

DRAFT

20-426

Owner's Manual

Please read before using this equipment.

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Terminology

What are Highway Patrol Alerts?

Most highway patrol vehicles on the road today are equipped with a secondary radio system

known as a “mobile extender” or “vehicular repeater.” Whenever the dispatcher transmits to

any vehicle in the district, “mobile extender” in every car within the district is activated.

Using a constant PRIORITY check of specific frequencies in each state, the 20-426 recognizes and alerts you to transmissions from “mobile extender” radios as well as from

car-to-car, aircraft-to-car and other special-purpose frequencies. You receive an audible

(beep tone) and visual (flashing Alert light) alert whenever you are within an approximate

three-mile radius of Highway Patrol/ State Police units using a mobile extender unit.

What is Scanning?

Unlike standard AM or FM radio stations, most two-way communications do not transmit

continuously. The 20-426 scans the Frequencies you have programmed into the Scanner’s

channels until it finds an active frequency.

Scanning stops on an active frequency and remains on that channel as long as the transmission continues. When the transmission ends, the scanning cycle resumes until

another transmission is received.

What is Searching?

The 20-426 can search each of its 13 bands to find active frequencies. This is

different from scanning because you are searching for frequencies that have not been programmed into your Scanner's channels. The scanner automatically chooses between two speeds while searching. During search mode the scanner will search 100 frequencies per second for band with 12.5 kHz steps and during Turbo SEARCH mode the scanner can achieve up to 300 frequencies per second for bands with 5 kHz steps.

What is Trunk Tracking?

Conventional scanning is a simple concept. You enter a radio frequency in your scanner's memory which is used by someone you want to monitor. For example, the police in your area may broadcast on 460.500 MHz, the fire department on 154.445 MHz, the highway department on 37.900 MHz, etc. So when your scanner stops on a frequency, you usually know who it is, and more importantly, you can stop on a channel and listen to an entire conversation. This type of scanning is easy and fun. As the demand for public communications has increased, many public radio users don't have enough frequencies to meet their needs, and this has created a serious problem.

Trunking radio systems have been implemented to solve this problem.

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In a trunked radio system the frequencies are shared among the police and fire departments and a computer systematically assigns available frequencies when they are needed for communications.

Sharing of the available public service frequencies, or trunking, allows cities, counties, or other agencies to accommodate hundreds of users with relatively few frequencies.

Following a conversation on a trunked system using a scanner is difficult, if not impossible. Because when there's a short break during the conversation you're monitoring, it's possible that the talkgroup will be assigned to a completely different frequency in the trunked system. This

type of scanning is difficult and frustrating.

TrunkTracker Technology changes this! Not only does your new 20-426 scan channels like

a conventional scanner, it actually follows the users of a trunked radio system. Once you

know a talkgroups ID, you won't miss any of the action.

If you're a new scanner enthusiast, you may want to read the first part of this manual and

use your scanner in conventional mode before you begin trunk tracking.

Understanding

scanning fundamentals and its terminology will make trunk tracking much easier.

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Feature Highlights

- Pre-programmed frequencies specific to each state (except Hawaii).
- Pre-programmed Trunked and conventional Highway Patrol frequencies
- Highway Patrol Priority Alert
 - Receive audible and visual alert when within three miles of many Highway Patrol/State units
- Pre-programmed frequencies for the following categories:
 - Local Police and County Sheriffs
 - Fire and Emergency Medical Service
 - News Media
 - Weather (continuous NOAA weather and Canadian Coast Guard broadcasts)
 - CB Radio
 - Aircraft
 - Railroads
 - Marine Band
 - Department of Transportation
- **Pager Screen** - lets you set the scanner so it does not detect pager frequencies during Close Call search.

- **Trunk Tracking** – Follow VHF High Band UHF 800MHz trunked public safety and public service systems just as if conventional two-way communications were used.
- **Multi-Track** – Track more than one trunking system at a time. Scan conventional and trunked systems at the same time.
- **1000 Channels** – Program one frequency into each channel. You must have at least one channel programmed to use the Scan mode.
- **13 Bands** – Includes 13 bands, with aircraft and 800 MHz.
- **10 Banks** – 10 banks with 50 channels each are useful for storing similar

frequencies to maintain faster scanning cycles or for storing all the frequencies of a trunked system.

- **25 MHz-956 MHz** – Indicates the range of frequencies that can be searched within the bands of your scanner.

Note: The frequency coverage is not continuous and excludes the cellular telephone Band.

- **5 Priority Channels** – You can assign one priority channel in each bank. Assigning a priority channel allows you to track activity on your most important channel(s) while monitoring other channels for transmissions. You can also assign trunking priority talkgroups.

- **Data Skip** – Allows your scanner to skip unwanted data transmissions and reduces birdies.

- **Direct Channel Access** – Go directly to any channel without entering programming mode.

- **Turbo Search** – Increases the search speed to 300 steps per second. This applies only to transmission bands with 5 kHz steps.

- **PC Programmable** – Allows you to easily program all frequencies and Trunking Talk

Groups into your 20-426 through Radio Shack 20-426 Scanning software running on your PC.

– For more information on 20-426 SS Programming software visit our website at **scanner.Radio Shack.com**.

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Where to Obtain More Information

Before you can scan the PRIVATE bank, you must program frequencies into the scanner's

channels. The Frequency Guide lists typical frequencies used around the U.S.A. and

Canada that you may program into your new scanner. However, this is not a complete list of frequencies for your area.

To obtain frequency information for your area, contact one of the following:

- Scanner Master

1 (800) Scanner (722-6637) (Hours are from 10:00 a.m. to 5:00 p.m. Eastern Time Monday through Friday.) frequencies@scannermaster.com.

To obtain another copy of the frequency guide, contact one of the following:

- Radio Shack Parts Department

(800) 554-3988 (Hours are from 8:00 a.m. to 5:00 p.m. Central Time Monday through Friday.)

- Local Dealer

Information on the Internet

If you have access to the internet, you may want to visit one of the following websites for additional information:

scanner.Radio Shack.com

www.bearcat1.com

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Included with Your Scanner Package

- 20-426 Scanner
- AC Adapter (AD 140U)
- DC Power Cord
- Cigarette Lighter Adapter Plug (Model CD007)
- Telescopic Antenna (Model AT129)
- Window Mount Antenna (Model AT002)
- Operating Guide
- Trunk Tracker Frequency Guide
- Other Printed Materials
- Remote Programming Software Demo CD-ROM
- Mobile Mounting Bracket (Model MB-008)

If any of these items are missing or damaged, immediately contact your place of purchase or

Radio Shack Customer Service at: (800) 297-1023, 8:00 a.m. to 5:00 p.m., Central Time, Monday through Friday.

Optional Accessories

The following optional accessories for your 20-426 are available from your local Radio Shack

Dealer or through the Radio Shack Parts Department by calling: (800) 554-3988, 8:00 AM to 5:00

PM CST, Monday through Friday. We can also be reached on the web at www.RadioShack.com.

DC Power Cord (Model PS-001) - For hard wiring power from your car to your scanner.

Motorola Antenna Adapter (Model PLG-134) - Use only if your antenna has a Motorola type plug.

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Installing the 20-426

For Home Use (Desktop Installation)

1. Insert the DC plug end of the AC Adapter into the DC 12V jack on the rear panel.
2. Plug the AC Adapter into a standard 120V AC wall outlet.
3. Plug the Telescoping Antenna into the ANT connector.
Extend the antenna to its full height. For frequencies higher than 406 MHz, shortening the antenna may improve the reception.
4. Use the desktop stand for a better viewing and operating angle.

Helpful Hints

- If strong interference or electrical noise is received, relocate the scanner or its antenna away from the source.
- If you are operating the scanner in a fringe area or need to improve reception, use an optional antenna designed for multi-band coverage. (You can purchase this type of antenna at a local electronics store.)
- If the optional antenna has no cable, use 50-70 ohm coaxial cable for lead-in. A mating plug may be necessary for the optional antennas.

For Mobile Use (In-Car Installation)

Installation for Temporary Use:

A Cigarette Lighter Power Cord is provided for easy, temporary installation.

Warning: Do not use the cigarette lighter power cord in a positive ground vehicle. Plug one end of the Cigarette Lighter Power Cord into the cigarette lighter jack and the other end into the DC 12V jack on the back of the scanner.

Connecting the Antenna Plug

Connect the mobile antenna plug into the ANT connector on the rear panel. (For more information on antenna installation, please refer to the instruction guide that came with your antenna.)

The 20-426 can be mounted using the supplied mounting bracket.

This bracket is available from the Radio Shack parts department (see page 8)

1. Select an ideal location in your vehicle to mount the 20-426. Avoid a location that could interfere with your driving. In a passenger car, the ideal location is underneath the dashboard on the passenger side.
2. Use the supplied mounting bracket as a template for marking the location of the mounting screws. Note: If there are screws already holding the dashboard, you can use the same screw holes to mount the bracket.

3. Drill the necessary holes and secure the mounting bracket in place using the screws provided.
4. Mount the radio to the bracket only after the wiring has been connected to the rear panel.

Connecting the Power Cord

Note: If you are not experienced in connecting accessories to the vehicle fuse box, please

see your automotive dealer for advice on proper installation.

Installation for everyday use:

1. Check the vehicle battery connections to determine which battery terminal (positive or negative) is grounded to the engine block or chassis. Most of today's vehicles use a negative ground. If your vehicle has a negative ground, follow Steps 2 and 3. Otherwise, skip to the note following Step 3.

2. Connect the RED wire of the DC power cord to the accessory contact in your vehicle's +12V DC fuse box.

3. Connect the BLACK wire of the DC power cord to the negative side of the vehicle (usually the chassis).

Note: In vehicles with a positive ground, the RED wire connects to the chassis and the

BLACK wire connects to the accessory contact in the fuse box.

4. Insert the DC plug into the DC 12V jack on the back of the scanner.

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Typical Mounting Methods

The 20-426 can be conveniently mounted on a table, bulkhead, overhead, or any other

desired location with the supplied mounting bracket (MB008) (refer to figure below for typical mounting methods).

Caution: Make sure there are no hidden electrical wires or other items behind the desired

location before proceeding. Check that free access for mounting and cabling is available.

Mounting the Scanner in Your Vehicle

Before you mount the scanner, make sure you have all the necessary materials.

Then

confirm that the scanner fits your vehicle's mounting area. This unit requires a mounting

area of 2.44 inch high by 7.06 inch wide by 6.10 inch deep (50.8 x 176.5 x 152.5

mm).

Caution: Be sure to avoid obstructions behind the mounting surface.

Follow these steps to mount the scanner in your vehicle.

1. Choose a mounting location, then use the supplied mounting bracket as a template to mark the positions for the mounting screw holes.
2. In the marked positions, drill holes slightly smaller than the supplied screws.
3. Attach the mounting bracket to the mounting location using the supplied screws and lock washers.
4. Attach the scanner to the mounting bracket using the supplied mounting knobs.
5. Connect the antenna's cable to the **ANT.** connector on the rear of the scanner.

