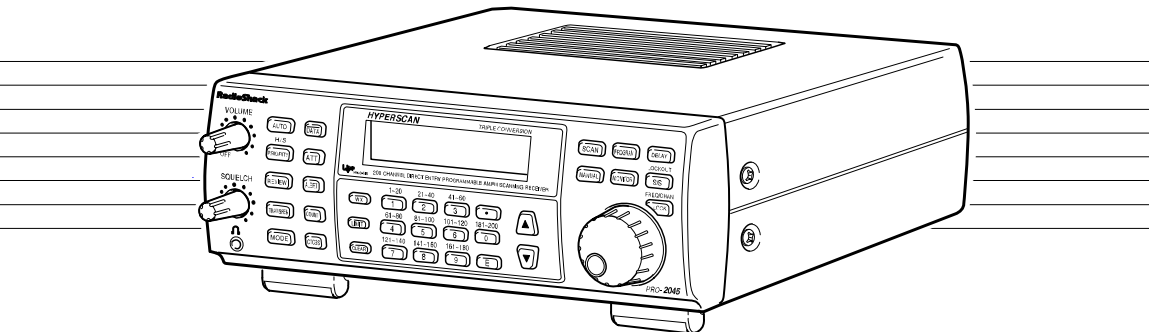
Cat. No. 20-418

OWNER'S MANUAL

PRO-2045

200-Channel Weather Alert Home Scanner

Please read before using this equipment.



RadioShack™

FEATURES

Your RadioShack PRO-2045 200-Channel Weather Alert Home Scanner lets you in on all the action! This scanner gives you direct access to over 49,500 exciting frequencies used by police and fire departments, ambulance and transportation services, amateur radio, as well as aircraft communications, Citizen's Band, and commercial FM and television broadcasts.

You can select up to 200 channels for your scanner to scan, and you can change your selections at any time. Its rotary tuning control lets you easily select frequencies and channels. Plus, when you turn on the weather alert function, the scanner sounds an alarm if the weather service transmits a weather alert tone.

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

Your scanner has these features:

WX Alert — warns you of serious weather conditions by sounding an alarm if the weather service transmits a weather alert tone.

Weather Band Auto Scan — scans the preprogrammed weather frequencies so you can stay informed about current weather conditions.

Hyperscan — scans programmed channels at up to 50 channels per second.

Hypersearch — lets you set the scanner to search at up to 300 steps per second.

Rotary Tuner — lets you easily tune and select frequencies or channels.

Auto Sort — lets you scan the channels stored in a bank, in order from lowest to highest frequency, to increase scanning speed.

Auto Store — quickly finds and automatically stores active frequencies into the selected banks (but does not store the frequency if it is already stored in another channel).

Ten Channel-Storage Banks — let you store 20 channels in each of 10 banks to group frequencies so you can easily identify calls.

Frequency Transfer — lets you easily organize your frequencies by transferring them from one channel to another.

Monitor Memories — let you store up to 10 frequencies you locate during a frequency search.

Limit Search — lets you search for transmissions within a set range.

Direct Search — lets you search for transmissions starting from a frequency you specify.

Count Feature — lets you keep track of how many times your scanner has stopped on a channel.

Search Skip — lets you select up to 50 frequencies for the scanner to skip during a search, so you can avoid frequencies you have already discovered or that have a continuous transmission.

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

Data Skip — skips data signals (non-modulated signals such as preamble signals for pagers) during scan, limit search, and direct search.

Lock-Out Function — prevents channels you select from being scanned.

Priority Channels — checks 10 specified channels every 2 seconds so you do not miss important calls.

Automatic Modulation Mode — selects the modulation method — narrow-band frequency modulation (NFM) or amplitude modulation (AM) — most often used for each band, and lets you manually override the preset mode.

Attenuator — reduces the scanner's sensitivity to help limit reception to strong, nearby transmitters.

Memory Backup — keeps stored channel frequencies in memory for up to 3 days during a power loss.

CTCSS Option — with an optional CTCSS tone circuit board, you can use the Continuous Tone Coded Squelch System (CTCSS) to selectively listen to some business band and amateur radio transmissions.

Backlit Display — lets you easily see the indicators on the scanner's display, even at night.

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

Serial Number: _____

Your scanner has the following preprogrammed weather channels:

- 162.4000 MHz (NFM)
- 162.4250 MHz (NFM)
- 162.4500 MHz (NFM)
- 162.4750 MHz (NFM)
- 162.5000 MHz (NFM)
- 162.5250 MHz (NFM)
- 162.5500 MHz (NFM)

Your scanner can receive all of these bands:

Range (MHz)	Step (kHz)	Mode
29–54	5	NFM
108–136.975	12.5	AM
137–174	5	NFM
216–224.9875	12.5	NFM
225–399.9875	12.5	AM
400–512	12.5	NFM
806–823.9375	12.5	NFM
851–868.9375	12.5	NFM
896.1125–1,000	12.5	NFM

FCC NOTICE

Your scanner might cause radio or TV 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 was causing it. Try to eliminate the interference by:

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

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

SCANNING LEGALLY

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

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

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

CONTENTS

CONNECTING POWER

You can power your scanner from a standard AC outlet using the supplied AC adapter or from your vehicle's battery using an optional DC power cord.

If a power failure occurs or if the power cord is disconnected, the scanner's memory backup circuit keeps information in memory for up to 3 days.

Note: The memory backup circuit begins to protect memory within a few minutes after you plug in the scanner.

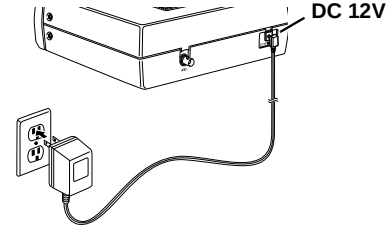
Using Standard AC Power

Warning: Do not use the AC adapter with an extension cord unless the blades can be fully inserted.

Cautions:

- The supplied AC adapter supplies 12 volts and delivers 500 milliamps. Its center tip is set to positive, and its plug properly fits the scanner's **DC 12V** jack. Using an AC adapter that does not meet these specifications could damage the scanner or the adapter.
- Connect the adapter to the scanner before you connect it to an AC outlet. Disconnect the adapter from the AC outlet before you disconnect it from the scanner.
- If you have difficulty inserting the AC adapter's plug, do not force it. Turn it over and reinsert it.

Follow these steps to use AC power.



1. Insert the supplied AC adapter's barrel plug into the scanner's **DC 12V** jack.
2. Plug the adapter's power module into a standard AC outlet.

Using Vehicle Battery Power

Use a DC power cord (not supplied), such as RadioShack Cat. No. 270-1533, to power your scanner in your vehicle.

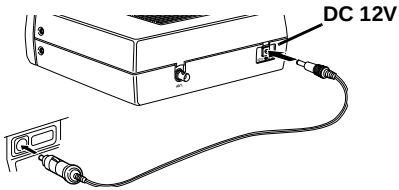
Cautions:

- The DC power cord you select must supply 12 volts and deliver at least 500 mA. Its center tip must be positive, and its plug must fit the scanner's **DC 12V** jack. The recommended power cord meets these specifications. Using a power cord that does not meet these specifications could damage the scanner or power cord.
- Connect the power cord to the scanner before you plug it into your vehicle. Disconnect the power cord from the vehicle before you disconnect it from the scanner.

