

Triple-Trunking Handheld Radio Scanner

Thank you for purchasing your RadioShack 1000-Channel Triple-Trunking Handheld Radio Scanner from RadioShack.

Your handheld scanner is one of a new generation of scanners designed to track Motorola® Type I, Type II, hybrid analog systems, (such as Smartnet® and Privacy Plus®) plus M/A-COM EDACS® and EF Johnson LTR. Those systems are extensively used in many 800 MHz, 900 MHz, and UHF communication systems.



What's Included

Scanner

Antenna

Belt Clip and 2 Screws

Preprogrammed
Frequency List

User's Guide

Quick Start Guide

Contents

Scanner Setup	6
Scanner Features	6
Display Features	8
Connecting the Antenna	10
Attaching the Belt Clip.....	10
Powering Your Scanner	10
Batteries	10
Battery Notes.....	12
External Power.....	12
Turning on the Scanner	13
Connecting Headphones.....	14
Listening Safely	14
Understanding Your Scanner.....	14
Service Banks	15
Channel-Storage Banks.....	15
Manual Mode	16
Programming Frequencies into Channels.....	16
Entering Channel Text Tags.....	17
Entering Bank Text Tags	18
Erasing All Frequencies in a Bank	18
Copying or Moving a Frequency	19
Searching	21
Chain Search.....	21
Starting Chain Search	21
Storing Frequencies Found During a Search.....	22
Programming Search Ranges.....	22
Programming Search Bank Text Tags.....	23
Fine Tune	24
Service Bank Search.....	25
Search Skip Memory	25
Search Speeds.....	27

Contents

Signal Stalker I	27
Using Signal Stalker I.....	27
Setting the Signal Stalker I Options	28
Signal Stalker I Options.....	28
Log Channels	29
Signal Stalker I Band Meter.....	30
Scanning.....	31
Scanning Stored Channels.....	31
Manually Selecting a Channel.....	31
Weather Scan	32
Skywarn	32
About Skywarn.....	33
Settings	35
Setting Delay.....	35
Turning Banks On or Off	35
Programming Scan Bank Lists	36
Locking Out Channels.....	37
Skipping Data Signals	38
Using Keylock.....	38
Using the Display Backlight.....	39
Setting the Auto Backlight Display.....	39
Setting the LCD Contrast.....	39
Setting the Keytone	40
Setting the Battery Save Function	40
Setting CTCSS/DCS.....	40
Setting Priority.....	41
Weather Priority	42
Receiving NWR-SAME and Weather Alert Signals....	43
Turning On the Digital Weather Alert Feature.....	43
Testing Digital Weather Alert Tone	43
Programming Alerts for a Specific County.....	44
Programming FIPS	44

Contents

Trunk Scanning	46
Trunk Operation.....	46
Programming Trunked Frequencies.....	46
Using Trunk Scanning Scan Delay	49
Skipping a Trunked Bank.....	49
Talk Group IDs	49
Finding Talk Group IDs	49
Storing Talk Group IDs.....	50
Talk Group ID Text Tags	50
Pausing on an Active Talk Group ID	51
Manually Entering a Talk Group ID	51
Locking Out Talk Group IDs	51
Unlocking Locked-Out Talk Group IDs.....	52
Manually Programming Talk Group IDs.....	53
Motorola	54
EDACS.....	54
EDACS Partial Group Numbers.....	54
LTR	55
Clearing Talk Group IDs.....	56
Clearing All Talk Group IDs in a Bank	56
Using Talk Group ID Lists	56
Turning a Talk Group ID List On or Off	57
Scanning the Talk Group ID Lists.....	57
Priority Scanning Talk Group IDs.....	57
Motorola Trunking Systems	58
Motorola Type II 800 MHz.....	58
Setting the Base Frequency, Offset Channel, and Spacing for 800 MHz Custom	59
Motorola UHF / VHF	60
Type I and Hybrid Trunked Systems.....	62
Selecting a Preset Fleet Map	63
Programming a Custom Fleet Map	63
Setting Control Channel Only Mode	64
Setting the Status Bit Feature (S-Bit).....	65
Setting the Disconnect Tone Detect Function.....	66

Contents

EDACS Talk Groups	66
Selecting the EDACS Talk Group ID Format	66
EDACS Talk Group ID Range Search	67
Advanced Programming	68
Transferring Data To or From another Scanner or PC	68
Cloning Your Scanner	68
Wired Programming	68
CTCSS/DCS	69
Programming CTCSS/DCS Codes.....	70
CTCSS Frequencies (Hz)	71
DCS Codes (Octal).....	71
Additional Information.....	72
FCC Notice.....	72
Scanning Legally	72
Care	73
Service and Repair.....	73
Specifications	74
Troubleshooting.....	76
Resetting your scanner.....	78
Appendix A: Inputting Text.....	79
Text Input Chart	79
Appendix B: Fleet Maps.....	80
Preset Fleet Maps	80
User Defined Fleet Maps.....	80
Fleet Map Size Codes	81
Size Code Restrictions.....	82
Index	83

Scanner Setup

Scanner Setup

Scanner Features

SCAN /

Scan the stored channels; scan an active ID while trunking. Press and hold to turn Signal Stalker on and off.

MAN (Manual) / MENU

Manually enter a channel. Press after **FUNC** to enter Menu Mode.

SRCH (Search) / TUNE

Start a chain search; start and select a service search. Press after **FUNC** to enter the Fine Tune Pause Mode and search a specified frequency range.

TRUNK / MODE

Enter the Talk Group ID Programming Mode. Press after **FUNC** to select the modulation for trunking system.



1-0 / A-Z
Input a
number a
character

FUNC (Function) / A/a

Press in combination with other keys to access various functions. Change the text input mode: lower case letters, Upper case letters, or numbers.

PRI (Priority) / ALERT

Turn priority function on and off. Turn weather alert on and off.

L/O

Lock out selected channels; skip specified frequencies during a search; lock out a selected ID while trunking.

CL / CTCSS/DCS

Clear an entry. Press after **FUNC** to turn CTCSS/DCS on and off.

Scanner Setup

WX /

Start weather search. Press and hold to activate Skywarn.

PSE (Pause) / TEXT

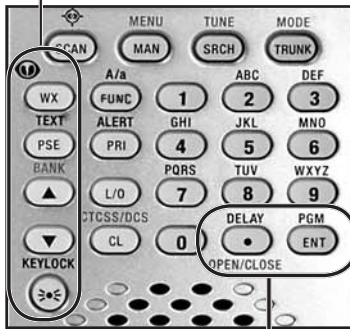
Stop and resume search or scan. Change from Programming Mode to enter Text Tag Mode.

▼ / ▲ / BANK

Select options during programming; change scan or search direction; change the ID location number while trunking. In Scan Mode, press after **FUNC** to go to select bank menu. In Manual or Program Mode, press after **FUNC** + to change bank. Hold down ▼ or ▲ to move through the selections faster.

/ KEYLOCK

Turn on the backlight. Press and hold to lock the keypad.



• / DELAY / OPEN/CLOSE

Enter a decimal point, space, or hyphen. Turn delay on or off. Press after **FUNC** to change Trunk Open/Close Mode

ENT (Enter) / PGM (Program)

Complete the entry of frequencies and text. Put the scanner in Programming Mode.

VOLUME/OFF

Turn the scanner on or off; adjust the volume.

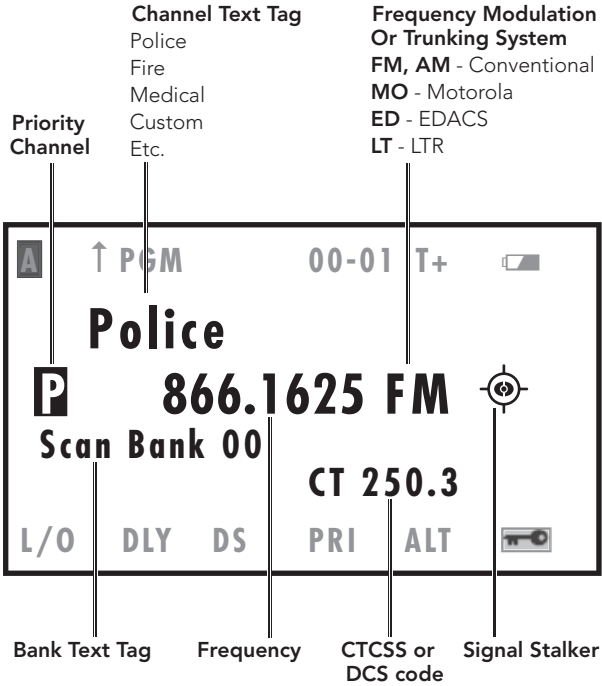
SQUELCH

Adjust the squelch.



Scanner Setup

Display Features



Scanner Setup

Operation Mode

PGM - Programming

MAN - Manual

SCAN - Scan

SRCH - Search

SVC - Service Search

TUNE - Fine Tune

SIG-S - Signal Stalker

WX - Weather Scan

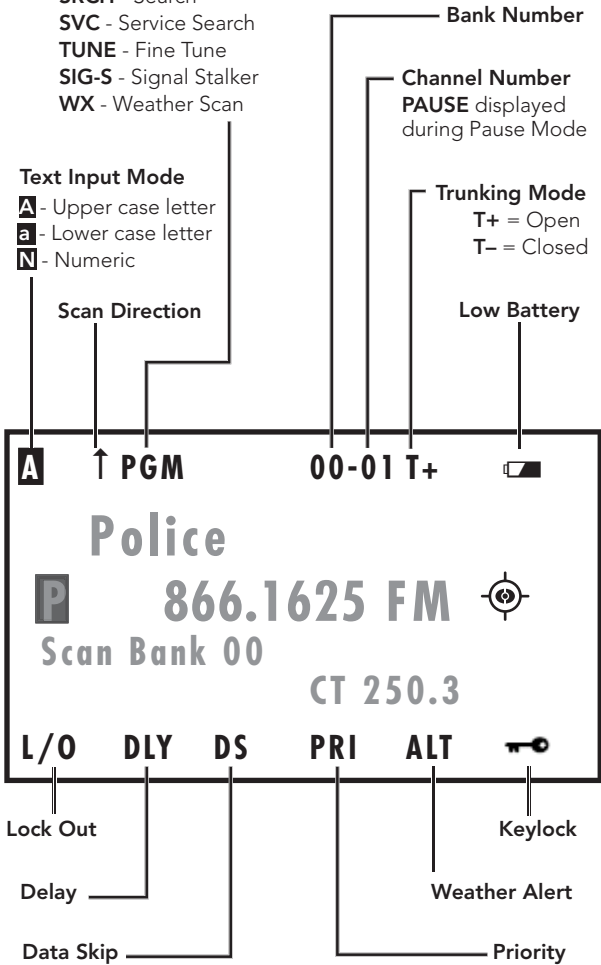
Text Input Mode

A - Upper case letter

a - Lower case letter

N - Numeric

Scan Direction



Scanner Setup

Connecting the Antenna

Attach the supplied antenna to the scanner by aligning the slots around its base with the tabs on the scanner, and then slide into place.

When using an external antenna, always connect with 50-ohm, RG-58, or RG-8, coaxial cable. If the antenna is over 50 feet from the scanner, use RG-8 low-loss dielectric coaxial cable. If your antenna's cable does not have a BNC connector, your local RadioShack store carries a variety of BNC adapters.



Attaching the Belt Clip

Use a Phillips-head screwdriver and the supplied screws to attach the clip to the scanner.

Powering Your Scanner

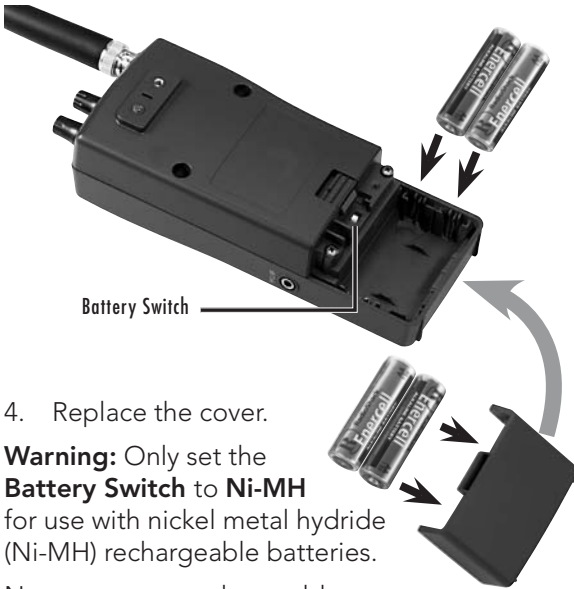
You can power your scanner with batteries, DC adapter, or AC adapter.