Note: If the antenna cable's connector does not fit in the **ANT.** connector, you might also need a Motorola-to BNC antenna plug adapter (available at a local electronics store).

- Table top mount • Bulkhead mount • Overhead mount

SQL

VOL

ANT.

EXT.

SP.

DC 12V

REMOTE

Page 11

Applying Power for Vehicle Installation

You can power your scanner using the supplied DC cigarette lighter power cord or an DC power cord.

DC power Installation

To power the scanner from a vehicle's 12V power source (such as a cigarette-lighter socket), you need a cigarette-lighter adapter.

To connect an DC cigarette-lighter power cable, insert its barrel plug into the **DC 12V** jack on the rear of the scanner, then plug the power cable into your vehicle's cigarette lighter socket.

Note : If you use a cigarette-lighter power cable and your vehicle's engine is running, you

might hear electrical noise from the engine while scanning. This is normal.

Caution: DC 12 V Jack can use a power source that supplies 12V DC at least 500

mA.

You must use a power source that supplies 12V DC and delivers at least 500 mA. Your standard 12V car battery should be sufficient. The cord connector's center tip must be set to positive and its plug must fit the scanner's **DC 12V** jack. The supplied DC power cord meets these specifications. Using a power cord that does not meet these specifications could damage the scanner or the adapter.

- Always connect the adapter or DC power cord to the scanner before you connect it to the power source. When you finish, disconnect the adapter or DC power cord from the power source before you disconnect it from the scanner.

- For added safety and to protect your scanner, disconnect the cable from your vehicle battery's negative (-) terminal before you begin.

Follow these steps to connect the DC power cord.

1. Connect the power cord's black wire to a chassis ground, such as a metal screw attached to a metal part of the vehicle's frame. Be sure that the screw is not insulated

from the frame by a plastic part.

2. Connect the power cord's red wire (with in-line fuse) to a source of voltage that turns on and off with the ignition switch, such as a spare accessory terminal in your vehicle's fuse box.

3. Insert the power cord's barrel plug into the **DC 12V** jack on the rear of the scanner.

4. Reconnect the cable to the vehicle battery's negative (-) terminal.

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ANT.

EXT.

SP.

DC 12VREMOTE

12

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Applying Power Using Standard AC Power

To power the scanner from an AC outlet, use the provided AC adapter with a 5.5 mm outer diameter/2.1mm inner diameter tip.

Caution: You must use a Class 2 power source that supplies 12V DC and delivers at least

500 mA. The cord connector's center tip must be set to positive and its plug must fit the scanner's **DC 12V** jack. Using an adapter that does not meet these specifications

could damage the scanner or the adapter.

- Always connect the AC adapter to the scanner before you connect it to AC power.

When

you finish, disconnect the adapter from the AC power before you disconnect it from the scanner.

1. Insert the adapter's barrel plug into the **DC 12V** jack on the rear of the scanner.
2. Plug the adapter into a standard AC outlet.

Note: Use only the AC adapter supplied with your scanner.

Connecting an External Speaker

In a noisy area, an external speaker (available at a local electronics store) positioned in the right place might provide more comfortable listening.

Plug the speaker cable's 1/8 inch (3.5 mm) plug into your scanner's **EXT. SP.** jack.

Note: Connecting an external speaker disconnects the scanner's internal speaker.

Listening Safely

- **Do not use the earphone. The volume is not adjustable for the Warning Alert and damage to your hearing could occur.**

Connecting the Clone Cable

You can transfer the programmed data to and from another 20-426 scanner using a RS232C

Straight Cable (9 pin to 9 pin) (not supplied). Connect the cable between each scanner's

REMOTE jacks. See "Clone Mode" on page 49. You can also upload or download the

programmed data to or from a PC using optional programming software available through

your local electronics store.

ANT.

EXT.

SP.

DC 12VREMOTE

12V

ANT.

EXT.

SP.

DC 12V

REMOTE

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Scanning Overview

You can scan in one of four ways:

1. **Highway Patrol Scanning** When you select a state you want to scan in Highway Patrol

mode, you can scan pre-programmed Highway Patrol frequencies.

2. **Service Scanning** Press **SVC** to select one of the nine services to find an active frequency.

3. **Band Search** Select a frequency band to search. The Search function is different from

scanning. It searches for any active frequency step by step within the lower and upper

limits of the band. When an active frequency is found, the scanner will stop and stay on

that frequency as long as that transmission lasts. If that frequency is interesting to you,

press **HOLD/RESUME** to hold the frequency on the display. Then program it into the

private bank you want to store. If you do not want to program that frequency, press

HOLD/RESUME or just wait until the transmission ends. The search resumes automatically 2 seconds after the last transmission and looks for more active frequencies.

4. **Private Scanning** If you have programmed frequencies into this bank, press **PVT** to

scan only those that you have programmed in this bank.

Note: Before you can scan the Private Bank, you must program frequencies into the channels. To program frequencies, see "Programming Frequencies into Channels"

on

page 21.

When scanning stops on an active frequency, it remains on that channel as long as the

transmission continues. When the transmission ends, the scanner will remain on the same

channel for 2 more seconds, waiting for a responding transmission. If there is no responding

transmission within 2 seconds, the scanning cycle resumes.

Turn the Scanner On

1. Turn the **VOL** knob clockwise.

The scanner is turned on: the Alert Light flashes and the Alert Tone beeps loudly.

Note: The Alert Tone depends on the currently setting selected (see page 17).

2. The last setting mode selected before starts.

14

VOL

push

ALERT

MUTE ALERT

Turn

SQL

VOL

push

ALERT

FLASH

MUTE

Alert

Light

Page 14

15

How Squelch Works

Think of "SQUELCH" as a gate. If the gate is too low (squelch too low), everything (all noise as well as signals) gets through.

If the gate is set too high (squelch too high), nothing gets through.

If the gate is set just right (squelch set properly), just the desired signals get through.

Setting the Squelch

1. To set the squelch, press **HOLD/RESUME** to stop scanning. If needed, adjust **VOL** until you **do not** hear a signal (see page 17).

2. Turn **SQL** fully clockwise until hiss heard.

This lowers the "squelch gate," allowing all signals and noise to get through.

3. Turn **SQL** fully counterclockwise just until hiss stops.

This raises the "squelch gate," allowing only strong signals to get through.

In the city, you may want to adjust the Squelch even further counterclockwise to decrease the range of the Highway Warning Alert signal.

This prevents the alert from sounding unnecessarily due to farther, less important sources.

Strong Signals

Medium Signals

Weak Signals

Noise

Strong Signals

Medium Signals

Weak Signals

Noise

Strong Signals

Medium Signals

Weak Signals

Noise

SQL push

FLASH

MUTE ALERT

Turn

SQL push

FLASH

MUTE ALERT

Turn

Page 15

Highway Patrol Scanning

Highway Patrol frequencies are pre-programmed on a state-by-state basis. When Highway

Patrol scanning, the Highway Warning Alert is activated.

Selecting the State

1. Press **STATE** to select the state you are operating in.

Press and hold **STATE** to scroll rapidly.

Hint: For the State Code Order, please see page 56.

2. To step forward through the states (A - W), press **STATE** and, within three seconds, press the **▲** key repeatedly. To step backward through the states (W - A), press **STATE** and, within three seconds, press the **▼** key repeatedly.

3. To scroll rapidly, press and hold the **▲** or **▼** key.

Scanning Highway Patrol Frequency

You can scan Highway Patrol frequencies by pressing **PVT** or **HWY/POL**.

1. Press **HWY/POL** to scan through only pre-programmed Highway Patrol frequencies.

or

Press **PVT** repeatedly in Highway scanning mode until "**HWY/POL**" appears on the display to scan through pre-programmed Highway Patrol frequencies.

Hint: If you press **PVT** repeatedly in Highway scanning mode until "**HWY/POL**" and "**PVT**" appears on the display, you can mix-scan between Highway Patrol frequencies and User Programmed channels.

2. When the scanner receives communications, scanning stops, the state code and the frequency appear.

When the transmission ends, the scanner holds for two seconds on that frequency for a response. For more information on the Delay feature, please see page 28.

If there is no response, scanning resumes.

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Highway Patrol Scan Hold

1. When scanning stops on a desired frequency, press **HOLD/RESUME** to hold on that frequency as long as you like. When in the HOLD mode, press the **▲** or **▼** key to step up or down the frequency. To step up or down rapidly, press **▲** or **▼** and hold the **▲** or **▼** key.

If you change into a frequency which is a control channel, the scanner may display the Active ID (When TRUNK mode is active).

2. To resume scanning, press **HOLD/RESUME**.

Note: Highway Warning Alert does not work while in the HOLD mode.

Highway Warning Alert

The scanner alerts you when Highway Patrol/State Police units using mobile extenders are within an approximate three mile radius.

1. The ALERT Light flashes and the Alert Tone beeps twice when a signal is received.

2. The ALERT Light glows steadily for approximately three minutes. Then, if no other mobile extender transmissions are received, the light goes out.

3. If more transmissions are received before three minutes have passed, the ALERT Light flashes and the Alert Tone beeps once.

Alert Tone Volume

Push **VOL** to select Loud, Medium, or Soft.

The Alert Tone beeps and the ALERT Light flashes to your choice.

Muting the Alert Tone

Temporary Mute

Press **MUTE** during the Highway Warning Alert. The Alert Tone stops and the MUTE LED flashes until the alarm cycle (three minutes) is finished.

Continuous Mute

Press and hold **MUTE** for two seconds to turn Continuous Mute on whenever you wish. You

hear two beeps and the MUTE LED lights continuously. No Alert Tones will beep.

Canceling Mute

To cancel Mute,

SQ

VOL

push

ALERT

FLASH

MUTE

Alert

Light

Flashes

VOL

push

ALERT

MUTE ALERT

Push In

VOL

push

ALERT

FLASH

MUTE ALERT

MUTE LED

Flashes

Page 17

- Press **MUTE** to cancel One Moment Mute.
- Press and hold **MUTE** for two seconds to cancel Continuous Mute. You hear two beeps and the MUTE LED goes out.
- Change states. The MUTE LED goes out after scanning starts.
- Turn the scanner off and on.

Note: If **MUTE** is pressed for less than 2 seconds during the Continuous Mute mode, nothing will be changed.

Alert Light Adjustment

The ALERT Light has three settings: Bright, Dim, and Off. Push **FLASH** to select Bright, Dim or Off. The ALERT Light flashes and the Alert Tone beeps.

If you select Off, “ ” on the display reminds you the ALERT Light is off.

WARNING: You can turn off the ALERT Light and completely mute the Alert Tone at the same time.

This deactivates the Highway Warning Alert.

Skip Frequencies

To skip a frequency, press **L/O**.