- If you use your scanner in your vehicle with the engine running, you might hear electrical noise from the scanner. This is normal.

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

Follow these steps to use vehicle battery power.



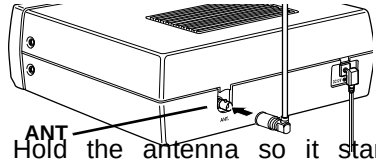
1. Insert the DC power cord's barrel plug into the scanner's **DC 12V** jack.
2. Plug the DC power cord's cigarette-lighter plug into your vehicle's cigarette-lighter socket.

CONNECTING AN ANTENNA

You can connect either the supplied telescoping antenna or an optional antenna to your scanner.

Telescoping Antenna

The supplied telescoping antenna helps your scanner receive strong local signals. Follow these steps to install the supplied antenna.



1. Hold the antenna so it stands straight up.
2. Gently push the antenna's plug onto the **ANT** jack on the scanner's back panel.

The antenna's length affects reception. Adjust the antenna's length as follows for the best results.

29–150 MHz	Extend fully
150–174 MHz	Extend only 3 segments
216–406 MHz	Extend only 2 segments
406–1000 MHz	Collapse Fully (only 1 segment extended)

Optional Outdoor Antenna

The supplied antenna is usually good for strong, local signals. However, for the best results in receiving weaker, more distant signals on all bands, you can attach an optional outdoor antenna (not supplied), such as a mobile, telescoping, multi-band, or outdoor base antenna.

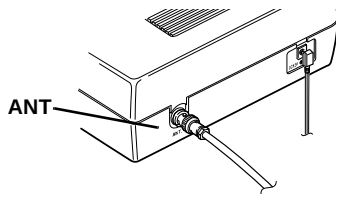
Warning: When installing or removing an outdoor antenna, follow all cautions and warnings included with the antenna.

Note: Always use 50-ohm coaxial cable to connect an outdoor antenna to your scanner. For lengths under 50 feet, use RG-58 or RG-8/M coaxial cable. For lengths over 50 feet, use RG-8, low-loss coaxial cable. If the coaxial cable's connector does not fit the **ANT** jack, you might also need an adapter. Your local RadioShack store sells a complete line of outdoor antennas, adapters, BNC connectors, and mounting hardware.

For the best performance, consider the following when deciding on an outdoor antenna and its location:

- The location of the external antenna should be as high as possible.
- The external antenna and antenna cable should be as far away as possible from sources of electrical noise (appliances, other radios, and so on).
- The external antenna should be vertical.

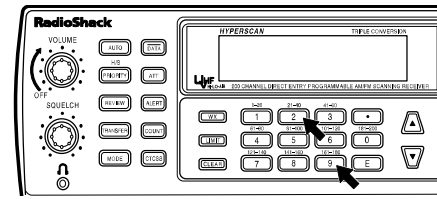
Mount the antenna following the instructions supplied with the antenna and its mounting hardware, then route the antenna cable to the scanner and connect it to the **ANT** jack on the back of the scanner.



RESETTING THE SCANNER

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

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



1. Turn off the scanner.
2. While you press and hold down **2** and **9**, turn on the scanner.

USING THE FEET

To tilt the display for the best viewing angle and to provide the best traction, pull down on the scanner's feet so they lock into place.

TESTING ALERT OPERATION

For your scanner's weather alert function to be effective, you must place the scanner:

- Where it can receive an emergency alert broadcast (see "Testing Alert Reception" on this page)
- Where you can hear its alert tone (See "Testing the Weather Alert" on Page 11).

Once you determine a location that meets these two conditions, leave the scanner there for the best protection.

Testing Alert Reception

The fact that you get clear voice reception or that the tone sounds when you test the weather alert does not guarantee that an emergency alert broadcast will trigger your scanner's alert tone. Also, if you are in a *fringe* area, your scanner might be triggered by a broadcast in one area, but not be triggered if you place it somewhere else (even close by).

To test for actual reception, your radio must receive a test or emergency alert broadcast. The National Weather Service (NWS) broadcasts a test alert every week on Wednesday between 11 AM and 12 Noon. To find out the specific test schedule in your area, contact your local National Oceanic and Atmospheric Administration (NOAA) or National Weather Service office. These offices are usually listed in the telephone book under "US Government, Department of Commerce."

To verify that your scanner receives the test alert properly, set the scanner to the weather alert standby mode (see "Using the Weather Alert Standby Mode" on Page 25) during the time when the test alert is broadcast in your area.

If the test alert broadcast does not trigger your scanner's tone, you are out of range of the broadcast.

Note: If you use your scanner's weather alert feature when you travel, you cannot guarantee that an emergency alert broadcast will trigger the scanner in all areas.

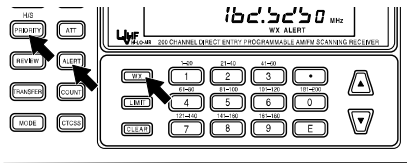
Notes for Weather Alerts:

- To ensure your scanner will sound the alert tone when it receives an emergency signal, keep the antenna fully extended at all times.
- If severe weather threatens, do not wait for an alert tone; turn on your scanner and monitor the latest weather information.

Testing the Weather Alert

Follow these steps to test the weather alert — to hear how it sounds and ensure that the circuitry is working.

Note: This test does not ensure that your scanner will sound an alert when the weather service transmits an emergency signal (see “Weather Alert” on Page 25). Proper operation is affected by the strength of the weather service’s signal.

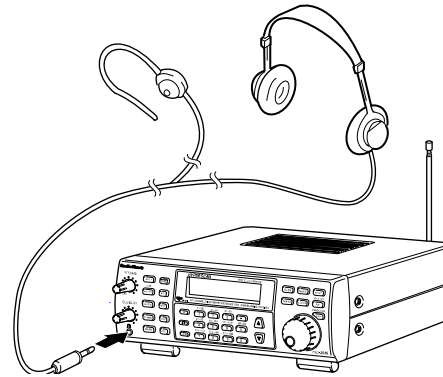


1. Press **WX**.
2. When the scanner stops on a weather channel, press **ALERT**. **ALERT** appears on the display.
3. Press and hold **PRIORITY** for more than 2 seconds until the scanner sounds a loud alarm.

To turn off the alarm, press **ALERT** or **WX**.

CONNECTING AN EARPHONE

For private listening, plug an earphone or mono headphones’ 1/8-inch plug into the ∩ jack on the front of the scanner. This disconnects the internal speaker.



Note: Your local RadioShack store has a wide selection of earphones and headphones.

