# 20-405 User's Guide DRAFT

**RadioShack LOGO**

**User's Guide 20-405/PRO-405**

## Desktop Scanner

Thank you for purchasing your Radio Scanner from RadioShack. Please read this user's guide before installing, setting up, and using your new scanner

## Package Contents

Scanner
Antenna
AC Adapter
User's Guide
Quick Start Guide

www.radioshack.com

## CONTENTS

will add

## Features

Your new PRO-405 Radio Scanner lets you scan conventional transmissions and is preprogrammed with search banks of the most common frequencies used by public service agencies. Service Banks

are accessed by pressing a one-touch search key – no complicated programming required.

Your new scanner gives you direct access to over 26,000 frequencies, including those used by police and fire departments, FM broadcast, ambulance services, aircraft, and amateur radio services.

Your PRO-405 scanner also has these special features:

**Service Banks** – easy locate types of calls by searching preprogrammed frequencies in separate marine, fire/police, aircraft, ham, FM broadcast, and weather banks.

**Display Backlight** – makes the display easy to read in low-light situations.

**Lock-out Function** – skip over specified channels or frequencies when scanning or searching.

**Ten Channel-Storage Banks** – group and store 20 channels in each bank (200 total channels).

**Tune** – tune to new and unlisted frequencies starting from a specified frequency.

**SAME/FIPS Weather Alert** – displays the weather event and sounds an alert for the specific cities or counties you choose.

**Memory Backup** – frequencies remain stored in memory for an extended time even without power.

**Scan Delay** – delays scanning for two seconds before moving to another channel in order to hear replies.

**Priority Channel** – set the scanner to check one channel every two seconds while scanning

**Data Cloning** – transfer the programmed data to another PRO-405 scanner.

**Real-time Signal Strength Indicator** – shows relative strength of received signals.

**Liquid-Crystal Display** – easy to view and change programming information.

**Telescopic Antenna** – provides good reception of strong local signals. You can also connect an external antenna for improved reception of distant or weak signals.

Your PRO-405 scanner can receive these bands:

| Frequency Range | Types of Transmissions |
|---|---|
| 29-54 MHz | 10-Meter Ham, VHF Lo, 6-Meter Ham |
| 87.3-107.9 MHz | FM Broadcast |
| 108-136.99166 MHz | Aircraft |
| 137-174 MHz | Military Land Mobile, 2-Meter Ham, VHF Hi |
| 380-512 MHz | UHF Aircraft, Federal Government, 70-cm Ham, UHF Standard, UHF "T" |

**Note:** See "Specifications" on page XX for more information about frequency steps.

## Understanding Your Scanner

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

A frequency is the receiving signal location (expressed in kHz or MHz). To find active frequencies, use the search function or consult an online resource such as www.radioreference.com. You can also search the categorized by type of service.

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

Channel Storage Banks

To make it easier to identify and select the channels you want to listen to, your scanner divides the channels into 10 banks (1 to 10) with 20 channels each, for a total of 200 channels. You can use each channel-storage bank to group frequencies, such as those used by the police department, fire department, ambulance services, or aircraft.

For example, you could program the frequencies used by your local police department 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).

Service Banks

The scanner is preprogrammed with the frequencies allocated to marine, fire/police, aircraft, ham radio, FM broadcast, and weather services. This is handy for quickly finding active frequencies instead of searching through an entire bank (see "Service Bank Search" on page XX).

Preprogrammed Service Bank Frequencies.

**Marine**

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 01 | 156.0500 | 63 | 156.1750 |
| 05 | 156.2500 | 64 | 156.2250 |
| 06 | 156.3000 | | 160.8250 |
| 07 | 156.3500 | 65 | 156.2750 |
| 08 | 156.4000 | 66 | 156.3250 |
| 09 | 156.4500 | 67 | 156.3750 |
| 10 | 156.5000 | 68 | 156.4250 |
| 11 | 156.5500 | 69 | 156.4750 |
| 12 | 156.6000 | 70 | 156.5250 |
| 13 | 156.6500 | 71 | 156.5750 |
| 14 | 156.7000 | 72 | 156.6250 |
| 15 | 156.7500 | 73 | 156.6750 |
| 16 | 156.8000 | 74 | 156.7250 |

