2, **Error** appears and the scanner beeps three times when you press **ENT**. Simply start again from Step 2.

## **OPERATION**

### **Turning On the Scanner/Setting Volume and Squelch**

1. Turn **SQUELCH** until the indicator points to **MIN** before you turn on the scanner.
2. To turn on the scanner, turn **VOLUME** clockwise until you hear a hissing sound.
3. Turn **SQUELCH** clockwise, just until the hissing sound stops. ☑
4. To turn off the scanner when you finish, turn **VOLUME** counterclockwise to **OFF**.

### **Storing Known Frequencies Into Channels**

Good references for active frequencies are the *RadioShack Police Call Guide including Fire and Emergency Services*, *Official Aeronautical Frequency Directory*, and *Maritime Frequency Directory*. We update these directories every year, so be sure to get a current copy.

1. Press **PGM**. **PGM** appears. Then enter the channel number (1-200) where you want to store a frequency, then press **PGM** again.
2. Use the number keys and **DELAY/•** to enter the frequency (including the decimal point) you want to store.
3. Press **ENT** to store the frequency into the channel. ☑



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

Press **DELAY/•** if you want the scanner to pause 2 seconds on this channel before it proceeds to the next channel after a transmission ends (see “Delay” on Page 33). The scanner also stores this setting in the channel.

To program the next channel in sequence, press **PGM** and repeat Steps 2 and 3.

## SEARCHING THE ONE TOUCH BANKS

Your scanner contains groups of preset frequencies called One Touch Banks. Each one touch bank is associated with a specific activity (see “One Touch Banks” on Page 20). You can search for marine, fire/police, air, ham, and weather transmissions even if you do not know the specific frequencies that are used in your area. ✓

The fire/police and ham one touch banks have separate groups of frequencies called *sub-banks*. This lets you search for and select only those frequencies that fall within a specific range within the fire/police and ham one-touch banks. ✓

To listen to the marine bank, see “Listening to the Marine Bank” on



### Storing Known Frequencies Into Channels

- If you entered a frequency that is already stored in another channel, the scanner beeps three times while displaying the lowest channel number where the frequency is already stored, then **-dUPL-** then the frequency you entered flash on the display. To store the frequency anyway, press **ENT** again. Press **TUNE/CLEAR** to clear the frequency.

### Searching the One Touch Banks

- You can use the scanner's delay feature while searching the banks (see “Delay” on Page 33).
- The fire/police one-touch bank contains low VHF, high VHF, and UHF sub-banks. The ham one-touch bank contains 10m, 6m, 2m, and 70cm sub-banks.

📄 **NOTE** 📄

- To reverse the search direction at any time, hold down ▲ or ▼ for about 1 second.
- To search up or down the band in small increments, repeatedly press ▲ or ▼. (See “One Touch Banks” on Page 20 for frequency steps).
- To pause the search while receiving a signal, press ▲ or ▼. To resume searching, hold down ▲ or ▼.
- To quickly move up or down through the frequencies, hold down ▲ or ▼. The scanner tunes through the frequencies until you release ▲ or ▼.
- If necessary, you can select search groups using the number keys.


Page 30. To listen to the weather bank, see “Listening to the Weather Band” on Page 31.

1. Press **FD/PD**, **AIR**, or **HAM**. **FrE**, **PolICE**, **Air**, or **HRM** appears. After about 2 seconds, the scanner starts searching. When the scanner finds an active frequency, it stops searching and displays the frequency's number. 📄
2. To search for another active frequency in the selected band, hold down ▲ or ▼ for about 1 second. To search for an active frequency within a sub-band of the fire/police or ham band, press a number key to select the sub-band you want. To select a different band and search for another active frequency, repeat Step 1.

Once you find interesting frequencies during the search, you can store them into the scanner's channel-storage banks. Frequencies found in the one touch banks are automatically assigned to specific channel-storage banks as shown below. You can quickly scan the channel-storage banks corresponding to the one touch banks by pressing a one touch bank key and **SCAN/MAN** successively.


Search Banks	Channel Storage Banks
Fire/Police	4, 5
Aircraft	6
Ham	7, 8

1. To store the displayed frequency in the lowest available channel in the assigned channel-storage banks, press **ENT** when you find a frequency. The channel number flashes.
2. Press **ENT** again to store the frequency. The channel and frequency flash twice. If you want to cancel the operation, press **TUNE/CLEAR** instead of **ENT**.

To scan the channel-storage banks, press the one touch bank key, then **SCAN/MAN** while **Fire/ POLICE, AIR**, or **HAM** appears. 