You can program up to 50 skip frequencies for priority channels. And also you can program

up to 100 skip frequencies for other frequencies (See page 27). If you skip a preprogrammed frequency in one state and that frequency is programmed into another state,

the frequency is skipped of both states. If you change the state code, skipped frequencies are cancelled as soon as scanning starts.

Priority Channels

Each state preprogrammed in the **scanner** contains a number of Priority channels. The

scanner automatically checks a state's Priority channels every two seconds for activity. If

there is activity on one of the Priority channels, the ALERT Light will flash and the alarm

tone will beep (see "Highway Warning Alert," page 17).

18

SQL push

FLASH

MUTE ALERT

Push In

Page 18

19

You will experience a slight in the conversations you hear as the **scanner** checks the

Priority channels. You can cancel the priority check and the interruptions in the conversations by pressing **HOLD/RESUME** to hold on the frequency.

Note: The Highway Warning Alert is inoperative while the scanner is on Hold.

Remember to press **HOLD/RESUME** to return to normal priority-scan operation.

Priority channel cannot be changed, but you can lock-out priority channels using **L/O**.

Priority channels have been pre-determined by the manufacturer as those Highway Patrol

frequencies most commonly used for mobile extenders and for car-to-car and aircraft-to-car

operations. Mobile extenders re-transmit every radio broadcast received on the patrol car

radio to the officer's walkie-talkie at low-power. Every time any officer or dispatcher talks

(transmits), the signal is broadcast like a beacon at low-power whether or not the officer is

out of the car.

You can select Priority Scanning mode by pressing **PRI**.

- Normal Priority Scan mode.

The scanner checks the Priority frequency every two seconds. "**PRI**" will be displayed.

- Priority only mode.

To only monitor the priority frequencies, press and hold **PRI** to select Priority Only.

This

mode is especially recommended for the following states:

(Arizona) (Michigan)

(Delaware) (Oklahoma)

(Florida) (Wisconsin)

“**PRI**” flashes when you select Priority Only Mode.

- Priority off mode

The scanner does not check the Priority frequency. “**PRI**” will not displayed.

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Trunked Highway Frequency

Trunked Highway frequencies are pre-programmed for each state. When the scanner finds the control channel data, the scanner begins to find any active IDs. If the scanner finds any ID, the active ID appears on the display and you will hear it.

If you press the key while monitoring an ID, the scanner will check to see if any other IDs

are active. If none are active, scanning resumes.

When the scanner finds a control channel, it will stay on that control channel until reception

of the control channel is lost. To force the scanner off of the trucking control channel, press

DATA.

If you press the key while a talk group ID is active, the frequency on which talk group is transmitting flashes on the display.

Or press and hold the key for two seconds, and the ID and the frequency alternately

appears on the display. To return to the normal display, press the key again.

Like conventional scanning, you can lockout reception of unwanted traffic.

You can lockout up to 30 IDs. Press **L/O** on the ID you want to lockout.

If you lockout 31st ID, the 1st ID already locked out is restored.

If you want to restore all the locked out IDs, press and hold **L/O** for two seconds.

Or, when the state code is changed, all lockout IDs are restored as soon as scanning starts.

If you find an interesting ID you want to continue listening to, press **HOLD/RESUME.**

Press **HOLD/RESUME** to resume scanning.

You can set the scanner to hold on an ID for two seconds to wait for a replay before scanning resumes. While trunking, press **DELAY.** “**DLY**” appears on the display.

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Private Bank Scanning

Programming Frequencies into Channels

Before the scanner begins Private Bank scanning, you must program a frequency into at least one channel. Program frequencies you purchased from your dealer, from various free and FCC-based sources on the internet, or from the Frequency guide included in 20-426

package. You will need to program each frequency into the scanner's channels in order to hear these frequencies.

1. While Private Bank scanning is activated, press **HOLD/RESUME** and enter the channel number where you want to store a frequency by using the keypad, then press **HOLD/RESUME**.

↘ Change the channel by using the or key.

2. Enter the frequency you want to store by using the keypad and (decimal key).

3. Press **E** to store the frequency into the channel.

4. If you want to program another frequencies into the channel, select another channel by using the or key.

Note: • To clear a mistake while entering the frequency, press (decimal key) repeatedly until the display is cleared.

• If you enter a invalid frequency, an error tone will sound and appears on the display. To clear the Error message immediately, press (decimal key).

• Even if you don't enter full numbers as a frequency number, the scanner will automatically

select the nearest valid frequency.

Deleting a Stored Frequency

To delete a stored frequency:

a. Select a channel.

b. Press **0**.

c. Then press **E**.

Note: Channels with no frequencies are automatically locked out.

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. .

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Duplicate Frequency Alert

If you enter a frequency which has been stored in another channel, you will hear an error

tone and the other channel displays.

Press (decimal key) to clear and start again.

— OR —

Press **E** again to store the frequency in both channels.

Note: The smallest channel appears on the display when you store same frequency in two or more channels.

Memory Lock

To avoid the accidental programming frequencies and talk group IDs, you can lock the

memory with Memory Lock.

Press and hold **M-LOCK** for 2 seconds to activate this feature ,and “**M-LOCK**” appears on

the display. If you press **E** to program memory, you will hear two beeps. To deactivate

Memory Lock, press and hold **M-LOCK** for 2 seconds again.

Scanning Private Bank

1. After programming frequencies, simply press **HOLD/RESUME**

to begin scanning. Or pressing **PVT** repeatedly until “**PVT**” appears on the display, you can start Private Bank Scanning.

The scanner scans only upward all the channels.

2. The bank indicators selected for scanning appear on the display, and the bank being

currently monitored flashes. You can deselect banks from active scanning by entering

their numbers on your keypad. The indicator for each deselected bank disappears, and

the bank’s channels are not scanned.

Note: One bank must always be active. You cannot deactivate all five banks at the same

time. If you try to deselect all the banks, the first bank is automatically selected.

To restore a bank to active scanning, enter the bank’s number on your keypad.

The bank’s indicator will display again.

3. During normal scanning the scanner skips unprogrammed or locked out channels.

4. When a transmission is received, the scanner stops on that channel. When the transmission ends, scanning resumes automatically.

Note: You can set the scanner to hold for two seconds on the frequency for a response. For more information on Delay feature, please see page 28.

1 3 4 5 2 BANK

Frequency not entered
or Locked Out (L/O)

SCAN

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Hold/Resume

If you want to stop on a channel during scanning, press **HOLD/RESUME**.

If you want to resume scanning, press **HOLD/RESUME**.

Direct channel access:

There are several ways to access a specific channel quickly.

1. Press **HOLD/RESUME**.
2. Using the keypad, enter the channel number.
3. Press **HOLD/RESUME** again.

Note: You can also use the **PVT**, or key instead of pressing **HOLD/RESUME**.

Channel Lockout

You can lockout any channel so it is not checked during normal scanning. You can also

restore the channel to scanning when you wish.

Lockout in Hold Mode

1. Press **HOLD/RESUME** and enter the channel number by using the keypad, then press

HOLD/RESUME.

— OR —

1. Press **HOLD/RESUME** and enter the channel by using the or key.

2. Press **L/O** to lockout the channel.

“**L/O**” appears on the display.

Lockout in Scanning Mode

If the scanner keeps stopping on a particular channel due to noise or frequent transmissions,

you may want to keep that channel from scanning.

1. Wait until the scanner stops on the channel.
2. Then press **L/O**.
3. The scanner immediately resumes scanning because the locked out channel is no longer in the scanning sequence.

Lockout Tips Write down your locked-out channels and put in a convenient place in

case you need to restore them.

Restoring a Locked-out Channel in Hold Mode

1. Press **HOLD/RESUME** and select the channel number you want to restore by using the

keypad, the or key, then press **HOLD/RESUME**.

2. Press **L/O** to unlock the channel. The “**L/O**” disappears.

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Restoring All Locked-out Channels

You can restore all locked-out channels in a bank only when a bank is selected for scan. If you have deselected a bank and you want to restore all of its locked-out channels using the steps below, you must press **PVT** until “**PVT**” appears and then enter the number of the bank on your keypad.

1. Press **HOLD/RESUME**.

Note: You must be in Hold mode before restoring all locked-out channels.

2. Press and hold **L/O** for about 2 seconds. You will hear two beeps when all the channels have been restored.

Priority Scan

When Priority Scan is turned ON, your scanner checks the priority channel in the banks you selected every two seconds for activity. If a signal is present on the priority channel, your scanner monitors the channel until the transmission ends, then resumes normal scanning.

You can designate one channel in each bank as a Priority Channel. By default, the first

channel in each bank is the Priority Channel, but you can change this.

To activate Priority Scan (in either the Hold or Scan mode):

1. Press **PRI**. “**PRI**” appears.

Note: If you have locked out the priority channel, error message appears when you select Priority mode.

2. Press **PRI** again to deactivate Priority Scan. “**PRI**” disappears.

Changing the Priority Channel

You cannot eliminate the Priority Channel, but you can change it to any one of the 50

available channels in each bank.

1. Press **HOLD/RESUME**.

2. Select a new Priority Channel:

- a. Enter the channel number using the keypad.

- b. Then press **HOLD/RESUME**.

3. Press and hold **PRI** for 2 seconds to designate this channel as your new Priority Channel.

When you hear two beeps, the Priority Channel has been changed. “**P**” appears on the display.

Note: Priority in Trunking mode works just the same, except you set them for talkgroup IDs

instead of setting priorities for channels. The scanner only checks priority talkgroups between transmission.

Service Scanning

The service scan feature allows you to rotate through the following nine service banks.

q Local Police and County Sheriffs *1

w Fire and Emergency Medical Service

e News Media

r Weather (NOAA, weather and Canadian Coast Guard broadcasts)

t CB Band

y Aircraft *2

u Railroads

i Marine Band

o Department of Transportation *1

*1) Frequencies are pre-programmed on every U.S. state.

*2) Except Aeronautic Radio Navigation (108-117.9875 MHz)

1. Press **SVC** to select a Service.

The current service bank icon appears on the display.

2. Continue pressing **SVC** until your desired Service is displayed.

3. After a three second delay scanning begins. If you want to start scanning immediately, press **HOLD/RESUME**.

Notes:• Press **HOLD/RESUME** at any time to hold the frequency. Press the **UP** or **DOWN** key to

move up or down the frequency. If you find the frequency you want to store, while in Hold mode you can store the frequency (see page 21).

• If you want to remain on a frequency until a responding transmission is received, press **DELAY** to activate the delay feature (See page 28).

• To skip a frequency, press **L/O**. You can program up to 100 skip frequencies for Local Police, County Sheriffs and Department of transportation. And you can program up to 50 skip frequencies for other services (See page 27).

• If you select POLICE or DOT, press **STATE** to select the desired state.

Band Search

Setting a Search Band

The 20-426 can search up to 13 separate frequency ranges to help you discover new stations in your area.

To set a Search Bands, enter into the Band Search mode.

1. Press **SRCH**. The upper and lower limits of the Bands currently selected are on the display.
2. Use the or key to select the band you want to search.

