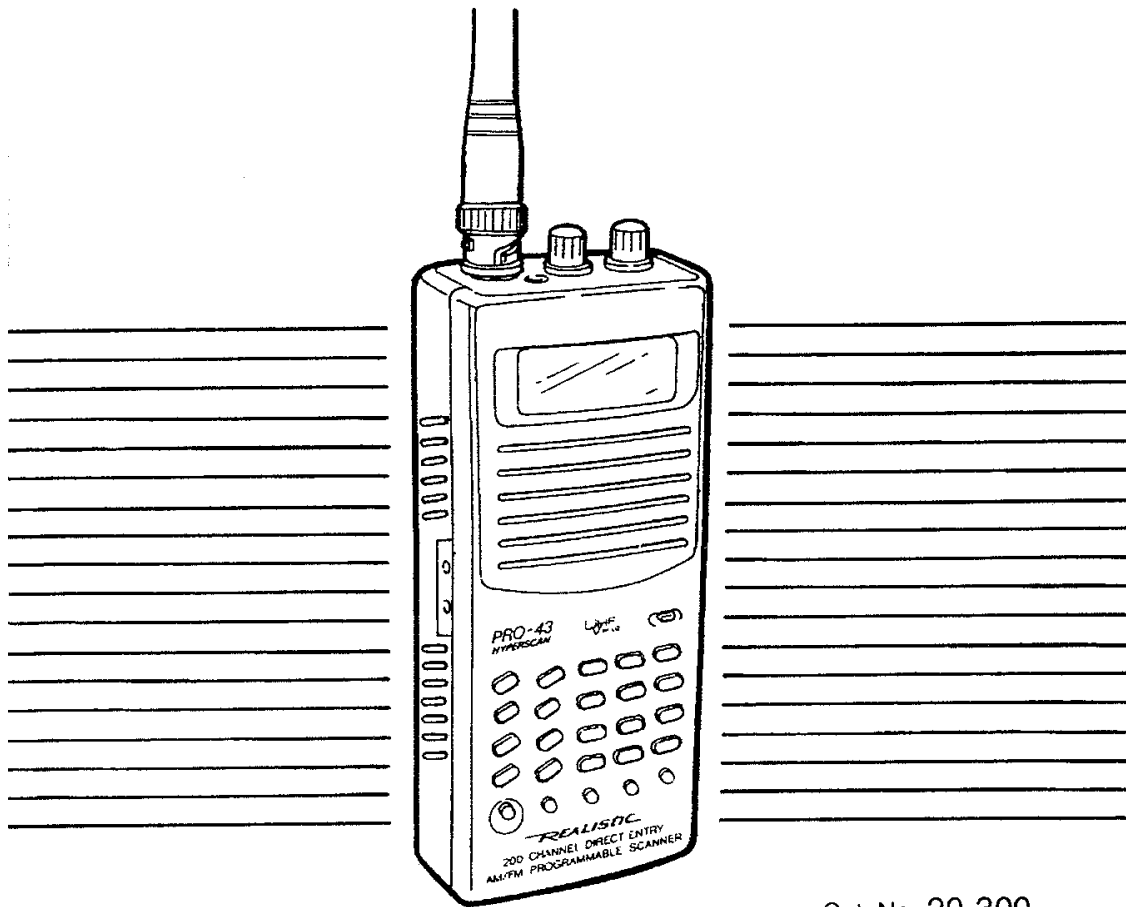


OWNER'S MANUAL

PRO-43 Programmable Scanner

Please read before using this equipment.



Cat. No. 20-300

REALISTIC®

INTRODUCTION

Your new Realistic PRO-43 200-Channel Direct Entry Programmable Scanner lets you in on all the action! This scanner gives you access to over 48,000 frequencies used by police departments, fire departments, ambulances, military and commercial aircraft, ships, amateur radio operators, and transportation services. You can store up to 200 frequencies into your scanner's channels, and you can scan and change your channel selection at any time.

The secret to your scanner's ability to scan so many channels so easily is its custom-designed microprocessor — a tiny, built-in computer. The microprocessor also gives your scanner these special features:

Triple-Conversion Superheterodyne Receiver — virtually eliminates any interference from IF images, so you hear only the frequency you have set the scanner to.

Hyperscan — searches through frequencies at up to 50 steps per second or scans stored channels at 25 channels/second.

Liquid Crystal Display — shows the channel number, the selected frequency, and several other indicators.

2-Second Scan Delay — helps keep you from missing replies on a channel while you are scanning.

Memory Saver — keeps the frequencies stored in memory even when you remove the batteries.

Lockout Function — lets the scanner skip over specified channels.

Ten Channel Storage Banks — let you group channels so calls are easier to identify.

Monitor Banks — let you save up to ten additional channels located during a frequency search.

Priority Channel — helps to keep you from missing important calls on the selected channel.

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Direct Frequency Search — allows you to scan through every available frequency to find interesting broadcasts.

AM/FM Mode — automatically selects the most common reception type for the band you are scanning...and lets you override the selection.

Your PRO-43 scanner covers a wide frequency range:

- 30 — 54 MHz
- 118 — 174 MHz
- 220 — 512 MHz
- 806 — 823.9375 MHz
- 851 — 868.9375 MHz
- 896 — 999.9875 MHz

Warning: In some areas, mobile use of a scanner is unlawful or requires a permit. Check the laws in your area. Radio Shack assumes no responsibility for the use of this scanner in such areas.

FCC NOTICE:

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

- Moving your scanner away from the receiver
- Contacting your local Radio Shack store for help

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

For your important records, please record your scanner's serial number in the space provided below. The serial number is located on the back of the scanner.

