

United States Broadcast Bands

In the United States, there are several broadcast bands. The standard AM and FM bands are probably the most well known, and you can monitor the FM band on the scanner. There are also four television audio broadcast bands - the lower three transmit on the VHF band and the fourth transmits on the UHF band. You can monitor all three of the VHF bands and the UHF band.

Frequency Range	Allocation
54.0 - 72.00 MHz	VHF Television
76.0 - 88.00 MHz	VHF Television
88.0 - 108.00 MHz	Standard FM
174.0 - 216.00 MHz	VHF Television
470.0 - 805.75 MHz	UHF Television

International Broadcast Bands

Several shortwave bands are allocated for international broadcasting because of the nature of propagation of high frequencies. The bands are sometimes identified according to the approximate wavelength of the signals in meters.

Frequency Range (in MHz)	Band (in meters)
25.60 - 26.10	11

Typical Band Usage

HF Band (3.00-30.0 MHz)

Mid Range, Citizens Band .....	(25.00 - 28.00 MHz)
10-Meter Amateur .....	(28.00 - 29.70 MHz)

VHF Band (30.00-300.0 MHz)

Low Range .....	(29.70 - 50.00 MHz)
6-Meter Amateur .....	(50.00 - 54.00 MHz)
FM-TV Audio Broadcast, Wide Band .....	(54.00 - 72.00 MHz)
Land Mobile Service .....	(72.00 - 76.00 MHz)
FM-TV Audio Broadcast, Wide Band .....	(76.00 - 88.00 MHz)
FM Radio Broadcast, Wide Band .....	(88.00 - 108.00 MHz)
Aircraft .....	(108.00 - 136.98 MHz)
U.S. Government .....	( 137.00 - 144.00 MHz)
2-Meter Amateur .....	(144.00 - 148.00 MHz)
High Range .....	(148.00 - 174.00 MHz)
FM-TV Audio Broadcast, Wide Band .....	(174.00 - 216.00 MHz)
New Mobile Narrow Band .....	(220.00 - 222.00 MHz)
1 1/4-Meter Amateur .....	(222.00 - 225.00 MHz)
Military Aircraft .....	(225.00 - 287.80 MHz)

UHF Band (300.00 MHz-3.0 GHz)

Military Aircraft .....	(311.00 - 384.00 MHz)
U.S. Government .....	(406.00 - 450.00 MHz)
70-Centimeter Amateur .....	(420.00 - 450.00 MHz)
Low Range .....	(450.00 - 470.00 MHz)

FM-TV Audio Broadcast, Wide Band .....	(470.00 - 806.00 MHz)
Public Service .....	(806.00 - 823.98 MHz)
Conventional Systems .....	(851.00 - 856.00 MHz)
Conventional/Trunked Systems .....	(856.00 - 861.00 MHz)
Trunked Systems .....	(861.00 - 866.00 MHz)
Public Safety .....	(866.00 - 869.00 MHz)
High Range .....	(894.01 - 902.00 MHz)
33-Centimeter Amateur .....	(902.00 - 928.00 MHz)
Private Trunked .....	(935.00 - 940.00 MHz)
General Trunked .....	(940.00 - 941.00 MHz)
Fixed Services .....	(941.00 - 944.00 MHz)
Studio-to-Transmitter Broadcast Links .....	(944.00 - 952.00 MHz)
Private Fixed Services, Paging .....	(952.00 - 960.00 MHz)
Aeronautical Navigation .....	(960.00 - 1240.00 MHz)
23-Centimeter Amateur .....	(1240.00 - 1300.00 MHz)

Primary Usage

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

VHF Band

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

UHF Band

Activities	Frequencies
Land-Mobile Paired Frequencies	450.000 - 470.000 MHz
Base Stations	451.025 - 454.950 MHz
Mobile Units	456.025 - 459.950 MHz
Relay Repeater Units	460.025 - 464.975 MHz
Remote Control Stations	465.025 - 469.975 MHz

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

FREQUENCY CONVERSION

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

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

To convert MHz to kHz, multiply by 1,000.  
(9.62 MHz x 1000 = 9620 kHz)

To convert from kHz to MHz, divide by 1,000.  
(2780 kHz divided by 1000 = 2.780 MHz)

To convert MHz to meters, divide 300 by the number of megahertz.  
(300 divided by 7.1 MHz = 42.25 meters)

The Radio Shack PRO-2035 1000-Channel Programmable Home Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for the scanner so you can enjoy it for years.

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

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

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

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 it.

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

#### CONNECTING AN EXTERNAL SPEAKER

You can connect an optional external speaker with a 1/8-inch plug to the scanner. Use an 8-ohm external speaker capable of handling over 2.5 watts of power (such as Radio Shack Cat. No. 21-549).

Insert the speaker's plug into the EXT SPKR jack on the back of the scanner.

NOTE: Plugging in an external speaker disconnects the scanner's internal speaker.

#### CONNECTING HEADPHONES

You can connect an optional pair of headphones with a 1/8-inch plug to the scanner. Use monaural headphones (such as Radio Shack Cat. No. 20-210).

Insert the headphones' plug into the headphone jack on the front of the scanner.

NOTE: Plugging in headphones disconnects the scanner's internal speaker.

#### Listening Safely

To protect your hearing, follow these guidelines when you use headphones.

Set OFF/VOLUME to the lowest setting before you begin listening. After you put on the headphones, adjust OFF/VOLUME to a comfortable level.

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

Once you set OFF/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.

#### CONNECTING A TAPE RECORDER

You can connect an optional tape recorder to your scanner to record transmissions. To record from the scanner, you need a tape recorder with a microphone jack (such as Radio Shack Cat. No. 14-1151). Also, you need a connecting cable with a phono plug and a 1/8-inch plug (such as Cat. no. 42-2461).

1. Insert the connecting cable's phono plug into the TAPE OUT jack on the back of the scanner.
2. Connect the other end of the connecting cable to your tape recorder's microphone jack.

Follow the instructions provided with your tape recorder to record transmissions while the scanner is on.

The Radio Shack PRO-2035 1000-Channel Programmable Home Scanner lets you in on all the action! With its convenient rotary tuner and keypad, you can quickly tune to over 196,000 frequencies that include those used by police and fire departments, ambulance services, aircraft communications, amateur radio services, transportation services, Citizen's Band and commercial FM and television broadcasters. You can select up to 1,000 channels to scan and you can change your selections at any time.

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

The scanner has all these special features.

- Hyperscan - lets you scan and search up to 50 channels or steps per second.
- Weather Band Key - scans ten pre-programmed weather frequencies to keep informed about current weather conditions.
- Ten Channel-Storage Banks - you can store 100 channels in each bank to group channels so calls are easier to identify.
- Monitor Memory - temporarily saves up to 100 frequencies located during a frequency search, letting you move selected frequencies to permanent channel storage later.
- Priority Channel - you can set the scanner to check every 2 seconds so you do not miss important calls.
- Auto Store - quickly finds and automatically stores active frequencies in channels, then searches for additional active frequencies while skipping previously stored channels.
- TAPE OUT Jack - lets you connect an optional tape recorder to the scanner to record transmissions.
- Rotary Tuner - lets you manually tune and select desired frequencies or channels.
- Two-Second Channel Scan Delay - delays scanning for 2 seconds before moving to another channel so you can hear more replies.
- Memory Backup - keeps channel frequencies stored in memory for up to 3 months during a power loss.
- Lock-Out Function - keeps selected channels from being scanned, so you can skip over busy channels.
- Direct Frequency Search - lets you scan for new and unlisted frequencies.
- Sound Squelch - keeps the scanner from stopping on frequencies with only a carrier signal and

no voice or other sound, so you can hear calls instead of static.

Backlit Display - makes it easy to view and change programming information.

Two Power Options - let you power the scanner from standard AC power (with the supplied AC power cord), or your vehicle's battery (with an optional DC cigarette lighter power cord).

The PRO-2035 scanner can receive all of these bands:

25-28 MHz (HF Hi)  
28-29.7 MHz (10-Meter Amateur Radio)  
29.7-50 MHz (VHF Lo)  
50-54 MHz (6-Meter Amateur Radio)  
54-72 MHz (FM-TV Audio Broadcast, Wide Band)  
72-76 MHz (Land Mobile Service Band)  
76-88 MHz (FM-TV Audio Broadcast, Wide Band)  
88-108 MHz (FM Radio Broadcast, Wide Band)  
108-136.975 MHz (Aircraft)  
137-144 MHz (Government)  
144-148 MHz (2-Meter Amateur Radio)  
148-174 MHz (VHF Hi)  
174-216 MHz (FM-TV Audio Broadcast, VHF Wide Band)  
216-224.9875 MHz (VHF Hi, 1 1/4-Meter Amateur Radio)  
225-399.9875 MHz (Military Aircraft)  
400-450 MHz (UHF Lo, 70-Centimeter Amateur Radio, Government)  
450-470 MHz (UHF Lo)  
470-805.750 MHz (UHF "T" Band)  
806-823.9875 MHz (UHF Public Service)  
849.0125-868-9875 MHz (UHF Hi)  
894.0125-956 MHz (UHF Hi, 33-Centimeter Amateur Radio)  
956-1300 MHz (Private Fixed Services, Paging, Aircraft Navigation, Experimental, 23-Centimeter Amateur Radio)

The scanner can receive these pre-programmed weather channels:

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

#### FCC NOTICE

The scanner might cause TV or radio interference even when it is operating properly. To determine whether or not the scanner is causing the interference, turn off the scanner. If the interference goes away, the scanner is causing it. Try to eliminate the interference by:

Moving the scanner away from the receiver.

Connecting the scanner to an outlet that is on a different electrical circuit from the receiver.

