

Owner's Manual Cat. No. 20-315

PRO-82

200-Channel VHF/Air/UHF

Handheld Scanner

Please read before using this equipment.

FEATURES

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 single button, 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:

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.

Display Backlight — makes the scanner easy to read in low-light situations.

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

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.

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.

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

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.

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

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

Special Function — lets you easy scan the fire/police, air, or ham channel banks.

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.

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.

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.

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 help prevent accidentally changing the scanner's programming.

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

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.

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).

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

Note: See "Specifications" on Page 50 for more information about the scanner's frequency steps.

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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.

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

SCANNING LEGALLY

Scanning is a fun and interesting hobby. You can hear police and fire departments, ambulance services, government agencies, private companies, amateur radio services, aircraft, and military operations. It is legal to listen to almost every transmission your scanner can receive. However, there are some electronic and wire communications that are illegal to intentionally intercept.

These include:

- telephone conversations (cellular, cordless, or other private means of telephone signal transmission)
- pager transmissions
- any scrambled or encrypted transmissions

According to the Federal Electronic Communications Privacy Act (ECPA), and amended, you could be fined and possibly imprisoned for intentionally listening to, using, or disclosing the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal). These laws change from time to time and there might be state or local laws that also affect legal scanner usage.

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PREPARATION

POWER SOURCES

You can power your scanner from any of three sources:

- internal non-rechargeable batteries or rechargeable batteries (not supplied – see “Using Batteries”).
- standard AC power (with an optional AC adapter – see “Using AC Power” on Page 8).
- vehicle power (with an optional DC adapter – see “Using Vehicle Battery Power” on Page 9).

Notes:

- 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.
- If you install the rechargeable battery holder, you can operate the scanner and recharge the rechargeable batteries at the same time. See “Using Batteries” and “Charging Rechargeable Batteries” on Page 8.
- If the scanner stops working properly after connecting it to power, try resetting it. See “Resetting/Initializing the Scanner” on Page 28).

USING BATTERIES

You can power the scanner with four AA batteries (not supplied). For the longest operation

and best performance, we recommend alkaline batteries, available at your local RadioShack store.

You can use either the supplied non-rechargeable battery holder (black), or the supplied rechargeable battery holder (yellow). If you use the rechargeable battery holder, we recommend RadioShack nickel-metal hydride (Ni-MH) batteries.

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.

Note: You must charge rechargeable batteries before you use them the first time. See "Charging Rechargeable Batteries" on Page 8.

Cautions:

- The battery holder fits only one way. Do not force it.
- Use only fresh batteries of the required size and recommended type.
- Always remove old or weak batteries. Batteries can leak chemicals that destroy electronic circuits.
- Do not mix old and new batteries, different types of batteries (alkaline, or rechargeable), or rechargeable batteries of different capacities.

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.
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 battery power is low, **B** appears and the scanner beeps continuously. When battery power is depleted, the scanner turns itself off. Replace all four non-rechargeable batteries, or recharge the rechargeable batteries. See "Charging Rechargeable Batteries" on Page 8.

Warning: Always 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.

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 an AC adapter which supplies 9V (RadioShack Cat. No. 273-1767) or a DC adapter which supplies 10V (Cat. No. 273-1830). Connect a size C Adaptaplug™ to the adapter's cable with the tip set to positive then insert the Adaptaplug into the **PWR DC 9V** jack. For best results we recommend RadioShack rechargeable nickel-metal hydride (Ni-MH) 1500mAh batteries.

Notes:

- 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.
- You cannot use a DC adapter to recharge rechargeable batteries in the scanner due to the limitations of the scanner's charging circuit.
- The scanner can also charge Ni-Cd batteries. 600mAh batteries require 6 hours and 850mAh batteries require 8 hours to charge.
- When you charge Ni-Cd batteries, pay attention not to over charge. Overcharging shortens battery life.
- 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 (RadioShack Cat. No. 273-1767) and a size C Adaptaplug (neither supplied). Both are available at your local RadioShack store.

Cautions:

! 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.

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.

USING VEHICLE BATTERY POWER

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

Cautions:

! You must use a power source that supplies regulated 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 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.

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.

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 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.

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.

Warning: Use extreme caution when you 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.

CONNECTING AN EARPHONE/HEADPHONES

For private listening, you can plug an 1/8 -inch (3.5-mm) mini-plug earphone or headphones (not supplied), available at your local RadioShack store, into the (headphone symbol mark) jack 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.
- 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 you drive a vehicle or ride a bicycle. This can create a traffic hazard and can be illegal in some areas. Even though some earphones and headphones let you hear some outside sounds when you listen at normal 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 1/8 inch (3.5 mm) mini-plug into your scanner's (headphone symbol mark) jack.