If there is no empty channel at an available bank, **b X -FULL** (where **X** is the bank number) appears after you press **ENT**. To store more frequencies, you must clear some channels. See "Clearing a Stored Channel" on Page 30. To continue searching after **b X -FULL** appears, press **TUNE/CLEAR**.

## Using Tune

You can set the scanner to search through all receivable frequencies from a specified frequency. You can use the scanner's delay feature while using tune. 

1. Repeatedly press **SCAN/MAN** until **MAN** appears.
2. Enter the desired channel number you want to use as a starting point for the tune. Then press **SCAN/MAN** again.



### Searching the One Touch Banks


If you entered a frequency that is already stored in another channel, **-DUPL-** (duplicate) and the lowest-numbered channel containing the duplicate frequency flash for about 3 seconds. If you want to store the frequency anyway, press **ENT** again. You can then delete the frequency later. See "Clearing a Stored Channel" on Page 30.

### Using Tune


- To reverse the tuning direction at any time, hold down **▲** or **▼** for about 1 second.
- To tune up or down the selected band in small increments (5 or 12.5 kHz steps), repeatedly press **▲** or **▼**.
- To pause tuning, press **▲** or **▼**. To resume tuning, hold down **▲** or **▼**.
- To quickly move up or down through the frequencies, hold down **▲** or **▼**. The scanner tunes through the frequencies until you release **▲** or **▼**.

 **NOTE** 

- If there is no empty channel, **b 9 10 -FULL** appears after you press **ENT**. To store more frequencies, you must clear some channels. See "Clearing a Stored Channel" on Page 30. To continue tuning after **b 9 10 -FULL** appears, press **TUNE/CLEAR**.
- If you entered a frequency that is already stored in another channel, **-DUPL-** (duplicate) and the lowest-numbered channel containing the duplicate frequency flash for about 3 seconds. If you want to store the frequency anyway, press **ENT** again. You can then delete the frequency later. See "Clearing a Stored Channel" on Page 30.

3. Press **TUNE/CLEAR** to start tune. **-t-** appears.
4. Hold down **▲** or **▼** for about 1 second to tune up or down. **▲** or **▼** appear and the scanner searches the frequencies. When the scanner finds an active frequency, it stops searching and displays the frequency's number. 
5. To search for another active frequency, hold down **▲** or **▼** for about 1 second.

Once you find interesting frequencies during the search, you can store them in the scanner's channel-storage banks. Frequencies found during tune search are automatically assigned to channel-storage banks 9 and 10.

1. To store the displayed frequency in the lowest available channel in the assigned banks, press **ENT**. The channel number flashes.
2. Press **ENT** again to store the frequency. The channel and frequency flash twice. If you want to cancel the operation, press **TUNE/CLEAR** instead of **ENT**. After storing the frequency, the scanner continues to search for frequencies. 

## Scanning the Stored Channels

To set the scanner to continuously scan through all channels with stored frequencies, repeatedly press **SCAN** until **SCAN** and **▲** appear. The scanner rapidly scans until it finds an active frequency.

If the scanner finds an active frequency, it stops and displays that channel and frequency number, then it automatically begins scanning again when the transmission on that frequency ends. ✓

## Turning Channel-Storage Banks Off and On

Channel-storage banks (1-10) are on when they have a bar underneath them and off when no bar appears underneath them. To turn off a channel-storage bank, press the bank's number key during scanning. The bar under the bank's number disappears.

To turn on a channel-storage bank (1-10) during scanning, press the bank's number key. A bar appears under the bank's number. ✓

You cannot turn off all banks. There must be at least one active bank.

You can manually select any channel in a bank, even if the bank is turned off.

When you turn on a bank during scanning, the scanner moves to the selected bank and scan it.

If no transmission is found, the scanner continues scanning to scan through all selected banks.

## Monitoring a Stored Channel

You can continuously monitor a specific channel without scanning. This is useful if you hear an emergency transmission on a



### Scanning the Stored Channels

- To reverse the scanning direction, press ▲ or ▼.
- To set the scanner to remain on the current channel for 2 seconds after the transmission ends, see "Delay" on Page 33.
- To set the scanner to remain on the current channel, even after the transmission stops, press **SCAN/MAN** at any time during the transmission. **MAN** appears and **SCAN** disappears (see "Monitoring a Stored Channel" on Page 29).
- To lock out channels so the scanner does not stop for a transmission on those channels, see "Locking Out Channels or Frequencies" on Page 34.