| | | | |
|---|---|---|---|
| 17 | 156.8500 | 77 | 156.8750 |
| 18 | 156.9000 | 78 | 156.9250 |
| 19 | 156.9500 | 79 | 156.9750 |
| 20 | 157.0000 | 80 | 157.0250 |
| | 161.6000 | 81 | 157.0750 |
| 21 | 157.0500 | 82 | 157.1250 |
| 22 | 157.1000 | 83 | 157.1750 |
| 23 | 157.1500 | 84 | 157.2250 |
| 24 | 157.2000 | | 161.8250 |
| | 161.8000 | 85 | 157.2750 |
| 25 | 157.2500 | | 161.8750 |
| | 161.8500 | 86 | 157.3250 |
| 26 | 157.3000 | | 161.9250 |
| | 161.9000 | 87 | 157.3750 |
| 27 | 157.3500 | | 161.9750 |
| | 161.9500 | 88 | 157.4250 |
| 28 | 157.4000 | | |
| | 162.0000 | | |

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

**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 | - |
| | 45.900-46.060 | 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**

| Group | Frequency Range (MHz) | Step (kHz) |
|---|---|---|
| 1 | 108.000-118.000 | 8.33 |
| 2 | 118.00833-136.99166 | 8.33 |

**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 |

**FM Broadcast**

| Frequency Range (MHz) | Step (kHz) |
|---|---|
| 87.3-107.9 | 100 |

**Weather Channels**

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

## Understanding the Keypad

**SHIP** (Marine)

Search the preprogrammed marine bank.

**FIRE** (Fire Department/Police Department)

Search the preprogrammed fire/police bank.

**AIRPLANE** (Aircraft)

Search the preprogrammed aircraft bank.

**ANTENNA** (HAM)

Search the preprogrammed amateur radio bank.

**THUNDER/SKYWARN** (Weather/Skywarn)

• Search the seven preprogrammed weather channels.

• Press and hold to jump to the Skywarn channel (channel 200). You must first program your local Skywarn frequency into channel 200 (see page XX).

**RADIO** (FM Broadcast)

Search the FM broadcast station.

**SCAN/MAN** (Manual)

• Enter Scan mode to scan programmed channels.

• Enter Manual mode to stop scanning, directly enter a channel number, or monitor a single channel.

**UP/DOWN**

Select the direction for searching and scanning.

**PRI/ALERT**

• Enable and disable the priority feature.

• Enable and disable SAME standby mode when monitoring a weather channel.

**PSE**

Stop and restart a search or tune.

**0-9**

• Input a number when entering frequencies

• The range of numbers above the key (1-20, 21-40, 41-60, etc.) indicates the channels store in that bank.

•/DELAY

• Input a decimal point when entering frequencies.

• Program a two-second delay for the selected channel.

**ENT** (Enter)

Complete the entry of frequencies.

**L/O/ L/O RVW**

• Lock-out selected channels or frequencies.

• Review locked-out frequencies.

**TUNE/CLEAE**

• Enter Tune search.

• Clear an incorrect entry.

**PGM** (Program)
Program frequencies into channels

## Understanding the Display

Row 1

***SKYWARN*** – Skywarn channel active.
***FD/PD*** – Searching the fire/police bank.
***BANK*** – Appears with numbers (1-10) to indicate the scan bank. The bar under the bank number shows banks that are turned on for scanning.
***AIR*** – Searching the aircraft bank.
***HAM*** – Searching the amateur radio bank.

Row 2

***WX*** – Searching weather channels.
***MAR*** – Searching the marine bank.
***FM radio*** – Searching the FM broadcast bank.
***L/O*** – A locked out channel/frequency is manually selected or reviewed.
***000*** – Channel number the scanner is tuned to.
***CH*** – Appears with channel number (1-200) or P (priority channel).
***000.0000*** – Frequency the scanner is tuned to.