Batteries

1. Remove the battery compartment cover.
2. Set the **Battery Switch** inside the battery compartment to the appropriate setting:
 - **ALKALINE** when using alkaline batteries.
 - **Ni-MH** when using rechargeable (Ni-MH) AA batteries.

Scanner Setup

3. Insert two AA batteries (not included) into the battery compartment and two AA batteries into the battery compartment cover, matching the polarity symbols (+ and -) marked inside.



4. Replace the cover.

Warning: Only set the **Battery Switch** to **Ni-MH** for use with nickel metal hydride (Ni-MH) rechargeable batteries.

Never use non-rechargeable batteries when the switch is set to Ni-MH.

To charge batteries:



1. Set the Power Switch to Ni-MH.
2. Install rechargeable batteries.
3. Connect an external power source to the DC 9V 300mA jack.

The scanner stops charging automatically after a maximum of 14 hours.

Warning: Do not attempt to charge batteries if non-rechargeable batteries are installed in the scanner and the switch is set to Ni-MH, or if you are unsure of the switch's position. Non-rechargeable batteries will get hot and can explode if you try to recharge them.

Scanner Setup

Battery Notes

- When battery power is low,  flashes and the scanner beeps every 15 seconds. When battery power is depleted, the scanner turns itself off.
- Rechargeable batteries last longer and deliver more power if you let them fully discharge once a month. To do this, use the scanner until  flashes.
- Use only fresh batteries of the required size and recommended type. Do not mix old and new batteries, different types (alkaline or rechargeable), or rechargeable batteries of different capacities.
- Remove old or weak batteries. If you will not use the scanner with batteries for a month, remove the batteries. Batteries can leak chemicals that destroy electronic circuits.
- Always dispose of old batteries promptly and properly. Do not bury or burn them.



Recycle Rechargeable Batteries

Placing rechargeable batteries in the trash can be harmful to the environment. Instead, recycle old rechargeable batteries at your local RadioShack store free of charge. RadioShack participates in the RBRC® battery recycling program, and is committed to preserving the environment and conserving natural resources. Call 1-800-THE-SHACK (1-800-843-7422) for more information.

External Power

You can power your scanner using an external power source that supplies 9V DC and delivers at least 300mA. Its center tip must be set to positive and its plug must fit the scanner's DC 9V 300mA

Scanner Setup

jack. You can use an "Adaptaplug C" for AC adapters. Using an adapter that does not meet these specifications could damage the scanner or the adapter.

To use an external power source:

1. Always connect the adapter (not supplied) to the scanner first.
2. Plug the adapter into the power source.
3. To disconnect, unplug the adapter from the power source first.

Warning:

Do not connect a charging adapter to the scanner if non-rechargeable batteries (such as alkaline batteries) are installed in the scanner and the switch is set to Ni-MH, or if you are unsure of the switch's position.


POWER
DC 9V



Turning on the Scanner

1. Turn **SQUELCH** fully counterclockwise.
2. Turn **VOLUME/OFF** clockwise until it clicks and you hear a hissing sound.
3. Turn **SQUELCH** clockwise until the hissing stops.

Note: Make sure the scanner's antenna is connected before you turn it on.

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

Scanner Setup

Connecting Headphones

For private listening, you can plug headphones (not included) into the headphone jack on top of your scanner. This automatically disconnects the internal speaker. Note that the sound is not in stereo.

Listening Safely

To protect your hearing, follow these earphone or headphones guidelines:

- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Set the volume to the lowest setting before listening. Turn on the scanner, and adjust the volume to a comfortable level.
- After 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.
- Even though some earphones/headphones let you hear some outside sounds when listening at normal volume levels, they still can present a traffic hazard.

Understanding Your Scanner

We use a few simple terms in this manual to explain the features of the scanner. Familiarize yourself with these terms and the scanner's features, and you can put the scanner to work for you right away.

The scanner scans conventional frequencies and trunked systems. A **frequency**, expressed in kHz or MHz, is the tuning location of a station. To find active frequencies, use the **search** function. For more information about trunked transmissions see "**Trunk Operation**" on p. 46.

Besides searching within a selected frequency range, you can also search your scanner's service banks. **Service banks** are preset groups of frequencies categorized by type of service. For example, many amateur radio frequencies are located in the Ham service bank.

When you search and find a desired frequency, you can store it into a programmable memory location called a channel. **Channels** are grouped into channel-storage banks. Your scanner has 20 channel-storage banks. Each bank contains 50-channel sets. So the scanner has 1,000 channels. You can **scan** the channel-storage banks to see if there is activity on the frequencies stored there.

Note: *Search for frequencies to find your local frequencies, after you have programmed these frequencies into channels, you can scan the channels.*

Service Banks

The scanner is preprogrammed with all the frequencies allocated to the Marine, CB band, FRS/GMRS/MURS, Police (Fire/Emergency), Aircraft and Ham band services. This helps you quickly find active frequencies instead of doing a chain search.

Channel-Storage Banks

To make it easier to identify and select the channels you want to listen to, all the channels are divided into 20 banks of 50 channels. Use each channel-storage bank to group frequencies.

For example, the police department might use four frequencies in your town while the fire department uses an additional four. You could program the four police frequencies starting with Channel 0 (the first channel in Bank 0), and program the fire department frequencies starting with Channel 50 (the first channel in Bank 1).

Scanner Setup

Manual Mode

To enter Manual Mode from any other mode, press **MAN/MENU**.

Programming Frequencies into Channels

Before the scanner can begin to scan, you must program a frequency into at least one channel.

To locate and store specific frequencies into channels for later use:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **FUNC + ▲** or **▼** to select a bank.
3. Press **▲** or **▼** to select a channel
4. Use the number keys to enter the frequency, using **•** for the decimal point.
5. Press **ENT/PGM** to store the frequency into the channel.
6. To program the next channel in sequence, press **▲** or **ENT/PGM** and repeat Steps 4 and 5.

Programming Notes:

- If you entered an invalid frequency in Step 5, "Invalid Freq." appears and the scanner beeps error tones. Enter a valid frequency.
- If you entered a frequency in Step 5, which already exists on another channel, the scanner beeps an error tone and displays that channel. Press **CL** to clear the display, or press **ENT/PGM** to store the frequency in both channels.
- To erase a frequency from a channel, from Manual Mode press **ENT/PGM** to enter Programming Mode and then press **CL**.

Scanner Setup

“Erase Frequency” will appear; press **ENT/PGM** to erase.

- The scanner automatically rounds the entered number to the nearest valid frequency. For example, if you enter 151.473 (MHz), your scanner accepts it as 151.475.
- After a transmission, the scanner automatically pauses for 2 seconds on this channel before proceeding to the next active transmission. Press **•/DELAY** to turn the delay function on or off. The scanner stores this setting in the channel.
- To store trunked system frequencies, see “**Programming Trunked Frequencies**” on p. 46.

If you do not have a list of frequencies in your area, use a chain, fine tune, or service search to find a transmission (see “**Searching**” on p. 21). Also refer to www.radioreference.com.

Entering Channel Text Tags

To store text tags for easy identification of channels:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Enter the channel number where you want to store a text tag. If you make a mistake, press **CL** repeatedly until the display is cleared.
3. Press **MAN/MENU**.
4. Press **PSE/TEXT** to put the scanner into channel Text Tag Mode. The cursor appears.



Scanner Setup

5. Enter up to 16 letters by repeatedly pressing the number keys. Press ▲ or ▼ to move the cursor to the right or the left. Press [A/a] to choose the input mode: upper case letters, lower case letters, or numbers. (See “**Appendix A: Inputting Text**” on p. 79.)
6. Press **ENT/PGM** to store.

Entering Bank Text Tags

To store text tags for easy identification of banks:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **FUNC + ▲** or **▼** to select the bank where you want to store a text tag.
3. Press **FUNC + ENT/PGM**. “Edit Bank Tag or Erase All Freq.” appears.
4. Press **PSE/TEXT** to put the scanner into Bank Text Tag Mode. The cursor appears.



5. Press the number keys to enter up to 16 letters. Press ▲ or ▼ to move the cursor to the right or the left. Press [A/a] to choose the input mode: upper case letters, lower case letters, or numbers. (See “**Appendix A: Inputting Text**” on p. 79.)
6. Press **ENT/PGM** to store.

Erasing All Frequencies in a Bank

To erase all frequencies in a bank:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.

Scanner Setup

2. Press **FUNC + ▲** or **▼** to select the bank where you want to erase all the frequencies.
3. Press **FUNC + ENT/PGM**. "Edit Bank Tag or Erase All Freq." appears.
4. Press **FUNC + CL**.
5. Press **1** to erase all frequencies in the selected bank. Press **CL** to cancel.

Or

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Enter the number of the bank where you want to erase all the frequencies.
3. Press **FUNC + ENT/PGM**. "Edit Bank Tag or Erase All Freq." appears.
4. Press **FUNC + CL**.
5. Press **1** to erase all frequencies in the selected bank. Press **CL** to cancel.

Note: *If you entered an invalid bank number in step 2, the scanner displays "Invalid Bank No." Press **CL**.*

Copying or Moving a Frequency

To copy or move a frequency to a channel:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Select the frequency you want to copy or move. Or, directly enter the bank and channel number and press **MAN**.
3. Press and hold **ENT/PGM** to put the scanner in Program Copy Mode.

Scanner Setup

PGM
Copy Channel
Select Bank 01
Bank Tag

4. Press ▲ or ▼ to select the bank where you want to copy or move the frequency.
5. Press **ENT/PGM**. The smallest empty channel number and **0.0000** appears. If there is no empty channel, the scanner automatically selects the first channel of the bank.
6. Press ▲ or ▼ if you want to select another channel, then press **ENT/PGM**, "**Delete Source Channel?**" appears.

Delete Source
Channel ?
[ENT] to delete
[CL] to cancel

7. If moving a frequency, press **ENT/PGM** to delete the source. If copying a frequency, press **CL** to keep both locations.

Searching

Use the search function to find active frequencies.

While doing a chain, fine tune, or service bank search, press **•/DELAY** to turn the delay on or off.

While doing a chain, fine tune, or service bank search, set the scanner to skip data signals (such as fax or modem signals) if you want to search only for audio (voice) signals (see **“Skipping Data Signals”** on p. 38).

Chain Search

This feature lets you search through preset frequency ranges. You can also program a range. There are three modes within this feature: Chain Search Mode, Chain Search Pause Mode, and Program Band Select Mode.

The preset frequency ranges are:

Bank	Frequency (MHz)	Step (kHz)
0	25.0000-27.9950	5
1	28.0000-54.0000	5
2	137.0000-174.0000	5
3	216.0000-224.9950	5
4	225.0000-399.9875	12.5
5	400.0000-512.0000	6.25
6	764.0000-775.9875	12.5
7	794.0000-805.9875	12.5
8	806.0000-956.0000	12.5
9	1240.0000-1300.0000	12.5

Starting Chain Search

1. Press **SRCH**, and then repeatedly press **SRCH** until **SR6** appears at the top of the display.
2. Press **0 – 9** to enable or disable the search bank being searched.

Note: *At least one bank needs to be entered.*

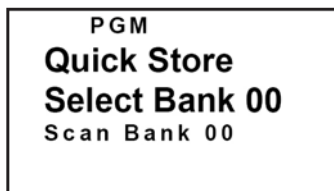
Searching

3. Press ▼ to search down or ▲ to search up.
4. When the scanner stops on a transmission, quickly press **PSE** to stop searching and listen to the transmission. **SR6 PAUSE** appears. To step through the frequencies during search Pause Mode, press ▼ or ▲.
5. To release the hold and continue searching, press **PSE**.

Storing Frequencies Found During a Search

To store frequencies you find in a search.

1. Press **FUNC + ENT/PGM** when you find a frequency.

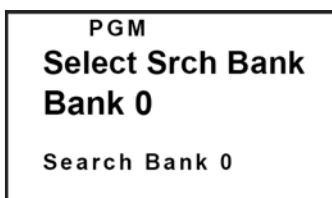


2. Press ▼ or ▲ to select a bank.
3. Press **ENT/PGM**. The frequency you want to store, the smallest empty channel number, and "0.0000" are displayed.
4. Press **ENT/PGM** to enter the frequency. After programming, "Edit Ch Memory?" appears. Press **ENT/PGM** to go to Programming Mode, or press **CL** to go back to a previous mode.