Listening Safely

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

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

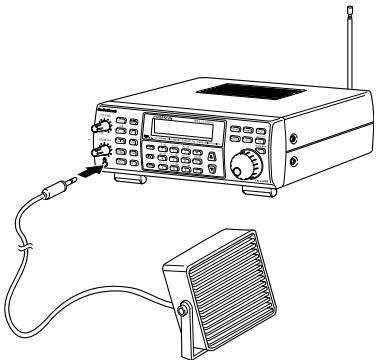
Traffic Safety

Do not wear an earphone or headphones while operating a motor vehicle. 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 listening at normal volume levels, they still can present a traffic hazard.

CONNECTING AN AMPLIFIED EXTENSION SPEAKER

In a noisy area, an amplified extension speaker might provide more comfortable listening. Plug the speaker cable's 1/8-inch (3.5 mm) mini plug into the scanner's ∩ jack. This disconnects the internal speaker.



Note: RadioShack stores sell an amplified communications extension speaker.

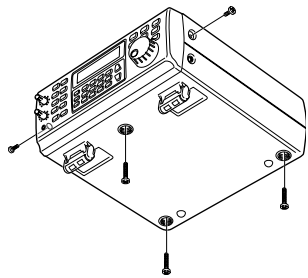
INSTALLING AN OPTIONAL CTCSS TONE BOARD

The scanner's CTCSS (Continuous Tone Control Squelch System) feature lets you choose to listen only to transmissions that transmit one of 38 standard CTCSS tones. To use CTCSS, you must install an optional CTCSS tone board (Cat. No. 20-0031).

Cautions:

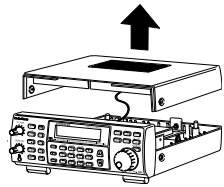
- Make sure the scanner is off and disconnect the power before you install a CTCSS tone board.
- Discharge static electricity buildup by touching a metal object before you open the scanner.

1. Use a Phillips screwdriver to remove the two side screws on the scanner's top cover and three screws on the bottom.

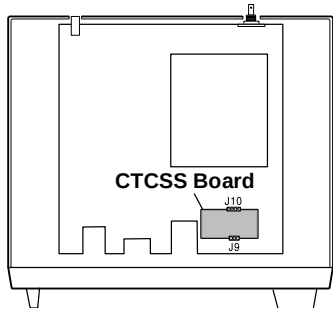


Caution: The scanner's speaker is attached to the top cover and the circuit board. Use care when you remove the top cover to not damage the speaker or its connector.

2. Remove the scanner's top cover.



3. Gently plug the CTCSS board into sockets **J9** and **J10** on the top of the scanner's circuit board.



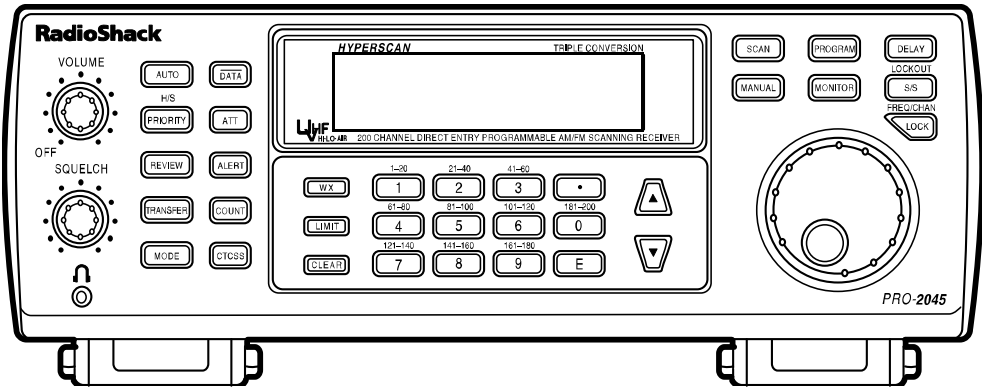
4. Replace the scanner's top cover, then replace the two side screws and three bottom screws.

Note: For information about using CTCSS, see "Using CTCSS" on Page 30.

UNDERSTANDING YOUR SCANNER

A LOOK AT THE KEYBOARD

A quick glance at this section should help you understand each key's function(s).



VOLUME — rotate to turn the scanner on or off and adjust the volume.

SQUELCH — rotate to adjust the squelch.

AUTO — lets you automatically program frequencies into banks; sets the the scanner to scan banks from the lowest to the highest frequency.

H/S-PRIORITY — sets and turns on and off priority for a particular channel; turns on and off Hypersearch.

REVIEW — lets you review locked-out channels or search skip memory.

TRANSFER — transfers the contents of a channel to an empty or desired channel, or exchanges the contents of two channels.

MODE — selects the modulation mode (AM and FM) function.

DATA — turns on or off data skip.

ATT — turns on or off the attenuator to let you limit reception to strong, local transmitters.

ALERT — sets the scanner to the weather alert mode.

COUNT — sets the scanner to display the number of times the scanner detected a transmission on a channel since you turned the scanner on.

CTCSS — lets you use the optional CTCSS mode if you installed a CTCSS tone board.

WX — starts scanning the weather frequencies.

LIMIT — starts a limit search.

CLEAR — clears an incorrect entry.

Number Keys — each key has a single digit with a range of numbers printed above it. The single digits are used to enter the number of a channel or frequency. The range of numbers (21–40, for example) indicates the channels that make up a memory bank. See “Understanding Channel-Storage Banks” on Page 17.

• — enters a decimal point when you set a frequency.

E — enters the frequency when you program channels.

s and t — select the search direction.

SCAN — scans through programmed channels.

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

PROGRAM — programs frequencies into channels.

MONITOR — accesses the 10 monitor memories. See “Moving a Frequency from a Monitor Memory to a Channel” on Page 23.

DELAY — programs a 2-second delay for the selected channel and turns on or off the delay during a limit or direct search or weather scan.

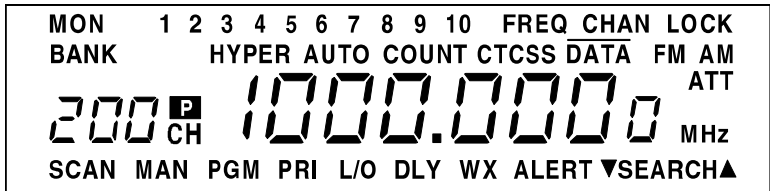
LOCKOUT-S/S — lets you lock out a selected channel, or skip a specified frequency during a limit or direct search.

FREQ/CHAN-LOCK — selects the rotary tuner’s mode — frequency tuning, channel tuning, or locked.

Rotary Tuner — turn to tune through channels or frequencies. Turn the rotary tuner faster to increase the tuning speed.

A LOOK AT THE DISPLAY

The display has several indicators that show the scanner's current operating mode. A good look at the display will help you understand how your scanner operates.



MON — appears during a search or when you listen to a monitor memory. The number to the right of this shows the current monitor memory number. See "Listening to Monitor Memories" on Page 23.

FREQ, CHAN, LOCK — shows the rotary tuner's current setting.

BANK — shows which channel-storage banks are turned on. See "Understanding Channel-Storage Banks" on Page 17.