Contacting your local Radio Shack store for help.

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

This device complies with Part 15 of FCC Rules. Operation is subject to the following conditions; (1) This device must not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This scanner is capable of Triple Conversion.

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

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

National Weather Frequencies

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

Ham Radio Frequencies

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

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

Wavelength (meters)	Voice (MHz)	
10 - meter	28.300	29.700
6 - meter	50.100	54.000
2 - meter	144.100	148.000
1 1/4 - meter	222.000	225.000
70 - cm	420.000	450.000
33 - cm	902.000	928.000
23 - cm	1240.000	1300.000

Citizens Band Frequencies

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	26.965	21	27.215
2	26.975	22	27.225
3	26.985	23	27.255
4	27.005	24	27.235
5	27.015	25	27.245
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

Birdie Frequencies

Birdies are frequencies the scanner uses when it operates. These operating frequencies might interfere with broadcasts on the same frequencies. If you program one of these frequencies, you hear only noise on that frequency.

If the interference is not severe, you might be able to turn SQUELCH clockwise to cut out the birdie. These are the most common birdies to watch for:

25.800 MHz	27.640 MHz	28.125 MHz	30.405 MHz	32.145 MHz
33.170 MHz	36.160 MHz	40.180 MHz	41.460 MHz	44.195 MHz
48.045 MHz	48.215 MHz	52.235 MHz	54.750 MHz	56.345 MHz
64.275 MHz	68.305 MHz	72.320 MHz	76.340 MHz	80.200 MHz
80.360 MHz	80.600 MHz	84.360 MHz	108.4825 MHz	112.500 MHz
116.525 MHz	120.5375 MHz	123.375 MHz	144.135 MHz	144.645 MHz
152.655 MHz	155.625 MHz	184.830 MHz	192.860 MHz	200.900 MHz
212.950 MHz	220.950 MHz	224.960 MHz	225.000 MHz	233.050 MHz
237.0125 MHz	241.075 MHz	249.1125 MHz	265.1875 MHz	299.5625 MHz
311.400 MHz	343.600 MHz	362.000 MHz	387.000 MHz	412.000 MHz
421.800 MHz	425.9125 MHz	466.250 MHz	467.250 MHz	490.375 MHz
491.375 MHz	772.200 MHz	773.400 MHz	774.600 MHz	820.400 MHz
821.600 MHz	822.800 MHz	906.3125 MHz	907.5625 MHz	908.8125 MHz
978.500 MHz	1004.250 MHz	1008.600 MHz	1013.000 MHz	1022.800 MHz
1025.6875 MHz	1055.125 MHz	1068.4375 MHz	1074.600 MHz	1090.400 MHz
1113.000 MHz	1117.6875 MHz	1152.750 MHz	1164.625 MHz	1166.200 MHz
1182.4375 MHz	1186.800 MHz	1188.375 MHz	1196.125 MHz	1200.250 MHz
1227.000 MHz	1227.500 MHz	1251.875 MHz	1264.9375 MHz	1271.950 MHz
1281.250 MHz				

NOTE: Depending on the temperature of some of the scanner's components, you might hear birdies on frequencies slightly above or below the frequencies listed here.

## Birdies

Birdies are frequencies your scanner uses when it operates. These operating frequencies might interfere with broadcasts on the same frequencies. If you program one of these frequencies, you hear only noise on that frequency.

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

### Birdie Frequencies:

31.05 MHz	124.20 MHz
41.40 MHz	134.55 MHz
51.75 MHz	144.90 MHz
113.85 MHz	155.25 MHz

## Reception Notes

Reception of the frequencies covered by your scanner is mainly "line of sight". That means you usually cannot hear stations that are beyond the horizon. During the summer months you may be able to hear stations in the 30-50 MHz range located several hundred or even thousand of miles away. This is because of summer atmospheric conditions. This type of reception is unpredictable but often very interesting!

One very useful service is the National Weather Service's continuous weather broadcast. These broadcasts contain weather forecasts and data for the areas around the station, plus bulletins on any threatening weather conditions. These stations use three frequencies - 162.40, 162.475 or 162.55 MHz. In most areas of the country, you can receive one of these frequencies.

## A Guide To The Action Bands

With the right frequencies programmed into your PRO-Series 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 could be very dangerous.

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 frequencies used by local radio services.

A volunteer police department or fire department 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 such emergency services. If you are near a railroad yard or major railroad tracks, look around 160.0 to 161.9 MHz for signals.

In some larger cities, there has been a move to the UHF bands for

emergency service. 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, 451.025 to 454.950 and 460.025 to 464.975 MHz). This means that 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.

#### Typical Band Usage

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

These frequencies are subject to change, and might vary from area to area. For a more complete listing refer to the Police Call Radio Guide available at your local RadioShack store.

#### Abbreviations:

Affiliate Radio System:	Mars
Amateur:	Ham
Automobile Emergency:	Auto Emer.
Broadcast Remote:	BC.R
Bureau of Reclamation:	Bur.Recl.
Civil Air Patrol:	CAP
Department of Agriculture and Forestry:	Agr. And F or.
Fire Department:	F.D.
Forest Products:	For.Prod.
Forestry Conservation:	Fors.Cons.
Government:	Govt.
Highway Maintenance:	Hwy.
Land Transportation:	Land Tr.
Local Government:	L.Govt.
Manufacturers:	Mfg.
Military:	MIL
Mobile Telephone :	Mob.Tel.
Motion Picture:	Mot.P.
Motor Carrier:	Buses.Trucks
National Parks:	Nat.Park
Petroleum:	Pet.
Police:	P.D.
Power Utilities:	Power
Radio Paging:	Page
Railroad:	R.R.
Relay Press:	Press
State Police:	St.P.D.
Special Emergency:	Sp.Emer.
Special Industry:	Sp.Ind.
Taxicab Radio:	Taxi
Telephone Maintenance:	Tel.Maint.
U.S. Coastal and Geodetic Survey:	U.S.C.G.S.
U.S. Navy:	USN
U.S. Weather Bureau:	U.S.W.B.

ATTENTION: Your scanner may not be able to receive all frequencies and/or modes of reception that are contained within this document. For complete information of your scanner's capabilities, be sure to read your owner's manual completely.

## Guide To Frequencies

### National Weather Frequencies:

- |            |            |             |
|------------|------------|-------------|
| 1) 161.650 | 5) 162.440 | 9) 162.525  |
| 2) 161.775 | 6) 162.450 | 10) 162.550 |
| 3) 162.400 | 7) 162.475 | 11) 163.275 |
| 4) 162.425 | 8) 162.500 |             |

### Ham Radio Frequencies

Ham operators often transmit emergency information when other communication methods break down. The following chart shows some of the frequencies that Hams use.

Wavelength (Meters)	Frequency (MHz)
10-meter	28.000 - 29.700
6-meter	50.000 - 54.000
2-meter	144.000 - 148.000
70-cm	420.000 - 450.000

The following are the channels and frequencies of the Citizens Band:

- |            |            |
|------------|------------|
| 1) 26.965  | 21) 27.215 |
| 2) 26.975  | 22) 27.225 |
| 3) 26.985  | 23) 27.255 |
| 4) 27.005  | 24) 27.235 |
| 5) 27.015  | 25) 27.245 |
| 6) 27.025  | 26) 27.265 |
| 7) 27.035  | 27) 27.275 |
| 8) 27.055  | 28) 27.285 |
| 9) 27.065  | 29) 27.295 |
| 10) 27.075 | 30) 27.305 |
| 11) 27.085 | 31) 27.315 |
| 12) 27.105 | 32) 27.325 |
| 13) 27.115 | 33) 27.335 |
| 14) 27.125 | 34) 27.345 |
| 15) 27.135 | 35) 27.355 |
| 16) 27.155 | 36) 27.365 |
| 17) 27.165 | 37) 27.375 |
| 18) 27.175 | 38) 27.385 |
| 19) 27.185 | 39) 27.395 |
| 20) 27.205 | 40) 27.405 |

### Guide To The Action Bands

#### United States Broadcast Bands

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

Frequency Range	Allocation
54.0 - 72.0 MHz .....	VHF Television
76.0 - 88.0 MHz .....	VHF Television
88.0 - 108.0 MHz .....	Standard FM

174.0 - 216.0 MHz ..... VHF Television  
470.0 - 805.75 MHz ..... UHF Television

#### International Broadcast Bands

Several short-wave bands are allocated for international broadcasting because of the nature of propagation of high frequencies. The bands are sometimes identified according to the approximate wavelength of the signals in meters. Your scanner may receive the 11-meter band, from 25.6 - 26.10 MHz.