Programming Search Ranges

To define the search range for each search bank during a chain search:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **SRCH** to go to Programming Search Bank Mode.



3. Press ▼ or ▲ to select the bank number. Press **ENT/PGM**.
4. Using the number keys and •, enter the lower limit frequency, and then press **ENT/PGM**.
5. Using the number keys and •, enter the upper limit frequency, and then press **ENT/PGM**.
6. Press **MAN/MENU** to exit Programming Mode, or press **CL** to go back to a previous menu.

Programming Search Bank Text Tags

To store text tags for easy identification of search banks:

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **SRCH** to go to Programming Search Bank Mode.
3. Press ▼ or ▲ to select the desired bank number.
4. Press **PSE/TEXT** to go to Programming Search Bank Text Tag Mode.



5. Enter up to 16 letters by repeatedly pressing the number keys. Press ▲ or ▼ to move the cursor to the right or the left. Press **A/a** to

Searching

choose the input mode: upper case letters, lower case letters, or numbers. (See “**Appendix A: Inputting Text**” on p. 79.)

6. Press **ENT/PGM** to store the text tag.
7. Press **MAN/MENU** to exit Programming Mode, or press **CL** to go back to a previous menu.

Fine Tune

To search up or down from the currently displayed frequency using fine tune:

1. From Manual Mode, Press **FUNC + SRCH/TUNE** to go to Fine Tune Pause Mode.
2. Press **PSE** to begin searching in Fine Tune Mode.
3. Press **▼** or **▲** to change search direction.



To start a fine tune search from a specific frequency:

1. From Manual Mode, Press **FUNC + SRCH/TUNE** to go to Fine Tune Pause Mode.
2. Enter a frequency using the number keys, and then press **ENT/PGM**.
3. Press **PSE** to begin searching in Fine Tune Mode.
4. Press **▼** or **▲** to change search direction.

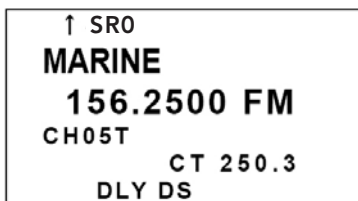
Note: *If you enter an invalid frequency, the scanner displays “Invalid Freq.”*

Service Bank Search

The scanner is preprogrammed with all the frequencies allocated to Marine, CB band, FRS/GMRS/MURS, Police (Fire/Emergency), Aircraft and Ham band transmissions.

To search the service banks:

1. Press **SRCH**. The current service bank appears and the scanner starts searching. To select a different service bank, press **SRCH** again.
2. Press ▼ or ▲ to begin searching the newly selected service. Or, the scanner will start searching automatically after two seconds.



Note: *Because there are many different frequencies allocated to Aircraft and Ham, it can take several minutes to search all the service frequencies.*

To directly access a channel (only for Marine, CB band, and FRS/GMRS/MURS):

1. From Service Search Mode, press **PSE** to go to Service Search Pause Mode.
2. Press the number key that corresponds to the desired channel. Press **PSE** to select the channel.

Search Skip Memory

You can skip up to 200 specified frequencies during chain, fine tune, service search, or Signal Stalker I. This lets you avoid unwanted frequencies or those already stored in a channel.

Searching

Note: You cannot skip frequencies during weather scan.

To skip a frequency, press **L/O** when the scanner stops on the frequency during a search. The scanner stores the skipped frequency in memory and automatically resumes the search.

To clear a single frequency from skip memory:

1. Press **PSE** to stop the search.
2. Press **▼** or **▲** to select the frequency. **L/O** appears.
3. Press **L/O**. **L/O** disappears.

Or

1. In Search or Search Pause Mode, Press **FUNC + L/O** to open the Frequency Lockout menu.
2. Select **Review Lockouts** and press **ENT/PGM**.
3. Select the desired frequency and press **ENT/PGM**. "Unlock?" appears.
4. Select **Yes** and press **ENT/PGM** to clear the frequency from skip memory.

To clear all the skipped frequencies at once:

1. Press **PSE** to stop the search.
2. Hold down **L/O** until the scanner beeps twice.

Or

1. In Search or Search Pause Mode, Press **FUNC + L/O** to open the Frequency Lockout menu.
2. Select **Unlock All** and press **ENT/PGM**.
3. Select **Yes** and press **ENT/PGM** to clear all frequencies from skip memory.

Notes:

- If you selected all frequencies to be skipped within the search range, the scanner beeps 3 times and does not search. "All range Locked out!" appears.

- If you select more than 200 frequencies to skip, "L/O List Full!" appears.

Search Speeds

The scanner has two search speeds: Normal search at 90 steps/second and Hypersearch at 270 steps/second.

Hypersearch applies only to the 5 kHz step bands (25–54 MHz, 137–174 MHz, and 216–224.9950 MHz).



Signal Stalker I

Signal Stalker I detects and displays the frequency of nearby strong radio transmissions. Signal Stalker I works well for locating mobile and handheld two way radios in areas with no other strong transmission sources.

Signal Stalker I might not correctly display frequency information for transmitters using a highly directive antenna (such as an amateur radio beam antenna), if there are many transmitters operating at the same time in the same area, or if the transmitter is a broadcast television station.

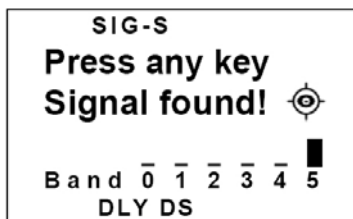
Using Signal Stalker I



Note: Turn off the data skip feature for Signal Stalker I if it is on. (See "Skipping Data Signals" on p. 38.)

To turn on Signal Stalker I, turn **SQUELCH** fully clockwise, and then press and hold **SCAN/** . The  icon appears. Every 2 seconds, the scanner searches for frequencies in the range you specify in "**Setting the Signal Stalker I Options**" below.

When the scanner finds a frequency, it alerts you according to its settings and "**Signal found!**" appears. Press any key to confirm the displayed frequency. Press **▼** or **▲** to resume scanning.

Searching



To turn off Signal Stalker I and turn on normal scanning, press and hold **SCAN/**. The  icon disappears.

Note: *Signal Stalker I doesn't run in weather search, program search range, or Programming Mode.*

Setting the Signal Stalker I Options

1. Press **FUNC + MAN/MENU**.
2. Select **Signal Stalker** and press **ENT/PGM**.
The Signal Stalker I options appear. (See the following section for a description of the options.)
3. Select the option you want to set and press **ENT/PGM**.
4. Select **On** or **Off** and press **ENT/PGM**.
If you selected Band Switch, press **▼** or **▲** to select the band you want to set. Press **ENT/PGM**. Then select **On** or **Off** and press **ENT/PGM**.
5. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.

Signal Stalker I Options

- **Alert Beep:** Set to **On** if you want to hear an alert when Signal Stalker I finds a frequency.
- **Alert Light:** Set to **On** if you want the backlight to flash when Signal Stalker I finds a frequency.

- **Pager Screen:** Set to **0n** if you want to ignore common pager frequencies.
- **Only Mode:** Set to **0n** to turn off normal scanning while Signal Stalker I runs. Set to **Off** to continue normal scanning while Signal Stalker I runs in the background.
- **Band Switch:** Set the frequency band where you want the scanner to look for transmissions.

0	25-54 :	VHF Low Band
1	108-137:	AIR Band
2	137-174:	VHF High Band 1
3	216-320:	VHF High Band 2
4	320-512:	UHF Band
5	764-956:	800MHz Band

- **Voice Interrupt:** While the Signal Stalker I is on and the scanner is receiving an audio signal (voice) in normal scanning, the scanner checks the Signal Stalker I every 2 seconds causing the audio signal to break at that moment.

Set Voice Interrupt to **0n** if you want to keep the Signal Stalker I active despite interruptions while the scanner is receiving an audio signal. Set to **Off** if you do not want to hear interruptions. The scanner resumes checking signals when the audio signal ends.

- **Logging:** Set this function to **0n** to scan log channels along with normal channels. Set this function to **Off** if you do not want to scan log channels.

Log Channels

- When the scanner finds a strong signal, it automatically saves the signal to one of 10 log channels. If the scanner finds a new frequency after the 10 log channels are fully stored with frequencies, the oldest

Searching

memory is deleted and the new frequency is stored in that channel. You can scan the log channels along with the normal 1000 channels.

- The 10 log channels are located after Bank 19 Channel 49 and you can manually access them by selecting channels as Bank 20 Channel 00, Bank 20 Channel 01, ... Bank 20 Channel 09. The channel numbers appear as SS-0, SS-1, ... SS-9.
- You cannot program frequencies in the log channels.
- You can lock out the log channels like normal channels.
- The scanner stores signals found by the Signal Stalker I even if the logging option is set to off.
- The frequencies in the log channels are deleted when the scanner is turned off.

Signal Stalker I Band Meter

The band meter allows you to see which band Signal Stalker I is searching for. When a strong and consistent signal is detected, this meter will rise up to Max. The scanner tunes to the signal and shows the band where the signal is detected.

However, even if this meter rises to Max, the scanner might not be able to catch the signal if it is out of range, locked-out, or screened as a common pager frequency.

To improve performance, disable the band by pressing the band number on the keypad. Alternatively, disable the band within the Band Switch in the Signal Stalker I options menu.

Note: *This feature is different from SIGNAL STRENGTH METER using RSSI.*

Scanning

Scanning Stored Channels

To begin scanning channels, press **SCAN**. The scanner scans through all non-locked channels in the activated banks (see “**Locking Out Channels**” on p. 37 and “**Turning Banks On and Off**” on p. 35). When the scanner finds a transmission, it stops on it. When the transmission ends, the scanner resumes scanning.



Scanning Notes:

- If you have not stored any frequencies into channels, the scanner does not scan.
- If the scanner picks up unwanted partial, or weak transmissions, turn **SQUELCH** clockwise to decrease the scanner's sensitivity to these signals.
- To listen to a weak or distant station, turn **SQUELCH** counterclockwise.
- To ensure proper scanning, adjust **SQUELCH** until the audio mutes
- To scan in the Trunk Scanning Mode, see “**Trunk Operation**” on p. 46.

Manually Selecting a Channel

You can continuously monitor a single channel without scanning. This is useful if you want to monitor a specific channel or if you hear an emergency broadcast on a channel and do not

Scanning

want to miss any details, even though there might be periods of silence.

To directly access a channel:

1. Press **MAN** to stop scanning.
2. Enter the bank and channel number and press **MAN**. The selected channel appears.

To stop at a channel while scanning:


1. Press **MAN** to stop scanning.
2. Press ▼ or ▲ to select the next or previous channel.
3. Press **SCAN** to resume scanning.

Or

1. Press **PSE**.
2. During Pause Mode, you cannot select another channel by pressing ▼ or ▲.
3. Press **PSE** or **SCAN** to resume automatic scanning.

Weather Scan

To scan for weather transmissions:

1. Press **WX**/. **WX** appears. Change the scan direction by pressing ▼ or ▲.
2. To stop the scan, press **PSE**. **PAUSE** appears.

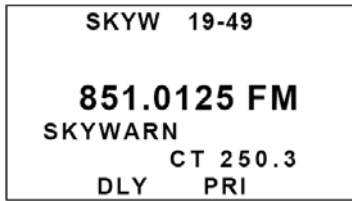
To set a weather alert, see “**Receiving NWR-SAME and Weather Alert Signals**” on p. 43

Skywarn

The Skywarn function lets you jump directly to the last channel in memory (Bank 19 #49) from any mode. The scanner goes into Skywarn Mode and starts receiving transmissions in the last channel.

Note: Before using this feature, program the local Skywarn frequency for your area into Bank 19, Channel 49.

Activate Skywarn by pressing and holding **WX/** .



If no frequency is programmed in the last channel, "Skywarn Freq. is not stored." appears and the scanner sounds an error tone.

The scanner has 10 channels for Skywarn (Bank 19 channels 40-49). Press ▼ or ▲ to select other Skywarn channels. Press **MAN/MENU** to exit Skywarn.