Wait for about two seconds and the scanner will begin searching that band. Or press **HOLD/RESUME** to begin immediately.

Notes:• You must set the Search Bands prior to any searching.

- The scanner automatically increases its search speed up to 300 steps per second for bands having 5 kHz steps. (Turbo Search)
- While searching, you can change the search direction by using the or key.

Make sure which of icon, “ **SRCH**” or “**SRCH** ” appears on the display.
Band

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- While Private Scanning in the trunking banks, press **SRCH**, then it will move to ID Search mode.

Search Hold Feature

1. Press **HOLD/RESUME** at anytime to stop the search. To move up or down 1 frequency step, use the or key.

2. Press **HOLD/RESUME** to resume searching.

Data Skip

A scanner will normally stop on any transmission it receives. This means the 20-426 will occasionally stop on data signals and unmodulated transmissions. You can automatically skip many of these types of transmissions during search.

1. To activate the Data Skip feature, press **DATA** in Scan or Search mode. “ ” appears on the display.

2. To deactivate the Data Skip feature, press **DATA** again. “ ” disappears.

When Data Skip is active, your scanner may pause momentarily on an unwanted signal

but will resume searching in two or three seconds. The Data Skip feature is active as

well as Scan mode and Service Search mode. Data Skip does not function during Service Scanning band (for AIR, CB, or Weather band), Priority Scan, and Trunking mode.

Frequency Skip

If a particular frequency continues to interrupt search scanning, it is possible to set the scanner to skip the frequency.

To skip over a frequency, press **L/O** when stopping on the frequency you want to skip or when in Search Hold mode.

Note: You can program up to 100 skip frequencies.

The 101st skip frequency entered causes the first skipped frequency to unlock.

To restore a Locked out/Skipped channel.

1. Select the desired frequency by using the or key in Search Hold mode.
2. Press **L/O**, and then press **HOLD/RESUME**.

To restore all skipped frequencies, press and hold **L/O** for 2 seconds in Search Hold mode.

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Storing Search Frequencies

You can quickly store any frequency you find during Search.

1. During Search, press **HOLD/RESUME**. If you want to change the frequency, use the or key to move up or down 1 frequency step. Then press **E**. Or when the scanner stops on the frequency you want to store, press **E**.

2. Select a bank you want to store by using the keypad. The smallest empty channel number and the frequency alternately appear on the display. If necessary, you can also change the channel by using the keypad, the or key.

3. Press **E**.

Note: • If the frequency you want to store exists already in a bank, you will hear an error

tone and other channel appears on the display. (See “Duplicate Frequency Alert” on page 22.)

- After storing the frequency, it moves to the Search Hold mode.
- If there is no free channel, the frequency you want to store will automatically be stored in the first channel in the selected bank.

4. Press **SRCH** to resume searching.

Delay

To help prevent missing a reply on a specific channel or frequency, you can program a two second

delay into any channel, frequency, service band or band search. When scan or search stops on a channel or frequency, there is a two-second pause before the scanning cycle resumes.

To activate the Delay feature (in either Scan mode or Search mode):

1. For Highway Scan mode or Private Scan mode, when in Hold mode, select the desired

frequency or channel and then press **DELAY**. Or when the scanner stops on an active

frequency or channel, quickly press **DELAY** before it continues scanning again.

— OR —

1. For Search mode, while searching press **DELAY**.
2. "**DLY**" will appear on the display.

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Trunk Tracking

Your 20-426 tracks three major types of trunked radio systems. These systems are described here.

∖ **MOTOROLA** - Including Type I, Type II, Hybrid, SMARTNET, and Privacy Plus. Motorola systems are widely used by public safety and business users. Most are on the 800 MHz band, and recent systems are appearing on other bands. (see page 43).

∖ **EDACS** - Including "Wideband" 9600 baud and SCAT. "Wideband" systems are mostly on the 800 MHz band, and are used by public safety, utilities, and business users. Some systems are used on the VHF and UHF bands. (see page 39). SCAT systems are single-channel EDACS systems, and are mainly used in the Midwestern United States.

∖ **LTR** - These systems are mostly for business users, and found on the UHF, 800 and 900 MHz bands. (See page 42).

For details on the operation and programming for all of these systems, see pages 29-47.

When tracking these types of systems, remember these important points:

- Your scanner defaults to monitor Motorola Type II 800; however, you can change this if

the system in your area is different. (The types of systems are discussed below.)

- The frequencies for many of the trunked public safety systems are listed in the TrunkTracker

Frequency Guide included with your 20-426 scanner. Frequencies sometimes change, check

with **www.trunktracker.com**.

- If you have internet access, you can visit **scanner.RadioShack.com** or **www.trunktracker.com**

for additional information, for current news and frequency information, about Trunk Tracking Scanning.

* Motorola, SMARTNET, and PRIVACY PLUS are trademarks of Motorola Inc.

EDACS is a

registered trademark of the M/A - COM Inc. LTR is a registered trademark of E.F.

Johnson

Company.

Setting the Squelch

For trunked reception, a good setting for the **SQL** control is in the center of the range with the color marker pointing up. See the illustration.

If it is set too high, it could prevent your scanner from locking to 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.

SQL push

FLASH

MUTE ALERT

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Programming Trunking Frequencies

There are three steps for programming a trunked system:

1. Program the Trunk Type – What type of system will the scanner be tracking, Motorola

Type II, Type I, EDACS, LTR, etc.

2. Program the Trunked Frequencies – Within a trunked system, the frequencies are

shared among all the users, called “Talk Groups”.

3. Program the Talk Groups – Within the trunked system, each agency or department is

assigned a Talk Group ID. This ID must be programmed into the scanner in order for it to

monitor that specific agency or department.

Before you start programming your scanner to track a trunked system, consider the following:

- You can only program one trunking system in each bank of your scanner.
- Trunked frequencies must be entered while in the Trunk Programming mode.
- If you're in the Trunk Programming mode, you cannot select channels in other banks.

For example, if you are programming Bank 4, you can only select channels 151-200 with

the **4** or **5** key.

- **IMPORTANT:** If you are programming an EDACS ® trunked system, you must enter the

frequencies in a specific order. Check the frequency guide included with the radio and the

listed web sites for details.

STEP 1: Selecting Trunking System Type

The first step in a Trunk Tracking system is storing the frequencies in one of the five available banks in your scanner.

1. Press **TRUNK** for 1.5 seconds.

You will hear two beeps, and “**BANK**” and “**TRUNK**” will begin to flash on the display.

2. Select the bank you want to store the frequency by using the keypad.

3. Select the system you want to track by using the or key, then press **E**.

List of trunking systems as follows:

E2-800 (Motorola Type II 800 MHz)

E2-Hi (Motorola Type II VHF 136-174 MHz) *

E2-UHF (Motorola Type II UHF 406-512 MHz) *

E1 (Motorola Type I and Hybrid) **

Ed (EDACS® Wide Band: 9600 band)***

Ed SCt (EDACS Scat)

Lt (LTR)

* Requires programming of a Base and Spacing frequency Offset channel (See page 45).

** Requires programming of a Fleet map (See page 44).

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*** Requires programming of frequencies in exact order and location.

STEP 2: Programming Trunking Frequencies

1. Select and press **E**. Use the keypad and (decimal key) to enter a frequency for the trunked system.

For example, enter .

Note: To clear a mistake while entering a frequency, press (decimal key) twice, and start over.

2. Then press **E**.

The “**E**” (EDACS), “**M**” (Motorola) or “**L**” (LTR) appears depending on the trunked system selected.

If the frequency is out of the range of the system chosen in this step, you will hear an

error tone, the channel number flashes and an error message appears on the display.

3. Use the or key to select the next channel in the bank and press **E**.

4. Repeat steps 2 and 3 until all frequencies have been entered.

5. Press **SRCH** to begin searching the bank you’ve programmed.

Then select the programmed bank by using the keypad.

🔒 **Remember!** To lockout the keypad to prevent re-programming of talkgroups, you can

use Memory Lock (Refer to “Memory Lock” on page 22).

Hint: If you want to return to the previous menu screen, press **HOLD/RESUME** in the

Trunk Programming mode.

Programming Talk Group ID/Scan Lists

Scan Lists

Each bank of your 20-426 can be a trunk tracking bank and it can be a conventional scanning

bank. When you designate a bank as a trunking bank, your scanner sets up 5 Scan Lists,

which are simply lists used to store your favorite Talk Group IDs. Each list can contain up to

10 IDs, so you can store a total of 50 IDs for each trunk tracking bank. (250 IDs if you use

all the banks as trunking banks!)

Scan Lists help you organize the trunking system users into categories. For example, you

might use List#1 for police IDs, List#2 for fire department IDs, List#3 for emergency medical

service IDs, etc. Once IDs are stored in lists, you can scan them as you scan conventional

frequencies and you can lockout any one (up to 4) of the 5 Scan Lists by pressing the

corresponding numeric key. When an ID is active, the Scan List number will appear on the

display. You can program your Scan Lists either manually or during Trunking Search mode.

Check the web site **www.trunktracker.com** for a complete list of talkgroups for your area

that you can program into your Scan Lists.

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In order to program Talk Group ID's, you must first complete Step1—"Selecting Trunking

System Type", page 30 and Step 2 – "Programming Trunking Frequencies", page 31.

1. After programming a frequency, press **HOLD/RESUME** to return to the main screen of

system type selected and select . Then press **E**.

2. Select the Scan List location by using the or key.

3. Enter the Talk Group IDs for each trunk system as follows.

To enter a Type 2 Talk Group ID:

1. Enter the ID you want to store by using the keypad.

2. Press **E**.

To enter a Type 1 ID:

For a Type I ID, the Block number, Fleet number and Subfleet number make up the Talk

Group ID number. For detail please see page 59.

1. Enter the ID you want to store by using the keypad (ID = Block number + Fleet number + (decimal key) + Subfleet number).

2. Press **E**.

To enter a Full EDACS ID®:

1. Enter the Agency number.

2. Press (decimal key) for the "dash".

3. Enter the Fleet number and Subfleet number.

4. Press **E**.

To enter a Partial EDACS® ID:

1. Enter the Agency number you want to store.

Use the (decimal key) for the "dash".

2. Press **E**.

Or you can program all the Talk Group numbers within one fleet of an Agency.

1. Enter the Agency number.

2. Press (decimal key) for the "dash".

3. Enter the Fleet number.

4. Press **E**.

Hint: Remember that Radio Shack's AFS format allows you to enter full or partial EDACS IDs for

powerful flexibility in all modes. Be sure to read the section "EDACS Reception" on page 39 to learn how this works.

Note: The 20-426 default to "AFS" talkgroup displays for EDACS® only.

To enter a LTR ID:

For a LTR ID, the Area Code, Home Repeater number and ID make up the Talk Group ID.

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Please see page 42 for more information.

1. Enter the Area Code.

2. Enter the Home Repeater number.

3. Enter the ID you want to store

4. Press **E**.

Note: To clear a stored ID while entering an ID, press **0** and **E** successively, and start over.