#### Typical Band Usage

##### HF Band (3.0 - 30.0 MHz):

Mid Range: ..... 25.00 - 28.63 MHz  
10-Meter Amateur Band: ..... 28.00 - 29.70 MHz  
High Range: ..... 29.70 - 29.90 MHz

##### VHF Band (30.00 - 300.0 MHz):

Low range: ..... 30.00 - 50.00 MHz  
6-Meter Amateur: ..... 50.00 - 54.00 MHz  
FM-TV Audio Broadcast, Wide Band: ..... 54.00 - 72.00 MHz  
FM Radio Broadcast, Wide Band: ..... 88.00 - 108.00 MHz  
Aircraft: ..... 108.00 - 136.00 MHz  
U.S. Government: ..... 138.00 - 144.00 MHz  
2-Meter Amateur: ..... 144.00 - 148.00 MHz  
High Range: ..... 148.00 - 174.00 MHz  
New Mobile Narrow Band: ..... 220.00 - 222.00 MHz  
1.3-Meter Amateur: ..... 222.00 - 225.00 MHz  
Military Aircraft: ..... 225.00 - 287.80 MHz

##### UHF Band (300.00 MHz - 3.0 GHz):

Military Aircraft: ..... 311.00 - 384.00 MHz  
U.S. Government: ..... 406.00 - 470.00 MHz  
0.6-Meter Amateur: ..... 420.00 - 450.00 MHz  
Low Range: ..... 450.00 - 470.00 MHz  
FM-TV Audio Broadcast, Wide Band: ..... 470.00 - 806.00 MHz  
Conventional Systems: ..... 851.00 - 856.00 MHz  
Conventional/Trunked Systems: ..... 856.00 - 861.00 MHz  
Trunked Systems: ..... 861.00 - 866.00 MHz  
Public Safety: ..... 866.00 - 869.00 MHz  
Common Carrier: ..... 869.00 - 894.00 MHz  
Private Trunked: ..... 935.00 - 940.00 MHz  
General Trunked: ..... 940.00 - 941.00 MHz

#### Primary Usage:

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

##### VHF Band:

2-Meter Amateur Band: ..... 144.000 - 148.000 MHz  
Government, police, and Fire: ..... 153.785 - 155.980 MHz  
Emergency Services: ..... 158.730 - 159.460 MHz  
Railroad: ..... 160.000 - 161.900 MHz

##### UHF Band:

.6 cm Amateur Band FM Repeaters: ..... 440.000 - 450.000 MHz  
 Land Mobile "Paired" Frequencies: ..... 450.000 - 470.000 MHz  
 Base Stations: ..... 451.025 - 454.950 MHz  
 Mobile Units: ..... 456.025 - 459.950 MHz  
 Repeater Units: ..... 460.025 - 464.975 MHz  
 Control Stations: ..... 465.025 - 469.975 MHz

NOTE: UHF remote control stations and mobile units typically operate at 5 MHz higher than their associated base and relay repeater units.

#### Specified Intervals

Frequencies in different bands are accessible only at specific intervals.

For Example:

VHF, HAM, and Government: ..... 5.0 kHz steps  
 All Others: ..... 12.5 kHz steps  
 Aircraft: ..... 25.0 kHz steps

Note: Your scanner rounds the entered frequency to the nearest valid frequency. For example, if you try to enter 151.473, the scanner might accept this as 151.470.

#### Band Allocation

To help you decide which frequency ranges to search, use the following listing of the typical services that use the frequencies your scanner receives. These frequencies are subject to change, and might vary from area to area. For a more complete listing, refer to the "Police -Call Radio Guide including Fire and Emergency Services", as well as "Beyond Police Call", "Aeronautical Directory", "Nautical Directory" and "Now you're Talking" texts available at your local RadioShack store.

#### Abbreviations

AIR: ..... Aircraft  
 BIFC: ..... Boise (ID) Interagency Fire Cache  
 BUS: ..... Business  
 CAP: ..... Civil Air Patrol  
 CB: ..... Citizens Band  
 CCA: ..... Common Carrier  
 CSB: ..... Conventional Systems  
 CTSB: ..... Conventional/Trunked Systems  
 FIRE: ..... Fire Department  
 HAM: ..... Amateur (HAM) Radio  
 GOVT: ..... Federal Government  
 GMR: ..... General Mobile Radio  
 GTR: ..... General Trunked  
 IND: ..... Industrial Services  
 MARI: ..... Maritime Limited Coast  
 MARS: ..... Military Affiliate Radio System  
 MED: ..... Emergency/Medical Services  
 MIL: ..... U.S. Military  
 MOV: ..... Motion Picture/Video Industry  
 NEW: ..... New Mobile Narrow  
 NEWS: ..... Relay Press  
 OIL: ..... Oil/Petroleum Industry  
 POL: ..... Police Department  
 PUB: ..... Public Services

PSB: ..... Public Safety  
 PTR: ..... Private Trunked  
 ROAD: ..... Road & Highway Maintenance  
 RTV: ..... Radio/TV Remote Broadcast Pickup  
 TAXI: ..... Taxi Services  
 TELBL: ..... Mobile Telephone  
 TELC: ..... Cordless Telephones  
 TELM: ..... Telephone Maintenance  
 TOW: ..... Tow Trucks  
 TRAN: ..... Transportation Services  
 TSB: ..... Trunked Systems  
 TVn: ..... FM-TV Audio Broadcast  
 USXX: ..... Government Classified  
 UTIL: ..... Power & Water Utilities  
 WTHR: ..... Weather

High Frequency (HF)-(3 - 30 MHz):

High Band - (25.00 - 27.36 MHz):

25.020 - 25.320: ..... IND  
 25.870 - 26.470: ..... RTV  
 26.62: ..... CAP  
 26.966 - 27.405: ..... CB  
 27.430 - 27.630: ..... BUS

10-Meter Amateur Band - (28.0 - 29.7 MHz):

28.000 - 29.700: ..... HAM

Very High Frequency (VHF) - (30 - 300 MHz):

Low Band - (29.7 - 50 MHz - in 5 kHz steps):

29.700 - 29.790: ..... IND  
 29.900 - 30.550: ..... GOVT, MIL  
 30.580 - 31.980: ..... IND, PUB  
 32.000 - 32.990: ..... GOVT, MIL  
 33.020 - 33.980: ..... BUS, IND, PUB  
 34.010 - 34.990: ..... GOVT, MIL  
 35.020 - 35.980: ..... BUS, PUB, IND, TELM  
 36.000 - 36.230: ..... GOVT, MIL  
 36.250: ..... Oil spill clean up  
 36.270 - 36.990: ..... GOVT, MIL  
 37.020 - 37.980: ..... PUB, IND  
 38.000 - 39.000: ..... GOVT, MIL  
 39.020 - 39.980: ..... PUB  
 40.000 - 42.000: ..... GOVT, MIL, MARI  
 42.020 - 42.940: ..... POL  
 42.960 - 43.180: ..... IND  
 43.220 - 43.680: ..... TELM, IND, PUB  
 43.700 - 44.600: ..... TRAN  
 44.620 - 46.580: ..... POL, PUB  
 46.600 - 46.990: ..... GOVT, TELC  
 47.020 - 47.400: ..... PUB  
 47.420: ..... American Red Cross  
 47.440 - 49.580: ..... IND, PUB  
 49.610 - 49.990: ..... MIL, TELC

6-METER Amateur Band (50-54 MHz):

50.00 - 54.00: ..... HAM

FM-TV Audio Broadcast, Wide Band (54-72 MHz):

59.750: ..... TV2  
65.750: ..... TV3  
71.750: ..... TV4

Land Mobile Service Band (72-76 MHz):

FM-TV Audio Broadcast, Wide Band (76-88 MHz):

81.750: ..... TV5  
87.750: ..... TV6

FM Radio Broadcast, Wide Band (88-108 MHz):

Aircraft Band (108-136 MHz):

108.000 - 121.490: ..... AIR  
121.500: ..... AIR emergency  
121.510 - 136.000: ..... AIR

U.S. GOVERNMENT BAND (138-144 MHz):

137.000 - 144.000: ..... GOVT, MIL

VHF-Hi BAND (148-174 MHz):

148.050 - 150.345: ..... CAP, MARS, MIL  
150.775 - 150.790: ..... MED  
150.815 - 150.965: ..... TOW  
150.980: ..... Oil spill clean up  
150.995 - 151.130: ..... ROAD  
151.145 - 151.475: ..... POL  
151.490 - 151.955: ..... IND, BUS  
151.985: ..... TELM  
152.030 - 152.240: ..... TELB  
152.270 - 152.465: ..... IND, TAXI  
152.480: ..... BUS  
152.510 - 152.840: ..... TELB  
152.870 - 153.020: ..... IND, MOV  
153.035 - 153.175: ..... IND, OIL, UTIL  
153.740 - 154.445: ..... PUB, FIRE  
154.490 - 154.570: ..... IND, BUS  
154.585: ..... Oil spill clean up  
154.600 - 154.625: ..... BUS  
154.665 - 156.240: ..... MED, ROAD, POL, PUB  
165.255: ..... OIL  
156.275 - 157.425: ..... MARI  
157.450: ..... MED  
157.470 - 157.515: ..... TOW  
157.530 - 157.725: ..... IND, TAXI  
157.740: ..... BUS  
157.770 - 158.100: ..... TELB  
158.130 - 158.460: ..... BUS, IND, OIL, TELM, UTIL  
158.490 - 158.700: ..... TELB  
158.730 - 159.465: ..... POL, PUB, ROAD  
159.480: ..... OIL  
159.495 - 161.565: ..... TRAN  
161.580: ..... OIL  
161.600 - 162.000: ..... MARI, RTV

162.0125 - 162.35: ..... GOVT, MIL, USXX  
 162.400 - 162.550: ..... WTHR  
 162.5625 - 162.6375: ..... GOVT, MIL, USXX  
 162.6625: ..... MED  
 162.6875 - 163.225: ..... GOVT, MIL, USXX  
 163.250: ..... MED  
 163.275 - 166.225: ..... GOVT, MIL, USXX  
 166.250: ..... GOVT, RTV, FIRE  
 166.275 - 169.400: ..... GOVT, BIFC  
 169.445: ..... WIRELESS MIKES  
 169.500: ..... GOVT  
 169.505: ..... WIRELESS MIKES  
 169.55 - 169.9875: ..... GOVT, MIL, USXX  
 170.000: ..... BIFC  
 170.025 - 170.150: ..... GOVT, RTV, FIRE  
 170.175 - 170.225: ..... GOVT  
 170.245 - 170.305: ..... WIRELESS MIKES  
 170.350 - 170.400: ..... GOVT, MIL  
 170.425 - 170.450: ..... BIFC  
 170.475: ..... PUB  
 170.4875 - 173.175: ..... GOVT, PUB, WIRELESS MIKES  
 173.225 - 173.375: ..... MOV, NEWS, UTIL  
 173.3875 - 178.5375: ..... MIL  
 173.5625 - 173.5875: ..... MIL Medical/Crash Crews  
 173.60 - 173.9875: ..... GOVT

