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Cat. No. 20-423
OWNER'S MANUAL

Please read before using this equipment.

PRO-2017
200-Channel Programmable Home Scanner

RadioShack LOGO

FEATURES

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Your RadioShack PRO-2017 200-Channel Programmable Home Scanner lets you in on all the action! This scanner gives you direct access to over 25,000 frequencies, including those used by police and fire departments, ambulance services, government agencies, air, and amateur radio services. You can select up to 200 channels to scan, and you can change your selection at any time.

The secret to your scanner's ability to scan so many frequencies is its custom-designed microprocessor – a tiny, built-in computer. Your scanner also has these special features:

Four Service Banks – let you search preset frequencies in separate fire/police, air, ham radio, and marine banks, to make it easy to locate specific types of calls.

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

Ten Channel-Storage Banks – you can store up to 20 channels in each of 10 different banks, to group channels so you can more easily identify calls.

20 Monitor Memories – let you temporarily save up to 20 frequencies you locate during a search, so you can move selected frequencies to channel storage later.

Memory Backup – keeps the channel frequencies stored in memory for about 1 hour during a power loss.

HyperSearch TM and HyperScan TM – let you set the scanner to search at up to 50 steps per second and at up to 25 channels per second, to help quickly find interesting broadcasts.

Duplicate Frequency Check – automatically notifies you if you are about to store a frequency you have already stored, to help avoid wasting storage space.

Direct Search – lets you search for new and unlisted frequencies starting from a specified frequency.

Priority Channel – lets you designate a channel to be scanned every two seconds so you do not miss important calls.

Weather Band Key – scans 7 pre-programmed weather frequencies to keep you informed about correct weather conditions.

Weather Alert – automatically sounds the alarm tone to advise of hazardous weather conditions when it detects the alert signal on the local NOAA weather channel.

Lock-Out Function – lets you set your scanner to skip over specified channels or frequencies when scanning or searching.

Liquid Crystal Display – makes it easy to view and change programming information at any time.

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

Supplied Telescoping Antenna – lets you receive strong local signals.

External Antenna Terminal – lets you connect an external antenna (not supplied) to the scanner.

Dual Conversion – helps prevent interference from image frequencies.

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Hypersearch and Hyperscan are trademarks used by Tandy Corporation.

We recommend you record your scanner's serial number here. The number is on the scanner's back panel.

Serial Number: _____

WARNING: To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture.

Your PRO-2017 scanner can receive all of these frequencies:

29—30 MHz	10m Amateur Radio
30—50 MHz	VHF Lo
50—54 MHz	6m Amateur Radio
108—136.9875 MHz	Air
137—144 MHz	Government
144—148 MHz	2m Amateur Radio
148—174 MHz	VHF Hi
380—420 MHz	Government
420—450 MHz	70cm Amateur Radio
450—470 MHz	UHF Lo
470—512 MHz	UHF "T" Band

FCC NOTICE

Your scanner might cause TV or radio interference even when it is operating properly. To determine if your scanner is causing the interference, turn off your scanner. If the interference goes away, your scanner is causing it. Try the following methods to eliminate the interference.

. Move your scanner away from the TV or radio.
. Connect your scanner to an outlet that is on a different electrical circuit from the TV or radio.
. Contact your local RadioShack store for help.

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

This device complies with Part 15 of FCC Rules. Operation is subject to the following conditions: (1) This device must not cause harmful interference, and (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.

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will add

PREPARATION

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POWER SOURCES

Using AC Power

The scanner's supplied AC adapter lets you power the scanner from a standard AC outlet. To connect power to the scanner, insert the AC adapter's barrel plug into the DC 12V jack on the back of the scanner, then plug the AC adapter into a standard AC outlet.

add illustration.

Warning: Do not use the AC adapter's polarized plug with an extension cord receptacle unless the blades can be fully inserted to prevent blade exposure.

Cautions:

. You must use a Class 2 power source that supplies 12 volts DC and delivers at least 300 mA. Its center tip must be set to positive and its plug must fit the PRO-2017's DC 12V jack. The supplied adapter meets these specifications. Using an adapter that does not meet these specifications could damage the PRO-2017 or the adapter.

. Be sure to connect the AC adapter to the scanner before you connect it to an AC outlet, and disconnect the AC adapter from the AC outlet before you disconnect it from the scanner.

Using DC Power

You can power your scanner from your vehicle's cigarette-lighter socket with an optional DC adapter, such as RadioShack Cat. No. 270-1533.