Receiving Trunked Systems

When you have properly programmed all the frequencies for a trunked system, you

can

monitor the system in several different ways. You will find that Search, Hold, Lockout, Scan

and Delay are all similar to conventional scanning.

- ✧ ID SCAN lets you receive those talkgroups that you store in Scan Lists.
- ✧ ID SCAN HOLD lets you selectively listen to a talkgroup in your Scan Lists.
- ✧ ID SEARCH lets you hear all system talkgroup activity. This is the best way to get

started.

- ✧ ID SEARCH HOLD works with Search mode to let you quickly freeze reception on an

interesting transmission. Or you can manually specify a talkgroup with DIRECT ENTRY in ID HOLD.

- ✧ ID LOCKOUT works with Search and Scan to exclude talkgroups that you don't want to hear.

- ✧ ID DELAY works with each talkgroup to be delayed when the communication ends.

When receiving EDACS systems, remember that Radio Shack's AFS talkgroups give you powerful

flexibility. In a few key presses, you can specify a single talkgroup, a fleet, or an entire

agency in all the above modes. Read the section "EDACS Reception" to understand how

this works.

Hint: If the scanner is not in the Trunking mode, you can enter the Trunk mode by pressing

TRUNK. Pressing **TRUNK** in the Trunking mode will move to the Private Scan Hold mode.

ID Scan Mode

1. When in the Trunking mode, press **PVT** to begin scanning the lists you have programmed.

If you haven't programmed any IDs, the scanner cannot stop on an active conversation.

2. To remove a Scan List from active scanning, press the number of the Scan List on your keypad.

The Scan List indicator turns Off, and the IDs in that list are not scanned.

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Note: One Scan List must always be active. If you try and deactivate all the Scan Lists,

Scan List 1 will automatically be active.

3. To restore a Scan List to active scanning, press its number again.

- ✧ Remember! When you press **TRUNK** in the Trunking mode, you can be out of the

Trunking mode and enter into Private Scan Hold mode.

Note: • appears on the display during Trunk Scan instead of simply .

ID Scan Hold Feature

If you want to stop on a ID during ID scanning, press

HOLD/RESUME.

To directly access a specific ID location:

There are several ways to access a specific ID quickly.

1. Press **HOLD/RESUME** to enter into Hold mode.
2. Using the keypad, or key, enter the ID location number (See page 31).
3. Press **HOLD/RESUME**.

If you want to resume scanning, press **HOLD/RESUME**.

ID Search Mode

Once you have programmed all the frequencies for a trunked system, Search will let you

immediately start hearing transmissions.

When in the Trunking mode, press **SRCH** and the scanner begins to find any active IDs.

When the scanner finds any ID, you will hear it.

Talkgroups display differently in Motorola, EDACS and LTR systems. You should read the

appropriate parts of this guide to understand the formats.

The display indicates the bank and the type of trunked system you are monitoring.

While

monitoring on ID, press the key, and the scanner will check if any other IDs are active.

Regardless of the system, you won't know exactly who you are receiving until you listen for

a while, or refer to frequency guides or internet sites such as

www.trunktracker.com.

Of course, figuring out who each ID represents is half the fun of Trunk Tracking.

Later, when you learn more about a system, you will want to store lists of talkgroups.

Then

you can scan specific agencies and users, and use the many other features your radio

provides.

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ID Monitor Mode

By using ID Monitor mode, you can determine which talk groups are the most active without

hearing conversations.

1. Press and hold **SRCH** for 2 seconds until you hear two beeps. Then begins flashing and all active talk group IDs appear on the display every 0.5 seconds.
2. To activate ID search mode, press **SRCH**

Note: Lockout ID also appears on the display.

ID Search Hold and Direct Entry ID in Hold Mode

Just like in Conventional Search, Hold lets you pause ID Search on an interesting transmission without storing the talkgroup into memory.

If you hear an interesting ID during Search mode, and want to continue listening to it --

- Press **HOLD/RESUME** to stop the search.

If you want to listen to a specific ID, while in Hold mode --

- Use the keypad to enter the ID you want and press the **key**.

If you want to resume searching --

- Press **HOLD/RESUME** to return to Search mode.

Note: ID Hold feature is also applied to ID Scan mode.

Programming Scan Lists During Search

To select a Scan List location and store an ID during Search mode, follow these steps:

1. When your scanner stops on an ID you want to store, press **HOLD/RESUME**.
2. You can change the Scan List memory location by using the **or** **key**. And then press **E**.
3. Press **SRCH** to return to Trunk Tracking Search mode.

Deleting a Stored ID

To delete a stored ID:

1. Press **HOLD/RESUME** in the ID Scan mode.
2. Select the Scan List location you want to delete by using the **or** **key**.
3. Press **0**.
4. Then press **E**.

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ID Lockout

Like conventional scanning, it's possible to lockout unwanted traffic. This is particularly important in trunked systems because in many areas, water meters, door alarms, traffic signals, and other mechanical devices are assigned IDs just like other users. Also some departments scramble or encrust their communications, and you may want to lock out these unintelligible broadcasts.

To Lockout an ID, press **L/O** on the ID you want to lockout.

The ID is locked out. You can Lockout up to 100 IDs. The 101st skip frequency entered causes the first skipped frequency to unlock.

Note: If you Lockout an ID in Search mode, it is also locked out in Scan List mode. Conversely, if you Lockout an ID while in Scan List mode, it is locked out in Search mode. For information about Scan Lists see page 31.

EDACS BLOCKOUT is a powerful form of ID Lockout that can be used only with AFS and EDACS systems. This feature lets you lockout entire Agencies or Fleets, not just individual talkgroups. Using EDACS Blockout you can, for example, prevent Search from stopping on any of hundreds of talkgroups in the Utilities agency. You can do this with just a few key presses. To use this mode just enter the Agency-part, or the Agency-Fleet part, of the talkgroup code and press **L/O**. For example, to Blockout Agency 4 in Trunk Search, press

HOLD/RESUME, 0, 4, (decimal key), and then **L/O**. For other ways to use partial AFS entry, be sure to read the section "EDACS Reception".

Review ID Lockout

You can check all IDs already locked out.

1. Press and hold **TRUNK** for 1.5 seconds in the Trunking mode.
2. Select the bank you want to review by using the keypad, and then the trunked system selected appears on the display. Then press **E**.
3. Select by using the or key ,and then press **E**.
4. You can see the locked out IDs by using the or key.

Hint: Press and hold **L/O** for 2 seconds to check all locked out IDs when in the Trunking mode.

Restoring Locked-out IDs

To restore a single ID, follow these steps:

- While in locked out review mode, select the locked out ID you want to restore and press **L/O**.

The ID is restored and “**L/O**” disappears.

To restore all locked out IDs in a bank once:

- While in locked out review mode, press and hold **L/O** for 3 seconds. All locked out IDs in a bank are restored.

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Setting the Delay Mode for Trunking Mode

A default delay of 2 seconds is automatically set for each talkgroup for ID Scan mode and ID

Search mode. To set the delay feature on or off, press **DELAY** while trunking, "DLY" will

appear or disappear depending on your setting.

Trunking Frequency Confirmation

You can check the frequency while a talkgroup ID is active.

Press the key, and the active frequency on which the talk group is transmitting will flash on

the display. Or press and hold the key for 2 seconds, the ID and the frequency alternately

appears on the display. To cancel this mode, press the key again.

Hint: This feature is applied to ID Scan mode and ID Search mode.

Setting Priority in Trunking Mode

You can set priority in your Scan lists, just as you do in your conventional ones.

Default

setting for the Priority ID is the first location in each Scan List. You can set the priority by

pressing and holding **PRI** for 2 seconds in ID Scan Hold mode. After you've set up your

Scan List, press **PRI** to activate it.

It's very similar to conventional priority although there is no "interrupt" during the transmissions. Priorities are checked in between transmissions.

With Priority ON, you can hold on an ID in your Scan List, such as Scan List 3, memory

location 7, and the scanner will check all the priorities in all the active Scan Lists in between

any transmissions on the ID on which you're holding. The lowest numbered priority will be

checked first. For example, the Priority ID in List 1 will be checked before the Priority in List

2, etc.

Note: • This function does not work in LTR tracking.

• Priority Scan does not operate when Priority IDs are locked out.

Moving between Scan List Memories

There are a number of ways to step and move through your Scan List memories:

1. Press **HOLD/RESUME** in the ID Scan mode and use the or key to move to up or

down.

2. Or, press **HOLD/RESUME** in the ID Scan mode, next press **0-9** (scan list

number), then
press **0-9** (memory position). For example to move to Scan List 4, memory position
10,

press: **HOLD/RESUME, 4, 0, HOLD/RESUME**

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Multi-Track

The 20-426 allows you to track more than one system at a time. Here are some highlights of this feature:

- ✎ You can actually track up to 5 trunking systems at one 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.

After the scanner finishes checking a trunked system for activity, it will conventionally

scan the other frequencies in the bank (remember, only trunking frequencies are programmed in Trunk mode).

To scan a mix of trunking and conventional banks, select the banks you wish to be active,

and then press **TRUNK**. The scanner will instantly begin scanning. You can switch to Search

mode and the scanner will search for any active ID's on the system.

Note: To switch ID Scan or ID Search, press **PVT** or **SRCH** in the trunked system.

Multi-Track Operational Details

When more than one trunk system is active (for example two or more trunked systems or a trunked system and one or more conventional frequencies), the radio jumps between

systems/frequencies as follows:

TRUNK SCAN: The scanner moves to a trunked system and looks for IDs in your Scan

List(s) for up to 1 second. If it finds no activity on your programmed talkgroups, it moves

on to conventional channels in the same bank or to the next active bank.

If the scanner finds a talkgroup in one of your active Scan Lists, you will begin to hear that

communication and the scanner will of course display the proper talkgroup number. When

the communication ends, the scanner will wait for 2 seconds for any further replies and, if

none, the scanner will move to the conventional channels in the same bank or to the next

bank.

The scanner will not look for any other IDs within the same trunked system (as this would slow the scan process). If you press the **TRUNK** key while you are listening to one ID, the scanner will check to see if another ID in your Scan List is active. It will disregard the ID to which you were just monitoring.

TRUNK SEARCH: This mode works similarly to Trunk Scan. If the scanner finds any (nonlocked-out) ID when it checks the control channel, you will hear it. You will then hear any replies that follow within 2 seconds. After that the scanner will move on and not continuously search the system for additional IDs (on busy systems you would never leave the system if this were the case). If you press the **TRUNK** key while monitoring one ID, the radio will check if any other IDs are active (it will disregard the ID you just left), and if none are active, it will move on.

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bank.

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will check if any other IDs are active (it will disregard the ID you just left), and if none are

active, it will move on.

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EDACS® Reception

EDACS® Tracking

TrunkTracker III now allows tracking of EDACS® trunked systems. Until now these widely

used systems have been almost impossible to monitor with a conventional scanner. With

your TrunkTracker III listening to EDACS(s) is remarkably easy, and perhaps even easier

than conventional scanning.