FM-TV Audio Broadcast, VHF Wide Band (174-216 MHz):

179.750: ..... TV7  
 185.750: ..... TV8  
 191.750: ..... TV9  
 197.750: ..... TV10  
 203.750: ..... TV11  
 209.750: ..... TV12  
 215.750: ..... TV13

New Mobil Narrow Band (220-222 MHz):

220.000 - 222.000: ..... NEW

1.3-Meter Amateur Band (222-225 MHz):

222.000 - 225.000: ..... HAM

MILITARY AIRCRAFT BAND (237.9-287.8 MHz):

237.900: ..... Coast Guard Search & Rescue  
 239.800: ..... FAA Weather  
 241.000: ..... ARMY  
 243.000: ..... EMERGENCY  
 255.400: ..... FAA FLIGHT SERVICE  
 257.800: ..... CIVILIAN TOWERS  
 287.800: ..... Coast Guard Air/Sea  
 Rescue

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

Military Aircraft Band (319.1 - 383.9 MHz):

319.100: ..... FAA Traffic Control  
 321.000 - 336.600: ..... Air Force

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

U.S. Government Band (406-420 MHz):

406.125 - 419.975: ..... GOVT, USXX

70-cm Amateur Band (420-450 MHz):

420.000 - 450.000: ..... HAM

Low Band (450-470 MHz):

450.050 - 450.925: ..... RTV  
451.025 - 452.025: ..... IND, OIL, TELM, UTIL  
452.0375 - 453.00: ..... IND, TAXI, TRAN, TOW, NEWS  
453.0125 - 453.9875: ..... PUB  
454.000: ..... OIL  
454.025 - 454.975: ..... TELB  
455.050 - 455.925: ..... RTV  
457.525 - 457.600: ..... BUS  
458.025 - 458.175: ..... MED  
460.0125 - 460.6375: ..... FIRE, POL, PUB  
460.650 - 462.175: ..... BUS  
462.1875 - 462.450: ..... BUS, IND  
462.4625 - 462.525: ..... IND, OIL, TELM, UTIL  
462.550 - 462.725: ..... GMR  
462.750 - 462.925: ..... BUS  
462.9375 - 463.1875: ..... MED  
463.200 - 467.925: ..... BUS

FM-TV Audio Broadcast, UHF Wide Band (470-512 MHz):  
(Channels 14-69 in 6 MHz steps):

475.750: ..... Channel 14  
481.750: ..... Channel 15  
487.750: ..... Channel 16  
805.750: ..... Channel 69

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

Conventional Systems Band - Locally Assigned

851.0125 - 855.9875: ..... CSB

Conventional/Trunked Systems Band - Locally Assigned

856.0125 - 860.9875: ..... CTSB

Trunked Systems Band - Locally Assigned

861.0125 - 865.9875: ..... TSB

Public Safety Band - Locally Assigned

866.0125 - 868.9875: ..... PSB

Common Carrier

869.010 - 894.000: ..... CCA

Private Trunked

935.0125 - 939.9875: ..... PTR

General Trunked

940.0125 - 940.9875: ..... GTR

### Frequency Conversion

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

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

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

9.62 MHz x 1000 = 9620 kHz

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

2780 kHz / 1000 = 2.780 MHz

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

300 / 7.1 MHz = 42.25 meters

### A Note on Image Reception

Radios work by simple mathematics. For example, most tune to a frequency by mixing that frequency with another (local oscillator) frequency which is slightly different. This mixing process primarily gives us the two original frequencies, their sum, and their difference. Well, the radio's Intermediate Frequency (I.F.) filter normally passes either the sum or difference frequency, and this is then processed into the sound we hear. Because nothing is perfect, certain "harmonics" will also get through if they are strong enough. For example, if a radio's I.F. is 10.7 MHz, we might be able to tune to a frequency 21.4 MHz (2 x I.F.) above (or below, depending on the radio's design) a strong signal and hear it! This is more evident in a double-conversion radio than a triple-conversion radio, because the triple-conversion radio's 1st intermediate frequency is quite high. This causes the image to be so far off frequency that it is easy to effectively filter it out.

So remember that just because a radio doesn't receive something which another does is not necessarily an indication of a problem. The one radio may simply not be "tricked" into picking up an image! This rejection of undesired signals is one reason that a triple-conversion receiver costs more than a similar dual-conversion model.

You might be interested in finding more out about radio. One good location to start looking is your local public library. You might also wish to contact the A.R.R.L., as they are an excellent source of informative texts on the subject.

Q: In Auto Storing, this Scanner keeps storing the same frequency over and over again. In the Owner's Manual under Features, it is stated that Auto Store will scan and store the frequency. If the same frequency comes up again, it checks the frequency and if it is the same frequency, it skips it. But under Operation of Auto Storing, it does not state that it will skip a frequency if it is already stored.

A: This is a known problem with this scanner. The PRO-0464 (200-0464) Scanner was introduced to replace the PRO-2035 Scanner.

The FCC (Federal Communications Commission) has allocated 11 channels for use by the National Oceanic and Atmospheric Administration (NOAA). NOAA broadcasts your local forecast and regional weather information on one or more of these channels. We have preprogrammed the scanner with ten of the U.S. frequencies available to NOAA.

To scan the preprogrammed weather channels, press WEATHER, then press the UP or DOWN ARROW.

To manually tune through the preprogrammed weather channels, repeatedly press WEATHER or turn TUNING.

NOTE: For a list of all 11 national weather frequencies, see "National Weather Frequencies."

#### BAND MODE AND FREQUENCY STEP

The scanner scans in the following band modes:

AM (amplitude modulation) - used in aircraft bands and Citizen's Band.

NFM (narrowband frequency modulation) - used in action bands such as police, fire, ambulance, Amateur Radio, etc.

WFM (wideband frequency modulation) - used in commercial FM broadcasts and television sound.

This table shows the preset band modes and frequency steps your scanner uses for each frequency range.

Frequency Range (MHz)	Band Mode	Frequency Step (kHz)
25.000 - 29.995	AM	5
30.000 - 87.495	NFM	5
87.500 - 107.950	WFM	50
108.000 - 136.9875	AM	12.5
137.000 - 224.995	NFM	5
225.000 - 400.000	AM	12.5
400.0125 - 520.000	NFM	12.5
760.000 - 1300.000	NFM	12.5

If you scan some of the 225-400 MHz and TV audio bands, you might have to manually change the band mode or frequency step.

#### Changing/Resetting the Band Mode

To change the displayed band mode while a frequency appears, press MODE until the desired band mode appears. The band mode flashes anytime it is different from the preset band mode. To reset the displayed band mode to its preset, press RESET.

NOTES: You cannot change the band mode unless it appears on the display.

Keep in mind that improperly changing the band mode can cause poor reception. For example, the sound is distorted when you listen to an FM broadcast or TV audio in the NFM mode or to a police broadcast in the WFM mode.

## Changing/Resetting the Frequency Step

The scanner scans at a preset frequency step (5, 12.5, or 50 kHz) for each frequency range. However, if you scan some of the 225-400 MHz and TV audio bands, you might have to manually change the frequency step.

You can change the displayed frequency step while searching for frequencies or automatically storing frequencies.

Follow these steps to change the displayed frequency step.

1. Display the frequency step or frequency range which uses the frequency step.
2. Press STEP until the desired frequency step appears.

The frequency step flashes anytime it is different from the preset frequency step.

To change the displayed frequency step back to its preset value, press RESET.

NOTES: You cannot change the frequency step unless it appears on the display.

Keep in mind that improperly changing the frequency step can cause you to miss stations while scanning. For example, if you use a 50 kHz frequency step to search for broadcasts, and the band mode is set to NFM, you might miss frequencies between the 50 kHz steps.

## CONNECTING POWER

Plug the scanner's attached AC power cord into a standard AC outlet.

**CAUTION:** To prevent electric shock, the plug's blades are polarized and fit only one way. If the plug does not fit easily, turn it over and try again. Do not force the plug into the AC outlet.

The memory backup circuit begins to function a few minutes after you supply power to the scanner. The length of time that the scanner maintains channels stored in memory depends on how long power has been supplied to the scanner. For example, if power is supplied to the scanner for at least 4 days, the memory backup circuit maintains the channels stored in memory for up to 3 months.

## Using Your Vehicle's Battery

If your AC power does not work in an emergency, you can power your scanner from your vehicle's cigarette lighter socket with an optional DC cigarette lighter power cable such as Cat. No. 270-1533 (not supplied).

To connect an optional DC cigarette lighter power cable, insert its barrel plug into the DC 13.8V jack on the back of the scanner, then plug the power cable into your vehicle's cigarette lighter socket.

**CAUTIONS:** The scanner can work in a vehicle that has a 12-volt, negative-ground electrical system. Most vehicles have this type of system. If you are not sure about your vehicle, check with your vehicle's dealer

If you use a DC cigarette lighter power cable with the scanner, it must supply 12 volts and deliver at least 1 amp. Its center tip must be set to positive, and its plug must correctly fit the DC 13.8V jack on the back of the scanner. The recommended power cable meets these specifications. Using a power cable that does not meet these specifications could seriously damage the scanner or the power cable.

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

## RESTARTING/RESETTING THE SCANNER

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

Restarting the scanner clears and resets the scanner's display, but does not erase any channel information stored in the scanner's memory. Follow these steps to restart the scanner.