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

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.

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 Bands**, 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

Here is a brief overview of your scanner's keys and their functions.

- 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.
- WX** Lets you search the scanner's preprogrammed 7 weather channels.
- SCAN/MAN** Scans any preprogrammed channels or stops scanning and lets you directly enter a channel number.
- PRI/ALERT** Turns on and off the priority feature; turns the WX alert mode on and off.
- Number Keys** Each key has 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 13.
- TUNE/CL** Lets you tune a frequency along with ^ or v or, clears an incorrect entry.
- ^/v** Searches up or down for active frequencies or selects the direction when scanning channels.
- L/O RVW/L/O** Reviews locked-out frequencies; lets you lock out selected channels or frequencies.
- (Key Symbol)/(Light Symbol)** Locks (and unlocks) the keypad to prevent accidental entries; turns the backlight on and off.
- PGM** Programs frequencies into channels.
- DELAY /•** Programs a 2-second delay for the selected channel; enters a decimal point.
- ENT (enter)** Enters frequencies into channels.

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.

- (Key Symbol)** Appears when you lock the keypad.
- 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 13).
- MAR** Indicates that the scanner is searching the marine bank.

- WX** Indicates that the scanner is searching the weather channels.
- FD/PD** Indicates that the scanner is searching the fire/police bank.
- AIR** Indicates that the scanner is searching the aircraft bank.
- HAM** Indicates that the scanner is searching the amateur radio bank.
- ^/v** Indicates the search or scan direction.
- CH** Appears with digits (1–200) or **P** to show which channel the scanner is tuned to.
- 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.
- SRCH** Appears during service bank and direct frequency searches.
- SCAN** Appears when the scanner scans channels.
- MAN** Appears when you manually select a channel.
- 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.
- 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.
- 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 the 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 during a direct frequency search.

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

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, such as those used by the police department, fire department, ambulance services, or aircraft (see "Guide to the Action Bands" on Page 30).

For example, a police department might use four frequencies, one for each side of town. You could program the police frequencies starting with Channel 1 (the first channel in bank 1) and program the fire department frequencies starting with Channel 21 (the first channel in bank 2).

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 18).

Note: The frequencies in the scanner's service banks are preset. You cannot change them.

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

Amateur 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

Marine

Channel	Frequency (MHz)
01	156.0500
02	156.2500
06	156.3000
07	156.3500

08	156.4000
09	156.4500
10	156.5000
11	156.5500
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
84	157.2250/161.8250
85	157.2750/161.8750
86	157.3250/161.9250
87	157.3750/161.9750
88	157.4250

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

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.

Notes:

- 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.

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.

Follow these steps to store frequencies into channels.

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

Notes:

- 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.
 - 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.
 - If you entered a frequency that is already stored in another channel, the scanner beeps three times and displays the lowest channel number where the frequency is already stored, and **–dUPL–** then the frequency flashes. If you want to store the frequency anyway, press **ENT** again. Press **TUNE/CLEAR** to clear the frequency.
 - 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 24). The scanner also stores this setting in the channel.
4. To program the next channel in sequence, press **PGM** and repeat Steps 2 and 3.

FINDING AND STORING ACTIVE FREQUENCIES

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 14). 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. Then you can store the frequencies you found into the scanner's channels (except weather and marine banks).

Notes:

- You can use the scanner's delay feature while searching the banks, see “Delay” on Page 24.
- To listen to the marine bank, see “Listening to the Marine Bank” on Page 22.
- To listen to the weather bank, see “Listening to the Weather Band” on Page 22.

1. Press **FD/PD** or **AIR** or **HAM**. **Fire POLICE** or **Air** or **HAM** appears. After about 2 seconds, the scanner starts search.

Notes:

- To reverse the search direction at any time, hold down **^** or **v** for about 1 second.
- To search up or down the band in small increments, repeatedly press **^** or **v**. (See “One Touch Search Banks” on Page 14 for frequency steps).
- To pause the search while receiving a signal, press **^** or **v**. To resume searching, hold down **^** or **v**.
- To quickly move up or down through the frequencies, hold down **^** or **v**. The scanner tunes through the frequencies until you release **^** or **v**.
- If necessary, you can select search groups using the number keys.

2. When the scanner finds an active frequency, it stops searching and displays the frequency's number. To store the displayed frequency in the lowest available banks channel, press **ENT** (see “Special Function” on Page 24”). The channel and frequency flash twice, and the scanner displays channel number and frequency. Press **ENT** again to store the frequency, or press **TUNE/CLEAR** to cancel the operation.

Notes:

- If there is no empty channel at available bank, **b X -FULL** (X: bank number) appears after you press **ENT**. To store more frequencies, you must clear some channels. See “Clearing a Stored Channel” on Page 22. To continue searching after **b X -FULL** appears, hold down **^** or **v**.
- 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 22.