Cautions:

. You must use a Class 2 power source that supplies 12 volts DC and delivers at least 300 mA. Its center tip must be set to positive and its plug must fit the PRO-2017's DC 12V jack. The recommended adapter meets these specifications. Using an adapter that does not meet these specifications could damage the PRO-2017 or the adapter.

. Be sure to connect the DC adapter to the scanner before you connect it to the cigarette-lighter socket, and disconnect the DC adapter from the cigarette-lighter socket before you disconnect it from the scanner.

To connect a DC adapter, insert its 5.5mm outer diameter/2.1 mm inner diameter barrel plug into the DC 12V jack on the back of the scanner, then plug the adapter into your vehicle's cigarette-lighter socket.

add illustration.

Notes:

. If you use a DC adapter and your vehicle's engine is running, you might hear electrical noise on the scanner caused by the engine. This is normal.

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

CONNECTING AN ANTENNA

Connecting the Supplied Antenna

You must install an antenna before you can operate the scanner.

The supplied telescoping antenna helps your scanner receive strong local signals. To install the antenna, thread it clockwise into the hole on top of the scanner.

add illustration.

The scanner's sensitivity depends on its location and the antenna's length. For the best reception of the transmissions you want to hear, adjust the antenna's length according to the chart below.

Frequency	Antenna Length
29—174 MHz	Extend fully
380—512 MHz	Extend 2 segments

Connecting an Outdoor Antenna

Instead of the supplied antenna, you can connect an outdoor base-station or mobile antenna (not supplied) to your scanner. Your local RadioShack store sells a variety of antennas.

Choose the one that best meets your needs.

When deciding on an outdoor antenna and its location, consider these points:

. The antenna should be located as high as possible.
. The antenna and antenna cable should be as far as possible from sources of electrical noise (appliances, other radios, and so on).
. The antenna should be vertical for the best performance.

To connect an optional base-station or mobile antenna, first remove the supplied antenna from the scanner. Always use 50-ohm coaxial cable, such as RG-58 or RG-8, to connect the base-station or mobile antenna. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. If the antenna cable's connector does not fit in the ANT jack on the back of the scanner, you might also need a PL-259-to-Motorola antenna plug adapter, such as Cat. No. 278-208. Your local RadioShack store carries a wide variety of coaxial antenna cable and connectors.

Once you choose an antenna, follow the mounting instructions supplied with the antenna. Then route the antenna's cable to the scanner and connect the cable to the ANT jack.

add illustration.

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

Caution: Do not run the cable over sharp edges or moving parts that might damage it.

UNDERSTANDING THE PRO-2017

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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 tuning location of a station (expressed in kHz or MHz). To find active frequencies, you can use the search function.

You can also search the service-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 your 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

Your scanner's keys might seem confusing at first, but this information should help you understand each key's function.
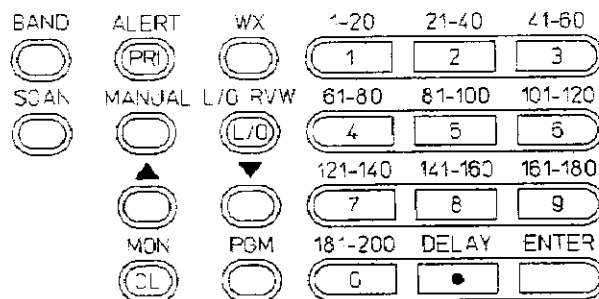
BAND—lets you search preprogrammed service banks.
PRI/ALERT—turns the priority function on and off, or sets the WX alert mode.
WX—scans through the 7 pre-programmed weather channels.
SCAN—scans through the programmed channels.

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

L/O RVW, L/O—lets you review locked-out frequencies, or lets you lock out selected channels/frequencies so they will not be scanned or searches.

▲ and ▼—begins searching up or down for active frequencies or selects the direction when you scan channels.

MON/CL—accesses the 20 monitor memories or clears an incorrect entry.

PGM—programs frequencies into channels.

Number Keys—each key has a single-digit label and a range of numbers. Use the digits on the keys to enter the numbers for a channel or a frequency. Use the range of numbers above the key (21-40, for example) to select the channel in a channel-storage bank. See "Understanding Service Banks/Banks/Memories."

DELAY/.—programs a 2-second delay for the selected channel, or enters a decimal point (necessary when programming frequencies).