Row 3

***MAN*** – Manual mode.
***SCAN*** – Scan mode.
***SRCH*** – Searching a service bank.

Row 4

***UP/DOWN*** (Up/Down) – Search or scan direction.

***PRI*** – Priority feature is active.

***S*** – Signal meter indicating with bar strength of the received signal.

***PGM*** – Program mode.

***DLY*** – Two-second delay is active.

Additional Display Messages

***ALL CH L-out*** – All channels locked out while scan or marine band search.

***b X Ch-FULL*** – All displayed bank channels are full.

***b X StorE*** – Frequency programmed into displayed bank's channel.

***CLOnE*** – Clone mode.

***-dUPL-*** – Frequency is already stored in another channel.

***Error*** – Entry error.

***FLo ALL-CL*** – All the locked-out frequencies removed during a FD/PD, AIRCRAFT, or HAM bank search.

***L-r*** – Review the locked-out frequencies.

***L-O Fr-FULL*** – Maximum of 50 frequencies already locked out.

***oFF tonE*** – Key tone deactivated.

***On tonE*** – Key tone activated.

***P*** – Scanner is tuned to the priority channel.

***-t-*** – Tune mode.

Sub Bank Messages

***Lo VHF*** – Sub-bank 1 of the fire/police bank.

***Hi VHF*** – Sub-bank 2 of the fire/police bank.

***UHF*** – Sub-bank 3 of the fire/police bank.

***10 M*** – Sub-bank 1 of the HAM bank.

***6 M*** – Sub-bank 2 of the HAM bank.

***2 M*** – Sub-bank 3 of the HAM bank.

***70CM*** – Sub-bank 4 of the HAM bank.

# Setup

## Powering Your Scanner

You can power your scanner from a wall outlet, or from your vehicle's battery.

### Wall Outlet

1. Connect the tip of the supplied AC adapter to the DC 9V jack at the rear of your scanner.
2. Plug the AC adapter into your wall outlet.

To prevent electric shock, do not use the AC adapter's polarized plug with an extension cord, receptacle, or outlet unless you can fully insert the blades to prevent blade exposure.

**Note:** To avoid injury, do not connect the provided power adapter to a ceiling outlet.

**Note:** The correct orientation for the enclosed power adapter is in a vertical or floor-mount position.

### Vehicle (Cigarette-Lighter Socket)

To power your scanner from a 12V power source in your vehicle, such as a cigarette-lighter socket, you need a 9V, 400mA DC cigarette-lighter adapter (not supplied), available at your local RadioShack store.

1. Insert the adapter's barrel plug into the scanner's DC 9V jack.
2. Plug the adapter's other end into your vehicle's cigarette-lighter or power socket.

**Note:** When you use a cigarette-lighter adapter, you might hear electrical noise from your engine while scanning. This is normal. This is less of a problem if you connect directly to the vehicle fuse box.

## Connecting the Antenna

To attach the supplied rod antenna:

1. Insert the antenna to the hole on the top of the scanner.
2. Screw the antenna to turn right.

## Connecting an Outdoor Antenna

To connect an external antenna, follow the installation instructions supplied with the antenna. Use 50 ohm coaxial cable to connect your scanner to the outdoor antenna. For lengths between 50 and 100 feet, use RG-8X low-loss dielectric coaxial cable. For lengths over 100 feet, use RG8. You also may need a BNC adapter (available at your local RadioShack store).

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

## Connecting Earphone/Headphones

For private listening, you can plug an 1/8-inch (3.5mm) mini-plug earphone or headphones (not supplied), into the **HEADPHONE** jack on the back of the scanner. This automatically disconnects the internal speaker.

## Listening Safely

Do not wear headphones, earphones, or earbuds while operating a motor vehicle or riding a bicycle. This can create a traffic hazard and could be illegal in some areas.

To protect your hearing, follow these guidelines:

• Do not listen at high volume levels. Extended high-volume listening can lead to permanent hearing loss.

• Set the volume to the lowest setting. Then turn on your audio device and adjust the volume to a comfortable level.
• Avoid increasing the volume. Your ears will adapt to the volume level, so a level that does not cause discomfort could still damage your hearing.

### Connecting an Extension Speaker

In a noisy areas, an amplified extension speaker (available from your local RadioShack store or www.RadioShack.com), might provide more comfortable listening. Plug the speaker cable's 1/8-inch (3.5mm) mini plug into your scanner's **HEADPHONE** jack.

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

## Basic Operation

### Turning on the Scanner and Setting Volume and Squelch

1. Turn **SQUELCH** until the indicator points to **MIN** before you turn on the scanner.
2. To turn on the scanner, slide **POWER** to **ON**. A welcome message appears. After about 3 seconds, you might hear a hissing sound. Then adjust **VOLUME** to a comfortable listening level.
3. Turn **SQUELCH** clockwise, just until the hissing sound stops.