About Skywarn

Listen to Skywarn to hear trained observers in your vicinity call in official reports to a net control station which relays those reports to NOAA and other emergency agencies. A Skywarn group exists in virtually every US County with a significant population. During inclement weather, reports made by Skywarn observers include information about:

- Pea-sized and larger hail
- Wind and wind gusts of 40 MPH and greater
- Heavy rainfall
- Lightning (cloud-to-cloud and especially cloud-to-ground)
- Wall clouds seen in severe thunderstorms (which spawn tornadoes)
- Severe lowering of a wall cloud
- Turbulence in a wall cloud
- Funnel clouds

Scanning

- Tornadoes
- High water areas
- Downed power lines
- Other emergency conditions that affect life or property

Note: *If you tune to a Skywarn frequency when the Skywarn net is not active, you may hear nothing, or you may hear amateur radio operators talking on a local repeater system.*

To listen to NOAA for weather alerts, warnings, watch box notices, and weather-forecasts see **“Receiving NWR-SAME and Weather Alert Signals”** on p. 43.

Settings

Setting Delay

Sometimes a user might pause before replying to a transmission. To avoid missing a reply on a specific channel, the scanner automatically programs a 2-second delay into any channel or frequency.

Depending on the operation mode, follow one of these steps to turn the delay on or off.

- To turn off the 2-second delay, press **•/DELAY** while the scanner is monitoring a channel, scanning, or searching. **DLY** disappears.
- To turn on the 2-second delay for a single channel, manually select the channel and press **•/DELAY**. **DLY** appears.
- To turn on the 2-second delay for the search function, press **•/DELAY** while the scanner is searching. **DLY** appears and the scanner automatically adds a 2-second delay to every frequency it stops on in that band.

The Signal Stalker I delay time is 10 seconds.

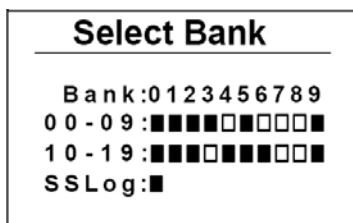
Turning Banks On or Off

You can turn each channel-storage bank on and off. When you turn off a bank, the scanner does not scan any of the 50 channels in that bank.

1. In Scan Mode, Press **FUNC + ▲/BANK**.
2. Press **▼** or **▲** to select a set of banks (00-09, 10-19, or SS Log).
3. Press the number key (**0 - 9**) that corresponds to the bank you want to turn on or off. A black box indicates the bank is turned on. An empty box indicates the bank is turned off.

Settings

4. Press **MAN/MENU** or **CL** to exit from Menu Mode.



Notes:

- The scanner scans all the channels within the displayed banks that are not locked out.
- You can manually select any channel within a bank, even if that bank is turned off.
- One bank must always be active. If you try to turn off all banks, the last bank remains.

Programming Scan Bank Lists

Scan bank lists save the configuration status (on or off) of the scanner's 20 banks. You can program up to 20 scan lists, assign text names, and load the configuration you want to use. For example, you might create a scan list named "Home" which scans banks 0-8, and a list named "Work" which scans banks 9-12.

To program and name a scan bank list:

1. Turn banks on or off in the configuration that you want to save.
2. Press **FUNC + MAN/MENU**.
3. Select **Scan List** and press **ENT/PGM**.
4. Select **Save Scan List** and press **ENT/PGM**.
5. Select the number you want and press **ENT/PGM**. Select **Yes** and press **ENT/PGM**.
6. Press **CL** to go to the previous menu.

7. Select **Edit Text** and press **ENT/PGM**.
8. Input text and press **ENT/PGM**.
9. Press **MAN/MENU** to exit from the menu.

To load a scan bank list:

1. Press **FUNC + MAN/MENU**.
2. Select **Scan List** and press **ENT/PGM**.
3. Select **Load Scan List** and press **ENT/PGM**.
4. Select the list you want to load and press **ENT/PGM**. Select **Yes** and press **ENT/PGM**.
5. Press **MAN/MENU** to exit from the menu.

Locking Out Channels

You can increase the scanning speed by locking out channels that have a continuous transmission (such as a weather channel). To lock out a channel, manually select the channel, and then press **L/O**. **L/O** appears.



Note: You can still manually select locked-out channels.

To remove the lockout from a channel, manually select the channel, then press **L/O**. **L/O** disappears.

To unlock all channels in the selected banks and all Signal Stalker I log channels, press **MAN** to stop scanning, then hold down **L/O** until the scanner beeps twice.

Settings

Skipping Data Signals

The data skip feature prevents the scanner from stopping on channels that consist of non-modulated or data signals (such as fax or modem transmissions) during a search or scan. When the radio receives a data signal and data skip is selected, the signal is ignored.


To turn on the data skip feature:



1. If the priority feature is on, turn it off by pressing **PRI** during scanning.
2. Press **FUNC + MAN/MENU**.
3. Select **Data Skip** and press **ENT/PGM**.
4. Select **Search, Scan, or Signal Stalker** then press **ENT/PGM**.
5. Select **On** or **Off** and press **ENT/PGM**.
6. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.
7. **DS** appears when the data skip feature is on.



Note: *This feature does not apply to the AM band or Weather Search Mode as data signals are not generally found in these services.*

Using Keylock

The keylock feature protects the scanner from accidental program changes. When the scanner is locked, the only control that operates is  / **KEYLOCK**.

1. To turn on keylock, hold down $\Rightarrow \Leftarrow$ /KEYLOCK until  appears.
2. To turn off keylock, hold down $\Rightarrow \Leftarrow$ /KEYLOCK until  disappears.



Using the Display Backlight

To turn on the display light for easy viewing at night, press $\Rightarrow \Leftarrow$. The display lights for 15 seconds.

Setting the Auto Backlight Display

You can set the scanner so the backlight turns on for about 5 seconds when the scanner receives signals. If you press a key within the 5 seconds, the display remains lighted for 15 more seconds.

To turn auto backlight display on or off:

1. Press **FUNC + MAN/MENU**.
2. Select **Back Light** and press **ENT/PGM**.
3. Select **Auto Light** and press **ENT/PGM**.
3. Select **On** or **Off** and press **ENT/PGM**.
4. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.

Setting the LCD Contrast

To change LCD contrast:

1. Press **FUNC + MAN/MENU**.
2. Select **LCD Contrast** and press **ENT/PGM**.
3. Select contrast level 1-8 and press **ENT/PGM**.
4. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.

Settings

Setting the Keytone

Each time you press any of the scanner's keys, the scanner sounds a tone. To turn the scanner's key tone on or off:

1. Press **FUNC + MAN/MENU**.
2. Select **Key Tone** and press **ENT/PGM**.
3. Select **On** or **Off** and press **ENT/PGM**.
4. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.

Setting the Battery Save Function

The battery save feature conserves energy when the scanner is set to monitor a manually selected channel and it is not actively scanning. The scanner repeatedly turns off the internal power for one second, and then turns it back on for half a second to check for a transmission.

To turn the battery save function on or off:

1. Press **FUNC + MAN/MENU**.
2. Select **Battery Save** and press **ENT/PGM**.
3. Select **On** or **Off** and press **ENT/PGM**.
4. Press **MAN/MENU** to exit the Menu Mode, or press **CL** to go back to a previous menu.

Setting CTCSS/DCS

The CTCSS/DCS feature allows squelch to open only when the tone you have programmed with a specific frequency is received along with a transmission. If the scanner detects the tone, it displays the tone's frequency and DCS code.

To turn the CTCSS/DCS feature on or off, Press **FUNC + CL/CTCSS/DCS**. The scanner displays, "CTCSS/DCS ON" or "CTCSS/DCS OFF" for one second.

CTCSS/DCS ON**Notes:**

- When CTCSS/DCS is on in Scan Mode or Manual Mode, the scanner works according to the channel settings.
- When CTCSS/DCS is on in Chain Search, Fine Tune, or Signal Stalker I, the scanner searches for CTCSS/DCS codes.
- The CTCSS/DCS feature does not apply to the AIR band or Weather Scan.

For more information, see “**Programming CTCSS/DCS Codes**” on p. 70.

Setting Priority

The priority feature lets you scan through the channels and still not miss important or interesting calls on specific channels. You can program one stored channel in each bank as a priority channel. If the priority feature is turned on, as the scanner scans the bank, it checks that bank's priority channel for activity every 2 seconds.

The scanner automatically designates each bank's first channel as its priority channel. Follow these steps to select a different channel in a bank as the priority channel.

1. From Manual Mode, press **ENT/PGM**.
2. Enter the channel number you want to select as the priority channel, and then press **PRI**. “**P**” appears to the left of the selected channel frequency.

Settings

3. Repeat Steps 1 and 2 for the channel in each bank that you want to program as a priority channel.



To review all priority channels (in ascending order only), repeatedly press **PRI** to see the numbers of the priority channels.

To turn on the priority feature, press **PRI** during scanning. **PRI** appears. The scanner checks the designated priority channel every 2 seconds in each bank. The bank number appears at the top of the display.


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

Note: If you have locked out all priority channels, "Priority Scan No Channel." appears when you activate the priority feature.

Weather Priority

When the weather priority feature is on and the scanner detects a 1050Hz alert tone, priority WX activates and you receive a weather alert.

To set weather priority channel:

1. Press **WX/** , and then press **PSE**.
2. Press **▼** or **▲** to select the priority WX channel you want.
3. Press **FUNC + PRI** to set the WX priority channel.

To turn this function on and off:

From Scan Mode or Search Mode, Press **FUNC + PRI**. "WX Priority Scan Turn On" or "WX Priority Scan Turn Off" appears.

Receiving NWR-SAME and Weather Alert Signals

The National Oceanic and Aerospace Administration (NOAA) broadcasts alerts that include digitally encoded data. The severity of the alert is identified using Specific Area Message Encding (SAME). The scanner displays the SAME event code name and sounds an alert for each level: Warning level, Watch level, or Advisory level.

To program your scanner to alert you when the weather service issues a SAME event code, turn on the alert feature and then leave the scanner monitoring the weather service.

Note: *You cannot scan channels and monitor for SAME event codes at the same time.*

Turning On the Digital Weather Alert Feature

1. Press **WX/** to start the weather search.
2. Press **PRI/ALERT**. "SAME Standby" and "ALT" appear. This mutes the audio until the scanner receives a SAME-coded signal.

When the scanner receives a SAME-coded signal, the alert sounds, **ALT** flashes, and the SAME event code name (which indicates the severity of the alert) appears. Press any key to turn off the alert sound and listen to the weather broadcast.

Testing Digital Weather Alert Tone

To hear and test the tones for the three alert levels, press **WX/** to select the weather service, then hold down **PRI/ALERT** for about 1 second. The tones sound in the order Advisory level,

Settings

Watch level, then Warning level, and “WX ALERT TEST” flashes. Each alert code appears as its tone sounds. Press any key to end the test sequence.

Programming Alerts for a Specific County

To specify a county, SAME uses a standard established by the US Census bureau, called FIPS.

The format of a FIPS code is “PSSCCC,” where:

P = area subdivision (0=entire area)


SS = State code (00=all states)

CCC = County code (000=all counties)

For example, the FIPS code for Tarrant County, Texas is: 048439 (0=entire area; 48=Texas; 439=Tarrant County).

To limit weather alerts to a specific area, you must program in the FIPS codes for the areas you want to receive alerts.

Programming FIPS

1. From Scan or Manual Mode, press **WX/** .
2. Press **FUNC + ENT/PGM** to go to the Programming FIPS Code menu.
3. Press **▼** or **▲** to select **Custom**. Press **ENT/PGM**. If a FIPS code is not programmed, “-----” appears.
4. Use the keypad to enter the FIPS code. Press **CL** to cancel an inputted FIPS code. Press **ENT/PGM** to store.
5. Press **▼** or **▲** to enter up to 14 additional FIPS codes.
6. Press **ENT/PGM** to store the FIPS codes and exit FIPS programming.

To delete a FIPS code:

1. Press **▼** or **▲** to select 0 - 14

Settings

2. Press **CL** to cancel or **ENT/PGM** to delete.
"-----" appears.

To reset the scanner to sound an alert for all areas:

1. From Scan or Manual Mode, press **WX/📶**.
2. Press **FUNC + ENT/PGM** to go to the Programming FIPS Code menu.
3. Press **▼** or **▲** to select **All FIPS**. Press **ENT/PGM**.

Trunk Scanning

Trunk Scanning

The scanner tracks transmissions that use the Motorola Type I, Type II, hybrid, EDACS, and LTR analog trunking systems.

Simultaneous Trunking

The scanner allows you to track up to 20 systems at a time. You can trunk scan or search and scan conventional frequencies at the same time. You can program conventional frequencies in the same bank as trunking systems, but only one trunking system per bank.