Serial Number: _____

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PREPARATION

POWER SOURCES

You can power your scanner from any of the following three sources:

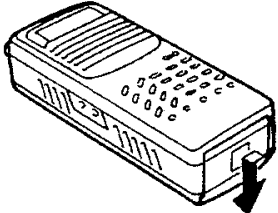
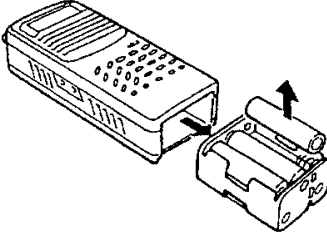
- Internal Batteries
- A standard AC outlet (using an optional AC adapter)
- Your vehicle's battery (using an optional DC adapter)

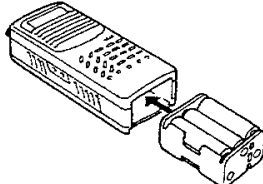
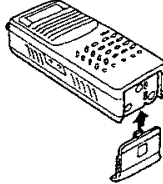
Using Batteries

You can operate your scanner from six AA batteries. For longest operation and best performance, we recommend alkaline batteries (Radio Shack Cat. No. 23-552). Or you can use rechargeable nickel-cadmium batteries (Cat. No. 23-125).

Warnings: The scanner has a built-in circuit that recharges nickel-cadmium batteries inside the scanner. However, you must never use this circuit when you install non-rechargeable batteries in the scanner. Be sure to read "Important Information about the External Power Jacks" and "Charging Nickel-Cadmium Batteries."

When the batteries are low, the display flashes and beeps sound. When this happens, replace all six batteries immediately (or recharge the nickel-cadmium batteries).

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>1. Remove the battery compartment cover by pressing down on the arrow and sliding the cover in the direction of the arrow.</p> |  |
| <p>2. Remove the battery holder from the battery compartment and remove any old batteries. Then install six AA batteries in the holder, as indicated by the polarity markings (+ and -) on the battery holder.</p> |  |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <p>3. Place the battery holder in the compartment so the holder's metal contacts line up with the metal contacts in the battery compartment.</p> |  |
| <p>4. Replace the battery compartment cover.</p> |  |

Important Information about the External Power Jacks

The scanner has two external power jacks — **PWR** and **CHG**. It is important that you understand the purpose of each jack before you connect any adapter to the scanner.

The **PWR** jack powers the scanner and disconnects the internal batteries. You can use this jack with an external power source regardless of the type of batteries you install.

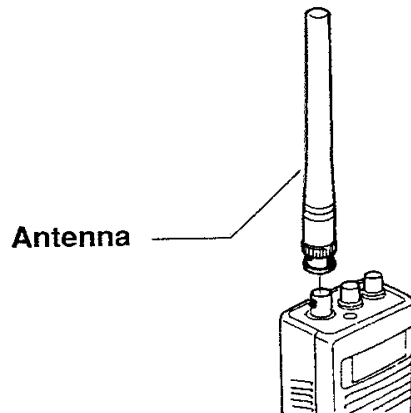
The **CHG** jack supplies power to operate the scanner and also applies power to the internal batteries to charge them. Use the **CHG** jack only when you install rechargeable nickel-cadmium batteries.

Warning: Never use the **CHG** jack with non-rechargeable batteries. If you try to recharge non-rechargeable batteries, they become very hot and could explode.

Note: See "Using External Power" for information on using external power.

CONNECTING THE ANTENNA

Attach the flexible antenna to the **ANT** (antenna) jack on top of the scanner. Slip the slot in the antenna's connector over the protrusion on the jack. Then press down and rotate the base of the antenna until it locks into place.




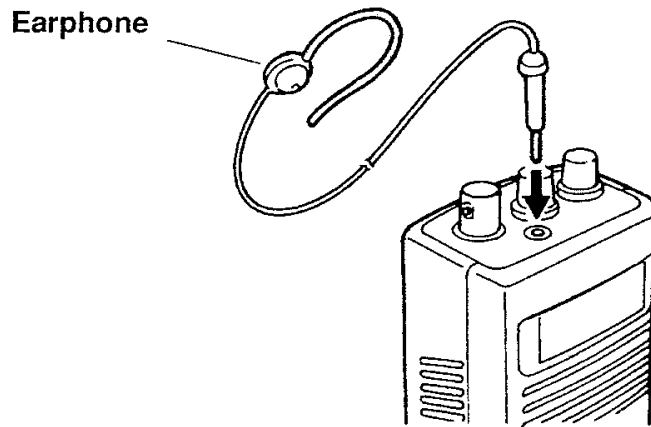
You can remove the supplied antenna and attach a different type, such as an external mobile antenna, telescoping antenna, or outdoor base antenna. Radio Shack stores sell the antenna connector adapters that you need.

Use coaxial cable to connect an outdoor antenna. Always use 50-ohm coaxial cable, such as RG-58 or RG-8. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable.

Warning: If you install an outdoor antenna, follow all precautions and procedures mentioned in the literature that comes with the antenna.

CONNECTING AN EARPHONE

For private listening, plug an earphone into the  jack on top of your scanner. This automatically disconnects the speaker. We recommend Radio Shack's earphone Cat. No. 33-175. In a noisy environment, mono headphones (Cat. No. 20-210) make listening easier.



Hearing Comfort and Your Health

To protect your hearing, follow these guidelines when you use an earphone:

- Do not listen at extremely high volume levels, especially when you use an earphone or headphones. 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.

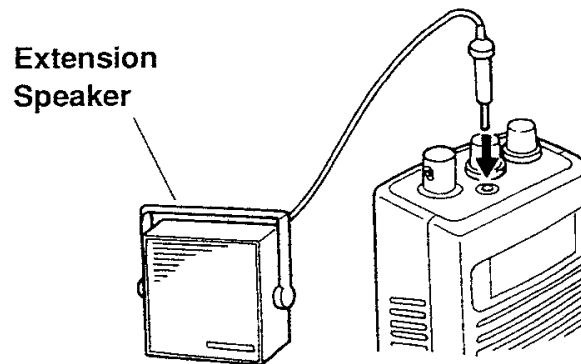
Traffic Safety

Do not wear headphones or an earphone while you drive a vehicle or ride a bicycle. This can create a traffic hazard and is illegal in some areas.

Even though some headphones and earphones are designed to let you hear some outside sounds when you listen at normal levels, they still present a traffic hazard.