To perform a quick check of scanner operation, press **WX**. If you are near a NOAA weather station, you should hear weather information.

**Notes:**
• Make sure the scanner's antenna is connected before you turn it on.
• To listen to a weak or distant station, turn **SQUELCH** counterclockwise.
• If reception is poor, turn **SQUELCH** clockwise to cut out weak transmissions.
• If **SQUELCH** is adjusted so you always hear a hissing sound, the scanner will not scan or search properly.

## Programming Known Frequencies into Channels

1. Press **PGM**. ***PGM*** appears. Enter the channel number (1-200) where you want to store a frequency, then press **PGM** again.
2. Use the number keys and • to enter the frequency (including the decimal point).
3. Press **ENT** to store the frequency into the channel.
4. To program the next channel in sequence, press **PGM** and repeat Steps 2 and 3.

**Notes:**

• If you made a mistake entering the frequency, ***Error*** appears and the scanner beeps three times when you press **ENT**. Start again from Step 2.

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

• If you entered a frequency that is already stored in another channel, the scanner beeps three times and displays the lowest channel number where the frequency is already stored, while ***–dUPL–*** (duplicate) and the frequency flashes. Press **ENT** if you still want to store the frequency. Press **TUNE/CLEAR** to cancel.

• Press **•/DELAY** to set a two-second delay on this channel. The scanner stores this setting in the channel.

If you do not have a list of frequencies in your area, use a Tune search or a Service Bank search to find transmissions. Or refer to an online resource such as www.radioreference.com.

## Searching for Active Frequencies

## Tune Search

During a tune search, the scanner tunes up of down starting from a frequency you specify.

1. Press **TUNE**. The display alternates with ***PSE*** and ***–t–*** at interval of about 4 seconds.
2. If you want to change the starting frequency, enter a new frequency and press **ENT**.
3. Press **PSE** to start tune search. ***–t–*** appears on the display.
4. To change the tuning direction, press **UP** or **DOWN**.

**Notes:**

• Press **•/DELAY** to turn the two-second delay feature on and off.
• Press **L/O** to lock-out a frequency.
• Press **PSE** to pause searching. Press **PSE** again, to resume.

**Service Bank Search**

Your scanner contains groups of preset frequencies called Service Banks. You can search for marine, fire/police, aircraft, ham, weather, and FM broadcast even if you do not know the specific frequencies you find into the scanner's channels (except for weather and marine banks, which are already stored as channels. See "Listening to the Marine Bank" and "Listening to a Weather Channel").

1. Press **MARINE**, **FD/PD**, **AIR**, **HAM**, **WX**, or **FM radio**. ***MAr***, ***FIrE POLICE***, ***AIr***, ***HAM***, ***WEAtHEr***, or ***FM***. appears respectively. After about two seconds, the service search starts.
2. To search for another active frequency in the selected bank, press **UP** or **DOWN**.

See "Preprogrammed Service Bank Frequencies" on page X for a list of the frequencies.

**Notes:**

• Press **•/DELAY** to turn the two-second delay feature on and off.
• Press **L/O** to lock-out a frequency
• Press **PSE** to pause searching. Press **PSE** again to resume.
• To reverse the search direction at any time, press **UP** or **DOWN**.
• If necessary, you can select search groups using the number keys.
• The frequencies in the scanner's Service Banks are preset. You cannot change them.

## Storing Found Frequencies into Channels

Once you find interesting frequencies during a Tune, or Service Bank search, you can store them in the scanner's channel-storage banks.

1. Press **ENT** when you find a frequency. The bank number and ***StorE*** appear.

2. If you want to change banks, enter the new bank number.
3. Press **ENT** to store the frequency. The channel and frequency flash twice. To cancel the operation, press **TUNE/CLEAR**.

**Notes:**
• The frequency is automatically stored in the first empty channel of the selected bank.
• If the scanner displays ***–dUPL–***, the frequency is already stored in another channel. Press **ENT** if you want to continue storing the frequency. Press **TUNE/CLEAR** to cancel.
• If there are no empty channels in the bank, ***Ch-FULL*** appears. You can select another bank or clear some channels in the current bank (see "Clearing a Stored Channel" on page XX).