1. Turn off the scanner, then turn it on again.
2. Insert a pointed object such as a straightened paper clip into the RESTART hole on the back of the scanner for about 2 seconds.

If the scanner still does not work properly, you might have to reset it.

**CAUTION:** This procedure clears all the information you have programmed

into the scanner. Use this procedure only when you are sure the scanner is not working properly.

1. Turn off the scanner, then turn it on again.
2. Press and hold down CLEAR and insert a pointed object such as a straightened paper clip into the RESTART hole on the back of the scanner for about 2 seconds. Information on the scanner's display disappears.
3. When information reappears on the scanner's display, release CLEAR.

#### A LOOK AT THE KEYBOARD

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

WEATHER - scans through the ten preprogrammed weather channels.

SOUND SQUELCH - sets the scanner to continue to scan if it stops on a carrier signal with no voice or other sound.

OFF/VOLUME - turns the scanner on or off and adjusts the volume.

SQUELCH - adjusts the scanner's squelch.

PRIORITY - sets and turns on and off priority for a particular channel.

DIRECT - starts a direct frequency search.

MODE - changes the band mode (AM, NFM, or WFM).

L/OUT - lets you lock out selected channels.

STEP - changes the frequency step (5, 12.5, or 50 kHz).

L/O RVW - lets you review locked-out channels.

RESET - resets the default band mode and frequency step.

DELAY - programs a 2-second delay for the selected mode.

Number Keys - each key has a single-digit label and a range of numbers. Use the digits on the keys to enter the numbers for a channel or a frequency. Use the range of numbers above the key (201-300, for example) to select the channel-storage bank. See "Understanding Channel-Storage Banks."

DECIMAL SYMBOL - enters the decimal point when you enter a frequency.

CLEAR - clears an incorrect entry.

LIMIT - sets the channel or frequency range you want to search.

UP AND DOWN ARROWS - searches up or down from the currently displayed frequency.

MONITOR - accesses the 100 monitor memories.

TUNING Knob - turn to tune through channels or frequencies.

SCAN - scans through the channels.

MANUAL - stops scanning to let you directly enter a channel number.

TUNE - lets you use the scanner's rotary tuner to tune through frequencies.

PROGRAM - programs frequencies into channels.

AUTO - lets you automatically program frequencies into channels.

ENTER - enters frequencies into channels.

#### A LOOK AT THE DISPLAY

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

SCAN - appears when you scan channels.

BANK - appears with numbers (1-10). Numbers with a bar under them show which channel-storage banks are turned on for scanning. See "Understanding Channel -Storage Banks."

SEARCH BANK - appears with numbers (1-10). Numbers with a bar under them show which search banks are turned on for a limit search.

TUNE - appears when you press TUNE to use the scanner's rotary tuner.

MANUAL - appears when you manually select a channel.

WX - appears when you scan the ten preprogrammed weather band channels.

AUTO - appears when the scanner automatically stores frequencies in channels.

SEARCH - appears during a direct search and a limit search.

UP AND DOWN ARROWS - appears when the scanner is scanning, when you press the UP or DOWN ARROW while the scanner is in limit or direct search, when you tune through weather channels, or when you store frequencies.

P - appears when the scanner is set to the priority channel.

CH - appears with a number (1-1000) to show which of the scanner's 1,000 channels it is tuned to.

MHz - appears with digits to show which frequency the scanner is currently tuned to.

- PRIORITY - appears when the priority feature is turned on.
- MON - appears with a number (1-100) to show which monitor memory you are listening to.
- LOCK-OUT - appears when you lock out a channel or manually select a locked-out channel.
- DELAY - appears when scanning stops at a channel you have programmed for a 2-second delay.
- AM - appears when the scanner scans a frequency set to the AM mode or when you change a frequency to the AM mode. See "Band Mode and Frequency Step."
- NFM - appears when the scanner scans a frequency set to the narrowband FM mode, or when you change a frequency to the narrowband FM mode. See "Band Mode and Frequency Step."
- WFM - appears when the scanner scans a frequency set to the wideband FM mode, or when you change a frequency to the wideband FM mode. See "Band Mode and Frequency Step."
- kHz - appears with digits to show which frequency step (5, 12.5, or 50) the scanner is set to.
- PROGRAM - appears when you press PROGRAM while selecting a channel to store a frequency in, or while selecting a search bank.
- d - - appears instead of the channel number during a direct search.
- Error - appears instead of the correct entry when you make an incorrect entry.

#### UNDERSTANDING BANKS

You can store frequencies into either a permanent memory location called a channel, or a temporary memory location called a monitor memory. You can store up to 1,000 channels and up to 100 monitor memories.

#### CHANNEL-STORAGE BANKS

To make it easier to identify and select the channels you want to listen to, channels are divided into 10 channel-storage banks (1-10) of 100 channels each. You can use each channel-storage to group frequencies, such as those used by the police department, fire department, ambulance services, and aircraft (see "Guide to the Action Bands").

For example, there might be three or four police departments in your area, each using several different frequencies. Additionally, there might be other law enforcement agencies such as state police, county sheriffs, or SWAT teams that use their own frequencies. You can program all law enforcement frequencies starting with Channel 1 (the first channel in Bank 1), then program the fire department, paramedic, and other public safety frequencies starting with Channel 101 (the first channel in Bank 2).

## MONITOR MEMORIES

### TURNING ON THE SCANNER/SETTING VOLUME AND SQUELCH

1. Turn SQUELCH fully counterclockwise.
2. Turn VOLUME clockwise until you hear a hissing sound.
3. Turn SQUELCH clockwise, then leave it set to a point just after the hissing sound stops.

NOTE: If the scanner picks up unwanted, partial, or very weak transmissions, turn SQUELCH clockwise to decrease the scanner's sensitivity to these signals. If you want to listen to a weak or distant station, turn SQUELCH counterclockwise.

### TURNING CHANNEL-STORAGE BANKS ON AND OFF

When you turn on the scanner the first time, the scanner scans all ten channel-storage banks. As the scanner scans a bank, the bar under the bank's number flashes.

To turn off banks while scanning, press the bank's number key until the bar under the bank's number disappears. The scanner does not scan any of the stored channels within banks you have turned off.

NOTES: You cannot turn off all banks. There must be at least one active bank.

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

The normal way to search is between two frequency points. Enter  
PRO-  
GRAM, LIMIT and the display will show the current "Lo" frequency limit. If you want to change it, enter the frequency (146,000 for example) and hit ENTER. Press LIMIT again to see the "Hi" frequency limit. To change it enter the frequency (148,000 for example) and hit ENTER. To begin the search hit the /\ to scan up or \/ to scan down. Unit will scan between 146,000 and 148,000 in example above.

To turn on banks while scanning, press the bank's number key until a bar appears under the bank's number.

## SCANNING THE CHANNELS

To begin scanning the channels or to start scanning again after monitoring a specific channel, press SCAN. The scanner scans through all non-locked channels in the active banks (see "Locking Out Channels").

The scanner scans either up or down through the channels in the activated banks. To change the scanning direction, either press the UP or DOWN ARROWS, or rotate TUNING counterclockwise to scan down, or clockwise to scan up.

## USING THE ROTARY TUNER

The scanner's rotary tuner lets you quickly select channels and frequencies.

NOTE: If you turn TUNING too slowly, the scanner might accidentally change the search or scan direction. If you turn TUNING too quickly, the scanner might not display the frequency or channel you expected.

## Tuning Channel Numbers

To tune a higher channel numbers, turn TUNING clockwise one notch at a time. To tune to lower channel numbers, turn TUNING counterclockwise one notch at a time.

## Tuning Frequencies

NOTE: You cannot use the rotary tuner to tune to frequencies while the scanner is scanning the priority channel.

1. When the scanner stops on a frequency while scanning, press MANUAL. MANUAL appears.
2. Press TUNE. MANUAL, the frequency number, and TUNE appear.

To tune to higher frequencies, turn TUNING clockwise one notch at a time. To tune to lower frequencies, turn TUNING counterclockwise one notch at a time.

## USING MONITOR MEMORIES

Monitor memories are temporary storage areas where you can store up to 100 frequencies while you decide whether to save them into channels. You can manually select monitor memories, but you cannot scan them.

You can store frequencies you find during a limit or direct search into monitor memories by pressing MONITOR when the desired frequency appears on the display. The channel number to the right of MON indicates the current monitor memory.

To listen to a monitor memory, press MANUAL, then press MONITOR. The current monitor memory appears. To select other monitor memories, either:

Turn TUNING one click to select each monitor memory.

Use the number keys to enter the monitor memory's channel number, then press MONITOR.

Both MON and the frequency stored in the monitor memory are displayed.

#### MOVING FREQUENCIES

##### Moving a Frequency from a Monitor Memory to a Channel

1. Press PROGRAM.
2. Use the number keys to enter the channel number where you want to store the monitor frequency, then press PROGRAM.
3. Press MONITOR. MON flashes. Use the number keys to enter the monitor memory's channel number, then press MONITOR. Or, turn TUNING to select the channel number.

MON flashes and the monitor memory's channel number and frequency appear.

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

To move the next frequency to the next channel, turn TUNING to select the next channel and repeat Steps 3 and 4.

##### Moving Frequencies from Monitor Memories to Banks

The scanner can move frequencies stored in monitor memories into banks you specify.

1. Press AUTO. AUTO appears.
2. Using the number keys, select the bank numbers where you want to store the frequencies from the monitor memories.

Notes: To select bank 10, press 0.

If you select a bank that does not contain any empty channels, a bar flashes under the bank number, and -FULL- and AUTO appear. To store new frequencies into this bank, you must delete one or more frequencies stored in it, then repeat Step 2. See "Deleting Frequencies."

If you select a bank that contains an empty channel, a bar flashes under the bank number, and AC-, the number of vacant channels in the bank, Ch, and AUTO appear.