After the scanner is finished checking activity in the trunked system, it scans other conventional frequencies in the bank. (Only trunking frequencies are programmed in Trunk Mode.)

If a system is inactive for 1 second and there are no conventional channels in the bank, the scanner starts scanning the next selected trunk bank. If you turned DELAY on, the scanner starts scanning the next trunk bank after about 2 seconds.

Setting Squelch for the Trunking Mode

For trunked reception, a good squelch setting is in the center of the range with the white marker pointing to the rear of the scanner. If it is set too high, it could prevent your scanner from locking on the control channel reliably. If it is set too low, it will slightly delay finding the control channel. The best setting is the same as for conventional reception and is critical for monitoring trunked systems.

Trunk Operation

Programming Trunked Frequencies

Programming trunking frequencies is the same as non-trunked frequencies, except that you must store the appropriate mode (MO, ED, or LT) with each frequency.

Trunk Scanning

Notes:

- You can scan only one type of trunked frequency, either EDACS (GE/Ericsson), Motorola, LTR (EF Johnson), or EDCAS SCAT in a bank at one time. You can, however, mix conventional channels and frequencies in a bank.
- If you are programming trunked frequencies for Motorola Type I and hybrid systems, you must first program the fleet map (see "Type I and Hybrid Trunked Systems" on p. 62).
- If you are programming frequencies for an EDACS system you must store them in the Logical Channel Number order (usually listed as LCN#). For example, LCN1 would go into channel 01 for the current bank, and LCN2 would go into channel 02.
- If you are programming frequencies for an LTR system you must store them in the home repeater order. For example, home repeater order 1 would go into channel 01 for the current bank, and home repeater order 2 would go into channel 02.

Follow these steps to program trunked frequencies:

1. From Scan or Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **FUNC + ▼** or **▲** to select a bank. Hold down **▼** or **▲** to move through the bank selection faster.
3. Press **▼** or **▲** to select a channel. Hold down **▼** or **▲** to move through the channel selection faster.
4. Press **TRUNK/MODE** to enter the Trunk ID Programming Mode.

Trunk Scanning

5. Repeatedly press **FUNC + TRUNK/MODE** to select MOT (Motorola), EDCS, LT, or EDCS SCAT. This sets the talk group ID decoding method to be used for the bank.

```
PGM  BNK09  T+  
MOT mode  
PMT ID-0:  ----  
ID List: 0  ON  
DLY
```

5. Press **ENT/PGM** to enter Programming Mode.
6. Enter the desired trunking frequency then press **ENT/PGM** to store.
7. Press **FUNC + TRUNK/MODE** to select the appropriate mode (MO, ED, or LT).

```
PGM  09-00  T+  
  
P 866.3875 MO  
Scan Bank 09  
DLY
```

8. To enter additional trunking frequencies as subsequent channels in the same bank, press **ENT/PGM** or **▲** to access the next open channel. Repeat steps 6 and 7 to enter the frequencies. (See "Programming Frequencies into Channels" on p. 16).
9. Press **SCAN** to start scanning.

Notes:

- *If you enter a frequency that has already been entered, the scanner sounds an error tone and displays "Duplicate Freq." and the channel number. If the dual entry is an error press **CL** and enter the correct frequency. If the dual entry is intentional press **ENT/PGM** to accept.*

Trunk Scanning

- You may replace any frequency by selecting the bank and channel, pressing **ENT/PGM** and entering the new frequency.
- If you make an error in the entry process, repeatedly press **CL** to erase the incorrect data.

Using Trunk Scanning Scan Delay

Sometimes a user might pause before replying to a transmission. You can set the scanner to hold on an ID for 2 seconds to wait for a reply. The scanner continues to monitor the ID for 2 seconds after the transmission stops before resuming scanning.

Press **•/DELAY** to turn trunk scanning scan delay on or off. **DLY** appears when the scan delay is set to on.

Skipping a Trunked Bank

You can scan conventional frequencies programmed in the same bank by holding down **▲** for about 1 second in Trunk Mode. If there is no conventional frequency, the scanner scans the next bank.

Talk Group IDs

Finding Talk Group IDs

Set the scanner to Open Mode to find all the active talk group IDs within the trunked system. Once you've stored the IDs, set the scanner to Close Mode so you only hear the IDs you want.

To toggle a bank between Open Mode and Close Mode, press **FUNC + •/DELAY/OPEN/CLOSE**. **T+** appears for Open Mode; **T-** appears for Close Mode.

You can also change the a bank's mode from the Set Open/Close menu.

1. In Scan Mode, press **FUNC + ▲/BANK** to go to the Select Bank menu.

Trunk Scanning

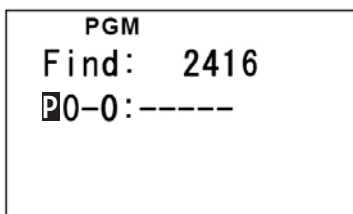
2. Press **TRUNK** to go to the Set Open/Close menu.
3. Press **▼** or **▲** to move the cursor up or down. Press the number key that corresponds to the desired bank, choosing **+** for Open Mode or **-** for Close Mode.
4. Press **TRUNK** while in the Set Open/Close menu to return to the Select Bank Menu.
5. To exit from Menu Mode, press **MAN/MENU**.

Storing Talk Group IDs

1. Press **FUNC + ENT/PGM** when the scanner stops on a voice channel transmission or when a talk group ID is indicated in the Manual Mode.
2. Press **▼** or **▲** to select the list where you want to store the ID and press **ENT/PGM**.

Note: If the ID has already been stored, "ID was saved" appears.

3. The smallest empty ID memory number and "-----" appears. Press **▼** or **▲** to choose the memory location where you want to store the ID, then press **ENT/PGM**.



4. "Edit ID Memory?" appears. Press **ENT/PGM** to store; press **CL** to cancel.

Talk Group ID Text Tags

When the scanner stops on a transmission, it displays the ID's text tag if you have stored the

Trunk Scanning

ID. You can confirm the ID code while the scanner shows the text when the received signal is a voice channel.

1. Press **FUNC + PSE/TEXT** while the scanner is receiving the voice channel and indicating the text name. The ID code appears as MT ID: XXXXXX, etc.
2. Press **FUNC + PSE/TEXT** again to cancel.

Pausing on an Active Talk Group ID

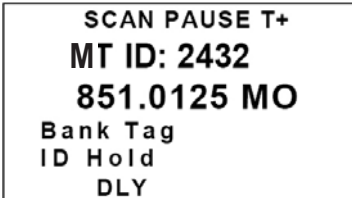
To stop scanning and keep the scanner tuned to a desired ID:

1. Press **PSE**. **PAUSE** appears and the scanner stays on the current ID.
2. Press **PSE** to resume scanning or searching.

Manually Entering a Talk Group ID

You can listen to a specific talk group ID (even if it's not stored in memory by manually entering the ID.

1. Press **PSE** to enter Pause Mode.
2. Enter the ID number and press **PSE**.
3. "ID Hold" appears.



SCAN PAUSE T+
MT ID: 2432
851.0125 MO
Bank Tag
ID Hold
DLY

Locking Out Talk Group IDs

Many municipal and commercial services use trunk systems to transmit signals from such devices as water meter transmitters, door alarms, and traffic signals. Some signals are encrypted and most are not voice signals. Since all these are

Trunk Scanning

assigned Talk Group IDs just like other users, you may want to lock out reception of these signals. The scanner allows that you lock out up to 50 Talk Group IDs for each trunk scanning bank. If you use all the banks as trunking banks, you can lock out up to 1000 IDs at one time.

Note: *If you lock out an ID, it is also locked out of the scan lists. See “Using Talk Group ID Lists” on p. 56*

To lock out an ID, press **L/O** when the ID appears. The ID is locked out, and the next active ID appears.

When you try to lock out more than 50 Talk Group IDs in a bank, “**ID L/O List Full**” appears.

You can also lock out talk group IDs from the ID Programming Mode.

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Press **FUNC + ▼** or **▲** to select the desired bank.
3. Press **▼** or **▲** to select the ID memory.
4. Press **L/O** to lock out the ID. **L/O** appears.

Unlocking Locked-Out Talk Group IDs

To remove the lockout from a talk group ID, manually select the ID memory, and press **L/O**. **L/O** disappears.

To review and unlock lockouts in a bank:

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Press **FUNC**, and then press **L/O**.
3. Select Review ID L/O and press **ENT/PGM**.
4. If you want to unlock a locked-out ID, select it and press **ENT/PGM**. Select Yes and press **ENT/PGM**.

Trunk Scanning

5. If you want to unlock all lockouts at the same time, select Unlock All after Step 2.

Manually Programming Talk Group IDs

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Press **FUNC + ▼** or **▲** to select the desired bank.
3. Repeatedly press **FUNC + TRUNK/MODE** to select MOT Mode, EDCS Mode, or LT Mode.
4. Repeatedly press **TRUNK** to select the ID List.
5. Press **▼** or **▲** to select the ID location within the list.
6. Enter the talk group ID and press **ENT/PGM**. Use the decimal point for a hyphen if needed.
7. To create an optional ID tag, press **PSE/TEXT**, enter the desired text for the ID, and press **ENT/PGM** (see “Appendix A: Inputting Text” on p. 79).
8. To store and program the next ID memory in sequence, press **▼** or **▲** and repeat from Step 6.

Notes:

- If you made a mistake in Step 6, “Invalid ID” appears and the scanner beeps.
- You can enter either AFS or a decimal code for ED (EDACS) IDs. When you press **FUNC** then **2** at Step 6, the decimal format appears for about 2 seconds. Now you can enter the ID code with a decimal format.
- If you entered an ID code that is already stored in another ID channel, “Duplicate ID, ID Memory: X-X appears.” Press **ENT/PGM** to store the ID code, press **CL** to cancel.

Trunk Scanning

See the following subsections for specific requirements for entering Motorola, EDACS and LTR talk group IDs.

Motorola

To enter a Motorola Type II Talk Group ID:

1. Enter the ID you want to store by using the keypad.
2. Press **ENT/PGM**.

To enter a Motorola Type I Talk Group ID:

1. Enter the ID you want to store by using the keypad (ID = Block number + Fleet number + **•/DELAY** + Subfleet number).
2. Press **ENT/PGM**

EDACS

AFS ('Agency-Fleet-Sub fleet') is the numbering format used in the scanner to display and enter EDACS talk groups. The scanner shows EDACS talk groups in AFS format and can also work in decimal format. (See "**Selecting The EDACS Talk Group ID Format**" on p. 66). AFS allows you to enter full or partial EDACS Talk Group IDs.

To enter a full EDACS ID:

1. Enter the Agency number.
2. Press **•/DELAY** to enter the dash.
3. Enter the fleet number and subfleet number.
4. Press **ENT/PGM**

EDACS Partial Group Numbers

You can enter partial group numbers in an EDACS talk group. By entering only the desired portion of a group, you can select either 128, 8, or 1 talk group. For example, you might program every talk group in a police department by pressing just four keys.

Trunk Scanning

Note: You cannot use partial talk groups in Decimal Mode. (See “**Selecting the EDACS Talk Group ID Format**” on p. 66.)

You can program a specific talk group such as 01-011 into the scan list memory. In AFS Mode, you can program the talk groups for an entire agency by pressing corresponding keys.

For example:

Press	To Scan
0 1 . ENT/PGM	all 01 groups
0 1 . 0 1 ENT/PGM	all 01 talk groups within the 01 agency

To enter a Partial EDACS ID:

1. Enter the agency number you want to store.
Press **•/DELAY** to enter the dash.
2. Press **ENT/PGM**.

Or you can program all the talk group numbers for one fleet of an agency.

1. Enter the agency number.
2. Press **•/DELAY** to enter the dash.
3. Enter the fleet number.
4. Press **ENT/PGM**.

LTR

Users on an LTR system are assigned to specific talk groups, which are identified by the scanner as a six-digit number. The number is in the form AHUUUU, where:

A = Area code (0 to 1)

H = Home repeater (01 through 20)

U = User ID (000 through 254)

Trunk Scanning

To enter an LTR ID:

1. Enter the area code.
2. Enter the home repeater number.
3. Enter the Use ID you want to store.
4. Press **ENT/PGM**.

Clearing Talk Group IDs

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Press **▼** or **▲** to select the ID you want to clear.
3. Press **CL**. "Erase a Talk Group ID?" appears.
4. Press **ENT/PGM** to clear the ID. Press **CL** to cancel.