CONNECTING AN EXTENSION SPEAKER

In a noisy area, an extension speaker might provide more comfortable listening. Radio Shack stores sell an extension speaker (Cat. No. 21-549) and an amplified communications extension speaker (Cat. No. 21-541). Plug the speaker cable's 1/8-inch (3.5 mm) mini plug into the scanner's Ω jack. This disconnects the internal speaker.



UNDERSTANDING CHANNEL STORAGE BANKS

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

To make it easier to identify and select the channels you want to listen to, channels are divided into 10 groups of 20 channels each. Each group of channels is called a channel storage bank. Perhaps the best way to explain the use of channel storage banks is through a practical example.

Suppose you want to monitor four different agencies: police, fire, ambulance, and aircraft. As a rule, each agency uses several different frequencies and uses each frequency for a different purpose. The police might have four frequencies—one for each side of town. To make it easier to quickly determine which agency you are listening to, you could program the police frequencies starting with Channel 1 (Bank 1). Then start the fire department on Channel 21 (Bank 2), the ambulance service on Channel 41 (Bank 3), and aircraft frequencies on Channel 61 (Bank 4).

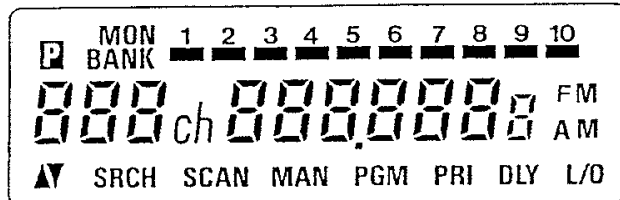
This also makes it easier to listen for only one type of call. For example, if you want to listen to only fire calls, you can turn off all banks other than Bank 2. You could also use this feature to group channels by city or by county.

You can use the 10 monitor memories to temporarily store frequencies while you decide whether to save them in channels. This is handy for quickly storing an active frequency when you search through an entire band. You can manually select these memories, but you cannot scan them. See "Searching for Active Frequencies."

When you are listening to monitor memories, the 10 numbers at the top of the display indicate the 10 monitor memories. The bar indicates the current monitor memory.

OPERATION

A LOOK AT THE DISPLAY



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

The above illustration shows all your scanner's indicators. The following is a brief explanation of each indicator.

P — appears when you tune to the priority channel.

MON — appears when you tune to a monitor memory.

BANK — bars to the right of this indicator show which memory banks are turned on for the scan mode. See "Understanding Channel Storage Banks."

CH — digits that precede this indicator show the selected channel.

FM or **AM** — appears to indicate the scanner is set to the FM or AM mode. If **FM** or **AM** blinks, you have manually selected the mode.

▲ or **▼** — appears to indicate the search direction in the search mode and to indicate the scanning direction in the program, scan, and manual modes.

SRCH — appears during a limit search (-L- also displayed) or a direct frequency search (-d- also displayed).

SCAN — comes on when you scan channels.

MAN — comes on when you manually select a channel.

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

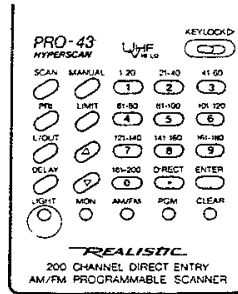
PRI — appears when you turn on the priority channel feature.

DLY — appears when the scanner is set to a channel programmed with the delay feature. See "Programming a Scan Delay."

L/O — appears when the channel you listen to is locked out of the scan mode. See "Locking Out Channels."

When the entire display blinks and the scanner beeps every 2 seconds, the batteries are low.

A LOOK AT THE KEYBOARD



Your scanner's keys might seem confusing at first, but a quick glance at this page and the next should help you understand each key's function.

KEY LOCK — disables the keypad to prevent accidental program changes.

Number Keys — have a single digit, followed by a range of numbers. The single digit is the number entered when you enter a channel number or a frequency. The range of numbers (21-40, for example) indicates the channels that make up a channel storage bank. See "Understanding Channel Storage Banks."

SCAN — makes the scanner scan through the programmed channels.

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

PRI — turns the priority feature on and off.

LIMIT — turns on the limit mode and sets the frequency range. See "Searching for Active Frequencies."

L/OUT — turns the lockout function on and off for the selected channel.

▲, ▼ — selects the search, program, scan, or manual mode direction.

DELAY — turns the delay feature on and off for the selected channel.

./DIRECT — enters a decimal point after numbers and searches frequencies beginning at the displayed frequency.

ENTER — stores a frequency in a channel.

LIGHT — turns on and off the display light.

MON — accesses the 10 monitor memories. See "Searching for Active Frequencies."

AM/FM — switches the scanner to AM or FM mode.

PGM — sets the scanner so you can store frequencies in channels.

CLEAR — clears an incorrect entry.

RESETTING THE SCANNER

When you first power the scanner, or if no batteries are installed for an extended period of time, its display might lock up and the channels might contain random frequencies. We recommend you reset the scanner before you begin using it.

To reset the scanner, hold down both **CLEAR** and **0**, and turn on the power. This clears all programmed channels from the scanner. Use this procedure only when you are sure the scanner is not working properly.

SETTING THE VOLUME AND SQUELCH CONTROLS

Turn **SQUELCH** counterclockwise and **VOLUME** clockwise until you hear a hissing sound. Then slowly turn **SQUELCH** clockwise until the noise stops. Leave **VOLUME** set to a comfortable level.

If the scanner picks up unwanted weak transmissions, turn **SQUELCH** clockwise to decrease the scanner's sensitivity to these signals.

If you want to hear a weak or fading transmission, turn **SQUELCH** counterclockwise. You hear hiss between transmissions, but this prevents the scanner from cutting off weak transmissions.

USING THE KEY LOCK















Once you program your scanner, you can protect it from accidental program changes by moving **KEY LOCK** to **LOCK**. In this position, the only controls that operate are **SCAN**, **MANUAL**, **LIGHT**, **VOLUME**, and **SQUELCH**.

When you want to change the scanner's programming, move the switch to **KEY**.

PROGRAMMING THE SCANNER

Follow these steps to store frequencies in channels.