If you do not want to select the bank, press the bank's number again.

If you select more than one bank and want to review your selections, turn the TUNING knob one click for each selected bank. As you turn the TUNING knob, a bar flashes under each selected bank number.

3. Press and hold down ENTER, then press MONITOR. A bar flashes under the bank number, and AC-, the number of vacant channels in the bank, Ch, and AUTO appear.

##### Moving Frequencies Within Banks

You can move all stored frequencies within a bank you select from higher channels to lower, empty channels. This helps you group all of the frequencies you stored within a bank into consecutive channels. For example, if you stored frequencies in channels 1 through 25, left channels 26 through 30 empty, then stored more frequencies in channels 30 through 40, the scanner can move all the frequencies together into channels 1 through 35.

1. Press AUTO. AUTO appears.
2. Using the number keys, select the bank's number.
3. Press and hold down ENTER, then press RESET. The scanner automatically moves all frequencies in channels within the bank to the lowest available channels within the bank.

#### Moving Frequencies from Banks to Monitor Memory

1. Press AUTO. AUTO appears.
2. Using the number keys, select the bank's number.
3. Press and hold down ENTER, then press the decimal point. The scanner automatically moves all frequencies in channels within the bank to monitor memories.

#### DELETING FREQUENCIES

##### Deleting a Frequency from a Channel or Monitor Memory

1. Press PROGRAM.
2. Use the number keys to enter the channel number or monitor memory channel containing the frequency you want to delete.
3. If you are deleting the frequency in a channel, press PROGRAM.  
If you are deleting the frequency in a monitor memory, press MONITOR.
4. Press 0, then press ENTER. The frequency is deleted from the channel.

NOTE: To delete all frequencies in all banks at the same time, you must reset the scanner. See "Restarting/Resetting the Scanner."

##### Deleting Frequencies from Locked-out Channels within a Bank

You can delete the frequencies in all locked-out channels within a bank you select. This lets you delete all the old or uninteresting frequencies in channels you have locked out.

1. Press AUTO. AUTO appears.
2. Using the number keys, select the bank's number.
3. Press and hold down ENTER, then press L/OUT.

##### Deleting All Frequencies from Channels with a Bank

1. Press AUTO. AUTO appears.
2. Using the number keys, select the bank's number.

3. Press and hold down ENTER, then press CLEAR.

## SPECIAL FEATURES

### DELAY

Many agencies use a two-way radio system that might have a pause of several seconds between a query and a reply. The scanner's delay feature lets it wait for 2 seconds after each transmission on a channel or frequency while scanning or searching.

To program a 2-second delay for a channel while scanning, manually select the channel and press DELAY until DELAY appears. When the scanner stops on the channel, it waits for 2 seconds after each transmission on that channel before it resumes scanning.

To program a 2-second delay for any active frequency while searching, press DELAY until DELAY appears. When the scanner stops on a transmission, it waits for 2 seconds after each transmission on that frequency before it resumes searching.

### USING THE ATT SWITCH

To reduce interference or noise caused by signals from a strong local broadcaster, you can reduce the scanner's sensitivity to signals by setting the ATT (attenuate) switch on the back of the scanner.

Switch ATT to 10dB to reduce the scanner's sensitivity, or 0dB to increase the scanner's sensitivity.

NOTE: If you switch ATT to 10dB, the scanner might not receive weak signals.

### USING THE SOUND SQUELCH SWITCH

You can have the scanner skip frequencies that broadcast only a carrier signal (without an accompanying modulated signal) by setting the SOUND SQUELCH switch on the front of the scanner. When SOUND SQUELCH is turned on, the scanner continues scanning if it does not detect a modulated signal on a frequency within 0.5 seconds.

NOTES: This feature works only while the scanner is scanning, searching, or monitoring the priority channel.

The sound squelch feature might not work properly if the monitored frequency contains a transmission with a low modulated signal.

To set sound squelch, press SOUND SQUELCH until the scanner beeps and the SOUND SQUELCH indicator turns on. To turn off sound squelch, press SOUND SQUELCH again.

If the scanner receives a frequency that broadcasts both a carrier and a modulated signal, it stops scanning and monitors the frequency. If the modulated signal stops being broadcast on the frequency, the scanner stays on the frequency for 5 seconds, then resumes scanning. If the carrier signal stops being broadcast on the frequency, the scanner resumes scanning immediately unless DELAY is set.

### LOCKING OUT CHANNELS

You can scan existing channels faster by locking out channels that have a continuous transmission, such as a weather channel.

To lock out a channel while scanning, press L/OUT when the scanner stops on the channel. To lock out a channel manually, manually select the channel and press L/OUT until LOCK-OUT shows on the display.

To remove the lockout from a channel, manually select the channel and press L/OUT until LOCK-OUT disappears from the display.

NOTES: You can delete the frequencies stored in locked-out channels within a bank. See "Deleting Frequencies from Locked-Out Channels within a Bank."

You can still manually select locked-out channels.

You cannot lock out all channels. There must be at least one active channel in each bank.

#### Reviewing Locked-Out Channels

To review which channels are locked out, press MANUAL, then repeatedly press L/O RVW. As you press L/O RVW, the scanner displays all locked-out channels.

#### PRIORITY

With the priority feature, you can scan through programmed channels and still not miss an important or interesting call on a specific channel. You can program one stored channel as a priority channel.

NOTE: Before you first program the scanner, it automatically designates Channel 1 in Bank 1 as the priority channel.

Follow these steps to program a channel as the priority channel.

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

To turn on the priority feature, press PRIORITY during scanning. The scanner checks the priority channel every 2 seconds. It stays on the channel if there is activity, and PRIORITY appears.

To turn off the priority feature, press PRIORITY. PRIORITY disappears from the display.

#### MANUALLY SELECTING A CHANNEL

You can continuously monitor a specific channel without scanning. This is useful if you hear an emergency broadcast on a channel and do not want to miss any details (even though there might be periods of silence) or if you want to monitor a locked-out channel.

Follow these steps to manually select a channel.

1. Press MANUAL.
2. Use the number keys to enter the channel number you want to hear, then

press MANUAL.

NOTES: If the scanner is scanning and stops at the channel you want, you do not have to press MANUAL again in Step 2.

If you repeatedly press MANUAL, the scanner steps through the channels. To change the step direction, press either the UP or DOWN ARROW before you press MANUAL.

This scanner is primarily designed for use in the home as a base station. You can place it on a desk, shelf, or table.

The scanner's front feet fold up or down. Adjust them to give you the best view of the display.

#### CONNECTING AN ANTENNA

The supplied telescoping antenna helps the scanner receive strong local signals. To install the antenna, screw it clockwise into the hole on the scanner's top.

The scanner's sensitivity depends on the antenna's length and various environmental conditions. For the best reception of the transmissions you want to hear, adjust the antenna's length.

Frequency	Antenna Length
25-300 MHz	Extend fully
300-520 MHz	Extend three segments
520-760 MHz	Extend two segments
760-1300 MHz	Collapse all segments

Instead of the supplied antenna, you can connect an outdoor base antenna (not supplied) to the scanner. Your local Radio Shack store sells a variety of antennas. Choose the one that best meets your needs.

When deciding on an outdoor base antenna and its location, consider the following:

The location of the antenna should be as high as possible.

The antenna and antenna cable should be as far as possible from sources of electrical noise (appliances, other radios, and so on).

The antenna should be vertical for the best performance.

To connect an optional 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. If the coaxial cable's connector does not fit in the ANT jack, you might also need a PL-259-to-BNC antenna plug adapter, such as Cat. No. 278-120. Your local Radio Shack store carries a wide variety of coaxial antenna cable and connectors.

Follow the mounting instructions supplied with the antenna. Then route the antenna cable to the scanner, and connect it to the ANT jack on the back of the scanner.

**CAUTION:** Do not run the cable over sharp edges or moving objects.

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

You can store frequencies into channels using any of the following methods:

Manual storage

Auto storage

Limit search (within a range of frequencies you select)

Direct search (any range of frequencies before or after a frequency you select)

Moving a frequency from a monitor memory

Good references for active frequencies are Radio Shack's "Police Call Radio Guide Including Fire and Emergency Services," "Aeronautical Frequency Directory," and "Maritime Frequency Directory." We update these directories every year, so be sure to get a current copy. See also "Guide to the Action Bands".

If you do not have a reference to frequencies in your area, follow the steps in "Automatically Storing Frequencies" or "Limit Search" to search for transmissions.

#### Manually Storing Frequencies

If you know a frequency you want to store, you can store it manually.

1. Press PROGRAM. PROGRAM appears.
2. To select the channel where you want to store the frequency, either turn TUNING until the channel number appears, or use the number keys to enter the channel number. Then press PROGRAM.
3. Using the number keys, enter the frequency you want to store into that channel.
4. Press ENTER to store the frequency.

NOTES: If you entered an invalid frequency in Step 3, the scanner beeps and displays the channel number and ERROR. Simply repeat steps 3 and 4.

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

5. Repeat steps 2-4 to store more frequencies into channels.

#### Automatically Storing Frequencies

The scanner can automatically store active frequencies into empty channels in the banks you specify.

1. Press AUTO. AUTO appears.
2. Using the number keys, select the numbers of the banks where you want to store frequencies.

NOTES: To select a bank that does not contain any empty channels, a bar flashes under the bank number, and -FULL- and AUTO appear. To enter new frequencies into this bank, you must delete one or more frequencies stored in it, then repeat Step 2. See "Deleting Frequencies."

If you select a bank that contains an empty channel, a bar flashes under the bank number, and AC-, the number of vacant channels in the bank, Ch, and AUTO appear.