## Scanning the Stored Channels

Press **SCAN/MAN** until ***SCAN*** appears to continuously scan through all channels with stored frequencies.

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

**Notes:**
• Press **UP** or **DOWN** to reverse the scanning direction.
• Press **•/DELAY** to set the scanner to remain on the current channel for two seconds after the transmission ends.
• To set the scanner to remain on the current channel, even after the transmission stops, press **SCAN/MAN** at any time during the transmission so ***MAN*** appears and ***SCAN*** disappears (see "Monitoring a Stored Channel" below).
• Press **L/O** to lock-out a channel.

**Turning Channel-Storage Banks On and Off**

To turn a channel-storage bank on or off, press the bank's number key (1-0, using 0 for bank 10) during scanning. The channel-storage banks are on when they have a bar underneath them and off when no bar appears underneath them.

**Notes:**

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

• You cannot turn off all banks; there must be at least one active bank.

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

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

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

## Monitoring a Stored Channel

You can continuously monitor a specific channel without scanning. This could be useful if you hear a transmission on a channel and do not want to miss any details, even though there might be periods of silence.

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

## Clearing a Stored Channel

To remove a frequency stored in a channel.

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

**Listening to the Marine Bank**

Press **MARINE** to search the marine bank. ***MAr*** appears about two seconds, then the scanner starts searching from marine channel 16. To change the search direction, press **UP** or **DOWN**.

Press **PSE** to stop searching. ***SRCH*** disappears and ***MAN*** appears.

• To change the channel manually, press **UP** or **DOWN**.
• To select a channel directly, enter the two-digit channel number. See "Marine Service Bank" on page X for a list of channels.
• To lock-out a frequency, press **L/O**.

Press **PSE** again to restart the marine bank search.

## Weather Features

The FCC (Federal Communications Commission) has allocated channels for use by the National Oceanic and Atmospheric Administration (NOAA). Regulatory agencies in other countries have also allocated channels for use by their weather reporting agencies.

The NOAA and your local weather reporting agency broadcast the local forecast and regional weather information on one or more of these channels.

### Listening to a Weather Channel

Press **WX** to hear your local forecast and regional weather information. ***WEAthEr*** appears for about two seconds, then the scanner starts searching the weather bank.

Press **PSE** to stop searching the channels. ***SRCH*** disappears and ***MAN*** appears. To change the channel manually, press **UP** or **DOWN**.

**Note:** Your scanner incorporates weather alert as one of its features and is an extremely sensitive high quality receiver on the weather frequencies. However, the included rod antenna is optimized for general purpose scanning. If you use this scanner as your only means for receiving weather alerts, please make sure you are receiving a clear signal on the rod antenna or switch to an external antenna that gives you clear reception of a local NOAA weather broadcast.

## Weather Alerts

### Receiving All Weather Alerts

To program the scanner to search for weather alerts every two seconds, set a weather channel as the priority channel.

1. Press **WX**.
2. Select the weather channel you want to set as the priority channel.
3. Press and hold **ENT** then **PRI/ALERT**. ***P ChAnnEL*** is displayed momentarily. Then ***PCH*** flashes and ***000.0000*** (or the previously-stored frequency) appears.
4. Press **ENT** to store the priority channel. The display flashes twice. Press **TUNE/CLEAR** to cancel.
5. Press **PRI/ALERT** during scanning or searching to turn on the priority feature. ***PRI*** appears.

If the scanner detects a 1050 Hz weather alert tone on the programmed channel, the scanner sounds the alert tone and ***ALErt*** flashes. Press any key to turn off the alarm.

### Receiving Alerts for Specific Areas

### About SAME Signals

The National Weather Service precedes each weather alert with a digitally encoded SAME (Specific Area Message Encoding) signal, then a 1050 Hz tone. The SAME signal includes a FIPS (Federal Information Processing Standard) code and an event code that corresponds with the type of alert being sent.

The FIPS code format is:

| **Subdivisions** | **State** | **County** |
|---|---|---|
| 0-9 | 01-50 | XXX |
| (0=entire area) | (00=all states) | (000=all counties) |

Example: 048439
(0=All; 48=Texas; 439=Tarrant County)

A current list of FIPS codes is located at www.NWS.NOAA.gov/NWR.