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>1. Press MANUAL. Enter the channel number you want to program, then press PGM. PGM appears on the display to indicate the scanner is in the programming mode.</p> | |
| <p>2. Enter a frequency. Good references for active frequencies are Radio Shack's "Police Call Radio Guide including Fire and Emergency Services," "Official Aeronautical Frequency Directory," and "Maritime Frequency Directory." We update these directories every year, so be sure to get a current copy. Also, refer to "Reception Notes" and "Searching for Active Frequencies" in this manual.</p> | |
| <p>3. Press ENTER to store the frequency. If you made a mistake in Step 2, Error appears on the display. Press CLEAR and repeat Step 2.</p> | |



| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Press AM/FM to set the receive mode to the correct setting for the frequency. See "Changing AM/FM Mode." |    MON AM/FM PGM |
| 5. If you want the scanner to pause 2 seconds after each transmission before scanning to the next channel, press DELAY so DLY appears in the display. See "Programming a Scan Delay." |      L/OUT DELAY LIGHT MON AM/FM |
| 6. Repeat Steps 1—5 to program more channels. To program the next channel in sequence, press PGM and repeat Steps 2—5. To change the programming direction, press ▲ or ▼ before you press PGM . |       AM/FM PGM CLEAR |



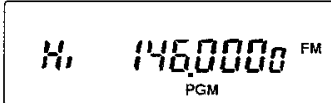
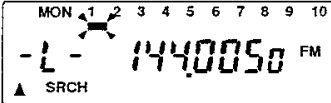
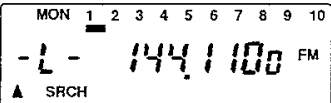
SEARCHING FOR ACTIVE FREQUENCIES

Use these procedures to search for a transmission. This is helpful if you do not have a reference to frequencies in your area. Also see "Guide to the Action Bands."

Limit Search

This procedure lets you search within a range of frequencies. **-L-** appears on the display during a limit search.

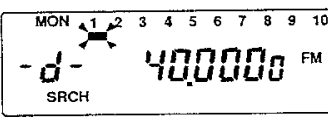
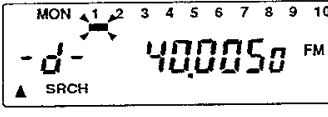
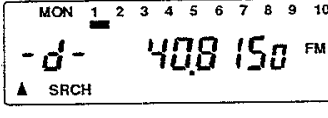
| | |
|-------------------------|--------------------------------------------------------------------------------------|
| 1. Press PGM . |  |
| 2. Press LIMIT . |  |

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>3. Enter the lower limit of the frequency range. Then press ENTER.</p> |  |
| <p>4. Press LIMIT.</p> |  |
| <p>5. Enter the upper limit of the frequency range. Then press ENTER.</p> |  |
| <p>6. Press ▲ or ▼ to search down or up within the specified range.</p> |  |
| <p>7. When the scanner stops on a transmission, press MON to store the frequency in the current monitor memory—the bar under the memory number stops flashing. Or press ▲ or ▼ to continue the search.</p> |  |

Note: Press **DELAY** to make the scanner pause 2 seconds after a transmission before it proceeds to the next frequency.

Direct Search

When you listen to a channel, you can search up or down from the displayed frequency. **-d-** appears in the display during a direct search.

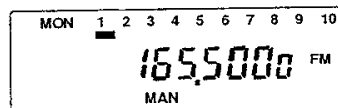
| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <p>1. Press MANUAL, the channel number, and MANUAL in sequence to select a frequency stored in a channel. Then press /DIRECT.</p> |  |
| <p>2. Press ▲ or ▼ to search up or down from the selected frequency.</p> |  |
| <p>3. When the scanner stops on a transmission, you can store that frequency in the current monitor memory by pressing MON. Or press ▲ or ▼ to continue the search.</p> |  |

Note: Press **DELAY** to make the scanner pause 2 seconds after a transmission before it proceeds to the next frequency.

USING THE MONITOR FREQUENCIES

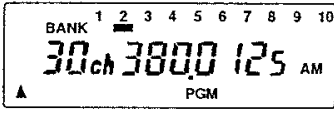
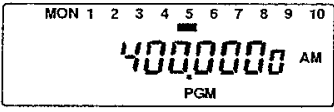
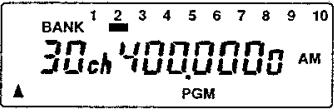
During a limit or direct search, the flashing bar under the memory number indicates the current monitor memory. During a limit or direct search you can store a frequency when the scanner stops on a frequency by pressing **MON**. The scanner replaces any frequency stored in the monitor memory with the tuned frequency, and advances to the next monitor memory.

To listen to a monitor memory, press (in sequence) **MANUAL**, **MON**, and the number for the monitor memory you want to listen to.



Moving a Frequency from a Monitor Memory to a Channel

To move a frequency from a monitor memory to a channel, follow these steps.

| | |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <p>1. Press MANUAL, enter the channel number you want to store the monitor frequency in, and press PGM.</p> |  |
| <p>2. Press MON and enter the monitor memory number that has the frequency you want to store.</p> |  |
| <p>3. Press ENTER. The scanner stores the monitor frequency in the channel.</p> |  |

SCANNING THE CHANNELS

To begin scanning the channels, press **SCAN**. Press ▲ or ▼ to select the scan direction. (The scan direction is ▲ when you turn on the power.) The scanner scans through all non-locked channels in the activated banks. (See "Locking Out Channels" and "Turning Banks On and Off.")

You must set **SQUELCH** so you do not hear the hissing sound between transmissions for the scanner to scan.

CHANGING AM/FM MODE

We designed your scanner to automatically select the most common receive mode for each frequency range. Default settings are shown below.

| FREQUENCY(MHz) | RECEIVE MODE |
|--------------------------|--------------|
| 30.000 — 54.000 | FM |
| 118.000 — 136.975 | AM |
| 137.000 — 174.000 | FM |
| 220.000 — 225.000 | FM |
| 225.0125 — 400.000 | AM |
| 400.0125 — 512.000 | FM |
| 806.000 — 999.9875 | FM |

Although the preset mode is correct in most cases, some ham radio and military aircraft (225 — 400 MHz) broadcasts are not in the default mode. If you try to listen to a broadcast when the scanner is not set to the correct receive mode, the broadcast might sound weak or distorted.