Clearing All Talk Group IDs in a Bank

You can quickly delete all talk group IDs from a bank if you want to use the bank to store different data (such as a new set of talk group IDs).

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
3. Press **FUNC + ▼** or **▲** to select a talk group ID bank.
4. Press **FUNC** then **6**. "Erase entire List?" appears.
5. Press **ENT/PGM** to clear the list. Press **CL** to cancel.

Using Talk Group ID Lists

When you designate a bank as a trunking bank, your scanner sets up 10 sub banks, which are simply lists used to store your favorite talk group IDs. Each list can contain up to 10 talk group IDs, so you can store a total of 100 talk group IDs for each trunking bank. If you use all the banks as trunking banks, 2000 talk group IDs will be available.

Trunk Scanning

Once talk group IDs are stored in list, you can scan them like you scan conventional frequencies.

Turning a Talk Group ID List On or Off

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Repeatedly press **TRUNK** to select the desired ID List.
3. Press **FUNC** then **1** to turn the ID List on or off.

Scanning the Talk Group ID Lists

Press **SCAN** to begin scanning the lists you have stored.

In Close Mode, you can remove or restore a talk group ID list from active scanning. While the scanner is stopped on a voice channel transmission, press the number (0-9) of the list you desire to turn on or off.

```
↑ SCAN 00-01 T-  
MT ID:-----  
851.0125 MO  
Bank Tag  
List 0123456789  
DLY PRI
```

Note: *One of the ten scan lists must always be active. You cannot remove all of them.*

Priority Scanning Talk Group IDs

You can assign a priority to a favorite ID so during scanning the scanner checks that ID more frequently than the others in the list. Each of the ten memory locations reserved for storing lists can have only one priority ID, and the ID assigned that priority in List 1 has the highest priority of all.

To assign a priority to an ID, press and hold **PRI** for 2 seconds in ID Programming Mode. "P" appears.

Trunk Scanning

To turn priority ID scanning on or off, press **PRI** during ID while scanning in Close Mode.

“PRI” appears when priority scanning is turned on.

Note: Priority ID scanning does not operate when priority IDs are locked out. See “**Locking Out Talk Group IDs**” on p. 51.

Motorola Trunking Systems

Motorola Type II 800 MHz

On the 800 MHz trunking band, you can select the channel plan (Normal, Splinter, or Custom). On the 900 MHz trunking band, you do not need to set any other settings.

Follow these steps to program 800 MHz band Motorola trunking.

1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
2. Press **FUNC + ▼** or **▲** to select the desired bank.
3. Repeatedly press **FUNC + TRUNK/MODE** and select MOT Mode.
4. Press **FUNC + 3**.
5. Select NORMAL, SPLINTER or CUSTOM and press **ENT/PGM**.
 - *If you are uncertain about the channel plan, use the default setting of Normal. The base frequency in Normal is 851.0125 MHz.*
 - *If you cannot receive with the normal setting, change to SPLINTER. The base frequency in Splinter is 851.0000 MHz.*
 - *If you cannot receive in either the Normal or Splinter channel plans, try Custom. In the Custom channel plan, you can set the base frequency, offset channel and spacing for 800MHz Trunking System.*

Trunk Scanning

Setting the Base Frequency, Offset Channel, and Spacing for 800 MHz Custom

To properly track Motorola 800 MHz Custom trunked systems, you must enter the base frequency, offset channel and spacing for each system.

1. Press **FUNC + MAN/MENU** to enter the Menu Mode.
2. Select **Trunk Option** press **ENT/PGM**.
3. Select the desired bank and press **ENT/PGM**.
4. Select **Motorola system**, and press **ENT/PGM**.
5. Select **800MHz CH Plan**, and press **ENT/PGM**.
6. Select **Custom Item**, and press **ENT/PGM**.
7. Select **Custom Range**, and press **ENT/PGM**.
8. Select **Base Freq**, and press **ENT/PGM**.
9. Use the number keys and **•** to enter a Lower Frequency, then press **ENT/PGM**.
10. Use the number keys and **•** to enter an Upper Frequency, then press **ENT/PGM**.
11. Select **Offset**, and press **ENT/PGM**.
12. Use the number keys and **•** to enter an Offset Channel, then press **ENT/PGM**.

Note: *You can input within a range of 0 - 1023 for 800 MHz Custom trunked system.*

13. Select **Spacing**, and press **ENT/PGM**.
14. Select a Spacing Frequency, then press **ENT/PGM**.

Note: *You can only select within a range of 12.5 – 100 kHz, and 12.5 kHz multiples.*

15. Press **CL**. The scanner returns to the previous screen.
16. If you want to program another Custom Range, repeat steps 7 through 15.

Trunk Scanning

Notes:

- Usually, the settings for base frequency, offset channel, and spacing are common between systems, therefore these settings are applied to all Motorola 800MHz custom banks.

Motorola UHF / VHF

You can program the scanner to receive transmissions in the UHF band (406-512 MHz) / VHF band (136-174MHz) of the Motorola trunking system. You must program the system's base frequency, offset channel, and spacing frequency.

Notes:

- Base frequencies, offset channel, and spacing vary for each type of trunking system. You can get information about these frequencies for the trunking system you want to scan using www.radioreference.com, other Internet sources, or locally published guidebooks.
 - If you try to program a base frequency in the 800MHz bands (806-960 MHz), the scanner ignores the entry.
1. Press **ENT/PGM** then **TRUNK/MODE** to enter the ID Programming Mode.
 2. Press **FUNC** + ▼ or ▲ to select a bank.
 3. Repeatedly press **FUNC + TRUNK/MODE** and select MOT Mode.
 4. Press **FUNC** + **2**. The Custom Range menu appears
 5. Select **Base Freq 1/3**, and press **ENT/PGM**. Use the number keys to input the lower base frequency and press **ENT/PGM**. Input the upper base frequency and press **ENT/PGM**.

Trunk Scanning

Base Freq Notes:

- Base frequency consists of Lower frequency and Upper frequency. Upper frequency should input the value subtracted from the next lower frequency by 1 step.

For example, if you get the following information from radioreference.com, you can input the Lower and Upper Frequency into the Base Frequency.

	1	2
Base	451.0000	461.5000
Offset	560	380
Spacing	12.5	12.5

- a. Input the Lower Frequency as 451.000MHz.
- b. Input the Upper Frequency as 461.4875MHz (461.5MHz-12.5kHz).
- c. Input the next Lower Frequency as 461.500MHz.
- d. If the next Lower frequency isn't defined, input 512.000MHz to enter the UHF upper limit frequency.

Or you can input only Lower Frequency into the Base Frequency. If you have inputted the Upper Frequency, enter 0 then press **ENT/PGM** to clear it. Then input lower frequencies in ascending sequence.

6. Press **CL** to return to the Custom Range menu.
7. Select **Offset 1/3** and press **ENT/PGM**. Use the number keys to input the offset and press **ENT/PGM**.
8. Press **CL** to return to the Custom Range menu.
9. Select Spacing 1/3 and press **ENT/PGM**. Press **▼** or **▲** to select the spacing and press **ENT/PGM**.

Trunk Scanning

- For Motorola UHF system use 12.5kHz spacing between 12.5kHz – 100kHz.
 - For Motorola VHF system use 5kHz spacing between 5kHz – 100kHz.
10. Press **CL** to return to the Custom Range menu and repeat steps 5-9 for the other ranges.

Type I and Hybrid Trunked Systems

Your scanner is preset to scan Type II system IDs. When you scan trunked frequencies, each Type II user ID you see appears as an even number without a dash (example 2160). Your scanner can also scan Type I trunked systems. Each Type I ID appears as a three- or four-digit number, followed by a hyphen, followed by a one- or two-digit number (example 200-14).

If you notice a mix of odd- and even-user IDs (examples 6477, 2160, 6481, 6144, and 1167), then you are probably monitoring either a Type I or hybrid (a combination of Type I and Type II user IDs) system with the S-Bit function turned off (see **“Setting the Status Bit Feature (S-Bit)”** on p. 65).

Subfleet information is included with the frequency list for a Type I system. To enter a provided map, see **“Selecting a Preset Fleet Map”** below.

Note: *To locate suitable fleet map information, review the contents of website www.radioreference.com.*

If you do not already know the size codes used, you will have to guess. Since you do not have to figure out all the blocks at one time, this is not as hard as it might seem.

Select a size code for a block, then press **SCAN** and listen to the conversations. If you are receiving most of the replies, then you have probably selected the right size code and can program the next block of the map. There are 16

Trunk Scanning

preset fleet maps to choose from, and it is best to start with these when setting up a Type I or hybrid trunk scanning bank.

If none of the following preset fleet maps allow you to follow complete conversations, then you probably need to program your own fleet map (see “**Programming a Custom Fleet Map**” on p. 63).

Selecting a Preset Fleet Map

1. Press **FUNC + MAN/MENU** to open Menu Mode.
2. Select **Trunk Option**, then press **ENT/PGM**. Select a bank, then press **ENT/PGM**.
3. Select **MOT**, and press **ENT/PGM**.
4. Select **Edit Fleet Map**, and press **ENT/PGM**.
5. Select **Preset**, and press **ENT/PGM**.
6. Select the preset map you want to use and press **ENT/PGM**. (See “**Appendix B: Fleet Maps**” on p. 80 for a description of the preset fleet maps).

Note: *When the scanner searches for transmissions, Type I fleet and subfleet IDs such as 100-12, 100-9, 000-12, or 400-8 display.*

Programming a Custom Fleet Map

You must set the fleet map if you want to receive a Motorola Type I system. Fleet maps are included along with other information about Motorola Type I systems at www.radioreference.com.

Follow these steps to program a custom fleet map.

1. Press **ENT/PGM** then **TRUNK/MODE**.
2. Press **FUNC + ▼** or **▲** to select the desired bank.
3. Press **FUNC + 8**, then select Custom and press **ENT/PGM**.

Trunk Scanning

4. Select the block and press **ENT/PGM**.

Block 0	
Use 15 for type 2	
Size Code 15	>
Size Code 0	>
Size Code 1	>

5. Select the size code supplied with the Type I system information and press **ENT/PGM**.
6. Repeat steps 4 and 5 for each block.
7. Make sure each entry is correct.

Notes:

- The default setting of the bank is Motorola Type II.
- However, if you set Type I and you want to return to Type II, enter 15 at Step 5.
- If you cannot find your fleet map information, try the preset fleet maps (See “**Appendix B: Fleet Maps**” on p. 80 for a description of the preset fleet map).

Setting Control Channel Only Mode

When this function is activated, trunking is performed using Control Channel data only. Voice channel frequencies do not have to be programmed into memory. This feature only applies to Motorola 800 MHz, 800 MHz Custom, 900 MHz, VHF, UHF systems.

To turn this function on or off:

1. Press **FUNC + MAN/MENU** to open Menu Mode.
2. Select **Trunk Option**, then press **ENT/PGM**. Press **▼** or **▲** to select a bank, then press **ENT**.
3. Select **MOT**, then press **ENT/PGM**.
4. Select **Set C-Ch Only**, and press **ENT/PGM**.
5. Select **On** or **Off** and press **ENT/PGM**.

Setting the Status Bit Feature (S-Bit)

To control how the scanner interprets and displays talk group IDs, set status bits (also called S-Bits), to **Yes** or **Ignore**. The last four bits of a Motorola Type II talk group ID (a binary 16-bit code) are the status bits. In some systems, status bits identify special situations (such as an emergency status).

Your scanner is preset to assume that the status bits in a talk group ID are set to 0 and ignores them (S-bit feature = Ignore). For example, when the scanner receives the talk group ID 010111001110 0011, it reads the ID as 010111001110 0000 and converts the first 12 bits of the ID to 23776 (the talk group ID). However, since the status bit value is 3 (0011 converted to decimal equals 3), the ID is actually 23779.

Note: *If you are scanning a Motorola Type I system and do not have a fleet map for that system, you might have to set the status bit feature to Ignore in order to determine the proper fleet map.*

Important: *If you are scanning any system other than a Motorola Type I system, be sure the status bit feature is set to Yes or you will miss some transmissions.*

To set the status bit feature to yes or ignore.

1. Press **FUNC + MAN/MENU** to open Menu Mode.
2. Select **Trunk Option**, then press **ENT/PGM**. Press **▼** or **▲** to select a bank, then press **ENT/PGM**.
3. Select **MOT**, and press **ENT/PGM**.
4. Select **Set Status Bit**, and press **ENT/PGM**.
5. Select **Yes** or **Ignore**, and press **ENT/PGM**.