## SAME Standby Mode

In SAME Standby mode, your scanner monitors weather channels for SAME alerts for up to seven areas you specify by entering the FIPS codes.

To program your scanner for SAME Standby mode:

1. Press **WX**.
2. Press **PGM** to access the FIPS code entry mode.
3. Use **UP** or **DOWN** to select the desired FIPS code storage location.
4. Use the number keys to enter the FIPS code, then press **ENT** to store the code.
5. Repeat steps 3-4 for all the FIPS codes that you wish to store.
6. Press **WX** to exit FIPS code entry mode. The scanner displays ***F*** showing that FIPS codes are enabled.
7. Press **PRI/ALERT** to initiate SAME Standby mode. The scanner displays ***F [1-7]CH StAndby***.

The scanner will monitor weather channels for alerts with matching FIPS codes. To exit SAME Standby mode, press **PRI/ALERT** again.

**Notes:**

• Press **L/O** during step 4 to lock-out FIPS entries; ***L/O*** appears in the display. Press **L/O** again to enable FIPS entries; ***L/O*** disappears.

• If you do not enter any FIPS codes, or if your FIPS codes are locked out, when you enter SAME Standby mode the scanner receives alerts and warning messages for all receivable areas.

• The scanner sounds an alert when it receives the SAME code. To stop the alert and ready the scanner to receive a new alert signal, press any key.

• If you do not stop the alert within five minutes, the alert stops and the scanner beeps every ten seconds. If the scanner receives a new weather alert after five minutes, it sounds the new alert.

## WX Alert and Beep Tone Confirmation

1. To test the WX alert, press and hold ENT for more than 2 seconds while ***F [1-7]CH StAndby*** appears.

The display indicates the type of message, and the scanner sounds an alert or series of beeps. The beeps automatically change every 3 seconds.

2. Press any key to stop test sound mode.

**Skywarn**

Many areas of the country have amateur radio repeaters that have been designated as "Skywarn" repeaters. During times of severe weather, these repeaters are used to relay reports of severe weather directly to meteorologists at a local National Weather Service forecast office. Using the Skywarn feature in your scanner, you can easily jump to your local Skywarn frequency and monitor these reports, in many cases hearing about severe weather in your area instantly as it occurs.

1. Before using this feature, you must program the Skywarn frequency into channel 200 (see "Programming Known Frequencies into Channels" on page XX).
2. To activate Skywarn, press and hold **WX/Skywarn** for about two seconds.
3. The scanner jumps to channel 200 and displays ***SKYWARN***.

If no frequency is programmed in the skywarn channel, ***No ProG*** appears.

**Note:** Refer to www.radioreference.com to find the skywarn frequencies in your area.

# Settings

## Setting Delay

To avoid missing a reply in conversations, a two-second delay is automatically set for each channel. The scanner stops for two seconds after a transmission ends before it resumes scanning or searching. ***DLY*** appears in the display when the delay function is active.

To turn delay off, press **•/DELAY** while the scanner is monitoring a channel or frequency. ***DLY*** disappears.

To turn delay on:

• If the scanner is scanning and stops on an active channel, quickly press **•/DELAY** before it resumes.
• 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 adds a two-second delay to every transmission it stops on in that bank.

**Locking Out Channels and Frequencies**

You can increase the scanning or search speed by locking out channels or frequencies that have a continuous transmission, such as control channels, weather channels, or birdie frequencies.

Press **L/O** when the scanner stops on a channel or frequency while scanning or searching (except weather bank). The scanner locks out the channel/frequency then continues scanning/searching.

To manually lock-out a channel, select the channel then press **L/O**. ***L/O*** appears in the display.

**Notes:**
• Your scanner automatically locks out empty channels.
• You can still manually select locked-out channels.
• You can lock-out a maximum of 50 frequencies during a search. If you try to lock-out more, ***L-O Fr-FULL*** appears.

## Reviewing and Removing Lock-outs

## Stored Channels

Manually select the channel and press **L/O** until ***L/O*** disappears.

## Marine Service Bank

1. Press **PSE** during the Marine Service Bank search.
2. Press **UP** or **DOWN** to select channels manually. ***L/O*** appears next to locked-out channels.
3. To remove the lock-out, press **L/O** until ***L/O*** disappears.