EDACS systems use 'Transmission Trunking', which means that each transmission is assigned a new frequency. As the conversation moves through the system's frequencies, your TrunkTracker III automatically follows it.

This chart shows a 30 second sample of EDACS transmissions. Eight different talkgroups are using the system as their transmissions switch between the thirteen system frequencies.

Notice how the dotted line shows talkgroup 02-023 moving from channel to channel. Your 20-426 can clearly and automatically follow this talkgroup, or any other, as you select.

EDACS systems are organized in a logical way that keeps related talkgroups together. Your scanner is designed to take maximum advantage of this organization to make your scanning easy. It lets you zero in on just the part of the system you want to hear, whether it is an individual channel, an entire department or city.

Programming EDACS System Frequencies

When you program EDACS frequencies, it is critical that you store each one in the

CORRECT LOCATION. By the nature of EDACS systems this is necessary for tracking. This

often is not the frequency order, so you must be sure you have the right sequence. Sources

for this information can be found at scanner.Radio Shack.com.

An EDACSR Trunked system

This chart shows how talkgroups are organized within an EDACS system at the Agency level. The individual talkgroups cannot be shown at this scale because there are over 2000. However the chart can show the 16 Agencies in this example. The system is logical and easy to understand. EDACS systems are typically arranged in an outline structure.

The system users are given blocks of talkgroups. Sizes vary but most large cities and other agencies have blocks of 128 channels. Smaller cities have only 64 or 32 channels.

In this example, the County Sheriff is agency 01. The city

of Sullivan is Agency 03. Adams Hill and Matthew Junction share Agency 08.

Your scanner shows EDACS talkgroups in AFS (Agency-Fleet-Subfleet) format. This helps you see, at a glance, who you are monitoring. And with the partial-entry feature you can easily include nearby, related channels in the same Fleet or Agency. You can just as easily exclude entire unwanted Fleets and Agencies.

When in Search mode, with the system frequencies programmed, and your scanner locked to the control channel, you can select a desired city by keying in the Agency part of the AFS talkgroup. For example, in Hold mode you can select the entire city of Sullivan with 4 key presses 0, 3, (decimal key), SRCH key.

When you hear an interesting talkgroup, in Hold mode capture it to your Scan List by pressing E during the transmission.

Or hold on it by pressing HOLD/RESUME.

If you want to monitor the Sullivan Police Dispatch channel (which is talk group 03-062), press 0, 3, (decimal key), 0, 6, 2, the key. Your scanner can also work in decimal format.

Talkgroup 03-62 in decimal format is 402. But decimal format does not give you any information about the system hierarchy.

For example Sullivan, in decimal, uses channels from 384 to 511. This is not as easy to remember as Agency 03. But decimal is useful if you need to work from decimal talkgroup lists.

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Special EDACSR Features

AFS Partial Entry Feature

AFS is Radio Shack's method of encoding EDACS talkgroups.

AFS stands for 'Agency-Fleet-Subfleet'.

AFS talkgroups are used in all EDACS reception -- in ID Search, ID Lockout and ID Scan. The

powerful AFS Partial Entry feature designed into the 20-426 lets you use either a complete

talkgroup code, or just the most significant part.

This feature lets you expand or narrow searching and scanning to one of 4 levels. By entering only the desired part of an AFS talkgroup, you can select 128 talkgroups, 8

talkgroups, or a single talkgroup.

For example, you could program every talkgroup in a police department with just 4 key presses. You can use the AFS Partial Entry feature anywhere you need to specify EDACS talkgroup.

Your 20-426 can also enter or display EDACS talkgroups in decimal format (0-2047).

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the or key to select , then press E.

3. Use the or key to select , then press E.

4. Use the or key to select or , then press E.

You can use this feature to translate decimal talkgroups lists to the much more powerful AFS format.

Examples of how you might use AFS are shown above in the description of an EDACS

trunked system, and elsewhere in this manual. It is very easy to use. Be sure to become

familiar with AFS Partial Entry, and your scanning will become far more flexible and efficient.

EDACS ID Range Search

When the 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 Hold mode press 0, 1, (decimal key) then SRCH. Or if you want to search within

the 01 agency and 01 fleet, while trunking press 0, 1, (decimal key), 0, 1, then SRCH.

To stop the ID range search, press SRCH.

EDACS SCAT

With the EDACS SCAT feature, the data stream transmissions will be eliminated allowing

you to clearly monitor the voice communications on EDACS SCAT systems.

To monitor EDACS SCAT systems you only need to program the frequency in the Trunk

Tracking Programming mode. You do not need to enter group ID's.

Note: As EDACS SCAT is different from the other tracking feature, and it is not a feature

which the scanner tracks any ID, you do not need to program Talk Group ID's.

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LTRR Reception

LTRR Tracking

LTRR (Logic Trunked Radio) systems are trunking systems used primarily by business or

private communications service providers, such as taxicabs, delivery trucks, and repair

services. These systems encode all trunking information as digital subaudible data that

accompanies each transmission. Users on an LTR system are assigned to specific

talkgroups, which are identified by the radio as six digit numbers.

These numbers are in the form AHUUUU, where:

A= Area code (0 or 1)

H= Home repeater (01 through 20)

U= User ID (000 through 254)

When the scanner receives a transmission on a channel set to the LTR mode, it first

decodes the LTR data included with the transmission. In the ID Search mode, the scanner

stops on the transmission and displays the talkgroup ID on the display. In the ID Scan mode,

the scanner only stops on the transmission if the LTR data matches a talkgroup ID that you

have stored in the bank's talkgroup ID list and have not locked out.

LTR systems are frequently programmed so that each radio has a unique ID code.

Motorola Reception

Motorola Tracking

There are really two types of Motorola trunking systems. These are usually referred to as

Type I and Type II systems. Type I only occurs on some 800 MHz systems. All VHF and

UHF trunking systems use Type II.

One important distinction between these two systems is the amount of data transmitted by

each radio when its push-to-talk button (PTT) is pressed. Every radio in a trunked system is

assigned a unique ID so the central site computer can identify it when it's used.

Both Type I

and Type II systems place radios (or radio users) into groups, called talkgroups, and these talkgroups are also assigned unique IDs. Some radios have access to only one talkgroup, while others have access to many talkgroups. The talkgroup(s) each radio can access is called the radio's affiliation(s).

In a Type II system, when someone uses their radio, only the radio ID is transmitted when PTT is pressed, whereas in a Type I system the radio ID and its current affiliation are both transmitted when PTT is pressed.

Why the difference? Type II systems are slightly more advanced because the central computer maintains a database which is used to determine each radio's affiliation(s).

Changes to a Type II system are easier than Type I because the system manager only needs to update the database instead of reprogramming individual radios.

Another difference between the systems is that Type I systems are arranged in a Fleet-

Subfleet hierarchy. For example, its possible for a city using a Type I system to designate 4

Fleets, each with 8 Subfleets. Their fleets might be the Police Department, the Fire

Department, Utilities, and Administration. The Police may decide to further divide their fleet

into subfleets such as Dispatch, Tactical Operations, Detectives, North, South, East and

West Side Patrols, and Supervisors. All the available police radios would then be assigned

to one of the police subfleets. Determining the exact Fleet-Subfleet hierarchy for a particular

area is referred to as Fleet Map Programming, which is discussed further in this manual.

The disadvantage of a Type I system is that when PTT is pressed, the brief burst of data

must contain the radio's ID and its Fleet and Subfleet. This is three times the amount of data

a Type II system radio sends, and as a result Type I systems usually accommodate fewer

users than Type II systems.

Even though there are many Type II systems, Type I systems are still in use. There are also Hybrid systems which are a combination of both Type I and Type II. Your scanner defaults to monitor Type II systems, but its possible to select a Preprogrammed Fleet Map or create a Custom Fleet Map for your area. For VHF and UHF Type II trunking systems, you will need to know the base, spacing frequencies and offset channels. See page 45 for details.

Fleet Map Programming

If you have programmed a trunk tracking bank for Motorola, press TRUNK to start Multi-Track, and you will see user IDs on the display. Since the 20-426 defaults to Type II systems, all the IDs will appear as numbers. However, if you notice a mix of odd and even user IDs, for example 6477, 2560, 6481, 6144, 1167, etc., then you are probably monitoring either a Type I or Hybrid systems.

You may also notice that you are missing responses when you hold on an active ID. Unlike

Type II, Type I/Hybrid systems require a Fleet Map that sets specific Fleet-Subfleet

parameters. It is easy to select a Fleet Map for your scanner; what is not always easy is selecting or programming a map that matches your particular area.

There are 16 preset Fleet Maps listed in the Appendix that you can choose, and these are

usually a good place to start when setting up a Type I/Hybrid trunk tracking bank. If you

choose a preset map and still have difficulty following complete conversations, then you'll

have to program your own Fleet Map.

Selecting Preset Fleet Map

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.
 2. Use the or key to select (Type 1 system), then press E.
 3. Use the or key to select , then press E.
 4. Use the or key to select the map you want, then press E.
- E. The scanner returns to FLEET Map list item.

Note: You will now begin to see Type I Fleet-Subfleet IDs. For example, 100-12, 100-9, 000-12, 400-8, etc.

See "User Defined Fleet Maps in the Appendix" for more information about Type I IDs.

How do you know if the preset map is correct? You will have to listen to see if you're

following complete conversations. If not, you should try another preset map.

Programming a User Fleet Map

You may want to read "User Defined Fleet Maps" in the Appendix before programming a

Fleet Map. It contains a detailed explanation of Scanner Fleet Map Programming, as well as

a table listing the Fleet Map Size Codes.

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the or key to select (Type 1 system), then press E.

3. Use the or key to select , then press E.

4. Use the or key to select , then press E.

5. Use the or key to select the size code for the first block, then press E.

The next available block appears on the display.

6. Repeat step 5 until you have selected a size code for each block.

For details about each size code, see "Fleet Map Size Codes" in the Appendix.

Programming a Hybrid System

A Hybrid system is simply a Type I system with some blocks designated as Type II blocks.

To program a Hybrid system, follow the steps listed in "Programming a User Fleet Map" in

the previous section. However, if you want a block to be Type II, select Size Code .

When you begin searching a trunking bank with a Hybrid Fleet Map, you will see both types

of system IDs. That is, Type II IDs usually appear as an even number without a dash; Type I

IDs appear as a three or four digit number, followed by a hyphen, followed by a one or two

digit number.

Setting the Base, Spacing Frequencies and Offset Channel for Motorola

VHF/UHF Trunked Systems

To properly track Motorola VHF and UHF trunked systems, you must enter what is known as

the Base, Spacing Frequencies and Offset Channels for each system.

To find these out, check the scanner. Radio Shack.com or www.trunktracker.com and other

web sites and frequency resources.