3. To search for another active frequency in the selected band, hold down **^** or **v** for about 1 second. To select a different band and search for another active frequency, repeat Steps 1–2.

Using Tune

During a tune, the scanner tunes up or down, starting from a frequency you specify. Follow these steps to use tune.

Note: You can use the scanner's delay feature while using tune.

1. 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.
3. Press **TUNE/CLEAR** to start tune. **-t-** appears on the display.
4. Hold down **^** or **v** for about 1 second to tune up or down. The scanner displays **^** or **v** and start tune.

Notes:

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

5. When the scanner finds an active frequency, it stops searching and displays the frequency's number. To store the displayed frequency in the lowest available banks channel, press **ENT**. The channel and frequency flash twice. and the scanner stores the displayed frequency. The scanner continues to search for frequencies. Press **ENT** again to store the frequency, or press **TUNE/CLEAR** to cancel the operation.

Notes:

- If there is no empty channel at available bank, **b X -FULL** appears after you press **ENT**. To store more frequencies, you must clear some channels. See "Clearing a Stored Channel" on Page 22. To continue tune after **b X -FULL** appears, hold down **^** or **v**.
- 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 22.

6. To tune for another active frequency, hold down **^** or **v** for about 1 second.

SCANNING THE STORED CHANNELS

To set the scanner to continuously scan through all channels with stored frequencies, simply pressing **SCAN** until **SCAN** and ^ appear, then the scanner begins to rapidly scan 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.

Notes:

- To reverse the scanning direction, press ^ or v.
- To set the scanner to remain on the current channel for 2 seconds after the transmission ends, see “Delay” on Page 24.
- To set the scanner to remain on the current channel, even after the transmission stops, press **SCAN/MAN** at any time during the transmission so **MAN** appears and **SCAN** disappears (see “Monitoring a Stored Channel”).
- To lock out channels so the scanner does not stop for a transmission on those channels, see “Locking Out Channels or Frequencies” on Page 25.

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.

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

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.

Notes:

- 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 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. Pressing **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. Pressing **SCAN/MAN** to stop scanning.
2. To select the desired channel number, use the number keys to enter that channel number (1–200).
3. Press **PGM**. **PGM** appears.
4. Press **0** then **ENT**. The frequency number changes to **000.0000** to indicate the channel is cleared.
5. To clear another channel, use the number keys to enter that channel number (1–200), then press **PGM** again. Or repeatedly press **PGM** until the desired channel number appears. Then repeat Step 4.

LISTENING TO THE MARINE BANK

To listen to the marine bank, press **MAR**. **MRN** appears about 2 seconds, then you hear the marine channel 16.

To change the channel manually, press **^** or **v**.

To scan through the marine bank, hold down **^** or **v** for about 2 seconds. **MAN** disappears and **SRCH** appears. To change the scanning direction, press **^** or **v**.

To stop scanning the channels, hold down **^** or **v** for about 2 seconds.

You can select a marine channel directly. When the scanner stops scanning 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

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 light symbol/key symbol to turn off the alarm. To cancel the weather alert operation, press **PRI/ALERT** again.

Notes:

- **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.

WIRED PROGRAMMING

1. Turn off the scanner.
2. Connect the scanner to the PC using a PC cable.
3. 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.

Notes:

- If the scanner receives no data from the PC for more than 20 seconds or if you press any key, wired programming stops.
- If the scanner did not receive a start bit from the PC, **StArt** does not appear.

4. 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.

Notes:

- If the scanner did not receive an end bit from the PC, **End** does not appear.
- Wired programming stops if the scanner receives an empty channel number.

SPECIAL FEATURES

SPECIAL FUNCTION

Each search band (FD/PD, AIR, and HAM) and tune has one or two corresponding channel banks. The following table shows the search bands and their corresponding channel banks.

Search Band	Channel Bank
Fire/Police	4, 5
Aircraft	6
Ham	7, 8
Tune	9, 10

While searching any search band (FD/PD, AIR, or HAM), when you find a transmission and if you want to program it into the corresponding channel bank, the scanner programs it into a channel in the corresponding channel bank by pressing **ENT** key.

If you want to scan the fire/police, air, or ham channels, press one touch search key (**FD/PD**, **AIR**, or **HAM**) then press **SCAN/MAN** while **Fire/POLICE**, **Air**, or **HAM** appears on the display. For example, you press **HAM** then press **SCAN/MAN**, the scanner scans only channel bank 7 and 8 and **HAM** appears on the display.

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 frequency, 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 29) or a birdie frequency (see “Birdie Frequencies” on Page 29).