## Other Service Banks

1. Hold down **L/O/L/O RVW** for about two seconds during a Service Bank search.
2. Press **UP** or **DOWN** repeatedly to scroll through the list of locked-out frequencies. ***L-r*** and ***L/O*** appear in the display.
3. Press **L/O** to remove the lock-out. The list scrolls to the next locked-out frequency.

**Notes:**

• When you reach the highest locked-out frequency, the scanner beeps twice and rolls to the lowest locked-out frequency.

• If the Service Bank has no locked-out frequencies, ***EMPty*** appears.

## Removing Lock-outs from All Frequencies in a Service Bank

1. Hold down **L/O/L/O RVW** for about two seconds during a Service Bank search. ***L-r*** appears.
2. While holding down **TUNE/CLEAR**, press **L/O**. ***FLo ALL-CL*** appears for about two seconds. Then the display alternates with ***YES –––Ent*** and ***No ––CLEAr***.
3. Press **ENT**. ***L-r EMPty*** appears. The scanner clears lock-outs from all frequencies in the Service Bank.

## Using Priority

The priority feature sets the scanner to check one channel every two seconds while scanning. You can program one frequency into the priority channel.

1. Press **PGM**, then press **PRI/ALERT**. ***PCH*** and ***000.0000*** or the previously stored frequency

appear.
2. Enter the frequency you want stored in the priority channel, then press **ENT**.

To turn on the priority feature, press **PRI/ALERT** during scanning or searching. ***PRI*** appears. The scanner checks the priority channel every two seconds and stays on the channel if there is activity.

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

To program a weather channel as the priority channel, see "Receiving All Weather Alerts" on page XX.

### Turning the Key Tone On and Off

The scanner is preset to sound a tone each time you press one of its keys.

To turn the key tone on and off.

1. If the scanner is on, turn it off then back on again.
2. ***WELCOME SCAnnInG rECEIVEr*** appears.
3. While the welcome message is on the screen, press **1** to turn on the key tone or press **2** to turn it off.

## Additional Information

### Cloning the Programmed Data

You can transfer the programmed data to and from a PRO-405 scanner using an optional connecting cable with 1/8-inch (3.5mm) stereo phone plugs on both ends (available from your local RadioShack store or www.RadioShack.com).

1. Turn on both scanners.
2. Connect the connecting cable to each scanner's **PC/IF** jack. ***CLOnE*** and ***UP to SEnd*** appears.
3. Press **UP** on the host scanner.

4. ***SEndInG*** appears at the host scanner.

The scanner sends the data. To exit the clone mode, remove the cable.

***No ConnEct*** appears when you connect the other model's scanner (except PRO-405). PRO-405 scanner does not clone to the other model's scanner.

**Programming with a Personal Computer**

You can also upload or download programmed data to or from a PC using a USB cable available from your local RadioShack store or www.RadioShack.com.

The application software is available online. Use a search engine to find "scanner programming software." Follow instructions in the software package to upload and download data.

## 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 initialize the scanner.

**Important:** This procedure clears all information you stored in the scanner's memory. Only initialize the scanner when you are sure the scanner is not working properly.

1. Turn off the scanner, then turn it on again. ***WELCOME SCAnnInG rECEIVEr*** appears.
2. Press **0**, then press **1** while the welcome message is on the screen. ***InItIAL*** appears for about two seconds, then ***YES ––– Ent*** and ***No ––CLEAr*** appears alternately.
3. Press **ENT**. ***WAIt*** appears for about two seconds.

**Note:** Do not turn off the scanner until the initialization is complete. When the initialization is complete, ***1CH 000.0000*** appears on the display.

## Troubleshooting

The Scanner is not working at all.

• The AC or DC adapter might not be connected. Be sure the adapter's barrel plug is fully inserted into the **PWR 9V** jack. The center tip of the adapter's barrel plug must be set to positive.

The scanner does not receive any stations or reception is poor.

• An antenna is not connected or is connected incorrectly. Be sure an antenna is properly connected to the scanner.

The scanner is on but does not scan.

• The squelch might not be adjusted correctly. Turn **SQUELCH** clockwise.

• Only one channel or no channels are stored. Store frequencies into more than one channel.

The keypad does not work.

• The scanner might need to be reset or initialized. Turn the scanner off then on again, or initialize the scanner (see "Initializing the Scanner" on page XX).