### Turning Channel-Storage Banks Off and On

The scanner does not scan any of the channels within the banks you have turned off.

channel and do not want to miss any details – even though there might be periods of silence – or if you simply want to monitor that channel.

Follow these steps to manually select a channel.

1. Repeatedly press **SCAN/MAN** until **MAN** appears.
2. Enter the channel number (1-200).
3. Press **SCAN/MAN** again.

### **Clearing a Stored Channel**

If you no longer want a frequency stored in a channel (and you do not want to replace that frequency with a different one), follow these steps to clear the stored frequency.

1. Press **SCAN/MAN** to stop scanning.
2. Use the number keys to enter the channel number (1-200) you want to clear.
3. Press **PGM**. **PGM** appears.
4. Press **0** then **ENT**. The frequency number changes to **000.0000** to indicate the channel is cleared.

### **Listening to the Marine Bank**

To listen to the marine bank, press **MAR**. **MAR** appears for about 2 seconds, then the scanner starts searching from marine channel 16.

To stop searching the channels, hold down ▲ or ▼ for about 2 seconds. **SRCH** disappears and **MAN** appears.

To change the channel manually, press ▲ or ▼.

To search through the marine bank again, hold down ▲ or ▼ for about 2 seconds. **MAN** disappears and **SRCH** appears. To change the searching direction, press ▲ or ▼.

You can select a marine channel directly. When the scanner stops searching the marine bank, use the number keys to enter the two-digit channel number.

## Listening to the Weather Band

To hear your local forecast and regional weather information, press **WX**. Your scanner begins to scan through the weather band.

Your scanner should stop within a few seconds on your local weather broadcast. If the broadcast is weak, you can press **WX** again to resume scanning.

Channel	Frequency (MHz)
1	162.400
2	162.425
3	162.450
4	162.475
5	162.500
6	162.525
7	162.550




 **NOTE** 

- WX alert is only for receiving a weather alert.
- When the scanner detects a 1050 Hz alert tone, WX alert activates and you hear a weather alert.

## WX ALERT

Your scanner's WX alert warns you of serious weather conditions by sounding an alarm if a National Weather Service broadcaster in your area broadcasts a weather alert tone.

To set the scanner so it sounds an alarm when a weather alert tone is broadcast, press **PRI/ALERT** while you are listening to the WX channel. **ALERT** appears.

If the scanner detects the weather alert, it sounds an alarm. The scanner sounds the alert for five minutes when it receives the weather alert signal. After five minutes the alert stops and the scanner beeps every ten seconds. Press any key except  /  to turn off the alarm. To cancel the weather alert operation, press **PRI/ALERT** again. 



# SPECIAL FEATURES

## Delay

Many agencies use a two-way radio system that has a period of several seconds between a query and a reply. To avoid missing a reply, you can program a 2-second delay into any channel or frequency. When your scanner stops on a channel or frequency with a programmed delay, **DLY** appears and the scanner continues to monitor that channel or frequency for 2 seconds after the transmission stops before resuming scanning, searching, or tuning.

You can program a 2-second delay in any of these ways:

- If the scanner is scanning and stops on an active channel, quickly press **DELAY/•** before it resumes scanning.
- If the desired channel is not selected, manually select the channel, then press **DELAY/•**.
- If the scanner is searching or tuning, press **DELAY/•**. **DLY** appears and the scanner automatically adds a 2-second delay to every transmission it stops on in that band.

To turn off the 2-second delay in a channel or for all frequencies, press **DELAY/•** while the scanner is monitoring that channel or frequency. **DLY** disappears.

## Locking Out Channels or Frequencies

You can increase the effective scanning or search speed by locking out individual channels or frequencies that have a continuous transmission, such as a weather channel (see “National Weather Frequencies” on Page 41) or a birdie frequency (see “Birdie Frequencies” on Page 41).

To lock out a channel while scanning or a frequency during one-touch search or while tuning, press **L/O/L/O RVW** when the scanner stops on the channel or frequency. If you locked out a frequency, the scanner locks it out then continues searching.

To manually lock out a channel, select the channel then hold down **L/O/L/O RVW** until **L/O** appears.

To remove the lockout from a channel, manually select that channel again, then press **L/O/L/O RVW** until **L/O** disappears. See “Removing Lockouts From All Frequencies in a One Touch Search Bank” on Page 35 and “Removing Lockouts From All Frequencies” on Page 35 for more information about removing lockout from frequencies.