HYPER — appears when you scan channels or when the scanner is in the Hypersearch mode during limit search, direct search, and auto store.

AUTO — appears when the scanner is in the auto store mode or when the auto sort function is turned on.

COUNT — appears when you use the scanner's count feature.

CTCSS — appears when the CTCSS feature is turned on.

DATA — appears when you turn on the data skip feature.

FM/AM — shows the current modulation mode; flashes when you override the default mode.

P — appears when you listen to a priority channel.

CH — digits that precede this indicator show which of the 200 channels the scanner is tuned to.

ATT — appears when the attenuator is turned on.

MHz — the large digits that precede this indicator show which frequency the scanner is tuned to.

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 — appears when you set the scanner to scan the selected priority channels every 2 seconds.

L/O — appears when you manually select a locked channel or a skipped frequency.

DLY — appears when you program a channel for a 2-second delay or when you listen to a channel that has been programmed with the delay feature. Also, the indicator appears when you turn on the delay feature during a limit or direct search or weather scan.

WX — appears when the scanner is searching the weather band frequencies.

ALERT — appears when the scanner is set to respond to a weather alert tone.

s and t — indicate the search direction.

SEARCH — appears during a limit search (**-L-** also appears), direct frequency search (**-d-** also appears), weather frequency search, auto store mode, hold direct search (**-h-** also appears), and hold limit search (**-H-** also appears).

UNDERSTANDING CHANNEL-STORAGE BANKS

You can store up to 210 frequencies into your scanner's memory. You store each frequency into either a memory called a channel, or a temporary memory called a monitor. This scanner has 200 channel memories and 10 monitor memories.

Channel-Storage Banks

To make it easier to identify and select the channels you want to listen to, channels are divided into 10 channel-storage banks of 20 channels each. Use each channel-storage bank to group frequencies, such as the police department, the fire department, ambulance services, or aircraft (see "Guide to the Action Bands" on Page 34).

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 then program fire department frequencies starting with Channel 21 (the first channel in Bank 2).

MONITOR MEMORIES

The scanner also has 10 monitor memories. You can use these memories to temporarily store frequencies while you decide whether or not to save them into channels. This is handy for quickly storing an active frequency when you search through an entire band. See "Searching For and Temporarily Storing Active Frequencies" on Page 19.

TURNING ON THE SCANNER/SETTING VOLUME AND SQUELCH

1. Rotate **VOLUME** 1/4 turn clockwise to turn on the scanner.
2. Rotate **SQUELCH** fully counterclockwise.
3. Slowly turn **SQUELCH** clockwise until the hissing stops.

Note: To hear a weak or distant station, turn **SQUELCH** counterclockwise. You might hear hissing, but you will not miss any transmissions. If you turn **SQUELCH** too far counterclockwise, the scanner does not search or scan.

USING THE ROTARY CONTROL

The rotary control has three modes that you select using the **FREQ/CHAN-LOCK** button. To select the control's mode, repeatedly press **FREQ/CHAN-LOCK** until the scanner displays the desired mode.

FREQ — the rotary control steps through frequencies during a search.

CHAN — the rotary control steps through the programmed channels.

LOCK — the rotary control does not operate. Use this setting to help prevent accidentally changing the channel or frequency.

STORING FREQUENCIES

You can store up to 200 frequencies into your scanner's channels. Good frequency references are RadioShack's "Police Call Guide including Fire and Emergency Services," "Official Aeronautical Frequency Directory," and "Maritime Frequency Directory." These directories are updated every year, so be sure to get a current copy.

If you do not have a frequency reference for your area, you can use a limit or direct search to find transmissions. See "Searching For and Temporarily Storing Active Frequencies" on Page 19 or "Guide to the Action Bands" on Page 34.

Follow these steps to manually store frequencies.

1. Press **PROGRAM**. **PGM** appears on the display.
2. Enter the number for the channel where you want to store a frequency.

   Note: You can enter the channel number using any of the following methods:

   - Use the number keys to enter the channel number, then press **PROGRAM**.
   - Press **PROGRAM** to increment the channel number one step at a time.

- Press **FREQ/CHAN-LOCK** until the **CHAN** indicator appears. Turn the rotary tuner to select the desired channel.

3. Enter a frequency (including the decimal point).
4. Press **E** to store the frequency.

   Notes:

   - If you made a mistake in Step 3, the scanner displays **Error** and beeps three times. Press **CLEAR**, then proceed again from Step 3.
   - Your scanner rounds frequencies down to the next valid frequency. For example, if you enter 151.473, the scanner accepts this as 151.470.

5. Repeat Steps 2-4 to program more channels.

SEARCHING FOR AND TEMPORARILY STORING ACTIVE FREQUENCIES

You can search for frequencies using a limit or direct search, then temporarily store frequencies into monitor memories.

Limit Search

A limit search lets you search for active transmissions within a specified range of frequencies.

Note: You can use the scanner's delay feature during a limit search (see "Delay" on Page 26).

Follow these steps to search for active frequencies.

1. Press **PROGRAM**, then **LIMIT**. **Lo** and a frequency appear on the display.
2. Using the number keys, enter the lowest frequency (including the decimal point) you want to search, then press **E**.

   Notes:

   - To use the rotary tuner to enter the frequency, turn it clockwise or counterclockwise until the desired frequency appears, then press **E**.
   - If you enter an invalid frequency, the scanner displays **Error**. To correct this, simply repeat the step.

3. Press **LIMIT**. **Hi** and a frequency appear on the display.
4. Using the number keys or the rotary tuner, enter the highest frequency you want to search, then press **E**.
5. Press s to search up from the lower to the upper limit, or press t to search down from the upper to the lower limit. **–L–**, **SEARCH**, and s or t appear, and the next available monitor memory flashes on the display.

6. When the scanner finds a transmission, you can:

   - Store the displayed frequency into the current monitor memory — quickly press **MONITOR**.
   - Lock out the frequency so the scanner does not stop on it again — press **S/S**. The scanner resumes searching.
   - Continue the search without storing it or locking it out — press s or t.
   - Hold the scanner on the frequency — press **LIMIT** or turn the rotary tuner either way one click. **-H-** appears.

   Notes:

   - You can press s or t while the scanner displays **-H-** to step through the frequencies toward the upper or lower limits.
   - If you tune to a search skip frequency, the scanner displays **L/O** (see "Search Skip" on Page 21).
   - If you program all frequencies within a limit search range as search skip frequencies, the scanner goes to the hold mode. **-H-** appears on the display.
   - During the limit search, you can change the modulation (NFM or AM). See "Changing the Modulation Mode" on Page 28.

   Press **LIMIT** again or press and hold s or t for more than 1 second to resume the limit search.

Direct Search

A direct search lets you specify a starting frequency, then search for active transmissions above or below the specified frequency.

Note: You can use the delay feature during a direct search (see "Delay").

1. Press **MANUAL**.
2. Using the number keys, enter the frequency (including the decimal point) you want to start the search from; or, enter the channel number containing the starting frequency and press **MANUAL** or **PROGRAM** to select the channel.
3. Press s to search up or t to search down starting from the specified frequency. **-d-**, **SEARCH**, and s or t appear, and the next available monitor memory flashes.