ENTER—enters frequencies into channels.

A LOOK AT THE DISPLAY

The display has indicators that show the scanner's current operation. A quick look at the display will help you understand how to operate your scanner.
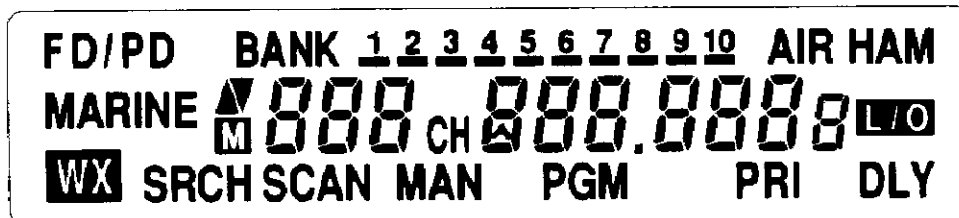
FD/PD – appears when you search the fire/police service bank.

BANK – appears with numbers (1—10). Bank numbers with a bar under them show which ones are turned on for scanning. See "Understanding Service Banks/Banks/Memories."

AIR – appears when you search the air service bank.

HAM – appears when you search the ham radio service bank.

MARINE – appears when you search the marine service bank.

▲ or ▼ – indicates the search or scan direction.

M – flashes with a number (1-20) to show which monitor memory you are listening to.

CH – the digits that precede this indicator (1-200 and P) show which channel the scanner is turned to.

L/O – appears when you manually select a channel you locked out while scanning or you

review a locked out frequency.

WX – appears when you scan the weather channels.

SRCH – appears during service bank and direct frequency searches.

SCAN – appears when you scan channels.

MAN – appears when you manually select a channel.

PGM – appears while you program frequencies into the scanner's channels.

PRI – when you turn on the priority feature.

DLY – appears when you program a 2-second delay.

Error – appears when you make an entry error.

-dUPL- – appears when you try to store a frequency that is already stored in another channel.

-d- – appears during a direct frequency search.

-b- – appears during a service bank frequency search.

Ch-FULL – appears when you try to enter a frequency during a search when all channels are full.

F L-out – appears when you start direct search from a locked out frequency.

FLo -FULL – appears when you try to lockout a frequency during a search when 50 frequencies are already locked out.

L-r – appears when you review the lockout frequencies.

dEFAULt – appears when you remove all the locked out from the service bank frequencies.

FLo ALL-CL – appears when you remove all the locked out frequencies during a service bank/direct search.

P – appears when the scanner is tuned to a priority channel.

ALErt – appears when the scanner is watching the WX alert tone.

WirEd – appears when you turn on the wired programming mode.

StArt – appears when the scanner start wired programming.

C-Error – appears when the scanner receive check sum error during wired programming.

D-Error – appears when the scanner finds data error during wired programming.

End – appears when the scanner finishes wired programming.

OFF tonE – appears when you set the key tone off.

ON tonE – appears when you set the key tone on.

UNDERSTANDING SERVICE BANKS/BANKS/MEMORIES

Service Bank

The scanner is preprogrammed with the frequencies allocated by fire/police, aircraft, ham radio, and marine services. In these service banks, you can search through the frequencies and store them in channels for fire/police, aircraft, ham radio, and marine banks. This is handy for quickly finding active frequencies instead of searching through an entire band.

Note: The frequencies in the scanner's service bank 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)
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

64	156.2250
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

Channel-Storage Banks

To make it easier to identify and select the channels you want to listen to, channels are divided into 10 banks of 20 channels each. 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 XX). For example, the 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).

Monitor Memories

The scanner also has 20 monitor memories that you can use to temporarily store frequencies while you decide whether to save them into channels. This is handy for quickly storing an active frequency when you are searching through an entire band. You can store a frequency into a monitor memory during a service bank, or direct search. See "Finding and Storing Active Frequencies."

You can select monitor memories manually, but you cannot scan them. See "Listening to Monitor Memories."

OPERATION

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TURNING ON THE SCANNER/SETTING VOLUME AND SQUELCH

1. Turn SQUELCH fully counterclockwise until the indicator points to MIN before you turn on the scanner.

add illustration.

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 does not scan or search properly.

4. To turn off the scanner when you finish, turn VOLUME counterclockwise to OFF.

STORING KNOWN FREQENCIES INTO CHANNELS

Good references for active frequencies are the RadioShack Police Call, 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, enter the channel number (1—200) where you want to store a frequency, then press PGM again. The channel number appears.