While scanning, the scanner locks on frequencies that have unclear transmission.

• Some frequencies programmed into the scanner might be the same as birdie frequencies. Avoid programming birdie frequencies or only listen to them manually.

## Birdie Frequencies

Every scanner has birdie frequencies. Birdies are signals created inside the scanner's receiver, which may interfere with transmissions on the same frequencies. If you program one of these frequencies, you hear only noise on that frequency. If the interference is not severe, you might be able to turn **SQUELCH** clockwise to omit the birdie.

To find the birdies in your scanner, disconnect the antenna and move it away from the scanner. Make sure that no other nearby radio or TV sets are turned on near the scanner. Use the Tune to search every frequency range from its lowest frequency to the highest. Occasionally, the searching will stop as if it has found a signal, often without any sound. This is a birdie. Make a list of all the birdies in your scanner for future reference.

## FCC Notice

This equipment has been tested and found to comply with the limits for a scanning receiver, pursuant to Part 15 of the *FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if no installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, 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), as amended, 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 is designed to prevent reception of illegal transmissions, in compliance with the law which required that scanners be manufactured in such a way 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 are not legal to listen to. Doing so could subject you to legal penalties.

In some areas, mobile use of this scanner is unlawful or requires a permit. Check the laws in your area. We encourage responsible, legal scanner use.

## Care

Your scanner is not waterproof. Do not expose it to rain, moisture, or extremely high humidity. If the scanner gets wet, wipe it dry immediately. Use and store the scanner only in normal temperature environments. Handle the scanner carefully; do not drop it. Keep the scanner away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

## Service and Repair

If your scanner is not performing as it should, take it to your local RadioShack store for assistance. To locate your nearest RadioShack, use the store locator feature on RadioShack's website (www.RadioShack.com), or call 1-800-The Shack (800-843-7422) and follow the menu options. Modifying or tampering with the scanner's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it.

## Specifications

Frequency Coverage

29-54 MHz (in 5 kHz steps)/FM

87.3-107.9 MHz (in 100 kHz steps)/WFM

108-136.99166 MHz (in 8.33 kHz steps)/AM

137-143.9875 MHz (in 12.5 kHz steps)/FM

144-148 MHz (in 5 kHz steps)/FM

148.0125-150.7875 MHz (in 12.5 kHz steps)/FM

150.8-161.995 MHz (in 5 kHz steps)/FM

162-174 MHz (in 12.5 kHz steps)/FM

380-512 MHz (in 12.5 kHz steps)/FM

Sensitivity (S+N)/N 20 dB

29-54 MHz 0.5 uV

87.3-107.9 MHz ((S+N)/N 30 dB) 1.0 uV

108-136.99166 MHz 1.0 uV

137-174 MHz 0.5 uV

380-512 MHz 0.7 uV

Spurious Rejection (FM @ 154 MHz) 50 dB

Selectivity

+/-8 kHz -6 dB

+/-17 kHz -50 dB

Search Speed Up to 80 steps/Sec

Scan Speed Up to 40 Channels/Sec

Delay Time 2 Seconds

IF Frequencies

1st IF 10.7 MHz

2nd IF 455 kHz

IF Interference Ratio (10.7 MHz) 70 dB at 154 MHz

Squelch Sensitivity

Threshold (FM/AM) Less than 0.5 uV

Threshold (WFM) Less than 1.0 uV

Tight (FM) (S+N)/N 25 dB

| | |
|---|---|
| Tight (WFM) | (S+N)/N 60 dB |
| Tight (AM) | (S+N)/N 20 dB |
| Antenna Impedance | 50 ohms |
| Audio Output Power (10% THD) | 0.7 W Nominal |
| Built-In Speaker | 3 Inches (77 mm), 8 Ohms |
| Operating Temperature | 32 to 110 F (0 to 43C) |
| Power Requirements | 9V DC (Supplied AC or Optional DC Adapter) |
| Dimensions (HWD) | 8 1/4 x 6 7/8 x 2 3/8 inches (210 x 175 x 60 mm) |
| Weight (without antenna) | approx. 24.7 oz (700 g) |

Specifications and depictions are subject to change and improvement without notice. Actual product may vary from the images found in this document.

## Limited Warranty

will add

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