   Note: If you enter an invalid frequency, **Error** appears on the display. To correct this, repeat Steps 2 and 3.

4. When the scanner finds an active frequency, you can do one of the following:

   - Store the frequency into the current monitor memory — quickly press **MONITOR**.
   - Lock out the frequency so the scanner does not stop on it again — press **S/S**. The scanner resumes searching.

- Continue the search — press s or t.
- Hold the scanner on the frequency — press **LIMIT** or turn the rotary tuner either way one click. **-h-** appears.

Notes:

- You can press s or t during the hold to step through the frequencies toward the upper or lower limits.
- If you tune to a search skip frequency, the scanner displays **L/O** (see "Search Skip" on Page 21).
- During the direct search, you can change the modulation mode (NFM or AM). See "Changing the Modulation Mode" on Page 28.

Press **LIMIT** again or press and hold s or t for more than 1 second to resume the direct search.

Search Skip

You can skip specified frequencies during a limit or direct search. This lets you avoid frequencies that have data tones or are already stored in a channel. You can program up to 50 frequencies for the scanner to skip.

Notes:

- If you program more than 50 skip frequencies, each new frequency replaces one you already stored.
- You can select the skipped frequency when the scanner is in the hold mode. The scanner displays **L/O** when you select a skipped frequency.

To skip a frequency, press **S/S** when the scanner stops on the frequency during a limit or direct search.

Follow these steps to see which skip frequencies you have stored.

1. During a limit or direct search, press **REVIEW**. The first skip frequency appears on the display.
2. Use s, t, or **REVIEW** to review the other skip frequencies.

To remove a skip frequency, select the skip frequency you want to clear by using s, t, or **REVIEW**, then press **S/S**.

To clear all the skip frequencies at once, while searching for frequencies, press and hold **S/S** until the scanner beeps twice.

AUTOMATICALLY STORING FREQUENCIES

You can have your scanner automatically store active frequencies into empty channels within the banks you specify.

1. Press **PROGRAM** then **LIMIT**. **Lo** and the lower limit frequency appears.
2. Enter the lower limit using the number keys or use the rotary tuner to enter the lower limit of the frequency range you want to search, then press **E**.

   Note: If you enter an invalid frequency in Step 2 or 4, the scanner displays **Error**. Simply repeat the step.
3. Press **LIMIT**. **Hi** appears.
4. Enter the upper limit using the number keys or use the rotary tuner to enter the upper limit of the frequency range you want to search, then press **E**;.
5. Press **AUTO**. **AUTO** appears and the numbers 1–10 flash on the display.
6. Using the number keys, enter the numbers of the banks where you want to store frequencies. The selected banks' indicators appear steadily in the display. All other banks' indicators flash.

   Notes:

   - To select bank 10, press **0**.
   - If you select a bank that does not contain an empty channel, the scanner beeps and **FULL** appears.
   - To deselect the bank, press the bank number again.
7. Press s to search from the lower to the upper limit, or t to search from the upper to lower limit. The current bank's indicator starts blinking. The current channel also appears.

   When the scanner finds a transmission, it checks to see if the frequency is stored in any other channel. If not, the scanner stores the frequency, then continues searching for more transmissions.
8. To stop storing frequencies, press **MANUAL**.

When all channels fill, the scanner beeps twice and **End** appears. Press **MANUAL** to display the channel where the last frequency was stored.

LISTENING TO MONITOR MEMORIES

Once you store frequencies into monitor memories using a direct or limit search or weather scan, you can listen to a monitor memory by pressing **MANUAL**, **MONITOR**, and then the number for the monitor memory you want to listen to.

Note: To listen to the monitor memories, the priority channel feature must be turned off.

MOVING A FREQUENCY FROM A MONITOR MEMORY TO A CHANNEL

1. Press **PROGRAM**.
2. Enter the channel number where you want to store the frequency, then press **PROGRAM**. **PGM** appears on the display.
3. Press **MONITOR**. Use the number keys or turn the rotary tuner to select the monitor memory's number. The channel number flashes and the frequency appears.
4. Press **E**. The scanner stores the frequency into the selected channel.

SCANNING CHANNELS

To begin scanning channels, press **SCAN**. The scanner scans through all non-locked channels in the activated banks. (See "Turning Channel-Storage Banks On and Off" below and "Locking Out Channels" on Page 25.)

Note: If the scanner does not scan, be sure you have set **SQUELCH** correctly.

Turning Channel-Storage Banks On and Off

You can turn each channel-storage bank on and off. When you turn off a bank, the scanner does not scan any of the 20 channels in that bank.

While scanning, press the number key corresponding to the bank you want to turn on or off. If the memory bank number at the top of the display is on, the bank is turned on and the scanner scans all channels within that bank that are not locked out. If the number is off, the scanner does not scan any of the channels within that bank.

Notes:

- You can manually select any channel in a bank, even if the bank is turned off.
- There must be at least one active bank. You cannot turn off all banks.

Locking Out Channels

You can increase the effective scanning speed by locking out channels that have a continuous transmission, such as a weather channel.

Note: You can manually select the channels you have locked out.

To lock out a channel, manually select the channel, then press **LOCKOUT** so **L/O** appears on the display.

To review the locked-out channels, manually select the first channel you want to review. Then repeatedly press **REVIEW** to see the locked-out channels in sequence.

Note: If you press **REVIEW** when there is no locked-out channel, the scanner sounds an error tone.

To remove the lock-out from a channel, manually select the channel, then press **LOCKOUT** so **L/O** disappears from the display.

Follow these steps to unlock all channels in the selected banks.

1. Select the banks while the scanner is scanning.
2. Press **MANUAL** to stop scanning.
3. Press and hold **LOCKOUT** until the scanner beeps twice.

MANUALLY SELECTING A 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 want to monitor a specific channel.

If your scanner is scanning and stops at the desired channel, press **MANUAL** one time. Pressing **MANUAL** additional times causes your scanner to step through the channels.

To manually select a channel, press **MANUAL** or turn the rotary tuner either way one click. Then enter the channel number using either of the following methods:

- Enter the channel number, then press **MANUAL** again.
- Press **FREQ/CHAN-LOCK** until the scanner displays **CHAN**, then turn the rotary tuner until the desired channel number appears.

SCANNING THE WEATHER BAND

The FCC (Federal Communications Commission) has allocated 11 channels for use by the National Oceanic and Atmospheric Administration (NOAA).

Your scanner is preprogrammed with the following seven frequencies available to NOAA.

- 162.400 MHz
- 162.450 MHz
- 162.500 MHz
- 162.475 MHz
- 162.425 MHz
- 162.550 MHz
- 162.525 MHz

To hear your local forecast and regional weather information, simply press **WX**. **WX** appears on the display.

Your scanner scans the weather band and stops on an active broadcast. If a broadcast is weak, press **WX** again to continue to scan through the weather band. To store the current weather channel in a monitor memory, press **MONITOR**.