2. Use the number keys and . to enter the frequency (including the decimal point) you want to store.

add illustration.

3. Press ENTER to store the frequency into the channel.

Notes:

. If you made a mistake in Step 2, Error appears and the scanner beeps when you press ENTER. 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 for 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 ENTER again. Press MON/CL to clear the frequency.

. Press DELAY if you want the scanner to pause 2 seconds on this channel after a transmission ends before it proceeds to the next channel (see "Using the Delay Function" on Page XX). 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 Service Banks

Your scanner contains groups of preset frequencies called service banks. Each service bank is associated with a specific activity (see "Service Banks" on Page XX). You can search for fire/police, air, ham, and marine 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 or monitor memories.

Notes:

. You can use the scanner's delay feature while searching the service banks, see "Using the Delay Function" on Page XX.

. This procedure uses HAM, FD/PD, and AIR service banks. If you want to listen to marine bank, see "Listening to a Marine Bank."

1. Press BAND. The last selected band name (such as HAM), SRCH, -b-, frequency and the group number (if any) appear on the display.

2. To select a different band, repeatedly press BAND until the desired band name appears on the display. After about 2 seconds, the scanner begins searching rapidly in that band for an active frequency.

Notes:

. To reverse the search direction at any time, hold down (UP key) or (DN key) for about 1 second.

. To search the band up or down in small increments (see "Service Banks" on Page XX for frequency steps), repeatedly press and release (UP key) or (DN key).

. To pause the search while receiving a signal press and release (UP key) or (DN key). To continue the search, hold down (UP key) or (DN key).

. To quickly move upward or downward through the frequencies, press and hold down (UP key) or (DN key). The scanner tunes through the frequencies until you release (UP key) or (DN key).

3. If needed, select search group with numeral key.

4. 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 channel, press PGM then press ENTER. The channel and frequency flash twice, and the scanner stores the displayed frequency. The scanner then continues to search for frequencies.

Notes:

. If there is no empty channel, Ch-FULL appears after PGM pressed. To store more frequencies, you must clear some channels. See "Clearing a Stored Channel" on Page XX. To continue searching after Ch-FULL appears, press and hold down (UP key) or (DN key).

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

To store the displayed frequency in the channel which you select, press PGM, press channel number you wish to enter the channel, then press ENTER. The channel and frequency flash twice, and the scanner stores the displayed frequency. The scanner continues to search for frequencies.

5. To store the displayed frequency in the monitor memory, press MON/CL. The monitor memory number, M and the frequency flash twice.

6. To search for another active frequency in the selected band, hold down (UP key) or (DN key) for about 1 second. To select a different band and search for another active frequency, repeat Steps 2-6.

Using Direct Search

During a direct search, the scanner searches up or down, starting from a frequency you specify. Follow these steps to use direct search.

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

1. Press MANUAL or PGM, then enter the frequency (including the decimal point) you want to use as a starting point for the search.

Note: To start from a frequency already stored in one of your scanner's channels, press MAN or PGM, enter the desired channel number, then press MANUAL or PGM again.

Hold down (UP key) or (DN key) for about 1 second to search up or down. –d–, SRCH, and (UP) or (DN) appear on the display.

add illustration.

Notes:

. To reverse the rapid search direction at any time, hold down (UP key) or (DN key) for about 1 second.

. To search up or down the selected band in small increments (in steps 5, 12.5, or 25 kHz), press and release (UP key) or (DN key).

. To pause the search, press and release (UP key) or (DN key). To continue the search, hold down (UP key) or (DN key).

. To quickly move upward or downward through the frequencies, press and hold down (UP key) or (DN key). The scanner tunes through the frequencies until you release (UP key) or (DN key).

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 channel, press PGM then press ENTER. The channel and frequency flash twice, and the scanner stores the displayed frequency. The scanner continues to search for frequencies.

Notes:

. If there is no empty channel, Ch-FULL appears. To store more frequencies, you must clear some channels. See "Clearing a Stored Channel" on Page XX. To continue searching after Ch-FULL appears, press and hold down (UP key) or (DN key).

. If you entered a frequency that is already stored in another channel, -dUPL- (duplicate) and the lowest-numbered channel containing the duplicate frequency flash on the display for about 3 seconds. If you want to store the frequency anyway, press ENTER again.