## REVIEWING LOCKED-OUT FREQUENCIES

To review the frequencies you locked out, hold down **L/O/L/O RVW** for about 2 seconds during a search, then repeatedly press ▲ or ▼. The scanner beeps if there are no locked-out frequencies, or

### NOTE

- Your scanner automatically locks out empty channels.
- You can still manually select locked-out channels.
- You can lock out as many as 50 frequencies during a search. If you try to lock out more, **FLo -FULL** appears (see “Reviewing Locked-Out Frequencies” and “Removing Lockouts From All Frequencies” on Page 35).

**L-r** appears and the scanner displays all locked out frequencies as you press ▲ or ▼. When you reach the highest locked-out frequency, the scanner beeps twice and returns to the lowest locked-out frequency.

## REMOVING LOCKOUTS FROM ALL FREQUENCIES IN A ONE TOUCH SEARCH BANK

1. Hold down **L/O/L/O RVW** for about 2 seconds during a search or while tuning. **L-r** appears. ✓
2. While holding down **TUNE/CLEAR**, press the one-touch search key where you locked out frequencies. **DEFAULT** appears.
3. Press **ENT**. The scanner clears any lockouts from all frequencies in a one touch bank. Or, if you do not want to clear the lockouts, press **TUNE/CLEAR**.

## REMOVING LOCKOUTS FROM ALL FREQUENCIES

1. Hold down **L/O L/O RVW** for about 2 seconds during a search or tune. **L-r** appears.
2. While holding down **TUNE/CLEAR**, press **L/O L/O RVW**. **FLo ALL-CL** appears.
3. Press **ENT**. The scanner clears any lockouts from all frequencies (except in the marine bank). Or, if you do not want to clear the lockouts, press **TUNE/CLEAR**.


### NOTE

- These steps do not clear any lockouts in the marine and weather bank.
- If you locked out frequencies which are within the range of any of the one touch search banks during tune, the scanner also removes those locked-out frequencies when you use these steps. For example, if you locked out 29.000 MHz while tuning, the scanner removes it since 29.000 MHz is one of the frequencies in the ham radio service bank.

**NOTE**

If you program a weather frequency into the priority channel and the scanner detects a WX alert tone on that frequency (see "WX Alert" on Page 32), the scanner sounds the alert tone and **ALERT** flashes. Press any key to turn off the alarm.

## Using Priority





The priority feature lets you scan through channels and still not miss important or interesting calls on a frequency you select. You can program one frequency into the priority channel. As the scanner scans, if the priority feature is turned on, the scanner checks the priority channel for activity every 2 seconds. 



1. Press **PGM**, then press **PRI/ALERT**. **PCH** and **000.0000** or the previously-stored frequency appear.
2. Enter the frequency you want to enter into the priority channel, then press **ENT**. The display flashes twice.

To turn on the priority feature, press **PRI/ALERT** during scanning or searching. **PRI** appears. The scanner checks the priority channel every 2 seconds and stays on the channel if there is activity. **PCH** and the frequency appear whenever the scanner is set to the priority channel.





To turn off the priority feature, press **PRI/ALERT**. **PRI** disappears.

## Using the Display Backlight



You can turn on the display's backlight for easy viewing in the dark. Press  /  to turn on the light for 5 seconds. To turn off the light sooner, press  /  again.

Press both **PGM** and  /  to turn on the display's backlight for

an extended period of time. To turn it off, press both **PGM** and


/ , or press / .





## Turning the Key Tone On and Off

The scanner is preset to sound a tone each time you press one of its keys (except / ). You can turn the key tone off or back on.

1. If the scanner is on, turn it off by turning **VOLUME** counter-clockwise until it clicks.
2. While you hold down **2** and **ENT**, turn on the scanner.
3. When **off tonE** or **on tonE** appear, release **2** and **ENT**.

## Using the Key Lock

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**, and **SQUELCH**. 

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

### **NOTE**

The keylock does not prevent the scanner from scanning channels or monitoring a single channel, whichever feature you last selected.

## Avoiding Image Frequencies

You might hear one of your regular stations on another frequency that is not listed. For example, you might find a service that regularly uses a frequency of 453.275 also on 474.675 MHz. Do the following to determine if you are listening to an image frequency:

Note the new frequency    474.675

Double the intermediate frequency  
of 10.7 MHz                            (21.400)

and subtract it from the new  
frequency                                -21.400

If the answer is the regular  
frequency                                453.275

then you have tuned to an image.

Occasionally, you might get interference on a weak or distant channel from a strong transmission 21.4 MHz above or below the tuned frequency. This is rare, and the image signal is usually cleared whenever there is a transmission on the actual frequency.