Weather Alert

Your scanner's weather alert feature can warn you when your local NOAA weather station broadcasts a severe weather emergency signal. (See "Testing Alert Operation" on Page 10.)

1. Press **WX** to find the clearest local weather broadcasting station.
2. Press **ALERT**. **ALERT** appears.

When NOAA broadcasts a severe weather emergency signal, the scanner sounds a loud alarm (regardless of the volume control setting). The alarm continues until the emergency signal stops transmitting.

To manually turn off the siren and exit the weather alert mode, press **ALERT** or **WX**.

Using the Weather Alert Standby Mode

When you set the scanner to the weather alert standby mode, the scanner's display and speaker turn off until the scanner receives the severe weather emergency signal. When the scanner receives the signal, it sounds a loud alarm. To set the scanner to the weather alert standby mode, follow these steps.

1. Press **WX**.
2. When the scanner stops on a weather channel, press **ALERT** for 2 seconds. The scanner displays **on ALErt** for 10 seconds, then the display turns off and your scanner is in the weather alert standby mode.

To exit the weather alert standby mode, press **ALERT** or **WX**.

SPECIAL FEATURES

DELAY

Many agencies use a two-way radio system that might have a period of 2 or more seconds between a query and a reply. To keep from missing a reply on a specific channel, you can program a 2-second delay into any channel, or on frequencies during a frequency search. The scanner continues to monitor the frequency for 2 seconds after the transmission stops before resuming scanning.

To program a 2-second delay:

- 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** while the scanner is searching. **DLY** appears on the display and the scanner automatically adds a 2-second delay to every transmission it stops on.

To turn off the 2-second delay, press **DELAY** while the scanner is monitoring the channel or while the scanner is searching. **DLY** disappears from the display.

PRIORITY

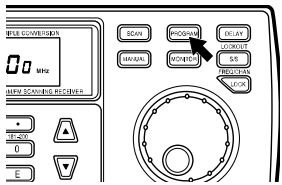
The priority feature lets you scan through channels and still not miss important or interesting calls on specific channels. You can program one stored channel in each bank as a priority channel (up to 10 stored channels). As the scanner scans the banks, it checks the priority channels every 2 seconds for activity.

Notes:

- You cannot use the priority and data skip features at the same time.
- You cannot use the priority and count features at the same time.
- You can lock out priority channels. If you lock out all priority channels, the display shows **LOC OUt** when you turn on the priority feature.
- The priority feature must be turned off to listen to monitor memories.
- The scanner checks the lowest-numbered priority channels first. If it detects a transmission on a priority channel, it stays on that channel and does not check the other priority channels until the transmission ends.

The scanner automatically designates each bank's first channel as that bank's priority channel. Follow these steps to program a different channel as the priority channel for a bank.

1. Press **PROGRAM**.
2. Use the number keys to enter the channel number you want to program as the priority channel, then press **PRIORITY**. **P** appears on the display to the right of the channel number.



3. Repeat Steps 1-2 for each channel you want to program as a priority channel.
4. To confirm all priority channel numbers for banks, press **PROGRAM** then repeatedly press **PRIORITY** to see the priority channels.

To turn on the priority feature, press **PRIORITY** during scanning. **PRI** appears on the display, and the scanner checks the priority channel in all selected banks every 2 seconds, from the lowest-numbered priority channel to the highest-numbered priority channel. It stays on the channel if there is activity, and **P** appears on the display.

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

CHANGING SEARCH SPEEDS

The PRO-2045 has two search speeds.

	Normal Search	Hypersearch
Speed	100 steps/ second	300 steps/ second

To switch between the normal and Hypersearch speeds, during a search or auto store, press **H/S**. **HYPER** appears on the display during a HyperSearch.

Note: You can use Hypersearch only in the 5 kHz-step bands. See "Specified Intervals" on Page 35.

USING THE PROGRAMMABLE ATTENUATOR

To limit reception to strong local broadcasts, you can reduce the scanner's sensitivity by turning on the attenuator.

You can turn the attenuator on or off for individual channels, or use this function during a limit, direct, or weather search.

To turn on the attenuator, press **ATT** until **ATT** appears on the display. To turn off the attenuator, press **ATT** until **ATT** disappears.

USING AUTO SORT

You can set the scanner to scan within each bank from the channel with the lowest frequency to the channel with the highest frequency, instead of in channel number order. This makes the scanner scan faster.

Follow these steps to turn on auto sort.

1. Turn off the scanner.
2. Press and hold **AUTO**, then turn on the scanner. **on Sort** appears for 3 seconds. During scanning, **AUTO** appears.

To turn off auto sort, repeat these steps. **OFF Sort** appears for 3 seconds.

SKIPPING DATA SIGNALS

You can set the scanner to skip non-modulated or data signals (such as control signals for pagers or trunked systems) when searching or scanning.

Note: This feature does not work in the AM mode (see "Changing the Modulation Mode" on Page 28). Also, the scanner might not skip data signals that have varied patterns of pauses and frequencies.

To skip data signals, press **DATA** until **DATA** appears. To turn off data skip, press **DATA** until **DATA** disappears.

TURNING ON OR OFF THE KEY TONE

Your scanner beeps each time you press a key. Follow these steps to turn off the key tone beep.

1. Turn off the scanner.
2. Press and hold **LOCKOUT**, then turn on the scanner. **OFF bEEP** appears.

To turn on the beep, repeat these steps. **on bEEP** appears.

CHANGING THE MODULATION MODE

Your scanner receives amplitude modulated (AM) or narrow-band frequency modulated (NFM) transmissions and selects the mode most commonly used in each frequency range. However, you can manually change the mode while the scanner is searching for frequencies or scanning channels. The selected mode flashes if it is not the default.

To change the modulation mode, press **MODE** until the desired modulation mode (**AM** or **FM**) flashes on the display.

To return to the default modulation mode, press **MODE** until the mode no longer flashes.

TRANSFERRING A FREQUENCY TO ANOTHER CHANNEL

Transferring to an Empty Channel

This feature lets you reassign a stored frequency to another bank's vacant channel.

Note: You cannot transfer a frequency into or out of a priority channel.

1. Press **MANUAL** to stop scanning.
2. Using the number keys or the rotary tuner, select the channel that has the frequency you want to transfer.
3. Press **TRANSFER**. All bank indicators flash on the display.
4. Use the number keys to select the desired bank number. The frequency is automatically transferred to the selected bank's lowest empty channel.

Note: If all that bank's channels are already used, **FULL** appears. In that case, you can select another bank.

Transferring to a Channel that has a Stored Frequency

1. Press **MANUAL** to stop scanning.
2. Press **FREQ/CHAN-LOCK** until **CHAN** appears on the display.
3. Using the number keys or the rotary tuner, select the channel that has the frequency you want to transfer.
4. Press **TRANSFER** twice. **CH** flashes on the display.
5. Using the number keys or the rotary tuner, select the desired channel.
6. Press s to transfer the frequency.