To change the mode, press **AM/FM**. **AM** or **FM** blinks on the display when you override the default mode.

If you press **AM/FM** during a limit search or direct search, the scanner no longer uses the receive mode defaults. The scanner keeps searching for frequencies in the selected mode and **AM** or **FM** blinks on the display. **AM** or **FM** blinks even if the mode of a frequency is the same as the default setting. To return to the default settings, press **AM/FM** while holding down **CLEAR**.

PROGRAMMING A SCAN DELAY

Many agencies use a two-way radio system with periods of several seconds between each query and reply. To keep from missing a reply, program a delay on the channels that operate this way.

To program a delay, select the channel and press **DELAY** so **DLY** appears on the display. Now, when your scanner pauses on that channel when scanning, it waits for 2 seconds after each transmission before it resumes scanning.

CANCELLING A SCAN DELAY

Some radio systems, especially those above 800 MHz, use a special trunked system. In these systems, the transmitter selects an available frequency each time the operator keys the radio. It is therefore possible for the query to be on one frequency and the reply on another. In this case, you have a better chance of hearing the full reply if the scanner immediately resumes scanning when a transmission ends. For each channel that operates this way, manually select the channel and ensure **DLY** does not appear. If it does, press **DELAY** to turn off the delay for that channel.

LOCKING OUT CHANNELS

You can increase the effective scanning speed by locking out channels you have not programmed. This is also handy for locking out channels that have a continuous transmission. Manually select each channel and press **L/OUT** so **L/O** appears on the display. You can still manually select locked-out channels. To unlock a channel, manually select the channel and press **L/OUT** so **L/O** disappears from the display.

Note: There must be at least one unlocked channel in each bank.

TURNING BANKS ON AND OFF

As explained in "Understanding Channel Storage Banks," the scanner splits the 200 channels into 10 banks of 20 channels each. The small bars that appear under the numbers at the top of the display when you scan are the bank indicators.

When you turn off a bank, the scanner does not scan any channel in the bank. To turn a bank on or off, while scanning press the number key corresponding to the bank you want to turn on or off. Press **0** to turn on or off Bank 10. If the bank indicator is on, the bank is turned on and the scanner scans all channels within that bank that are not locked out. If the bank indicator is off, the scanner does not scan any of the channels within that bank.

You can still manually select any channel in a bank, even if the bank is turned off. You cannot turn off all banks.

USING THE PRIORITY FEATURE

The priority feature helps you avoid missing calls on a specific channel. Just program the channel as the priority channel and turn on the priority feature by pressing **PRI** during scanning. The scanner checks the priority channel every 2 seconds, and stays on the channel if there is activity on it.

To program a channel as the priority channel, press (in sequence) **PGM**, the desired channel number, and **PRI**. **P** appears in the upper left corner of the display whenever the scanner is set to the priority channel. You can only select one channel as the priority channel.

To turn off the priority feature, press **PRI** again so that **PRI** disappears from the display.

MANUALLY SELECTING A CHANNEL

To tune to a locked-out channel, or to remain tuned to a single channel, manually select the channel by pressing **MANUAL**, entering the channel number, and pressing **MANUAL** again. Or, if the scanner is scanning and stops at the desired channel, press **MANUAL** once. Press **MANUAL** additional times to step through the channels.

You can use this feature to remain tuned to an emergency broadcast. During regular scanning, the scanner tunes to other channels during periods of silence.

If you want to change the direction of the step, press **▲** or **▼** before you press **MANUAL**.

BATTERY-SAVING FEATURE

When you manually select an inactive channel, the battery-saving feature puts the scanner in standby mode, which uses only 30% of the normal power.

The scanner enters standby mode if it is manually set to a channel, it does not receive a signal, and you do not press any button for 5 seconds. In standby mode, the scanner rests for 1 second, checks for a signal for 1/4 second, and repeats the cycle until it receives a signal or you press a button.

A GENERAL GUIDE TO SCANNING

BIRDIES

Birdies are the products of internally generated signals that make some frequencies difficult or impossible to receive. If you program one of these frequencies, you might hear only noise on the channel.

If the interference is not severe, you might be able to turn **SQUELCH** clockwise to cut out the interference. The most common birdies to watch for are listed below.

Birdies Frequencies:

| | | | |
|------------|------------|-------------|-------------|
| 33.675 MHz | 48.045 MHz | 139.120 MHz | 274.425 MHz |
| 33.775 | 49.430 | 139.325 | 290.475 |
| 34.075 | 50.480 | 143.550 | 291.325 |
| 37.655 | 122.575 | 144.135 | 463.250 |
| 37.860 | 126.475 | 147.770 | 464.850 |
| 37.945 | 129.825 | 154.825 | 488.175 |
| 38.000 | 130.400 | 156.210 | 489.775 |
| 38.910 | 130.500 | 248.725 | 815.600 |
| 43.120 | 134.900 | 257.550 | 901.5625 |
| 45.220 | 135.100 | 265.9875 | 903.5625 |

RECEPTION NOTES

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

During summer months, you might be able to hear stations in the 30-50 MHz range located several hundreds or even thousands of miles away. This type of reception is unpredictable, but often very interesting. One very useful service is the National Oceanic Atmospheric Administration (NOAA). Weather Radio's continuous weather broadcasts. These broadcasts contain weather forecasts and data for the area around the station, plus bulletins on any threatening weather conditions. These stations use three frequencies — 162.40, 162.475, and 162.55 MHz. In most areas of the country, you can receive one or more of these frequencies.

GUIDE TO THE ACTION BANDS

With the right frequencies programmed into your scanner, you can monitor exciting events. With a little investigation, you can find active frequencies in your community. We can give you some general pointers, and you can take it from there. Please use caution and common sense when you

hear an emergency call. Never go to the scene of an emergency. It is the most dangerous thing you could do.

Find out if there is a local club that monitors your community's frequencies. Perhaps a local electronics repair shop that works on equipment similar to your scanner can give you channel frequencies used by local radio services. A volunteer police or fire employee can also be a good source for this information.