To enter the Base, Spacing Frequencies and Offset Channel: (You can set up to three sets

of these, but almost all systems only use one set)

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the or key to select (Motorola Type2 VHF) or (Motorola Type2 UHF), then press E.

3. Use the or key to select , then press E.

4. Use the keypad to enter Configuration Block Number(1-3).

5. Use the keypad to enter a new Base Frequency, then press E.

6. Press the key and select for entering the Spacing Frequency.

7. Use the keypad to enter a new Spacing Frequency, then press E.

Note: You can only enter within a range of 5-100 kHz, and 5 or 12.5 kHz multiples.

8. Press the key and select for entering the Offset Channel.

9. Use the keypad to enter a new Offset Channel, then press E.

Note: . You can only input within a range of 380-759.

. If the system is not tracking properly, you may need to try a new Base Frequency or Offset Channel, or you may be missing frequencies from the system.

. You can set up to three Base, Spacing and Offsets for Motorola VHF/UHF trunked systems.

Toggling the Status Bit

On Type II trunking systems there is a method by which specialized types of communications

utilize unique talkgroup numbers. An emergency call will occur on a unique talkgroup from its

primary assignment, for example. Because the 20-426 defaults to Status-Bit ON

mode, you

never need to worry about missing these transmissions. If you have programmed talkgroup

33264 into Scan List memory, for example, and there is an emergency call within the group,

you will hear it on 33264.

The only time you may wish to turn Status Bits OFF is if you're trying to figure out the proper

Fleet Map of a Type I trunking system.

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the **or** key to select (Motorola TYPE2 800MHz), (Motorola Type2 VHF) or (Motorola Type2 UHF), then press E.

3. Use the **or** key to select , then press E.

4. Use the **or** key to select or , then press E. The scanner returns to Status Bit list item.

Control Channel Only Mode

When this function is activated, trunking is performed using Control Channel data only.

Voice channel (also known as "DATA channel") frequencies do not have to be programmed

into memory. This feature only applies to Motorola 800 MHz systems.

1. Press and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the **or** key to select (Motorola Type2 800MHz) or (Motorola Type1 800 MHz), then press E.

3. Use the **or** key to select , then press E.

4. Use the **or** key to select a plan from 4 frequency plans, then press E. The scanner returns to Control Channel Only

list item.

Note: You must choose a plan before you begin to Control Channel Trunk (Only when 800

MHz system is selected).

When you deselect Control Channel only mode, appears on the display.

Read the descriptions of the Plan 1~4 for details on which may apply for you.

PL1 (plan 1): This plan is the most common. Use Plan 1 if the last three digits of ALL the

frequencies in use end in one of the following three digits: 125, 375, 625, or 875 (example:

856.1125, 860.7375, 859.6625, 855.8875).

PL2 (plan 2): If the last three digits of frequencies are less than 860.000 and end in one of the following three digits (125, 375, 625, or 875) and if ANY other frequencies end in (000, 250, 500, or 750) use Plan 2.

PL3 (plan 3): If the last three digits of ALL the frequencies in use end in one of the following three digits (000, 250, 500, or 750) use Plan 3.

PL4 (plan 4): If the last three digits of frequencies are less than 866.0000 and end in one of the following three digits (000, 250, 500, or 750) and if ANY other frequencies end in (125, 375, 625, or 875) use Plan 4.

Of course you will know the Control Channel frequency itself so that will help you determine the proper plan. If you try one plan and you receive errors (such as the scanner jumping to channels that are obviously not part of the system), you should try an alternate Plan.

Note: . You can assign a Fleet Map to TYPE 1 or Hybrid systems scanned in Control

Channel Only mode by going into the Trunk Programming mode. You can also program

IDs, set a delay, and all the other parameters for systems scanned in this mode. You can then either search the system to find new IDs or you can program

IDs into memory and then scan them.

. The Control Channel Only feature is an extremely powerful tool. You can use it to

determine if systems you are familiar with may have added new frequencies or you

can use it to discover new systems by simply finding active control channels (using

Search) and then programming them for Control Channel operation only.

Remember that this feature only applies to Motorola 800 systems, that you do have

to set the proper system type (800 MHz of Type 1 or Type 2) and you do have to program the Control Channel frequency into memory and identify the frequency as

trunked in the Trunk Programming mode.

Disconnect Tone Detect Option (End Code)

When this function is disabled, the radio 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 and hold TRUNK for 1.5 seconds and select the bank you want to change.

2. Use the **or** key to select (Motorola TYPE2 800MHz), (Motorola Type2 VHF) or (Motorola Type2 UHF), then press E.

3. Use the **or** key to select , then press E.

4. Use the **or** key to select or , then press E.

Note: Set the SQL control so that you hear a hissing, and the scanner will remain on the voice channel (even when a disconnect tone is transmitted or there is no signal at all).

Remote Interface

You can communicate and program your 20-426 in numerous ways with peripheral devices using a Remote Interface Cable port. This radio offers the following modes:

. PC Control mode

Program and control your scanner from a PC using Radio Shack's 20-426 Scanner Software.

. Clone mode

Clone all the frequencies, trunking talkgroups, and fleet maps programmed into your scanner to another 20-426 scanner or another 20-426.

PC Control Mode

To connect Scanner to PC:

Plug the scanner end of the RS232C straight cable into the remote port which is on the rear

of the scanner. Plug the other end of the cable (DB-9 serial connector) into a personal

computer's serial port. A few PC's may require an adapter, most will not. Of course, make

sure your PC is turned ON.

To program your scanner:

You can program and control your scanner remotely from a PC using Radio Shack's 20-426

Scanner software.

After connecting the scanner to a PC, turn the scanner ON.

To use the Remote (PC Control) mode, you must install Radio Shack's 20-426 Scanner software

and use as directed. Make sure that your scanner is connected to the serial port of the PC

using the RS232C straight cable.

Start Remote Mode and Change Transfer Speed:

1. Press and hold RMT for 2 seconds to activate the Remote mode.

2. Select the transfer speed except for , then press E and the scanner will start Remote mode.

A unique feature of the 20-426 is that all the front panel keys on the radio remain operational in Remote mode.

For information on purchasing 20-426 Scanner software to program and control your 20-426,

you can contact the following:

Radio Shack Parts Department (800) 554-3988

(Hours are from 8:00 a.m. to 5:00 p.m. Central Time

Monday through Friday)

scanner.Radio Shack.com

PC Control Parameter

For your information:

Transfer speed : 9600/19200/38400/57600 bps (adjustable)

Start/Stop bit : 1 bit, 1 bit

Data Length : 8 bit

Parity Check : None

Code : ASCII code

Flow Control : None

Return Code : Carriage Return only

Clone Mode

You will need to purchase a RS232C straight cable a null modem adapter.

RS232C straight

cables are available as male to male or male to female. Even if the RS232C straight cable

you buy already has the male to male connectors, you will still have to have the null modem

adapter. On the next page you will see the pin connections that are internal to a standard

device. (These items are available at your local electronics stores.)

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you buy already has the male to male connectors, you will still have to have the null modem

adapter. On the next page you will see the pin connections that are internal to a standard

device. (These items are available at your local electronics stores.)

To connect the Scanner to Scanner:

Plug the male end of the RS232C straight interface cable into the remote port on the rear of one of the two scanners. Then connect the DB-9 to DB-9 null modem adapter to the cable. Plug the other end of the null modem adapter into the other scanner (DB9 Gender Changers are also available at your local electronics store.).

You can clone all of the programming of one 20-426 into another, including frequencies,

talkgroup IDs, delay settings, etc. After connecting the two scanners, turn the radios ON.

Prepare each scanner for clone mode as follows.

After connecting the two scanners, make sure the scanners are turned off.

1. While you press and hold E, turn the radio on for each scanner.
2. Determine the scanner which has the frequency data that you want to

transfer. This one must be set up as the "First Unit", and the other must be set as the "Clone Unit".

3. On the scanner that is the "Clone Unit", use the **or** key to select , then press HOLD/RESUME.

4. On the scanner that is the "First Unit", use the **or** key to select , then press HOLD/RESUME.

Care and Maintenance

General Use

- . Turn the scanner OFF before disconnecting the power.
- . Always write down the programmed frequencies in the event of memory loss.
- . If memory is lost, simply reprogram each channel.

The display shows 000.0000 in all channels when there has been a memory loss.

Location

- . Do not use the scanner in high-moisture environments such as the kitchen or bathroom.
- . Avoid placing the unit in direct sunlight or near heating elements or vents.
- . If the scanner receives strong interference or electrical noise, move it or its antenna away from the source of the noise. If possible, a higher elevation may provide better reception.

Cleaning

- . Disconnect the power to the unit before cleaning.
- . Clean the outside of the scanner with a mild detergent.

To prevent scratches, do not use abrasive cleaners or solvents. Be careful not to rub the

LCD window.

- . Do not use excessive amounts of water.

Repairs

- . Do not attempt any repair. The scanner contains no user serviceable parts. Contact the

Radio Shack Customer Service Center or take it to a qualified repair technician.

Birdies

- . All radios can receive birdies (undesired signals). If your scanner stops during Scan mode

and no sound is heard, it may be receiving a birdie. Birdies are internally generated

signals inherent in the electronics of the receiver.

Press L/O to lockout the channel, and then press HOLD/RESUME to resume

Scanner won't work.
Improper reception.
Scan won't stop.
Scan won't start.
Weather Scan won't work.
Radio transmissions (conversations) are cutting in and out in Highway mode.

If you experience difficulty while in TrunkTracker mode, try the following steps. If you still cannot get satisfactory results while using your scanner or if you want additional information, please call or write the Radio Shack Parts and Service Division. The address and phone number is listed in the warranty at the end of this manual. If you would like immediate assistance, please call Customer Service at (800)297-1023. If you have internet access, you can visit scanner.RadioShack.com for additional information.

Problem Suggestion

1. Missing the Data Frequency.

2. Change to a Type 1 Scanner setup.

Review Fleet Map Programming on page 45.

1. No IDs have been programmed.

2. The IDs you have stored are not active.

1. Adjust the squelch for Trunking mode - refer to page 29.

2. Missing the frequency used for the data channel.

Check your frequency list.

1. Change a Type 1 scanner setup.

Review Fleet Map Programming on page 44.

2. Try another Preset Fleet Map or Program your own Fleet Map.

3. Check to see that all of the system's frequencies have been entered.

1. May be a telephone interconnect call, which are intentionally blocked by your scanner.

2. The ID on your display is not active.

1. Logical channel numbers (frequencies) for the system are not programmed in the correct order. Check frequency resources and reprogram.

2. Not all frequencies for the system are programmed.

Check frequency resources.

Scanner won't track.

Scanner won't stop
during Scan List mode.
Scanner will not acquire
data channel.
Missing replies to
conversations.
Channel Activity
Indicators are flashing
but no sound is heard.
Scanner not tracking an
EDACS system properly.

Specifications

Certified in accordance with FCC Rules and Regulations Part 15, Subpart C, as
of date
of manufacture.