Exchanging Frequencies Between Two Programmed Channels

1. Press **MANUAL** to stop scanning.
2. Press **FREQ/CHAN-LOCK** until **CHAN** appears.
3. Using the number keys or the rotary tuner, select the channel that has the frequency you want to transfer.
4. Press **TRANSFER** twice. **CH** flashes on the display.
5. Using the number keys or the rotary tuner, select the desired channel.
6. Press t to exchange the frequencies.

USING THE COUNT FEATURE

The scanner can count the number of times it has detected a transmission on each channel since you turned on the scanner or cleared the count.

1. While the scanner is scanning, press **MANUAL**.
2. Press **COUNT**. The scanner displays **COUNT**, the current channel number, and the count number.
3. Repeatedly press **MANUAL** to display each channel and the number of times the scanner detected a transmission on that channel.

   Note: If **CHAN** is on the display, you can use the rotary tuner instead of pressing **MANUAL** to display the channel count.

While you view the count for a channel, you can zero the count by pressing **CLEAR**.

To turn off the count display, press **COUNT** until **COUNT** disappears.

USING CTCSS

CTCSS is frequently used when two different services or groups use the same frequencies, but are relatively close together. Each group sets their transmitters to different CTCSS frequencies, and sets their receivers to only let them hear transmissions that include the correct CTCSS frequency. This helps to avoid radio interference between the groups.

You can use the CTCSS feature to lock out undesired transmissions and monitor only those which transmit a specific CTCSS tone.

Note: You must install a CTCSS tone board before you can use this feature. “Installing an Optional CTCSS Tone Board” on Page 12.

CTCSS Tone Frequencies

The following table shows the available CTCSS tone frequencies and the letter codes commonly used in the industry to refer to the frequencies:

XZ	67.0	1B	107.2	6Z	167.9
XA	71.9	2E	110.9	6A	173.8
WA	74.4	2A	114.8	6B	179.9
XB	77.0	2B	118.8	7Z	186.2
WB	79.7	3Z	123.0	7A	192.8
YZ	82.5	3A	127.3	M1	203.5
YA	85.4	3B	131.8	M2	210.7
YB	88.5	4Z	136.5	M3	218.1
ZZ	91.5	4A	141.3	M4	225.7
ZA	94.8	4B	146.2	M5	233.6
ZB	97.4	5Z	151.4	M6	241.8
1Z	100.0	5A	156.7	M7	250.3
1A	103.5	5B	162.2		

Assigning a CTCSS Tone Frequency to a Channel

You can specify the CTCSS tone frequency you want the scanner to detect on a specific preprogrammed channel.

1. Select the channel number that has the frequency you want to assign a CTCSS tone frequency to.
2. Press **PROGRAM**. **PGM** appears on the display.
3. Press **CTCSS**. **CTCSS** and **00.0** appear on the display.
4. Press **FREQ/CHAN-LOCK** until **FREQ** appears on the display.
5. Using s, t, or the rotary tuner, choose the CTCSS frequency. The channel number flashes on the display.

   Note: Turn the rotary tuner clockwise to step up the displayed tone frequency. Turn the rotary tuner counterclockwise to step down the displayed tone frequency.
6. Press **E**. The channel number stops flashing.
7. Press **MANUAL**. The scanner displays the channel and frequency.
8. To turn on CTCSS for that channel, press **CTCSS**. The scanner's display alternates between the frequency and the CTCSS tone frequency.

Changing or Deleting a CTCSS Tone Frequency for a Channel

1. If **CTCSS** is not displayed, press **CTCSS**. The scanner displays **CTCSS**.
2. Select the channel number that contains the CTCSS tone frequency you want to change or delete.
3. Press **PROGRAM**, then **CTCSS**.
4. Using s, t, or the rotary tuner, select **00.0** to delete the CTCSS tone frequency or select another CTCSS tone frequency to replace the current one.
5. Press **E**.

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.

During the summer months, you might be able to hear stations in the 30–50 MHz range located several hundred or even thousands of miles away. This is because of summer atmospheric conditions. This type of reception is unpredictable but often very interesting!

GUIDE TO FREQUENCIES

National Weather Service Frequencies

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

Ham Radio Frequencies

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

The following chart shows the voice frequencies that you can monitor.

Wavelength	Voice Frequency (MHz)	
10-meter	29.000	29.700
6-meter	50.100	54.000
2-meter	144.100	148.000
$1^1/_4$-meter	222.000	225.000
70-centimeter	420.000	450.000
33-centimeter	902.000	928.000

Birdie Frequencies

Birdies are frequencies your scanner uses when it operates. These operating frequencies might interfere with broadcasts on the same frequencies. If you tune 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. Here are this scanner's birdie frequencies that you might want to watch for:

29.4900	114.6875	147.4550	405.6000
29.4950	117.9625	147.4600	416.0000
31.2000	124.5250	150.9100	417.1000
36.0450	127.8000	155.1050	456.9260
52.0000	131.0750	156.0000	469.5000
52.4300	134.3500	228.4625	813.4000
108.1375	135.2000	230.5625	820.1125
108.8125	137.6250	232.1000	940.9000
111.4125	140.9050	398.2375	993.5000
114.4000	144.1800		

To find the birdies in any receiver, begin by disconnecting the antenna and moving it away from the receiver. Make sure that no other nearby radio or TV sets are turned on near the receiver. 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

HF Band (29.00–30.0 MHz)

10-Meter Amateur ..... 29.00–29.70 MHz

VHF Band (30.00–300.0 MHz)

Low Range ..... 29.70–50.00 MHz
6-Meter Amateur ..... 50.00–54.00 MHz
Aircraft ..... 108.00–136.98 MHz
U.S. Government ..... 137.00–144.00 MHz
2-Meter Amateur ..... 144.00–148.00 MHz
High Range ..... 148.00–174.00 MHz
New Mobile Narrow Band ..... 220.00–222.00 MHz
$1^1/_4$ -Meter Amateur ..... 222.00–225.00 MHz
Military Aircraft ..... 225.00–287.80 MHz

UHF Band (300.00 MHz–3.0 GHz)

Military Aircraft ..... 311.00–384.00 MHz
U.S. Government ..... 406.00–450.00 MHz
70-Centimeter Amateur ..... 420.00–450.00 MHz
Low Range ..... 450.00–470.00 MHz
Public Service ..... 806.00–823.98 MHz
Conventional Systems ..... 851.00–856.00 MHz
Conventional/Trunked Systems ..... 856.00–861.00 MHz
Trunked Systems ..... 861.00–866.00 MHz
Public Safety ..... 866.00–869.00 MHz
High Range ..... 894.01–902.00 MHz
33-Centimeter Amateur ..... 902.00–928.00 MHz
Private Trunked ..... 935.00–940.00 MHz
General Trunked ..... 940.00–941.00 MHz
Fixed Services ..... 941.00–944.00 MHz
Studio-to-Transmitter Broadcast Links ..... 944.00–952.00 MHz
Private Fixed Services, Paging ..... 952.00–960.00 MHz
Aeronautical Navigation ..... 960.00–1000.00 MHz