## Resetting/Initializing 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 or initialize the scanner. !

### RESETTING THE SCANNER

1. Turn off the scanner, then turn it on again.

### ! IMPORTANT !

If you have problems, first try to reset the scanner (see "Resetting the Scanner" on Page 38). If that does not work, you can initialize the scanner (see "Initializing the Scanner !" on Page 39); however, this clears all information stored in your scanner's memory.

2. Insert a pointed object, such as a straightened paper clip, into the reset opening on the side of the scanner. Then gently press the reset button inside the opening. 


## INITIALIZING THE SCANNER

!

1. Turn off the scanner, then turn it on again.
2. Hold down **TUNE/CLEAR**.
3. While holding down **TUNE/CLEAR**, insert a pointed object (such as a straightened paper clip) into the reset opening on the side of the scanner, then gently press the reset button inside the opening. The display should turn off.
4. When the display turns on again, release **TUNE/CLEAR**.



## Wired Programming

You can transfer programming data to your scanner using your home computer and an optional scanner PC programming kit (Cat. No. 20-048, available at your local RadioShack store). The programming kit includes a CD-ROM with the software you need and a connecting cable. 

1. Make sure your scanner is turned off.
2. Follow the steps provided with the programming kit to connect the cable to your computer and load the software into your computer,

### ! IMPORTANT !

This procedure clears all information you stored in the scanner's memory. Initialize the scanner only when you are sure the scanner is not working properly.

### NOTE

#### **Resetting the Scanner**

If the scanner still does not work properly, you might need to initialize the scanner (see "Initializing the Scanner").

#### **Initializing the Scanner**


You must release the reset button before releasing **TUNE/CLEAR**; otherwise the memory might not clear.

#### **Wired Programming**

- If the scanner receives no data from the PC for more than 20 seconds or if you press any key, wired programming stops.
- Wired programming stops if the scanner receives an empty channel number.

✍ **NOTE** ✍

If the scanner did not receive a start or end bit respectively from the PC, **StArt** and **End** do not appear.

then connect the other end of the cable to  on top of the scanner.

3. Using the software supplied with the programming kit, configure the software to work with your scanner by clicking on **Tools**, selecting **Configuration**, then selecting **PRO-89**.
4. While pressing **ENT** and **9**, turn on the scanner. **PGM** and **WirEd** appear. Then send the data from the PC. **StArt** and the data being received by the scanner appears in the order it is received. ✍
5. When the scanner successfully receives all data, **End** and **FiniSh** appear. If the scanner received an error while receiving data, **End** and **d-Err** appear. If the scanner received a checksum error while receiving data, **C-Err** and a number shown next to **C-Err** indicates the packet number where the error occurred. ✍



# A GENERAL GUIDE TO SCANNING

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

## Guide to Frequencies

### NATIONAL WEATHER FREQUENCIES

162.400	162.425	162.450
162.475	162.500	162.525
	162.550	

### BIRDIE FREQUENCIES

Every scanner has birdie frequencies. Birdies are signals created inside the scanner's receiver. These operating frequencies might interfere with transmissions on the same frequencies. If you program one of these frequencies, you hear only noise on that frequency. If the interference is not severe, you might be able to turn **SQUELCH** clockwise to cut out the birdie. This scanner's birdie frequencies (in MHz) are:

30.735	32.020	38.400
40.025	40.980	48.025
51.200	112.0625	120.025
128.025	136.025	139.995
140.800	144.030	152.090
160.100	165.430	168.035
173.485	392.250	400.0875
424.250	432.0125	440.250
445.6375	448.0875	453.650
456.0875	461.650	464.100

472.0125	480.100	485.400
488.0125	493.3875	496.0125
501.400	504.100	

To find the birdies in your individual scanner, 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 near the scanner. Use the search function and search every frequency range from its lowest frequency to the highest. Occasionally, the searching will stop as if it had found a signal, often without any sound. That is a birdie. Make a list of all the birdies in your scanner for future reference.