To store the displayed frequency in the channel which you select, press PGM, press channel number you wish to enter the channel, then press ENTER. The channel and frequency flash twice, and the scanner stores the displayed frequency. The scanner continues to search for frequencies.

3. To store the displayed frequency in the monitor memory, press MON/CL. M, the monitor memory number, and the frequency flash twice.

4. To search for another active frequency, hold down (UP key) or (DN key) for about 1 second.

USING THE MONITOR MEMORY

Listening to the Monitor Memory

To recall a frequency stored in the monitor memory, press MANUAL then MON/CL. M, monitor memory number, and CH flash and the current monitor memory frequency appears on the display. To select other monitor memories, enter the desired monitor memory's number (1—20), then press MON/CL again. The selected monitor memory's frequency appears.

add illustration.

Moving a Frequency from the Monitor Memory to a Channel

1. Press PGM, enter the channel number where you want to store the frequency, then press PGM. PGM and the selected channel number appear on the display.

2. Press MON/CL. M, a monitor memory number, and CH flash, and the monitor memory frequency appear on the display.

3. Enter the desired monitor memory's number (1—20), then press MON/CL again. The selected monitor memory's frequency appears.

4. Press ENTER. The scanner stores the frequency in the selected channel.

5. To move another monitor memory frequency to the next channel, press PGM and repeat Steps 2—4.

SCANNING THE STORED CHANNELS

To set the scanner to continuously scan through all channels with stored frequencies, simply press SCAN. SCAN and (UP) appear on the display, and the scanner begins to rapidly scan up until it finds an active frequency.

add illustration.

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 ends on that frequency.

Notes:

. To reverse the scanning direction, press (UP key) or (DN key).

. To set the scanner to remain on the current channel for 2 seconds after the transmission ends, see "Using the Delay Function" on Page XX.

. To set the scanner to remain on the current channel, even after the transmission stops, press MANUAL at any time during the transmission so MAN appears and SCAN disappears from the display (see "Monitoring a Stored Channel" on Page XX).

. To lock out channels so the scanner does not stop for a transmission on those channels, see "Locking out Channels and Frequencies" on Page XX.

TURNING CHANNEL-STORAGE BANKS OFF AND ON

To turn off a channel-storage bank (1—10), press SCAN to see which banks are currently on. Storage banks are on when they have a bar underneath them and off when no bar appears underneath them. Press the bank's number key so 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), press SCAN, and then press the bank's number key so 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 the bank while scanning, the scanner moves to the selected bank's channel and continues scanning.

MONITORING A STORED CHANNEL

You can continuously monitor a specific channel without scanning. This is useful if you hear an emergency broadcast 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. Press MANUAL.

2. Enter the channel number (1—200).

3. Press MANUAL 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 MANUAL to get out of the service banks or to stop scanning.

2. To select the desired channel number, use the number keys to enter that channel number (1—200), then press MANUAL.

3. Press PGM. PGM appears.

4. Press 0, then press ENTER. The frequency number changes to 000.0000 on the display 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, repeatedly press BAND until MARINE appears on the display. To change the channel manually, press and release (UP key) or (DN key).

Press and hold (UP key) or (DN key) about 2 seconds, the scanner scans through the marine bank. MAN disappears and SCAN appears on the display. To change the scanning direction, press (UP key) or (DN key).

To continue changing the channel manually, press and hold (UP key) or (DN key) about 2 seconds. Press two digits numeric key does move to selected marine channel within marine manual mode.

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.

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

WX Alert Feature

This scanner can detect the weather alert tone. The WX alert warns you of serious weather conditions by sounding an alarm if the weather service broadcasts the weather alert tone. To listen to the alert tone, press PRI/ALERT while you are listening to the WX channel. ALErt appears on the display. If the scanner detects the weather alert, it sounds an alarm. Press any key to mute the alarm. To cancel the weather alert operation, press PRI/ALERT again.

SPECIAL FEATURES

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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 into any channel or frequency with a programmed delay, DLY appears and the scanner continues to monitor that frequency for 2 seconds after the transmission stops before resuming scanning or searching.

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 continues scanning again.
. If the desired channel is not selected, manually select the channel, then press DELAY.
. If the scanner is searching, 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, press DELAY/. while the scanner is monitoring the channel or frequency. DLY disappears from the display.

LOCKING OUT CHANNELS AND 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 XX) or birdie frequency (see "Birdie Frequencies" on Page XX).