Primary Usage

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

VHF Band

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

UHF Band

Activities	Frequencies (MHz)
Land-Mobile Paired Frequencies	450.000–470.000
Base Stations	451.025–454.950
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

Band Type	Specified Interval (kHz)
VHF, HAM, and Government	5.0
Aircraft	25.0
All Others	12.5

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

BAND ALLOCATION

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

Abbreviations

AIR ..... Aircraft
BIFC ..... Boise (ID)Interagency Fire Cache
BUS ..... Business
CAP ..... Civil Air Patrol
CB ..... Citizens Band
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
PFSP ..... Private Fixed Services/Paging
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
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) (29 MHz-30 MHz)

10-Meter Amateur Band (29.0-29.7 MHz)

28.000-29.700.....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 ..... US, IND, PUB
34.010-34.990 .....GOVT, MIL
35.020-35.980BUS, 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

Aircraft Band (108–136 MHz)

108.000-121.490 .....AIR
121.500 ..... AIR Emergency

121.510-136.000 .....AIR

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 Mikes
169.500 .....GOVT
169.505 .....Wireless Mikes
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 Mikes
170.350-170.400 .....GOVT, MIL
170.425-170.450 ..... BIFC
170.475 ..... PUB
170.4875-173.175 .....GOVT, PUB,
Wireless Mikes
173.225-173.375 ..... MOV, NEWS, UTIL
173.3875-173.5375 .....MIL
173.5625-173.5875 ..... MIL,

Medical/Crash Crews

173.60-173.9875 .....GOVT

New Mobile Narrow Band (220-222 MHz)

220.000-222.000 ..... NEW

1 1/4-Meter Amateur Band (222-225 MHz)

222.000-225.000 .....HAM

Military Aircraft Band (237.9-287.8 MHz)

237.900 ... Coast Guard Search & Rescue
239.800 ..... FAA Weather
241.000 ..... Army
243.000 .....Emergency
255.400 ..... FAA Flight Service
257.800 .....Civilian Towers
287.800 ..... Coast Guard Air/Sea Rescue

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

Military Aircraft Band (319.1-383.9 MHz)

319.100 ..... FAA Air Traffic Control
321.000-336.600 ..... Air Force
342.500-344.600 ..... FAA Weather
346.400-364.200 ..... Air Force
Air Traffic Control
381.800-383.900 ..... Coast Guard

U.S. Government Band (406-450 MHz)
406.125-419.975 ..... GOVT, USXX
70-Centimeter Amateur Band (420-450 MHz)
420.000-450.000 ..... HAM

Low Band (450-470 MHz)
450.050-450.925 ..... RTV
451.025-452.025 ... IND, OIL, TELM, UTIL
452.0375-453.00 ..... IND, TAXI, TRAN, TOW, NEWS
453.0125-453.9875 ..... 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 (470-806 MHz) (Channel 14 through 69 in 6 MHz steps)
475.750 ..... Channel 14
481.750 ..... Channel 15
487.750 ..... Channel 16
.
.
805.750 ..... Channel 69

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

Conventional Systems Band
Locally Assigned
851.0125-855.9875 ..... CSB

Conventional/Trunked Systems Band
Locally Assigned
856.0125-860.9875 ..... CTSB

Trunked Systems Band
Locally Assigned
861.0125-865.9875 ..... TSB

Public Safety Band
Locally Assigned
866.0125-868.9875 ..... PSB

33-Centimeter Amateur Band (902-928 MHz)
902.000-928.000 ..... HAM

Private Trunked
935.0125-939.9875 ..... PTR

General Trunked
940.0125-940.9875 ..... GTR

Fixed Services
941.000-944.000 ..... GOVT

Studio-to-Transmitter Broadcast Links
944.000-952.000 ..... TVn

Private Fixed Services, Paging
952.000-960.000 ..... PFSP

Aeronautical Navigation
960.000-1000.000 ..... AIR

FREQUENCY CONVERSION

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

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

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

30.62 MHz x 1000=30620 kHz

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

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

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

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

TROUBLESHOOTING

If you have problems, here are some suggestions that might help. If none of these suggestions help, take your scanner to your local RadioShack store for assistance.

PROBLEM	POSSIBLE CAUSE	REMEDY
Scanner is totally inoperative.	No power.	Make sure you plugged the scanner into a working AC or DC outlet.
Scanner is on but will not scan.	• **SQUELCH** is not correctly adjusted. • A channel has been manually selected.	• Adjust **SQUELCH** clockwise. • Press **SCAN**.
While scanning, the scanner locks on frequencies that have an unclear transmission.	"Birdies."	Avoid programming frequencies listed under "Birdie Frequencies" on Page 33 or only listen to them manually.
Rotary tuner does not work.	Rotary lock is turned on.	Press **LOCK** until **FREQ** or **CHAN** appears on the display.

CARE AND MAINTENANCE

Your PRO-2045 200-Channel Direct Entry Programmable Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for the PRO-2045 so you can enjoy it for years.

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

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

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

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

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

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

SPECIFICATIONS

Frequency Coverage, Step, and Default Modulation Modes:

Range (MHz)	Step (kHz)	Mode
29–54	5	NFM
108–136.975	12.5	AM
137–174	5	NFM
216–224.9875	12.5	NFM
225–399.9875	12.5	AM
400–512	12.5	NFM
806–823.9375	12.5	NFM
851–868.9375	12.5	NFM
896.1125–1,000	12.5	NFM

Channels . . . . . 210 (20 Channels × 10 Banks + 10 Monitor Memories)

Sensitivity (20 dB S/N with 60% modulation for AM; 3 kHz deviation for NFM):

NFM	40.84 MHz	0.5 µV
S+N/N=20 dB	162.4 MHz	0.6 µV
	453.25 MHz	0.6 µV
	954.9125 MHz	0.8 µV
AM	127.175 MHz	1.5 µV
S+N/N=20 dB	230.05 MHz	1.5 µV
	325.05 MHz	1.5 µV

Direct/Limit Search Speed:
- Normal Speed . . . . . 100 Steps/Second
- Hypersearch . . . . . 300 Steps/Second

Scanning Speed . . . . . 50 Channels/Second

Priority Channel Sampling Interval . . . . . 2 Seconds

Programmable Delay . . . . . 2 Seconds

IF Frequencies	1st IF: 370.7 MHz 2nd IF: 10.85 MHz 3rd IF: 450 kHz (NFM)
Audio Power	1 Watt Maximum
Built-In Speaker	$2^{7}/_{16}$-Inch (57 mm), 8-Ohm, Dynamic Type
Maximum Current Drain	500 mA
Power Requirement	12 Volts
AC Adapter	Supplied
DC Adapter	RadioShack Cat. No. 270-1533
Dimensions	$3^{1}/_{4} \times 9^{1}/_{4} \times 8^{1}/_{16}$ Inches (HWD) ($82 \times 235 \times 205$mm)
Weight	1 lb, 17 oz (960 g)

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

RadioShack Limited Warranty

This product is warranted against defects for 1 year from date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your RadioShack sales slip** as proof of purchase date to any RadioShack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

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

We Service What We Sell *10/95*

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