# Guide to the Action Bands

## TYPICAL BAND USAGE (MHz)

VHF Band	
Low Range	29.00 – 50.00
6-Meter Amateur	50.00 – 54.00
Aircraft	108.00 – 136.00
U.S. Government	137.00 – 144.00
2-Meter Amateur	144.00 – 148.00
High Range	148.00 – 174.00

UHF Band	
Military Aircraft	380.00 – 384.00
U.S. Government	406.00 – 420.00
70-Centimeter Amateur	420.00 – 450.00
Low Range	450.00 – 470.00
FM-TV Audio Broadcast, Wide Band	470.00 – 512.00

### PRIMARY USAGE

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

VHF Band	
Activities	Frequencies (MHz)
2-Meter Amateur Band	144.000 – 148.000
Government, Police, and Fire	153.785 – 155.980
Emergency Services	158.730 – 159.460
Railroad	160.000 – 161.900

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

UHF Band	
Activities	Frequencies (MHz)
70-Centimeter Amateur Band	420.000 – 450.000
FM Repeaters Land-Mobile “Paired” Frequencies	450.000 – 470.000
Base Stations	451.025 – 454.950
Mobile Units	456.025 – 459.950
Repeater Units	460.025 – 464.975
Control Stations	465.025–469.975

### 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 the *Police Call Radio Guide including Fire and Emergency Services*, available at your local RadioShack store.

Abbreviation	Service
AIR	Aircraft
BIFC	Boise (ID) Interagency Fire Cache
BUS	Business
CAP	Civil Air Patrol
CCA	Common Carrier
CSB	Conventional Systems

<b>Abbreviation</b>	<b>Service</b>
CTSB	Conventional/ Trunked Systems
FIRE	Fire Department
HAM	Amateur (Ham) Radio
GOVT	Federal Government
GMR	General Mobile Radio
GTR	General Trunked
IND	Industrial Services (Manufacturing, Construction, Farming, Forest Products)
MAR	Military Amateur Radio
MARI	Maritime Limited Coast (Coast Guard, Marine Telephone, Shipboard Radio, Private Stations)
MARS	Military Affiliate Radio System
MED	Emergency/Medical Services
MIL	U.S. Military
MOV	Motion Picture/Video Industry
NEW	New Mobile Narrow
NEWS	Relay Press (Newspaper Reporters)
OIL	Oil/Petroleum Industry
POL	Police Department
PUB	Public Services (Public Safety, Local Government, Forestry Conservation)
PSB	Public Safety

Abbreviation	Service
PTR	Private Trunked
ROAD	Road & Highway Maintenance
RTV	Radio/TV Remote Broadcast Pickup
TAXI	Taxi Services
TELM	Telephone Maintenance
TOW	Tow Trucks
TRAN	Transportation Services (Trucks, Tow Trucks, Buses, Railroad, Other)
TSB	Trunked Systems
TVn	FM-TV Audio Broadcast
USXX	Government Classified
UTIL	Power & Water Utilities
WTHR	Weather

**HIGH FREQUENCY (HF) — (3 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)**

VHF Low Band  
(29.7-50 MHz-in 5 kHz steps)

29.700-29.790.....IND  
 29.900-30.550..... GOVT, MIL  
 30.580-31.980..... IND, PUB  
 32.000-32.990..... GOVT, MIL  
 33.020-33.980..... BUS, IND, PUB  
 34.010-34.990..... GOVT, MIL  
 35.020-35.980..... BUS, PUB, IND,

	TELM
36.000-36.230.....	GOVT, MIL
36.230-36.990.....	Oil Spill Cleanup, GOVT, MIL
37.020-37.980.....	PUB, IND
38.000-39.000.....	GOVT, MIL
39.020-39.980.....	PUB
40.000-42.000.....	GOVT, MIL, MARI
42.020-42.940.....	POL
42.960-43.180.....	IND
43.220-43.680.....	TELM, IND, PUB
43.700-44.600.....	TRAN
44.620-46.580.....	POL, PUB
46.600-46.990.....	GOVT
47.020-47.400.....	PUB
47.420.....	American Red Cross
47.440-49.580.....	IND, PUB
49.610-49.990.....	MIL

### 6-Meter Amateur Band (50-54 MHz)

50.00-54.00.....	HAM
------------------	-----

### Aircraft Band (108-136 MHz)

108.000-121.490.....	AIR
121.500.....	AIR Emergency
121.510-136.000.....	AIR

### U.S. Government Band (137-144 MHz)

137.000-144.000.....	GOVT, MIL
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### 2-Meter Amateur Band (144-148 MHz)

144.000-148.000.....	HAM
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### VHF High Band (148-174 MHz)

148.050-150.345.....	CAP, MAR, MIL
150.775-150.790.....	MED
150.815-150.980.....	TOW, Oil Spill Cleanup
150.995-151.475.....	ROAD, POL
151.490-151.955.....	IND, BUS
151.985.....	TELM
152.0075.....	MED
152.270-152.480.....	IND, TAXI, BUS