As a general rule on VHF, most activity is concentrated between 153.785 and 155.98 MHz and then again from 158.73 to 159.46 MHz. Here you find local government, police, fire, and most emergency services. If you are near a railroad or major railroad tracks, look around 160.0 to 161.9 for signals.

You can hear commercial aircraft transmissions between 118 and 136.975 MHz. Military aircraft operate between 225 and 400 MHz.

In some large cities, the UHF bands are used for emergency services. Here, most of the activity is between 453.025 and 453.95 MHz and between 456.025 and 467.925 MHz.

In the UHF band, frequencies between 456.025 and 459.95 MHz and between 465.025 and 469.975 MHz are used by mobile units and control stations associated with base and repeater units that operate 5 MHz lower (that is, between 451.025 and 454.95 MHz and between 460.025 and 464.975 MHz). This means if you find an active frequency inside one of these spreads, you can look 5 MHz lower (or higher) to find the base station/repeater for that service.

A newer technology is now available that uses the 800 MHz band for many services. Trunked radio, introduced to business systems in 1975, is now used by public safety agencies. With up to twenty channels available, the transmitter automatically selects an unused frequency each time it is activated. Several agencies can share such a system without interfering with each other. This system can provide secure communications for selected units, with unselected units unable to hear the message.

Frequencies in different bands are accessible only at specific intervals. In the VHF-Lo, HAM, Government, and VHF-Hi bands, frequencies are available in 5 kHz steps. In the aircraft band, frequencies are available in 25 kHz steps. In all other bands, frequencies are available in 12.5 kHz steps. Your scanner rounds the entered frequency down to the nearest valid frequency. For example, if you try to enter 151.473, the scanner accepts this as 151.470 MHz.

Typical Band Usage

The following is a brief list of typical services that use the bands your scanner can receive. This listing can help you decide which ranges you would like to scan.

These frequencies are subject to change, and might vary some from area to area. For a more complete list, refer to the "Police Call Radio Guide Including Fire and Emergency Service," "Official Aeronautical Frequency Directory," and "Official Marine Frequency Directory" available at your local Radio Shack store.

Band Usage:

| | |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 30—50 MHz: | 150—173 MHz: |
| 30.00—30.55 USA,UAR,USN,UCG,UAF | 150.775—151.985...PM,LA,IF,PH,PO,IS,IB |
| 30.58—31.98IS,IP,IB,LU,PO | 152.0075—152.84 PM,RC,LX,IF,IB,RT |
| 32.00—32.99 USA,UAR,USN,UCG, UGX,UAF,UIR | 152.87—153.725IM,IS,IP,IX,IF,IW |
| 33.02—33.98PS,PH,IS,IB,IP,PF | 153.74—156.24 PL,PF,IS,IB,PP,PM,PH |
| 34.01—34.99 ... UCG,UER,USA,UAR,UAF, USN,UGX,UIP,UIF | 156.255—157.45 IP,MC,MS,MG,MP,PM |
| 35.02—35.98IB,IT,RC,RT,IS,PS | 157.47—158.70 LA,LX,IF,IS,IB,RT,IW,IP, IX,IT,RC |
| 36.01—36.99 UIX,UER,USA,UAR, USN,UTR,UCO,IP,UHW,UGF,UGX,UAF | 158.73—159.48 PP,PL,PH,PO,IP |
| 37.02—37.98 PP,PL,IW,PH,PS | 159.495—161.565LR,LJ |
| 38.27—38.99 ... USA,USN,UGX,UGF,UAR, UAF,UIX,UTV,UVA | 161.58—162.00IP,MC,BA,MP |
| 39.02—39.98 PP,PL | 162.025—173.9675.... Misc.Govt.Agencies |
| 40.01—41.99UIA,UAR,UIP,USA,UVA,UER, USN,UIF,UIR,UTV,UIM,IP,UIX,UAE, UEP,UCG,UIL,BIFC,UHW,UTX | 406—512 MHz: |
| 42.02—42.94 PP | 406.125—419.975 Misc.Govt.Agencies |
| 42.96—43.68IB,IS,IT,RC,RT,PS | 450.05—450.925BA |
| 43.70—44.60LU,LJ | 451.00—451.70IW,IF,IT,IX |
| 44.62—46.58 PP,PO,PL,PH,PF,PS | 451.725—452.175IS,IF,IP,LX |
| 46.61—46.99 USA,UIL,BIFC,UAF,UAR, UGX,UGF | 452.2—452.95LX,LJ,LR,LA |
| 47.02—49.58PH,PS,IS,IW,IF,IP | 452.975—453.975IY,PL,PH,PF,PO,PP |
| 49.61—49.99UIL,UAR,UGC,UAF,UAR, UGX,UGF,USA | 454.00—457.6IP,RC,RT,RA,BA,IB |
| | 458.025—467.925PM,PP,IB,IF,IP, IT,IW,GM |
| | 482.00—508.9875.....Mixed Public Safety |

Abbreviations

| | |
|----------------------|-----------------------------------------------------|
| BA..... | Remote Broadcast (Radio & TV) |
| CA..... | General Mobile (Radio) |
| CAP..... | Civil Air Patrol |
| IB..... | Business |
| IF..... | Forest Products |
| IM..... | Motion Picture Industry |
| IP..... | Petroleum Industry |
| IS..... | Special Industrial (Construction, farming, etc.) |
| IT..... | Telephone Maintenance |
| IW..... | Power and Water Utilities |
| IX..... | Manufacturers |
| IY..... | Relay Press (newspaper reporters) |
| LA..... | Automotive Emergency (tow trucks) |
| LJ..... | Motor Carrier, Trucks |
| LR..... | Railroad |
| LU..... | Motor Carrier, Buses |
| LX..... | Taxi |
| MC..... | Maritime Limited Coast (private stations) |
| MG..... | Maritime Government (Coast Guard) |
| MP..... | Maritime Public Coast (marine telephone) |
| MS..... | Maritime Shipboard |
| PF..... | Fire |
| PH..... | Highway Maintenance |
| PL..... | Local Government |
| PM..... | Medical Services |
| PO..... | Forestry Conservation |
| PP..... | Police |
| PS..... | Special Emergency |
| RA..... | Mobile Telephone (aircraft) |
| RC..... | Mobile Telephone (radio common carrier) |
| RT..... | Mobile telephone (landline companies) |
| BIFC..... | Boise Interagency Fire Cache |
| Government Agencies: | |
| UAF..... | Air Force |
| UAR..... | Army |
| UBW..... | International Boundary & Water Commission |
| UCE..... | Environmental Research |