Channel: 1000

Banks: 10 (50 channels each)

Service Bands: 9 preprogrammed search bands
(including the NOAA and Canada Weather Service band)

Frequency Range: 25.0-28.0 MHz Petroleum Prod., CB Class D channels,
Business and Forest Products

28.0-30.0 MHz 10 Meter Amateur Band

30.0-50.0 MHz VHF Low Band

50.0-54.0 MHz 6 Meter Amateur Band

108-137 MHz Aircraft Band

137-144 MHz Military Land Mobile

144-148 MHz 2 Meter Amateur Band

148-174 MHz VHF High Band

400-420 MHz Federal Government

420-450 MHz 70 cm Amateur Band

450-470 MHz UHF Standard Band

470-512 MHz UHF T Band

806-956 MHz 800 Band

Operating Temperature: E0 °C to +60 °C (-4 °F to +140 °F)

Scan Rate: 100 channels per second (conventional mode)

Search Rate: 100 steps per second (Normal Search)

300 steps per second (Turbo Search)

Audio Output: Maximum 2.6W (2.2W normal @ 10% THD)

Internal Speaker: 8 ohms (57 mm outer diameter)

Power Requirements: AD140U AC Adapter (12V DC, 500mA)

Antenna: Telescopic Antenna (included)

Window Mount Antenna (included)

Antenna Jack: BNC type

External Jacks: External Speaker (EXT.SP.) (3.5 mm)

DC 12 V Power Jack, (center is positive)

Remote Control (REMOTE) Jack (DB-9)

Size: 7.06 in. (W) x 6.10 in. (D) x 2.44 in. (H)

176.5mm (W) x 152.5mm (D) x 50.8mm (H)

Weight: 1.1 kg (2 lbs 7 oz.)

Features and specifications are all subject to change without notice.

Limited Warranty

RadioShack Corporation

Fort Worth, Texas 76102

Cat. No. 20-426

09A04

Printed in China

UBZZ01331ZZ

NWR SAME

During weather scanning, press [HOLD] to go to hold mode.

Press F+[WX ALT] to enable NWR SAME alert.

When WX alert is on, "ALERT" LED is displayed ON. And the audio mute is set on.

Press F+[WX ALT] to turn off NWR SAME alert.

If the scanner receives a SAME event code from the local weather service, it sounds an alert and displays the description for any alert received.

And then audio mute is off. And "ALERT" LED is blinking.

The scanner display in channel area the following message;

Warning : "L1"

Watch : "L2"

Advisory : "L3"

Test : "TST"

WX alert (1050 Hz) : WXA

During an alert, press any key, then an alert stops. If you do not press any key, then the scanner continues sounding the alert beep.

Although alert beep (warning beep, watch beep ,advisory beep) is sounded at short intervals for 5 minutes, after that, the emergency beep will be sounded beep at intervals of 10 sec.

Programming FIPS code

To specify a county, SAME uses a standard established by the US Census bureau, called FIPS. The format of a FIPS code is:

DSSCCC

Where

D = 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 (48=Texas; 439=Tarrant County).

Some counties are further subdivided, in which cases, the first digit will be 0 for all subdivisions in the county and each subdivision will be labeled 1-9.

To program your scanner to alert you when the weather service issues an alert, you must set the scanner to the alert mode, and then leave the scanner monitoring the weather service. You cannot scan and monitor for weather alerts at the same time.

To limit alerts to a specific area, you must also program in the FIPS code(s) for the area(s) you want to receive alerts for. The scanner can be set to either alert for all areas, or only the areas you have programmed.

Programming FIPS

To program weather alert operation:

During weather scan hold mode, press F+[E], go to FIPS programming mode.

If the scanner is set to alert for all FIPS. "ALLF I PS" is displayed.

If the scanner is set to alert only the area you have programmed, "F1" is displayed.

Press [] or [] to move FIPS code "F1" to "F15".

If FIPS code is no programmed, "-----" is displayed.

Input FIPS code by numeric key.

Press [./CLR] to cancel inputted FIPS code.

Press [E] to store FIPS code.

Press [0], [E] to clear FIPS code. "-----" is displayed.

If an invalid value has been inputted, FIPS code will be cleared.

To set to alert all FIPS, press [] or [] to move "ALL FIPS".

And press [E]. Then go to WX hold mode.

To set to alert only the area you have programmed, press [] or [] to move "F1" to "F15". And press [E]. Then go to WX hold with WX alert.

Press [HOLD] to exit this mode.

SIGNAL STALKER

Signal Stalker

Your scanner's Signal Stalker feature lets you set the scanner so it detects then displays the frequency of a nearby strong radio transmission. You can set the scanner so Signal Stalker works "in the background" while you are scanning other frequencies, turn off normal scanning while Signal Stalker is working, or turn off Signal Stalker and use the scanner normally. You can set the scanner so it alerts you when Signal Stalker finds a frequency. You can also set the frequency band where you want the scanner to look for transmissions.

Notes:

- . Signal Stalker works well for locating the source of strong local transmissions such as mobile and handheld two-way radios in areas with no other strong transmission sources. However, if you are in an area with many transmission sources (such as pager radio transmitters, multiuse radio towers, traffic control devices, etc.), Signal Stalker might not find the transmission you are searching for, or it might find a transmission other than the one you are searching for. You can screen unwanted transmissions by pressing FUNC + L/O to lock them out. See "Locking Out Frequencies" on Page 49 for more information.
- . Signal Stalker cannot detect satellite dishes or any transmitter with a frequency above or below the frequency ranges listed under "Setting the Signal Stalker Options" on Page 32.
- . Signal Stalker works better with some types of

transmissions than others. It 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.

Setting the Signal Stalker Options

Press FUNC then press and hold for 2 seconds. One of the following signal stalker options appears.

S-S.bnd: Lets you select the signal stalker band.

S-S.Alt: Lets you select the signal stalker alert settings.

“S-S.PS” : Setting of pager screen

Repeatedly press or to select the option you want, then press E.

If you selected S-S.bnd, one of the following band names appears.

bnd Lo: VHF Low Band (25.0000 - 54.0000 MHz)

bnd Air: AIR Band (108.0000 - 136.9875 MHz)

bnd Hi: VHF High Band (137.0000 - 174.0000 MHz)

bnd UHF: UHF Band (406.0000 - 512.0000 MHz)

bnd 800: 800MHz Band (806.0000 - 956.0000 MHz)

If you selected S-S.Alt, skip to Step .

Repeatedly press or until the band you want to search appears, then press E to select it.

Otherwise, press ./CLR if you do not want to select it.

The scanner displays the following options.

Lo On or Lo OFF

Air On or Air OFF

Hi On or Hi OFF

UHF On or UHF OFF

800 On or 800 OFF

Repeatedly press or until the option you want appears, then press E to select it.

Otherwise, press ./CLR if you do not want to select it. Then skip to Step .

Press E while S-S.Alt appears. One of the following alert options appears.

ALt bEEP: The scanner beeps when a signal stalker signal is detected.

ALt Light: The scanner flashes the display backlight when a signal stalker signal is detected.

ALt bP-Lt: The scanner flashes the display backlight and beeps when a signal stalker signal is detected.

ALt OFF: The scanner does not provide any alert when a signal stalker signal is detected.

Repeatedly press or until the option you want appears, then press E to select it.

Otherwise, press ./CLR if you do not want to select it.

When you select the option, press ./CLR to exit the option mode. Otherwise, to continue normal scanning, repeatedly press FUNC until disappears then press SCAN.

F

Using Signal Stalker

To turn on Signal Stalker, turn SQUELCH fully clockwise, then press FUNC + once except in Weather service, band select, state select, or program mode. appears. Every 2 seconds, the scanner searches for frequencies in the range you specified in "Setting the Signal Stalker Options" on Page 32.

Note: To continue scanning normally while Signal Stalker is working, simply press SCAN.

When the scanner finds a frequency, it sounds the alert you specified in "Setting the Signal Stalker Options" on Page 32, and Found flashes. Press any key to confirm the displayed frequency. Press SCAN to resume scanning. Or press or while the frequency and appear to select the band where you are searching.

To turn on Signal Stalker and turn off normal scanning, press FUNC + twice. and - - - - - flash.

To turn off Signal Stalker and turn on normal scanning, press FUNC + three times.

disappears.

SKYWARN

Skywarn

The Skywarn function lets you jump directly to the last channel in memory (Channel 200) from any mode by pressing FUNC + . The scanner goes into scan hold mode and starts receiving transmissions in the last channel. If no frequency is programmed in the last channel, No Prg appears and the scanner sounds an error tone.

About Skywarn

Skywarn is an organized group of trained weather observers. 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 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
 - . tornadoes
-
- . high water areas
 - . downed power lines
 - . other emergency conditions that affect life or property

Listening to Skywarn broadcasts makes it easy to quickly find out about and prepare for inclement weather conditions in your immediate area, even before your local NOAA weather broadcast and local TV or radio station can announce them.

Enter the local Skywarn frequency for your area into Channel 200 on your scanner, then listen to Skywarn first when severe weather threatens.

Listen to NOAA: for weather alerts and warnings, watch box notices, and weather forecasts

Listen to Skywarn: to hear trained observers in your vicinity call in official reports to a "net control" station who relays those reports to NOAA and other emergency agencies.

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.

Most importantly, you get Skywarn reports directly from trained observers - that means you get them several minutes before they can be relayed for broadcast by NOAA and as much as 5 or 10 minutes sooner than you will hear them on local TV or radio! Those few minutes can be worth a lot when it comes to deciding if your family needs to take cover.

PC INTERFACE

Wired Programming

You can transfer programming data to your scanner using your PC and an optional interface cable and software (available at your local RadioShack or www.radioshack.com).

Note: If the scanner receives no data from the PC for more than 20 seconds, T-Err appears and wired programming stops.

Make sure your scanner is turned off.

Connect the interface cable to your computer then connect the other end of the cable to PC/IF on the side of the scanner.

Install the software to your computer and run the program.

To set up the program, click on Tools, select Configuration, and select PRO-83 (if necessary).

Turn on the scanner. The scanner automatically goes into the wired programming mode. PGM and WirEd appear. Then send the data from the PC.

Data frame numbers being received appear.

When the scanner has successfully received all data, End appears. If the scanner received an

error while receiving data, End, d-Err, and its frame number appear. If the scanner received a communication error while receiving data, C-Err indicates the packet number where the error occurred. If the scanner received a checksum error while receiving data, S-Err indicates the packet number where the error occurred. If the scanner received a length field error while receiving data, L-Err indicates the packet number where the error occurred.

150 CH PREPROGRAMMED FREQUENCY

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

The FCC Wants You to Know

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the *FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult your local RadioShack store or an experienced radio/TV technician for help.
- If you cannot eliminate the interference, the FCC requires that you stop using your scanner.

Changes or modifications not expressly approved by RadioShack may cause interference and void the user's authority to operate the equipment.

You must use shielded interface cables with this equipment.

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