152.870-153.020.....	IND, MOV
153.035-153.725.....	IND, OIL, UTIL
153.740-154.445.....	PUB, FIRE
154.490-154.570.....	IND, BUS
154.585.....	Oil Spill Cleanup
154.600-154.625.....	BUS
154.655-156.240.....	MED, ROAD, POL, PUB
156.255-157.425.....	OIL, MARI
157.450.....	MED
157.470-157.515.....	TOW
157.530-157.725.....	IND, TAXI
157.740.....	BUS
158.130-158.460.....	BUS, IND, OIL, TELM, UTIL
158.730-159.465.....	POL, PUB, ROAD
159.480.....	OIL
159.495-161.565.....	TRAN
161.580-162.000.....	OIL, MARI, RTV
162.0125-162.35....	GOVT, MIL, USXX
162.400-162.550.....	WTHR
162.5625-162.6375.....	GOVT, MIL, USXX
162.6625.....	MED
162.6875-163.225.....	GOVT, MIL, USXX
163.250.....	MED
163.275-166.225.....	GOVT, MIL, USXX
166.250.....	GOVT, RTV, FIRE
166.275-169.400.....	GOVT, BIFC
169.445-169.505.....	Wireless Mikes, GOVT
169.55-169.9875...	GOVT, MIL, USXX
170.000-170.150...	BIFC, GOVT, RTV, FIRE
170.175-170.225.....	GOVT
170.245-170.305.....	Wireless Mikes
170.350-170.400.....	GOVT, MIL
170.425-170.450.....	BIFC
170.475.....	PUB
170.4875-173.175.....	GOVT, PUB, Wireless Mikes
173.225-173.5375.....	MOV, NEWS, UTIL, MIL
173.5625-173.5875.....	MIL Medical/Crash Crews
173.60-173.9875.....	GOVT



## ULTRA HIGH FREQUENCY (UHF) — (300 MHz-3 GHz)

U. S. Government Band  
(406-420 MHz)

406.125-419.975..... GOVT, USXX

70-Centimeter Amateur Band  
(420-450 MHz)

420.000-450.000..... HAM

Low Band (450-470 MHz)

450.050-450.925..... RTV

451.025-452.025..... IND, OIL, TELM,  
UTIL

452.0375-453.00..... IND, TAXI,  
TRAN TOW, NEWS

453.0125-454.000..... PUB, OIL

455.050-455.925..... RTV

457.525-457.600..... BUS

458.025-458.175..... MED

460.0125-460.6375.. FIRE, POL, PUB

460.650-462.175..... BUS

462.1875-462.450..... BUS, IND

462.4625-462.525.... IND, OIL, TELM,  
UTIL

462.550-462.925..... GMR, BUS

462.9375-463.1875..... MED

463.200-467.925..... BUS

FM-TV Audio Broadcast, UHF  
Wide Band (470-512 MHz) ☑

(Channels 14 through 20 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  
service.

## 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.

$$1 \text{ MHz (million)} = \\ 1,000 \text{ kHz (thousand)}$$

To convert MHz to kHz, multiply the number of megahertz by 1,000:

$$30.62 \text{ (MHz)} \times 1000 = \\ 30,620 \text{ kHz}$$

To convert from kHz to MHz, divide the number of kilohertz by 1,000:

$$127,800 \text{ (kHz)} / 1000 = \\ 127.8 \text{ MHz}$$

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

$$300 / 50 \text{ MHz} = \\ 6 \text{ meters}$$

# TROUBLESHOOTING

Problem	Possible Cause	Remedy
Scanner is totally inoperative.	The AC or DC adapter is not connected.	Be sure the adapter's barrel plug is fully inserted into the <b>PWR</b> jack.
	The batteries are dead.	Replace non-rechargeable batteries with fresh ones, or recharge the rechargeable batteries.
Poor or no reception.	<p>An antenna is not connected or is connected incorrectly.</p> <p>Programmed frequencies are the same as "birdie" frequencies.</p>	<p>Be sure an antenna is properly connected to the scanner.</p> <p>Avoid programming frequencies listed under "Birdie Frequencies" on Page 41 or only listen to them manually.</p>
The keypad does not work.	<p>Keylock is turned on.</p> <p>The scanner might need to be reset or initialized.</p>	<p>Turn off keylock.</p> <p>Turn the scanner off then on again, or reset/initialize the scanner (see "Resetting/Initializing the Scanner" on Page 38).</p>
The scanner is on but will not scan.	<p><b>SQUELCH</b> is not correctly adjusted.</p> <p>Only one channel or no channels are stored.</p>	<p>Turn <b>SQUELCH</b> clockwise.</p> <p>Store frequencies into more than one channel.</p>
During scanning, the scanner locks on frequencies that have an unclear transmission.	Programmed frequencies are the same as "birdie" frequencies.	Avoid programming frequencies listed under "Birdie Frequencies" on Page 41, or only listen to them manually.