Laboratories

| | |
|----------|-------------------------------------------|
| UCF..... | Maritime Fisheries Service |
| UCG..... | Coast Guard |
| UCM..... | Maritime Administration |
| UCO..... | Ocean Survey |
| UCP..... | National Capital Police |
| UCW..... | National Weather Service |
| UCX..... | Department of Commerce |
| UEP..... | Environmental Protection Agency |
| IER..... | Department of Energy |
| IFA..... | Federal Aviation Administration |
| IFC..... | Federal Communications Commission |
| UGC..... | Soil Conservation Service |
| UGF..... | Forest Service |
| UGS..... | General Service Administration |
| UGX..... | Department of Agriculture |
| UHW..... | Dept. of Health and Human Services |
| UIB..... | Bonnaville Power Administration |
| UIF..... | Bureau of Sport Fisheries and Wildlife |
| UIG..... | Geological Survey |
| UII..... | Bureau of Indian Affairs |
| LIL..... | Bureau of Land Management |
| UIM..... | Bureau of Mines |
| UIP..... | National Park Service |
| UIR..... | Bureau of Reclamation |
| UIS..... | Southwestern Power Administration |
| UIX..... | Department of the Interior |
| UNO..... | United Nations |
| UNS..... | NASA |
| UPO..... | Postal Service |
| USA..... | Federal Govt. Misc. |
| USD..... | State Department |
| USN..... | Navy |
| UTC..... | Bureau of Customs |
| UTM..... | Bureau of the Mint |
| UTR..... | Department of Transportation |
| UTV..... | Tennessee Valley Authority |
| UTX..... | Treasury Department |
| UVA..... | Veterans Administration |
| UXX..... | Classified |

Abbreviations used by permission of the publishers of "Police Call Radio Guide", Copyright Hollins Radio Data.

Unlike the lower bands, frequencies in the 800 MHz band are not allocated by the FCC to specific services. In each area, the channels are licensed on a first-come, first-served basis. There are two categories for licensing: Public Safety and Industrial. Systems using one to five channels are conventional. Five-channel systems might use trunked service, but all systems with more than five channels must use trunked service.

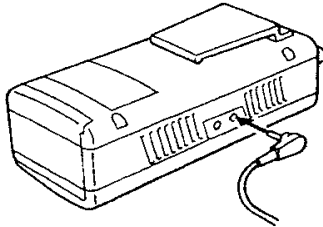
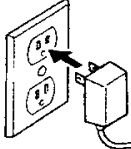
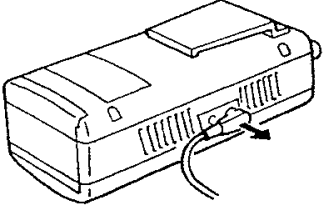
| | |
|------------------------|----------------------------|
| 851.0125—855.9875..... | Conventional Systems |
| 856.0125—860.9875..... | Conventional or Trunked |

| | |
|------------------------|--------------------|
| 861.0125—865.9875..... | Trunked Systems |
| 866.000—869.9999..... | Reserved—Satellite |

USING EXTERNAL POWER

Using an AC Power Source

To power the scanner from AC power, you need Radio Shack's 9-volt, 300 mA AC adapter (Cat. No. 20-188). Using an adapter with different ratings could damage your scanner or the adapter.

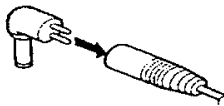
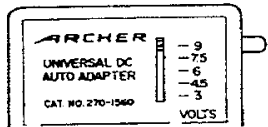
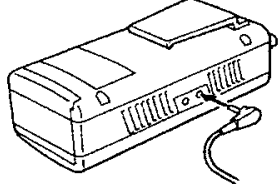
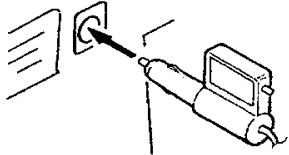
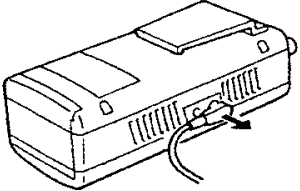
| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>1. Insert the adapter's barrel plug in the scanner's PWR jack.</p> <p>Note: If you install rechargeable nickel-cadmium batteries in your scanner, you can connect the AC adapter to the CHG jack. This powers the scanner and recharges the batteries at the same time. See "Charging Nickel-Cadmium Batteries."</p> |  |
| <p>2. Plug the adapter's power module into a standard AC outlet.</p> |  |
| <p>3. When you finish using the AC adapter, disconnect it from the AC outlet. Then disconnect it from the PWR jack.</p> |  |

Using a DC Adapter

You can power the PRO-43 from your vehicle's cigarette-lighter socket, provided the vehicle has a 12-volt, negative-ground electrical system. To do so, you need Radio Shack's Universal DC Adapter (Cat. No. 270-1560A).

Notes:

- If you install rechargeable batteries in the PRO-43, you can connect the adapter to the **CHG** jack. This powers the scanner and recharges the batteries. See "Charging Nickel-Cadmium Batteries."
- If the scanner does not operate properly when you use an adapter, unplug the adapter from the cigarette-lighter socket and remove ashes and other debris.

| | |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. Connect the adapter's orange barrel plug to the adapter's power cable with the tip set to - (negative). |  |
| 2. Set the adapter's voltage switch to 9 volts. |  |
| 3. Insert the adapter's barrel plug into the scanner's PWR jack. |  |
| 4. Plug the other end of the adapter into your vehicle's cigarette-lighter socket. |  |
| 5. When you finish using the adapter, first disconnect it from the cigarette-lighter socket. Then disconnect it from the scanner. |  |

Charging Nickel-Cadmium Batteries

You can charge nickel-cadmium batteries without removing them from the scanner. To charge the batteries, connect an AC or DC adapter to the **CHG** jack as explained in "Power Sources."