Locking Out Channels

To lock out a channel while scanning, press and release L/O/L/O RVW when the scanner stops on the channel.

To lock out a channel manually, select the channel then press and release L/O/L/O RVW until L/O appears on the display.

To remove the lockout from a channel, manually select that channel again, then press L/O/L/O RVW so L/O disappears from the display.

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 service bank, or a direct search, press L/O/L/O RVW when the scanner stops on the frequency. The scanner locks out the frequency then continues searching. You can lock out frequencies in both direct search and service 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 on the display (see "Reviewing Locked-Out Frequencies" and "Removing All Lockout Tags From Frequencies").

Reviewing Locked-Out Frequencies

To review the frequencies you locked out, hold down L/O/L/O RVW at least 2 seconds during a search. L-r appears. As you press (UP key) or (DN key), the scanner displays all locked out frequencies. When you reach the highest frequency, the scanner beeps twice and returns to the lowest locked-out frequency.

Removing All Locked-Out Tags From Frequencies

1. Start a service bank or direct search. See "Using Direct Search" on Page XX.

2. To review the frequencies you locked out, hold down L/O/L/O RVW for about 2 seconds during the search. L-r appears on the display.

3. Hold down MON/CL then L/O/L/O RVW. FLo ALL-CL appears on the display.

4. Press ENTER to clear all the lockout frequencies. The frequency clears and 000.0000 appears. If you do not want to clear lockout tags, press MON/CL to continue reviewing all the lockout frequencies.

Removing All Lockout Tags from Frequencies in All Service Banks

1. Start a service bank or direct search. See "Using Direct Search" on Page XX.

2. To review the frequencies you locked out, hold down L/O/L/O RVW for about 2 seconds during the search. L-r appears on the display.

3. Hold down MON/CL then press BAND. dEFAULt appears on the display.

4. Press ENTER to clear the lockout frequencies in all the service banks (except weather bank). If you do not want to clear the lockout tags, press MON/CL to continue reviewing the lockout frequencies.

USING PRIORITY

Using the priority feature, you can scan through the programmed channels and still not miss an important or interesting call on a specific channel.

To program a priority channel as follows:

1. Press PGM, then press PRI/ALERT.

2. Enter the frequency with numeral keys.

3. Press ENTER.

To turn on the priority feature, press PRI/ALERT during scanning. PRI appears on the display. The scanner checks the priority channel every two seconds and stays on the channel if there is activity. PCH appears on the display whenever the scanner is set to the priority channel.
To turn off the priority feature, press PRI. PRI disappears from the display.

If you program WX frequency into the priority channel, the scanner can detect WX alert tone while priority feature is on. When the scanner detects WX alert tone, ALErt flashes on the display. To cancel the alert tone, press any key, and the scanner watch the WX channel.

TURNING THE KEY TONE ON AND OFF

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

1. If the scanner is on, slide the POWER switch to OFF position to turn it off.

2. While you hold down 2 and ENTER, turn on the scanner.

3. The display shows OFF tonE or on tonE, then release 2 and ENTER.

CONNECTING A DATA LINK TO THE SCANNER

A data interface kit (not supplied) lets you program the scanner with frequencies stored in a computer program. Contact your local RadioShack store for more information.

A GENERAL SCANNING GUIDE

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

GUIDE TO FREQUENCIES

National Weather Frequencies

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

*Not preprogrammed in this scanner, but you can manually program it. (See "Storing Known Frequencies into Channels" on Page XX.)

Ham Radio Frequencies

Ham radio operators often transmit emergency information when other means of communication break down. The following chart shows the frequencies this scanner receives that ham radio operators normally use:

Wavelength	Frequency (MHz)
10 meters	29.000-29.700
6 meters	50.000-54.000
2 meters	144.000-148.000
70 cm	420.000-450.000

Note: Your scanner cannot receive AM transmissions on these bands.

Birdie Frequencies

Every scanner has birdie frequencies – signals created inside the scanner's receiver, which might interfere with broadcasts 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.

To find the birdies in your scanner:

. Disconnect the antenna and move it away from the receiver. Make sure that no other nearby radio or TV sets are turned on near the scanner.

. Search in each frequency band 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 particular scanner for future reference.

The birdie frequencies to watch for on the PRO-2017 are:

birdie frequencies will add

GUIDE TO THE ACTION BANDS

United States Broadcast Bands

In the United States, there are several broadcast bands. The standard AM and FM bands are probably the most well known. There are also four television audio broadcast bands – the lower three transmit on the VHF band and the fourth transmits on the UHF band.