Trunk Scanning

Setting the Disconnect Tone Detect Function

When the Motorola disconnect tone detect function is disabled, the scanner looks for squelch before returning to the control channel instead of waiting for the disconnect tone. Only in rare instances will you need to adjust the default settings. The condition to return to control channels depends on whether the signal is present or not.

1. Press **FUNC + MAN/MENU** to open Menu Mode.
2. Select **Trunk Option**, then press **ENT/PGM**. Press **▼** or **▲** to select a bank, then press **ENT/PGM**.
3. Select **MOT**, and press **ENT/PGM**.
4. Select **Set End Code**, and press **ENT/PGM**.
5. Select **Yes** or **Ignore**, and press **ENT/PGM**.

Note: *If you set the squelch so you hear a hissing sound when you set ignore, the scanner will remain on the voice channel, even when a disconnect tone is transmitted or there is no signal at all.*

EDACS Talk Groups

Selecting the EDACS Talk Group ID Format

Your scanner can enter or display EDACS talk groups in decimal format (1-2047).

1. Press **FUNC + MAN/MENU** to open Menu Mode.
2. Select **Trunk Option**, then press **ENT/PGM**. Press **▼** or **▲** to select a bank, then press **ENT/PGM**.
3. Select **EDCS**, and press **ENT/PGM**.
4. Select **EDCS ID Format**, and press **ENT/PGM**.
3. Select **AFS Format** or **Decimal Format**, and press **ENT/PGM**.

Trunk Scanning

You can use this feature to translate decimal talk group lists to the much more powerful AFS format. Become familiar with AFS partial entry, and your scanning will become far more flexible and efficient.

EDACS Talk Group ID Range Search

When your scanner searches EDACS talk group IDs, the scanner can search within a range you set for agency or fleet listings. For example, if you want to search within the 01 agency, while in Trunking Pause Mode press **0, 1, •/DELAY** then **SCAN**. "01----" appears during scan. Or if you want to search within the 01 agency and 01 fleet, while in trunking Pause Mode press **0, 1, •/DELAY, 0, 1**, then **SCAN**.

To stop the ID range search, press **SCAN**.

Advanced Programming

Advanced Programming

Transferring Data To or From another Scanner or PC

You can clone your scanner by transferring the programmed data to or from another PRO-162 scanner using a connecting cable. You can also upload or download programmed data from a PC through wired programming.

Cloning Your Scanner

You can clone all the frequencies, trunking talk groups, and fleet maps programmed in your PRO-162 to another PRO-162 or PRO-160 using an interface cable with 1/8-inch phone plugs on both ends.

1. Make sure the scanners are turned off and then plug the cable into each scanner's **PC/IF** jack.
2. Turn on both scanners. "**Clone Mode [UP] to send**" appears.
3. Press **▲**. "**Confirm Send Data? [1] to Yes [CL] to No**" appears.
4. Press **1** to send the data to the other unit or press **CL** key to cancel the operation.
5. When the data transfer is completed, "**Clone Mode Finished**" appears. If the data transfer is not successful, "**Clone Mode Error**" appears.
6. After the clone operation is complete, remove the cable, turn both units off and then on again.

Wired Programming

You can transfer programming data to your scanner using your PC and an optional interface cable and software (available at your local

Advanced Programming

RadioShack or www.radioshack.com).

1. Make sure your scanner is turned off.
2. Connect the interface cable to your computer and then connect the other end of the cable to the **PC/IF** jack on the side of the scanner.
3. Install the software to your computer and run the program.
4. To set up the program, click on **Tools**, select **Configuration**, and select **PRO-162** (if necessary).
5. Turn the scanner on. The scanner automatically goes into the wired Programming Mode and receives the data from the PC. **"Wire Programming"** appears.
6. When the scanner has successfully received all data, turn the scanner off and remove the cable.
7. Turn the scanner on again.

CTCSS/DCS

Continuous Tone Coded Squelch System (CTCSS) and Digital Coded Squelch (DCS) are subaudible tone signaling systems sometimes referred to as PL or DPL (Motorola's trademarked terms for Private Line and Digital Private Line, respectively). CTCSS and DCS are used only for FM signals and are usually associated with both amateur and commercial two-way frequencies. These systems make use of a special subaudible tone that accompanies a transmitted signal.

CTCSS and DCS are used for many purposes. In many cases, CTCSS and DCS are used to restrict access to a commercial repeater, so that only those units which transmit the correct tone along with their signal can "talk" to the repeater. CTCSS and DCS are also used in areas that receive

Advanced Programming

interference where there are several stations with output frequencies that interfere with each other.

A scanner equipped with CTCSS and DCS allows squelch to open only when the tone you have programmed with a specific frequency is received along with a transmission.

Programming CTCSS/DCS Codes

1. From Manual Mode, press **ENT/PGM** to put the scanner in Programming Mode.
2. Press **FUNC + CL/CTCSS/DCS** to put the scanner in Program CTCSS/DCS Mode. "NO TONE" flashes.



3. Repeatedly press **FUNC + CL/CTCSS/DCS** to put the scanner in program CTCSS Mode when you want to program a CTCSS frequency.

Note: To program a DCS code, repeatedly press **FUNC**, and then press **CTCSS/DCS** until DCS code appears on the display.

4. Press **▼** or **▲** to select a CTCSS frequency or use the number keys to enter a valid frequency.
5. Press **ENT/PGM** to store the CTCSS frequency.
6. Repeat steps 2 – 5 until you enter all the desired frequencies.

You can search for the following CTCSS frequencies and DCS codes.

Advanced Programming

CTCSS Frequencies (Hz)

67.0	69.3	71.9	74.4	77.0	79.7
82.5	85.4	88.5	91.5	94.8	97.4
100.0	103.5	107.2	110.9	114.8	118.8
123.0	127.3	131.8	136.5	141.3	146.2
151.4	156.7	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5	186.2
189.9	192.8	196.6	199.5	203.5	206.5
210.7	218.1	225.7	229.1	233.6	241.8
250.3	254.1				

DCS Codes (Octal)

023	025	026	031	032	036	043	047
051	053	054	065	071	072	073	074
114	115	116	122	125	131	132	134
143	145	152	155	156	162	165	172
174	205	212	223	225	226	243	244
245	246	251	252	255	261	263	265
266	271	274	306	311	315	325	331
332	343	346	351	356	364	365	371
411	412	413	423	431	432	445	446
452	454	455	462	464	465	466	503
506	516	523	526	532	546	565	606
612	624	627	631	632	654	662	664
703	712	723	731	732	734	743	754

Additional Information

Additional Information

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 it. Try the following methods to eliminate the interference:

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

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

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

Scanning Legally

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

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

Additional Information

According to the Electronic Communications Privacy Act (ECPA), as amended, you are subject to fines and possible imprisonment for intentionally listening to, using, or divulging the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal).

This scanner is designed to prevent reception of illegal transmissions, in compliance with the law which requires that scanners be manufactured in such a way as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that are not legal to listen to. Doing so could subject you to legal penalties.

We encourage responsible, legal scanner use.

Care

Keep the scanner dry. If it gets wet, wipe it dry immediately. Use and store the scanner only in normal temperature environments. Handle the scanner carefully; do not drop it. Keep the scanner away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

Service and Repair

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

Additional Information

Specifications

Frequency Coverage

- 25.0000-54.0000 (in 5 kHz steps)
- 108.0000-136.9875 (in 12.5 kHz steps)
- 137.0000-174.0000 (in 5 kHz steps)
- 216.0000-224.9950 (in 5 kHz steps)
- 225.0000-399.9875 (in 12.5 kHz steps)
- 400.0000-512.0000 (in 6.25 kHz steps)
- 764.0000-775.9875 (in 12.5 kHz steps)
- 794.0000-823.9875 (in 12.5 kHz steps)
- 849.0125-868.9875 (in 12.5 kHz steps)
- 894.0125-956.0000 (in 12.5 kHz steps)
- 1240.0000-1300.0000 (in 12.5 kHz steps)

Number of Channels 1000

Number of Banks 20

Sensitivity (AM/FM)

FM 20 dB S/N at 3 kHz deviation

28.0000-54.0000 0.4 μ V

137.0000-174.0000 0.5 μ V

216.0000-224.9950 0.5 μ V

400.0000-512.0000 0.5 μ V

764.0000-775.9875 0.5 μ V

794.0000-823.9875 0.5 μ V

849.0125-868.9875 0.5 μ V

894.0125-956.0000 0.5 μ V

1240.0000-1300.0000 0.6 μ V

AM 20 dB S/N at 60% modulation

25.0000-27.9950 1.3 μ V

108.0000-136.9875 1.5 μ V

225.0000-319.9875 1.5 μ V

320.0000-399.9875 1.3 μ V

Additional Information

IF Frequencies 380.75 MHz, 265.55MHz, 10.85 MHz, 450 kHz

IF Rejection at 162.40 MHz 80 dB

IF Rejection at 453.25 MHz 44 dB

Operating Temperature

Normal -4° to 140°F (-20° to 60°C)

Signal Stalker I..... 14° to 140°F (-10° to 60°C)

Scan Speed..... 97 Channels/Second

Search Speed

Normal 90 Steps/Second

Hypersearch..... 270 Steps/Second

Antenna

Antenna Impedance 50Ω

Speaker

Built-in Speaker 1&1/4 Inches (32 mm) 8Ω

..... Dynamic Type

Audio Output 270 mW maximum

Power

4 AA Alkaline Batteries (6.0 VDC), or

4 AA Rechargeable Ni-MH Batteries (4.8 VDC) or

Optional AC Adapter (9V DC; 300mA; center tip set to positive)

Current Drain

Squelched..... 90 mA

Full Output 180 mA

Dimensions (HxWxD)..... 6 x 2.6 x 1.75 in

..... (153 x 66 x 44 mm)




Weight (without antenna, batteries, or belt clip)

..... 8.5 oz (240 g)

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

Additional Information

Troubleshooting

Problem	Cause	Solution
Scanner is on but will not scan.	SQUELCH is not adjusted correctly.	Adjust SQUELCH.
	Only one channel or no channels are stored.	Store frequencies into more than one channel.
Scanner won't work at all.	Scanner is not receiving power.	Recharge the rechargeable batteries or replace the alkaline batteries.
	The AC adapter or DC adapter is not connected.	Be sure the adapter's barrel plug is fully plugged into the DC 9V 300 mA jack.
Keypad doesn't work.	The keylock function is activated.	Press  /KEYLOCK until  disappears.
 is flashing.	Batteries are low.	Recharge the rechargeable batteries or replace the alkaline batteries.
Poor or no reception.	Batteries are weak or completely discharged.	Check the batteries or make sure the AC adapter or DC adapter is connected properly.
	Antenna loose.	Make sure an antenna is connected to the scanner.
Invalid Freq or Invalid Channel appears.	Programming error.	Re-enter the frequency correctly, including the decimal point.
Scanner is not acquiring a data channel.	SQUELCH is not correctly adjusted for trunk scanning.	Adjust squelch for trunk scanning. See "Setting Squelch for the Trunking Mode" on p. 46
	Frequency used for the data channel is missing	Press SCAN to search for the data channel. See "Programming Trunked Frequencies" on p. 46

Additional Information

Problem	Cause	Solution
Scanner won't track a trunked system.	The transmission might not use a system that can be tracked by your scanner.	Scan another transmission.
	The data frequency is missing.	See "Programming Trunked Frequencies" on p. 46 and "Scanner is not acquiring a data channel" on page 76.
	The system you are trying to track is a Type I system and the scanner is set to scan Type II systems.	Set the scanner to receive Type I trunked frequencies. See "Type I and Hybrid Trunked Systems" on p. 62.
Scanner won't scan a Type II system.		Program a fleet map and set all blocks to size code 0. See "Programming a Custom Fleet Map" on p. 63 and "Type I and Hybrid Trunked Systems" on p. 62.
Scanner is set to receive Type I trunked frequencies, but does not scan them.	The fleet map you have selected or entered might be incorrect.	Check the fleet map and correct it if necessary. See "Type I and Hybrid Trunked Systems" on p. 62. and "Programming a Custom Fleet Map" on p. 63.
Missing replies to conversations.	The system you are trying to track is a Type I system, and the scanner is set to scan Type II systems.	Set the scanner to receive Type I trunked frequencies. See "Type I and Hybrid Trunked Systems" on p. 62.
	The selected fleet map is incorrect.	Try another preset fleet map or program a fleet map. See "Type I and Hybrid Trunked Systems" on p. 62.
	Frequencies are not programmed.	Enter all of the trunk's frequencies. See "Programming Trunked Frequencies" on p. 46.