Locking Out Channels

To lock out a channel during scanning, press **L/O/L/O RVW** when the scanner stops on the channel.

To manually lock out a channel, select the channel then press **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.

Notes:

- Your scanner automatically locks out empty channels.
- You can still manually select locked-out channels.

Locking Out Frequencies

To lock out a frequency during a one touch search or tune, press **L/O/L/O RVW** when the scanner stops on that frequency. The scanner locks out the frequency then continues searching. You can lock out frequencies in both tune and one touch bank searches.

Note: 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”).

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 **v**. The scanner beeps if there are no locked-out frequencies, or **L-r** appears and the scanner displays all locked out frequencies as you press **^** or **v**. When you reach the highest locked-out frequency, the scanner beeps twice and returns to the lowest locked-out frequency.

Removing Lockouts Form All Frequencies in a One Touch Search Bank

Notes:

- 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 lockout 29.000 MHz during tune, the scanner removes it since 29.000 MHz is one of the frequencies in the ham radio service bank.

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 one touch search key that you want to clear the lockout. **dEFAULT** appears.
3. Press **ENT**. **L-r 000.000** appears. 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 of 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**.

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.

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 23), the scanner sounds the alert tone and **ALERT** flashes. Press any key to turn off the alarm.

USING THE DISPLAY BACKLIGHT

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

Press both **PGM** and (light/key symbol) to turn on the display's backlight for an extended

period of time. To turn it off, press both **PGM** and (light/key symbol), or press (light/key symbol).

TURNING THE KEY TONE ON AND OFF

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

1. If the scanner is on, turn **VOLUME** counterclockwise until it clicks to turn the it off.
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**.

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

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

AVOIDING IMAGE FREQUENCIES

You might discover one of your regular stations on another frequency that is not listed. It might be what is known as an image frequency. For example, you might find a service that regularly uses a frequency of 453.275 also on 474.675 MHz.

To see if it is an image, do a little math.

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.

Important: If you have problems, first try to reset the scanner (see "Resetting the Scanner" on Page 29). If that does not work, you can initialize the scanner (see "Initializing the Scanner"); however, this clears all information stored in your scanner's memory.

Resetting the Scanner

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

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

Initializing the Scanner

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.

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**.

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

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:

Will add

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
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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

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

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

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.

Abbreviations Services

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

2-Meter Amateur Band (144–148 MHz)

144.000–148.000 HAM

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
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70-Centimeter Amateur Band (420–450 MHz)

420.000–450.000	HAM
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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 MHz (million) = 1,000 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:

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

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

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

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 properly, take it to your local RadioShack store for assistance.

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 PWR jack.
	The batteries are dead.	Replace the batteries with fresh ones, or recharge the rechargeable batteries.
Poor or no reception	An antenna is not connected or is connected incorrectly.	Make sure an antenna is properly connected to the scanner.
	Programmed frequencies are the same as "birdie" frequencies.	Avoid programming frequencies listed under "Birdie Frequencies" on Page 41 or only listen to them manually.
Keypad does not work.	Keylock is turned on.	Turn off the keylock.
	The scanner might need to be reset or initialized.	Turn the scanner off then on again, or reset/initialize the scanner (see "Resetting/Initializing the Scanner" on Page 25).
Scanner is on but will not scan.	SQUELCH is not correctly adjusted.	Adjust SQUELCH clockwise.
	Only one channel is (or no channels are) stored.	Store frequencies into more than one channel.
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 AND MAINTENANCE

Your RadioShack PRO-82 200 Channel VHF/Air/UHF Hand-Held 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 might contain minerals that can corrode the electronic circuits.

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.

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

Use only fresh batteries of the required size and recommended type. Batteries can leak chemicals that damage your scanner's electronic 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 the scanner.

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 performing as it should, take it to your local RadioShack store for assistance.

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/20 monitor memories
Sensitivity (20 dB S/N):	
29–54 MHz	0.5 μ V
108–136.9875 MHz	1.0 μ V
137–174 MHz	0.5 μ V
380–512 MHz	0.7 μ 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 150 MHz
Squelch Sensitivity:	
Threshold	Less than 0.5 μ 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 3/8 Inches (36 mm), 8 Ohms
Operating Temperature	14° to 140°F (–10° to 60°C)
Power Requirements	6 Volts DC, 4 AA Batteries AC Adapter (Optional) DC Adapter (Optional)
Current Drain (Squelched)	50 mA
Dimensions (HWD)	5 11/16 \times 2 3/8 \times 1 9/16 Inches (145 \times 63 \times 40 mm)
Weight (without antenna)	approx. 7.8 oz

(220 g)

Supplied Accessories Antenna, Battery Holder,
Rechargeable Battery Holder

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

Limited One-Year Warranty

RadioShack
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