If you do not want to select the bank, press the bank's number again.

If you select more than one bank and want to review your selections, turn TUNING one click for each selected bank. As you turn TUNING, a bar flashes under each selected bank number.

3. Press LIMIT. Lo appears.
4. Use the number keys to enter the lower limit of the frequency range you want to search, then press ENTER.

NOTES: If you enter an invalid frequency in Step 4 or 6, the scanner displays ERROR. Simply repeat the step.

If you enter any frequency in a range from 823.950 to 823.995 MHz for a lower limit in this step, the scanner displays and uses 823.950 as the lower limit after you press ENTER. If you enter any frequency in a range from 868.950 to 868.995 MHz for a lower limit in this step, the scanner displays and uses 868.950 as the lower limit after your press ENTER.

5. Press LIMIT. Hi appears.
6. Use the number keys to enter the upper limit of the frequency range you want to search, then press ENTER.

NOTE: If you enter any frequency in a range from 849.005 to 849.050 MHz for an upper limit in this step, the scanner displays and uses 849.050 as the upper limit after you press ENTER. If you enter any frequency in a range from 894.005 to 894.050 MHz for an upper limit in this step, the scanner displays and uses 894.050 as the upper limit after you press ENTER.

7. Press the UP ARROW to search from the lower to the upper limit, or DOWN ARROW to search from the upper to the lower limit. AUTO and the bar under the selected bank number flash on the display.

When the scanner finds an active frequency, it stores the frequency in the displayed channel, then continues searching for more active frequencies and storing them in any subsequent empty channels. When the scanner fills all channels within the selected banks, the scanner beeps rapidly and displays the number of the last channel where a frequency was stored.

NOTE: During auto store, you can manually change the frequency step or band mode. See "Changing/Resetting the Frequency Step" or "Changing/Resetting the Band Mode."

8. To interrupt auto store, press AUTO. The scanner displays the last channel number where a frequency was stored. To continue auto store,

press the UP or DOWN ARROW.

9. To stop auto store, press MANUAL. MANUAL appears.

#### Limit Search

You can search for transmissions within a range of frequencies you select, called the limit search range. You can set and store up to ten limit search ranges into search banks (1-10).

NOTES: You can use the scanner's delay feature while using limit search. See "Delay."

When the scanner searches for frequencies within limit search range, you can store frequencies you hear during the search into monitor memories.

Follow these steps to set and store limit search ranges and search them for active frequencies.

1. Press PROGRAM. PROGRAM appears.
2. Using the number keys, select the number for the search bank where you want to store a limit search range.

NOTE: To select bank 10, press 0.

3. Press LIMIT. SEARCH BANK and Lo appear, and a bar flashes under the selected search bank's number. If you already entered limit search ranges in other search banks, a bar appears under each search bank's number.
4. Use the number keys to enter the lower limit of the frequency range you want to search, then press ENTER.

NOTES: If you enter an invalid frequency in Step 4 or 6, the scanner displays ERROR. Simply repeat the step.

If you enter any frequency in a range from 823.950 to 823.995 MHz for a lower limit in this step, the scanner displays and uses 823.950 as the lower limit after you press ENTER. If you enter any frequency in a range from 868.950 to 868.995 MHz for a lower limit in this step, the scanner displays and uses 868.950 as the lower limit after you press ENTER.

5. Press LIMIT. SEARCH BANK and Hi appear.
6. Use the number keys to enter the upper limit of the frequency range you want to search, then press ENTER.

NOTES: If you create more than one search bank and you want to review your limit search ranges, turn TUNING one click for each selected search bank. As you turn TUNING, a bar flashes under the active search bank number, and either Lo or Hi is displayed. Press LIMIT to review the high and low limits of the frequency ranges for the selected search bank.

If you enter any frequency in a range from 849.005 to 849.050 MHz for an upper limit in this step, the scanner displays and uses 849.050 as the upper limit after you press ENTER. If you enter any frequency in a range from 894.005 to 894.050 MHz for

an upper limit in this step, the scanner displays and uses 894.050 as the upper limit after you press ENTER.

7. Press the UP ARROW to search from the lower to the upper limit, or the DOWN ARROW to search from the upper to the lower limit. As the scanner searches, it displays SEARCH, and the bar under the selected search bank number flashes.

When the scanner finds an active frequency, it stops searching. To save the frequency into a monitor memory, press MONITOR. MON and the current monitor channel number appear on the display. Press the UP or DOWN ARROW again to continue searching for additional active frequencies.

NOTES: If you set the limit search range to a range that is narrower than the step frequency, the scanner beeps and displays -PASS- when you press the UP or DOWN ARROW. To correct this problem, either press STEP to change the step frequency or enter a wider frequency or enter a wider frequency range in Steps 4 and 6.

As the scanner searches, you can also use TUNING to search through frequencies manually by pressing TUNE, then turning the TUNING knob. Press TUNE again to continue the limit search.

During the limit search, you can manually change the frequency step or band mode. See "Changing/Resetting the Frequency Step" or "Changing/Resetting the Band Mode."

#### DIRECT SEARCH

You can search up or down from the currently displayed frequency and store frequencies you hear during the search into monitor memories.

NOTE: You can use the scanner's delay feature while using direct search. See "Delay."

1. Press MANUAL or PROGRAM.
2. Use the number keys to enter the frequency you want to start the search from. Or, use the number keys to enter the channel number containing the starting frequency and press MANUAL or PROGRAM again.
3. Press DIRECT. SEARCH, -d-, and the starting frequency appear on the display.
4. Press the UP or DOWN ARROW to search up or down from the selected frequency.

When the scanner finds an active frequency, it stops searching. To save the frequency into a monitor memory, press MONITOR. MON and the current monitor channel number appear on the display. Press the UP or DOWN ARROW again to continue searching for more active frequencies.

NOTES: As the scanner searches, you can also use the TUNING knob to search through frequencies manually by pressing TUNE, then turning the TUNING knob. Press TUNE again to continue the direct search.

During direct search, you can manually change the frequency step or band mode. See "Changing/Resetting the Frequency Step" or "Changing/Resetting the Band Mode."



+/6 kHz:..... -6 dB  
+/12 kHz:..... -50 dB  
NFM  
+/10 kHz:..... -6 dB  
+/20 kHz:..... -50 dB  
WFM  
+/150 kHz:..... -6 dB  
+/300 kHz:..... -50 dB  
Scanning Rate:..... Up to 50 channels/second  
Search Rate:..... Up to 50 steps/second  
Delay Time:..... 2 seconds  
Priority Sampling:..... 2 seconds

Intermediate Frequencies (IF)

1st:..... 609.005 -613.5 MHz  
2nd:..... 48.5 MHz  
3rd (for WFM).....10.7 MHz  
3rd (for NFM and AM).....455 kHz

IF Rejection

612 MHz at 70 MHz (NFM):..... 60 dB  
612 MHz at 1000 MHz (NFM):..... 60 dB

Squelch Sensitivity

AM/NFM Threshold

25-520 MHz:..... 0.5 microvolts  
760-1000 MHz:..... 0.5 microvolts  
1000.005-1300 MHz:..... 3 microvolts

AM/NFM Tight (S+N)/N

25-520 MHz:..... 25 dB  
760-1000 MHz:..... 25 dB  
1000.005-1300 MHz:..... 20 dB

WFM Threshold

25-520 MHz:..... 3 microvolts  
760-1000 MHz:..... 3 microvolts  
1000.005-1300 MHz:..... 15 microvolts

WFM Tight (S+N)/N

25-520 MHz:..... 40 dB  
760-1000 MHz:..... 40 dB  
1000.005-1300 MHz:..... 40 dB

Antenna Impedance:..... 50 Ohms

Audio Output Power

HEADPHONE Jack:..... 16 mW  
EXT SPKR Jack:..... 1.8 Watts  
TAPE OUT Jack (Z=10 K Ohm):..... 600 mV Nominal

Built-In Speaker:..... 3 Inches (77 mm), 8 Ohms, dynamic  
Audio Output Power:..... 1.3 Watts Nominal

Power Requirements

AC:..... 120 Volts, 60 Hz, 18 Watts  
DC:..... 13.8 Volts, 10 Watts

Dimensions:..... 3 1/2 x 9 1/8 x 8 1/16 Inches HWD  
(90 mm x 232 mm x 210 mm)

Weight:..... 70.5 Ounces  
(2 kg)

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

If the scanner is not working as it should, these suggestions might help you eliminate the problem. If the scanner still does not operate normally, take it to your local Radio Shack store for assistance.

Symptom	Suggestion
Scanner is on, but will not scan.	Be sure SQUELCH is adjusted properly.
Scanner receives stations poorly or not at all.	Check the antenna (indoor or outdoor).  Signals may be blocked from being received by the scanner due to metal frames or material in building. Change the scanner's and try again.  Be sure frequencies are programmed properly and set with the correct mode (AM, NFM, or WFM).
Scanner's keys or display work poorly or not at all.	The scanner's processor may be locked. Restart the scanner. See "Restarting/Resetting the Scanner."
Scanner does not work at all.	Check the AC power cord and outlet.  The scanner may require a reset. See "Restarting/Resetting the Scanner."
Scanner locks on frequencies that have an unclear transmission.	Be sure birdie frequencies are not programmed, or listen to birdie frequencies manually. See "Birdie Frequencies" in "Guide to Frequencies."

To order parts call 1-800-843-7422 or visit your local RadioShack store.