Typical Band Usage

HF Band (3.00—30.0 MHz)

10-Meter Amateur	29.00-29.70 MHz
High Range	29.70-29.90 MHz

VHF Band (30.00—300.00 MHz)

Low Range	30.00-50.00 MHz
6-Meter Amateur	50.00-54.00 MHz
U.S. Government	137.00-144.00 MHz
2-Meter Amateur	144.00-148.00 MHz
High Range	148.00-174.00 MHz

UHF Band (300.00 MHz—3.0 GHz)

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

Primary Usage

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

VHF Band

Activities	Frequencies (MHz)
Government, Police, and Fire	153.785—155.980
Emergency Services	158.730—159.460
Railroad	160.000—161.900

UHF Band

Activities	Frequencies (MHz)
Land-Mobile "Paired" Frequencies	450.000—470.000
Base Station	451.0125—454.950
Mobile Units	456.025—459.950
Relay Repeater Units	460.025—464.975
Remote 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.

Specified Intervals

Frequencies in different bands are accessible only at specific intervals. For example:

Frequency Range(s)	Specified Interval
29—54 MHz and 137—174 MHz	5.0 kHz Steps
380—512 MHz	12.5 kHz Steps

Note: In service bank search, the frequency interval is not the same as specified above. See "Service Banks" on Page XX.

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 Police Call, available at your local RadoShack 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 Systems
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 Govt., Forestry Conservation)
PSB	Public Safety
PTR	Private Trunked
ROAD	Road & Highway Maintenance
RTV	Radio/TV Remote Broadcast Pickup
TAXI	Taxi Services
TELB	Mobile Telephone
	(Aircraft, Radio Common Carrier, Landline Companies)
TELC	Cordless Phones
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) Hi – (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)

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
36.250	Oil Spill Clean-Up
36.270-36.990	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, TELC
47.020-47.400	PUB
47.420	American Red Cross
47.440-49.580	IND, PUB

49.610-49.990	MIL, TELC

6—Meter Amateur Band – (50—54 MHz)

50.00-54.00	HAM

U.S. Government Band (138—144 MHz)

137.000-144.000	GOVT, MIL

2—Meter Amateur Band – (144—148 MHz)

144.000-148.000	HAM

VHF-Hi Band (148—174 MHz)

148.050-150.345	CAP, MAR, MIL
150.775-150.790	MED
150.815-150.965	TOW
150.980	Oil Spill Clean-Up
150.995-151.130	ROAD
151.145-151.475	POL
151.490-151.955	IND, BUS
151.985	TELM
152.0075	MED
152.030-152.240	TELB
152.270-152.465	IND, TAXI
152.480	BUS
152.510-152.840	TELB
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 Clean-Up
154.600-154.625	BUS
154.655-156.240	MED, ROAD, POL, PUB
156.255	OIL
156.275-157.425	MARI
157.450	MED
157.470-157.515	TOW

157.530-157.725	IND, TAXI
157.740	BUS
157.770-158.100	TELB
158.130-158.460	BUS, IND, OIL, TELM, UTIL
158.490-158.700	TELB
158.730-159.465	POL, PUB, ROAD
159.480	OIL
159.495-161.565	TRAN
161.580	OIL
161.600-162.000	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	Wireless Mics
169.500	GOVT
169.505	Wireless Mics
169.55-169.9875	GOVT, MIL, USXX
170.000	BIFC
170.025-170.150	GOVT, RTV, FIRE
170.175-170.225	GOVT
170.245-170.305	Wireless Mics
170.350-170.400	GOVT, MIL
170.425-170.450	BIFC
170.475	PUB
170.4875-173.175	GOVT, PUB, Wireless Mics
173.225-173.375	MOV, NEWS, UTIL
173.3875-173.5375	MIL
173.5625-173.5875	MIL, Medical/Crash Crews
173.60-173.9875	GOVT

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

Military Aircraft Band (319.1—383.9 MHz)
380.000-383.900   Coast Guard

U.S. Government Band (406—450 MHz)
406.125-419.975   GOVT, USXX

70-cm 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
452.0375-453.000   IND, TAXI, TRAN, TOW, NEWS
453.0125-453.9875   PUB
454.000   OIL
454.025-454.975   TELB
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
462.550-462.725   GMR
462.750-462.925   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.

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.