## CARE

Keep the scanner dry; if it gets wet, wipe it dry immediately. Use and store the scanner only in normal temperature environments. Handle the scanner carefully; do not drop it. Keep the scanner away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

## SERVICE AND REPAIR

If your scanner is not performing as it should, take it to your local RadioShack store for assistance. 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.

# SPECIFICATIONS

## Frequency Coverage (MHz):

10 Meter Amateur Radio.....	29-30
	(in 5 kHz steps)
VHF Lo.....	30-50
	(in 5 kHz steps)
6 Meter Amateur Radio .....	50-54
	(in 5 kHz steps)
Aircraft .....	108–136.9875
	(in 12.5 kHz steps)
Government.....	137–144
	(in 5 kHz steps)
2 Meter Amateur Radio.....	144-148
	(in 5 kHz steps)
VHF Hi .....	148-174
	(in 5 kHz steps)
Amateur Radio/Government ..	380-450
	(in 12.5 kHz steps)
UHF Standard.....	450-470
	(in 12.5 kHz steps)
UHF "T" .....	470-512
	(in 12.5 kHz steps)
Channels of Operation...	200 channels

## Sensitivity (20 dB S/N):

29-54 MHz .....	0.5 $\mu$ V
108-136.9875 MHz .....	1.0 $\mu$ V
137-174 MHz .....	0.5 $\mu$ V
380-512 MHz .....	0.7 $\mu$ V
Spurious Rejection (FM @154 MHz)	
.....	50 dB

## Selectivity:

$\pm$ 10 kHz.....	-6 dB
$\pm$ 18 kHz.....	-50 dB
Search Speed .....	Up to 50 Steps/Sec
Scan Speed ....	Up to 25 Channels/Sec
Delay Time.....	2 Seconds

**IF Frequencies:**

1st IF ..... 10.7 MHz  
2nd IF ..... 455 kHz  
IF Interference Ratio (10.7 MHz)  
..... 70 dB at 154 MHz

**Squelch Sensitivity:**

Threshold ..... Less than 0.5  $\mu$ V  
Tight (FM) ..... (S + N)/N 25 dB  
Tight (AM) ..... (S + N)/N 20 dB  
Antenna Impedance ..... 50 Ohms  
Audio Output Power (10% THD)  
..... 180 mW Nominal  
Built-In Speaker .. 1<sup>3</sup>/<sub>8</sub> Inches (36 mm),  
8 Ohms  
Operating Temperature . 14<sup>o</sup> to 140<sup>o</sup> F  
(-10<sup>o</sup> to 60<sup>o</sup> C)  
Power Requirements ..... 6 Volts DC,  
4 AA Batteries  
AC Adapter (Optional)  
DC Adapter (Optional)  
Current Drain (Squelched) ..... 45 mA  
Dimensions (HWD)  
..... 5<sup>11</sup>/<sub>16</sub> x 2<sup>3</sup>/<sub>8</sub> x 1<sup>9</sup>/<sub>16</sub> Inches  
(145 x 63 x 40 mm)  
Weight (without antenna):  
Approx. 7.8 oz (220 g)  
Supplied Accessories..... Antenna,  
Battery Holder,  
Rechargeable Battery Holder  
Optional Accessories PC Cable,  
Ni-MH Batteries

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

# PARTS AND ACCESSORIES

Parts and accessories are available at your local RadioShack store. Accessories are also available online at [www.radioshack.com](http://www.radioshack.com). Parts and accessories are available but not limited to the following. Visit your local RadioShack store or obtain a RadioShack catalog for a more complete listing of available accessories.

## **RG-8/RG-58 50-Ohm Coaxial Cable**

Use to connect your scanner to an external antenna.

## **External Antenna**

Connect to your scanner's external antenna jack for clear, crisp reception.

## **AC/DC Adapter**

Use with a size C Adaptaplug™ adapter to power the scanner and recharge its rechargeable batteries.

## **Scanner PC Programming Kit**

Use with your home computer to program your scanner.

## Limited One-Year Warranty

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for one (1) year from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

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

RadioShack Customer Relations, 200 Taylor Street, 6th Floor,  
Fort Worth, TX 76102

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