Reference #	Cat.No.	Description	NP Part #
	11318532	DIODE 1N4002 RECT 600V.1A	1N4002
Q20	10511228	XSTR 2SC2712 SI NPN LO PW	1TD001 1
Q21 Q23 Q24 Q29 Q42	10511228	MARKED LG NPN	1TD0011
Q503 Q10 Q14 Q17 Q18	10511228		1TD0011
Q40	10511392	XSTR DTA114EK CHIP	1TD0051
Q501 Q502	10512978	XSTR 2SA1298 SI PNP LO PW	1TD0400
	10512978	MARKED IY PNP	1TD0400
Q28 Q34 Q36	10512986	XSTR UN5214 RF MIXER 3 PI	1TD0401
Q30 Q41	10514107	XSTR 2SK209GR FET N-CH	1TD0553
Q1 Q2 Q7 Q8 Q9 Q27 Q31	10514404	XSTR 2SC4226(R24) SI NPN	1TD0585
Q32 Q33 Q35 Q43 Q44	10514404		1TD0585
Q22	10514800	XSTR,UN5213 NPN	1TD0625
Q4 Q5 Q6	10515732	XSTR 2SC3356R25 NPN	1TD0720
	11332251	XSTR 2SC2458 SI NPN	2SC2458
	11334075		2SD1406
	10528032	REPLACED BY 2SD1406	2TR0765
	10538270	SEGMENT	A0123
	10906600	REGUALTOR BIPOLAR	AN7805
IC3	11433455	IC,BA10358FT1 8 PIN	BA10358FT1
	11433455	BIPOLAR	BA10358FT1
TC1	10554749	CAP,TRIMMER 6PF CHIP	C0211
CB1 CB2	11497864	CAP ARRAY, .01UFX2/250V	C1816
T1	11480290	COIL,TRANSFORMER IF	CA0176
T8	10557882	COIL,DETECTOR 455KHZ	CA0533
T5	10559508	COIL,QUARATURE 7MHZ	CA1213
T9	10559516	COIL,QUARATURE 455KHZ	CA1214
L55	10562445	COIL,CHOKE 5 PIN 100UH	CA3134
	10562445	DC-DC CONVERTER	CA3134
T2 T3 T6	10563666	COIL,INTERMEDIATE	CA3692
	10563666	48.5MHZ	CA3692
T4	10567519	COIL,10.7MHZ	CA7246
	10570166	FILTER,CERAMIC 455KHZ	CB0600
	10586253	PC MOUNT	CS0121
X1	11497989	CRYSTAL,TC-43 TYPE	CX0551
	11497989	37.8MHZ	CX0551
X2	10592095	CRYSTAL,TC-43 48.045MHZ	CX0552
X3	10597706	CRYSTAL,12MHZ	CX1358
CX501	10597714	CRYSTAL,RESONTOR CERAMIC	CX1359
	10597714	8MHZ	CX1359
D34 D35	10617322	DIODE SI MA728	DD0056
	10617322	MARKED 2A SILICON	DD0056
D48-51	10617728	DIODE HVU306A5 SI	DD0170
D57	10617736	DIODE HVU308-1 VAR SI	DD0171
	10617736	MARKED 8 SILICON	DD0171
D31	10618627	DIODE SK BARRIER SI	DD0274
	10618627	SCHOTTKY BARRIER	DD0274
D43	10618908	DIODE MA716 SI	DD0303
	10618908	MARKED M1U SILICON	DD0303
D54	10619260	DIODE VAR HVU12-3 SILICON	DD0340
	10619260	MARKED A SILICON	DD0340
D55 D56	10619278	DIODE HVU300A SI VARACTOR	DD0341
	10619278	MARKED O SILICON	DD0341
	10619286	USE DX0114	DD0342
D1 D2 D58	10619294	DIODE FAST RECT SI	DD0343
	10619294	MARKED C SILICON	DD0343

D38 D40 D501	10619302	DIODE SI 1SS354 2 PIN	DD0344
	10619302	MARKED B SILICON	DD0344
D505	10619310	DIODE SC REF/REG GEN PURP	DD0345
	10619310	MARKED 93 SILICON	DD0345
D3 D4 D5 D6 D7 D8 D9	11273612	DIODE HSU277TRF SI FAST R	DX0114
D10 D11 D12 D13 D14	11273612	MARKED 3 SILICON	DX0114
D15 D16 D17 D18 D19	11273612		DX0114
D20 D21 D22 D23 D24	11273612		DX0114
D25 D26 D27 D28 D29	11273612		DX0114
D30 D32 D33 D52 D53	11273612		DX0114
	10622298	REPLACED BY 1N4002	DX0206
D37 D39 D41 D44 D504	10625317	DIODE DA227 MULTI ARRAY	DX1385
	10625317	MARKED N20 SILICON	DX1385
D47	10626323	DIODE RC202 RECT SI	DX1693
D36	10627156	DIODE SCHOTTKY SD103	DX1975
D42	10627289	DIODE ZN HZ9B2L	DX2009
	10627289	ORANGE/BLACK BAND	DX2009
D45		DIODE ZN HZ11B2L	DX2687
D55 D56	10629707	DIODE HVU300A VARAICAP TU	DX2753
	10629707	MARKED O SILICON	DX2753
D57	10630747	DIODE HVU308-1 TRF	DX3141
	10630747	MARKED 8 SILICON	DX3141
D502 D503	10637098	DIODE 1MN10 S06 SI	DX3795
	10637098	MARKED N10 SILICON	DX3795
	11390648	16 PIN DIP	HA12413
	10715266	SCREW 4X8 SPECIAL BHMACH2	HW2000460
J1	10720209	JACK,ANTENNA	J0085
	10720209	BABY N C ONNECTOR	J0085
J4	10720704	JACK,DC POWER	J0171
J2	10720720	JACK,TAPE OUT	J0173
8	10731511	JACK,3.5MM	J1821
	10731511	MICROPHONE/SPEAKER	J1821
	10784429	KEYTOP,2 -KEY	K4653
9	10784437	KEYTOP,6 -KEY	K4654
10	10784445	KEYTOP,24 -KEY	K4655
12	10784452	KNOB,VOLUME/SQUELCH	K4656
11	10784460	KNOB,TUNING	K4657
LC501	10793925	LCD	L0466
LED501 LED502 LED503	10793933	LED	L0467
LED504 LED505 LED506	10793933		L0467
LED507 LED508 LED509	10793933		L0467
	10895951	14 PIN DIP	LM324N
	10823334	MS2000464	MS2000460
	10845345	XEROXCOPY	MU2000460
	10875672	REPLACED BY TC4066BP	MX1082
IC3	10879575	USE BA10358FT1	MX1750
	10879575	REPLACED BY BA10358FT1	MX1750
IC4	10880854	IC,TC4S66F BIPOLAR SO 5 (	MX1899
	10880854	SURFACE MOUNT TYPE	MX1899
	10895951	REPLACED BY LM324N	MX4213
IC9	10897049	IC,S81250HG -RD REGULATOR	MX4397
	10897049	CMOS VOLTAGE REGULATOR	MX4397
	10897718	REPLACED BY HA12413	MX4542
IC14	10901775	IC AN78L05 92 T REG 5V	MX5487
IC2	10903672	IC TK10420 DIP16 T FM IF	MX5880
	10903672	16 PIN DIP	MX5880
	10906154	REPLACED BY TDA1905	MX6439
	10906600	REPLACED BY AN7805	MX6567
IC10	10914802	IC,CXA1356N BIPOLAR	MX8053
	10914802	SURFACE MOUNT TYPE	MX8053
IC503	10915924	IC,S8054HN -CB MOS	MX8176

	10915924	DETECTOR	MX8176
IC11	10926970	IC,MB1505PF -G-BND PLL	MX9330
	10926970	MOS SURFACE MOUNT TYPE	MX9330
IC12	10926988	IC,BU2040F SELECTOR MOS	MX9331
	10926988	SURFACE MOUNT TYPE	MX9331
IC501	10926996	IC,GRE-9312 UP 4 BIT	MX9332
	10926996	MICROPRESSOR	MX9332
IC502	10927002	IC,CXK5864CM-10LL 12LL	MX9333
	10927002	S0-28	MX9333
IC13	10927820	IC,M5291FP-600C BIPOLAR	MX9415
	10927820	S0-8 DC-DC CONVERTER	MX9415
RA1 RA501 RA502 RA503	10958916	RES,ARRAY 1KX4 1/16W +-5	NY0667
RA504 RA505 RA506	10958916		NY0667
RA507 RA508 RA509	10958916		NY0667
RA510 RA511 RA512	10958916		NY0667
RA513 RA514 RA515	10958916		NY0667
SW1	11063724	SWITCH,SLIDE ATTENUATOR	S3627
SW2	11073749	SWITCH,TACT RESET	SD0114
14	11081627	SPEAKER,8 OHM 1 WATT	SP0034
TH1	11090602	THERMISTOR,1.7K	T0182
T801	11097169	TRANSFORMER,POWER	TA0790
	11393212	14 PIN DIP SWITCHING	TC4066BP
	11393402	16 PIN DIP	TDA1905
		IS A BASE SCANNER	W0000X
15	11120961	CORD,POWER AC 6 FOOT	W0906
15	11120961	USE W0906	WB0006
	11120961	REPLACED BY W0906	WB0006
29	11166964	PCB ASSY,HEADPHONE JACK	XB5457
30	11166972	PCB ASSY,KEYBOARD SWITCH	XB5458
45	11166980	PCB ASSY,TUNING SWITCH	XB5459
46	11166998	PCB ASSY,VOLUME/SQUELCH	XB5460
2	11223617	CABINET ASSY,BOTTOM	Z7233
	11223617	TIP RUBBER	Z7233
3	11223625	ESCUTCHEON ASSY,FRONT	Z7234
	11223625	W/WINDOW LCD	Z7234
4	11223633	CABINET ASSY, TOP	Z7235
	11223633	W/CUSHION	Z7235

(This list was generated on 07/08/2005)