Additional Information

Resetting your scanner

If the scanner's display locks up or stops operating properly, you might need to reset the scanner.

Caution: This procedure clears all the information you have stored in the scanner. Before you reset the scanner, try turning it off and on again to see if it begins working properly. Reset the scanner only when you are sure it is not working properly.

1. Turn off the scanner.
2. While holding down **2**, **9** and **PSE**, turn on the scanner. "Initializing... Please wait" appears for about 5 seconds as the scanner clears its memory.

Note: Do not turn off the scanner again until "Initializing... Please wait" disappears. Otherwise, the scanner might not clear its memory properly.

Follow these steps to restore the 150 preprogrammed frequencies stored in the private bank.

1. Make sure your scanner is turned off.
2. Press **3** and **ENT/PGM** simultaneously while turning on the scanner. After several seconds, the scanner restores the frequencies.

Additional Information

Appendix A: Inputting Text

Use the number keypad on the scanner to enter text according to the alphabet printed at each number key. Press a number key until the scanner displays the correct letter. Press ▲ or ▼ to move the cursor to the right or the left. Press [A/a] to choose the input mode: Upper case letters, lower case letters, or numbers.

For example, to enter the word "Scanner."

1. Press **7/PQRS** 4 times to enter "S."
2. Press **A/a** to switch to lower case letters.
3. Then press **2/ABC** 3 times to enter "c."
4. Press ▲ to move cursor.
5. Press **2/ABC** 1 times to enter "a."
6. Press **6/MNO** 2 times to enter "n."
7. Press ▲ to move cursor.
8. Press **6/MNO** 2 times to enter "n."
9. Press **3/DEF** 2 times to enter "e."
10. Press **7/PQRS** 3 times to enter "r."
11. Press **ENT/PGM** to end your text entry.

Text Input Chart

Keys	Number of times key is pressed										
	1	2	3	4	5	6	7	8	9	10	11
1	.	()	-	+	*	/	@	^	&	1
2/ABC	A	B	C	2							
3/DEF	D	E	F	3							
4/GHI	G	H	I	4							
5/JKL	J	K	L	5							
6/MNO	M	N	O	6							
7/PQRS	P	Q	R	S	7						
8/TUV	T	U	V	8							
9/WXYZ	W	X	Y	Z	9						
0	Sp	#	?	_	,	\$	%	!	~	'	0

Additional Information

Appendix B: Fleet Maps

Preset Fleet Maps

Block	Size Code							
	1	2	3	4	5	6	7	8
0	S11	S4	S4	S12	S4	S3	S10	S1
1	S11	S4	S4	(S12)	S4	S10	S10	S1
2	S11	S4	S4	S4	S12	S4	S11	S2
3	S11	S4	S4	S4	(S12)	S4	S4	S2
4	S11	S4	S4	S4	S4	S12	S4	S3
5	S11	S4	S4	S4	S4	(S12)	S4	S3
6	S11	S4	S12	S4	S4	S12	S4	S4
7	S11	S4	(S12)	S4	S4	(S12)	S4	S4

Block	Size Code							
	9	10	11	12	13	14	15	16
0	S4	S0	S4	S0	S3	S4	S4	S3
1	S4	S0	S0	S0	S3	S3	S4	S10
2	S0	S0	S0	S0	S11	S10	S4	S10
3	S0	S0	S0	S0	S4	S4	S11	S11
4	S0	S0	S0	S0	S4	S4	S11	S0
5	S0	S0	S0	S0	S0	S4	S0	S0
6	S0	S4	S0	S0	S0	S12	S12	S12
7	S0	S4	S0	S4	S0	(S12)	(S12)	(S12)

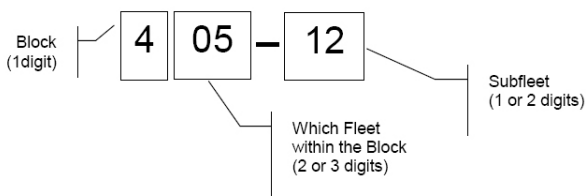
User Defined Fleet Maps

When a Type I system is designed, the address information for all the IDs are divided into 8 equal sized blocks. When you program your scanner to track a Type I system, you must select a size code for each of these blocks. When you have assigned a size code to all 8 blocks, you have defined the Fleet Map for the system you're tracking. Each size code determines the number of Fleets, Subfleets, and IDs each block will have.

Additional Information

For example, a size code of "4" has one Fleet, which is divided into 16 separate Subfleets, and it has a total of 512 individual IDs.

When a block is assigned a size code, the Fleet or Fleets created within the block are assigned a Type I ID. The way these IDs display on your scanner depends on the block number and the block size code. When a Type I ID displays, the left most digit represents the block where contains the ID. The next two or three digits identify which Fleet is active, and the last digit(s) identifies the Subfleet.

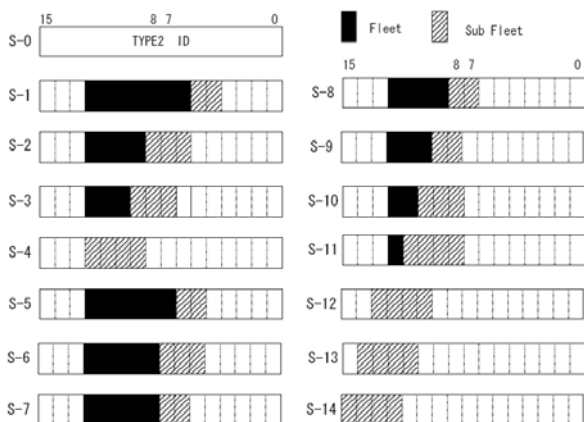


Your task is to program your fleet map with the same size code assignments as the trunked system. If you do this accurately, you'll track all the Fleet-Subfleet combinations used by the system. In other words, you'll hear complete communications while monitoring a trunked system.

Fleet Map Size Codes

Size	Fleets	Subfleets	Ids	Blocks Used
0	Reserve block for Type 2 Ids			
1	128	4	16	1
2	16	8	64	1
3	8	8	128	1
4	1	16	512	1
5	64	4	32	1
6	32	8	32	1
7	32	4	64	1
8	16	4	128	1
9	8	4	256	1
10	4	8	256	1
11	2	16	256	1
12	1	16	1024	2
13	1	16	2048	4
14	1	16	4096	8

Additional Information



Size Code Restrictions

If you select size code 12, 13, or 14, these restrictions apply:

- Size code 12 can only be assigned to Blocks 0, 2, 4, or 6.
- Size code 13 can only be assigned to Blocks 0 and 4.
- Size code 14 can only be assigned to Block 0.

Since these size codes require multiple blocks, the next available block(s) will automatically be assigned when you program a fleet map. For example, if you assign Block 0 as size code 12, the scanner also assigns Block 1 as size code 12. If you assign Block 0 as size code 14, all the other blocks will be assigned size code 14 because it uses all available blocks.

Index

A

Advanced Programming	68
Cloning	68
CTCSS/DCS Codes	69, 70
Data Transfer (PC to Scanner).....	68
Data Transfer (Scanner to Scanner).....	68
Wired	68
Antenna.....	10, 76
Impedance	75

B

Backlight.....	39
Banks	
Bank Text Tags	18
Channel Storage Banks	
About.....	15
Scan Bank Lists	36
Turning On and Off	35
Searching	21
Selecting.....	7
Service Banks	
About.....	15
Search.....	25
Skipping Trunked Banks.....	49
Batteries	10
Battery Save Function	40
Belt Clip.....	10
Button Layout	6

C

Chain Search	21
Programming Search Ranges	22
Channels	
About.....	15
Entering Text Tags	17
Locking Out	37
Manually Selecting	31
Scanning.....	31
Signal Stalker I Log Channels.....	29

Index

Storage Banks	15, 35
Contrast	39
CTCSS/DCS	40, 69
CTCSS Frequency Table	71
D	
Data Signals, Skipping	21, 27, 38
DCS Codes (Octal) Table	71
Delay	21, 35, 49
Digital Weather Alert	43
Display Features	8
E	
EDACS	
ID Format	66
ID Range Search	67
Programming Talk Group IDs	54
External Power Supply	12
F	
FCC Notice	72
FIPS Codes	44
Fleet Maps	
Preset	80
Size Code	81
User Defined	80
Frequencies	
About	14
Copying	19
Coverage	74
Erasing	16, 18
Finding	21
Moving	19
Programming into Channels	16
Skipping	25
Storing	22
Trunk Programming	46
H	
Headphones	14
I	
Inputting Text	79

K

Keylock.....	38
Keytone	40

L

LCD Contrast	39
Legal Scanning	72
Log Channels	29
LTR.....	47, 55

M

Manual Mode	16
Manual Selection.....	31
Motorola Features	
Base Frequency, Offset Channel, and Spacing.....	59
Control Channel	64
Disconnect Tone Detect	66
Fleet Maps	63
Status Bit (S-Bit).....	65
Type I and Hybrid	62
Type II 800 MHz	58
UHF / VHF	60

P

Priority.....	41
Programming	
See also Advanced Programming	
FIPS Codes.....	44
Frequencies to Channels.....	16
Reset Scanner	78
Scan Bank Lists	36
Search Ranges	22
Text Tags.....	23, 79
Trunked Frequencies.....	46
Weather Alerts for Specific County.....	44

S

SAME Codes	43
Scan Bank Lists.....	36
Scanner Care	73
Service and Repair.....	73

Index

Scanning.....	31
See also Trunk Scanning	
Legal.....	72
Manual Channel.....	31
Skipping Data Signals.....	38
Skipping Trunked Bank.....	49
Stored Channels.....	31
Troubleshooting.....	76
Trunking.....	46
Weather.....	32
Searching	
Chain.....	21
EDACS Talk Group ID Range.....	67
Fine Tune.....	24
Pause.....	22
Ranges.....	22
Search Bank Text Tags.....	23
Service Bank.....	25
Signal Stalker I.....	27
Skip Memory.....	25
Speed.....	27
Troubleshooting.....	76
Signal Stalker I	
About.....	27
Band Meter.....	30
How to Use.....	27
Log Channels.....	29
Only Mode.....	29
Options.....	28
Setting Options.....	28
Voice Interrupt.....	29
Skipping	
Channels.....	37
Data Signals.....	38
Frequencies.....	25
Trunked Bank.....	49
Skywarn	32
Specifications	75
Squelch	7, 13, 27, 46

T**Talk Groups**

Clearing.....	56
EDACS.....	54, 66
Finding	49
ID Lists	56
Locking Out	51
LTR	55
Motorola.....	54
Priority	57
Programming.....	53
Scanning.....	57
Storing.....	50
Text Tags	17, 18, 23, 50
Inputting Text.....	79
Text Input Chart.....	79
Troubleshooting	76

Trunking

See **Trunk Scanning**

Trunk Scanning

See also **Motorola Trunking Systems**

See also **Talk Groups**

See also **EDACS**

About.....	46
Legal	72
Programming.....	46
Scan Delay.....	49
Squelch.....	46

W**Weather**

Alert Signals	
FIPS Alert	44
NWR-SAME.....	43
Testing Alert Tone	43
Skywarn	32
Weather Priority.....	42
Weather Scan.....	32

Limited One-year Warranty

This product is warranted by *RadioShack* against manufacturing defects in material and workmanship under normal use for one (1) year from the date of purchase from *RadioShack* company-owned stores and authorized *RadioShack* franchisees and dealers. For complete warranty details and exclusions, check with your local *RadioShack* store.

RadioShack Customer Relations

300 RadioShack Circle, Fort Worth, TX 76102

04/04

www.radioshack.com

Hypersearch, Hyperscan, and Adaptaplug are trademarks used by RadioShack Corporation.

Motorola, Smartnet, and Privacy Plus are registered trademarks of Motorola Inc.

EDACS is a registered trademark of MA-COM Inc.

LTR is a registered trademark of EF Johnson.

©2008. *RadioShack* Corporation.

All rights reserved. *RadioShack* and *RadioShack.com* are trademarks used by *RadioShack* Corporation.

20-162
Printed in China
UBZZ01350ZZ(0)
02A08