Warning: Do not try to recharge non-rechargeable batteries. They can become hot and even explode.

It takes 10 to 18 hours to recharge fully discharged batteries. You can operate the scanner while you charge the batteries, but the charging time is longer.

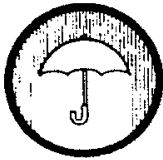
Do not use any adapter other than those specified in "Power Sources" to charge the batteries in the scanner. While adapters of the same voltage rating and at least the minimum current rating could power the scanner, other adapters might not work properly with the charging circuit in your scanner, and could permanently damage the batteries or your scanner.

Charging Hints:

- To ensure a full charge, do not charge the batteries in an area where the temperature is below 40°F. Doing so does not damage the batteries, but they are unable to accept a full charge in that situation.
- To prevent permanent nickel-cadmium battery power loss, never charge your batteries in an area where the temperature is above 80°F. Also, if you use an external charger, do not overcharge the batteries.

CARE AND MAINTENANCE

Your PRO-43 Programmable Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for your scanner so you can enjoy it for years.



Keep the scanner dry. If it does get wet, wipe it dry immediately. Some liquids contain minerals that can corrode the electronic circuits.



Use only fresh batteries of the recommended size and type. Always remove old and weak batteries. They can leak chemicals that destroy 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, damage batteries, 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 invalidate the scanner's warranty and might void your FCC authorization to operate it. If your scanner is not operating as it should, take it to your local Radio Shack store. Our personnel can assist you and arrange for service, if needed.

TROUBLESHOOTING

IF YOU HAVE PROBLEMS...

We hope you don't, but here are some suggestions.

| Trouble | Check |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Does not function. | <ul style="list-style-type: none">• Batteries correctly installed?• Batteries are good? |
| No or poor reception. | <ul style="list-style-type: none">• Antenna correctly installed?• Poor reception environment (such as a metal building)?• Frequencies correctly programmed? |
| Error appears on the display. | <ul style="list-style-type: none">• Programming error — confirm procedure. |
| Keyboard does not work. | <ul style="list-style-type: none">• KEYLOCK set to LOCK? |
| Keys do not work and display is random. | <ul style="list-style-type: none">• While holding down both CLEAR and 0, turn the power on to reset the scanner. Note: This clears all information stored in the scanner. |

If none of the above suggestions help, take your scanner to your local Radio Shack store for assistance.

SPECIFICATIONS

Frequency Coverage:

- 30 — 54 MHz (in 5 kHz Steps)
- 118 — 136.975 MHz (in 25 kHz Steps)
- 137 — 174 MHz (in 5 kHz Steps)
- 220 — 225 MHz (in 5 kHz Steps)
- 225.0125 — 400 MHz (in 12.5 kHz Steps)
- 400.0125 — 512 MHz (in 12.5 kHz Steps)
- 806 — 823.9375 MHz (in 12.5 kHz Steps)
- 851 — 868.9375 MHz (in 12.5 kHz Steps)
- 896 — 999.9875 MHz (in 12.5 kHz Steps)

Channels of Operation Any 200 Channels
in Any Band Combinations
(20 Channels, 10 Banks) and 10 Monitor Channels

Sensitivity:

FM: 20 dB(S+N)/N at 3 kHz Deviation

| | |
|--------------------------|-----------|
| 30 — 54 MHz | 1 μ V |
| 118 — 136.9750 MHz | 1 μ V |
| 137 — 174 MHz | 1 μ V |
| 220 — 225 MHz | 1 μ V |
| 225.0125 — 350 MHz | 1 μ V |
| 350.0125 — 512 MHz | 1 μ V |
| 806 — 999.9875 MHz | 1 μ V |

AM: 20 dB(S+N)/N at 60% Modulation

| | |
|--------------------------|-----------|
| 30 — 54 MHz 0 | 2 μ V |
| 118 — 136.9750 MHz | 2 μ V |
| 137 — 174 MHz | 2 μ V |
| 220 — 225 MHz | 2 μ V |
| 225.0125 — 350 MHz | 2 μ V |
| 350.0125 — 512 MHz | 2 μ V |
| 806 — 999.9875 MHz | 2 μ V |

Spurious Response Rejection:

at 328 MHz (FM) except Primary Image 40 dB

Selectivity:

| | |
|---------------|--------|
| ±10 kHz | -6 dB |
| ±20 kHz | -50 dB |

IF Interference Ratio

| | |
|----------------------------|-------|
| 611.2 MHz at 512 MHz | 50 dB |
|----------------------------|-------|

Scanning Rate..... 25 Channels/Second

Search Rate..... 50 Steps/Second

Priority Sampling..... 2 Seconds

Delay Time..... 2 Seconds

IF Frequencies:

| | |
|-----------|-------------------|
| 1st..... | 608.005—611.2 MHz |
| 2nd | 48.5 MHz |
| 3rd..... | 455 kHz |

Antenna Impedance..... 50 Ohms

Audio Power..... 250 mW

Power Requirement..... +9 Volts 300 mA DC
Negative Ground Only

Current Drain (Squelched)..... 85 mA

Dimensions 5 3/4 x 2 3/4 x 1 5/8 inches (HWD)
145 X 58 X 42 mm

Weight..... Approx. 8.8 oz. (250 g)
Without Antenna and Batteries

U.S. PATENT NUMBERS:

| | | |
|-----------|-----------|-----------|
| 3,961,261 | 4,027,251 | 4,123,715 |
| 3,962,644 | 4,092,594 | 4,245,348 |

NOTES

NOTES

NOTES

RADIO SHACK LIMITED WARRANTY

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

EXCEPT AS PROVIDED HEREIN, RADIO SHACK MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. 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

RADIO SHACK
A Division of Tandy Corporation
Fort Worth, Texas 76102