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 broadcast 21.4 MHz above or below the tuned frequency. This is rare, and the image signal is usually cleared whenever there is a broadcast on the actual frequency.

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 MHz by 1,000:

30.62 MHz x 1000 = 30,620 kHz

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

127,800 kHz / 1000 = 127.8 MHz

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

300 / 50 MHz = 6 meters

TROUBLESHOOTING

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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 CAUSES	REMEDIES
Scanner is totally inoperative.	The AC or DC power adapter is not connected.	Be sure the adapter is fully inserted into the DC 12V jack.
Poor or no reception.	Improperly connected antenna.	Be sure the antenna is properly connected.
	Programming frequencies are the same as birdie frequencies.	Avoid programming frequencies listed under "Birdie Frequencies" on Page XX or only select them manually.
Error appears on the display.	Programming error	Reprogram the frequency correctly.
Keys do not work or display changes.	Undetermined error.	Turn the scanner off then on again, or reset the scanner (see "Resetting/Initializing the Scanner" on Page XX).
Scanner is on but will not scan.	SQUELCH is not correctly adjusted.	Adjust SQUELCH clockwise (see "Turning on the Scanner/Setting Volume and Squelch" on Page XX).
In the scan mode, the scanner locks on frequencies that have	Birdies.	Avoid programming frequencies listed under "Birdie Frequencies" on Page XX or only listen to them

an unclear transmission.   manually.

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"). If that does not work, you can initialize the scanner (see "Initializing the Scanner" on Page XX); 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 back of the scanner (as shown) and gently press then release the reset button inside the opening.

add illustration.

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

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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 MON/CL.

3. While holding down MON/CL, insert a pointed object, such as a straightened paper clip, into the reset opening on the back of the scanner and gently press then release the reset button inside the opening. The display should clear.

4. When the display reappears, release MON/CL.

Note: You must release the reset button before releasing MON/CL, otherwise the memory might not clear.

CARE AND MAINTENANCE

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Your RadioShack PRO-2017 200-Channel Programmable Home Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for your PRO-2017 so you can enjoy it for years.

Keep the PRO-2017 dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Use and store the PRO-2017 only in normal temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.

Keep the PRO-2017 away from dust and dirt, which can cause premature wear of parts.

Handle the PRO-2017 gently and carefully. Dropping it can damage circuit boards and cases and can cause the PRO-2017 to work improperly.

Wipe the PRO-2017 with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the PRO-2017.

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

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Frequency Coverage:

Ham	29-30 MHz (5.0 kHz Steps)
VHF Lo	30-50 MHz (5.0 kHz Steps)
Ham	50-54 MHz (5.0 kHz Steps)
Air	108-136.9875 MHz (12.5 kHz Steps)
Government	137-144 MHz (5 kHz Steps)
Ham	144-148 MHz (5 kHz Steps)
VHF Hi	148-174 MHz (5 kHz Steps)
Ham/Government	380-450 MHz (12.5 kHz Steps)
UHF Lo	450-470 MHz (12.5 kHz Steps)
UHF Hi (T)	470-512 MHz (12.5 kHz Steps)

Channels of Operation	200 Channels and 20 Monitor Memories

Sensitivity (20 dB S/N):

29-54 MHz	0.5 uV
108-136.9875 MHz	1.0 uV
137-174 MHz	0.5 uV
380-512 MHz	0.7 uV

Selectivity:

+/-10 kHz	-6 dB
+/-18 kHz	-50 dB
Spurious Rejection	50 dB (FM at 154 MHz)
Scanning Rate	Up to 25 Channels/Second
Search Rate	Up to 50 Steps/Second
Delay Time	2 Seconds

Intermediate Frequencies (IF):

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

Squelch Sensitivity:

Threshold	Less than 0.5 uV
Tight (FM)	(S+N)/N 25 dB
Tight (AM)	(S+N)/N 20 dB

Antenna impedance	50 Ohms
Audio Output Power (10% THD)	0.8 mW Nominal
Built-in Speaker	3 inch (77 mm) 8-ohm, Dynamic Type
Power Requirements	120 V AC, 60 Hz, 8W
Operating Temperature	+32F to +110F
	(0C to +43C)
Dimensions (HWD)	2 1/16 x 8 1/4 x 6 7/8 inches
	(52 x 210 x 175 mm)
Weight	Approx. 24 oz.
	(680 g) without Antenna
Supplied Accessories	Telescoping Antenna,
	AC Adapter

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