

PSR-100

200 Channel VHF/Air/UHF Handheld Scanner

Owner's Manual



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FEATURES

Your new PSR-100 200 Channel VHF/Air/UHF Handheld Scanner lets you scan conventional transmissions, and is preprogrammed with search banks for convenience. By pressing a one touch search key, you can quickly search those frequencies most commonly used by public service and other agencies without tedious and complicated programming.

This scanner gives you direct access to over 25,000 exciting frequencies, including those used by police and fire departments, ambulance services, aircraft, and amateur radio services, and you can change your selection at any time.

Your scanner also has these special features:

Spectrum Sweeper – a powerful new tool for you to rapidly detect, monitor and store frequencies for nearby radio transmissions.

One-Touch Service Search Banks — let you search preset frequencies in separate marine, fire/police, aircraft, ham, and weather bands, to make it easy to locate specific types of calls.

Display Backlight — makes the scanner easy to read in low-light situations.

Lockout Function — lets you set your scanner to skip over specified channels or frequencies when scanning or searching.

Ten Channel-Storage Banks — you can store 20 channels in each bank (20 total channels), letting you group channels so you can more easily identify calls.

Tune — lets you tune for new and unlisted frequencies starting from a specified frequency.

SAME/FIPS Weather Alert — displays the weather event for the specific cities or counties you choose so you can hear the alert tone.

Memory Backup — keeps the frequencies stored in memory for an extended time even without internal batteries.

Scan Delay — delays scanning for about 2 seconds before moving to another channel, so you can hear more replies that are transmitted on the same channel.

Priority Channel — lets you set the scanner to check one channel every 2 seconds so you do not miss transmissions.

Data Cloning — lets you transfer the programmed data to another PSR-100 scanner.

Key Lock — lets you lock the scanner's keys to help prevent accidentally changing the scanner's programming.

Liquid-Crystal Display — makes it easy to view and change programming information.

Supplied Flexible Antenna with BNC Connector — provides good reception of strong local signals. You can connect an external antenna with a BNC connector to the scanner for improved reception of distant/weaker signals.

Three Power Options — you can power the scanner from internal (rechargeable or non-rechargeable batteries) or external AC or DC power (using an supplied AC or optional DC adapter).

Your PSR-100 scanner can receive these bands:

Frequency Range	Types of Transmissions
29–54 MHz	10-Meter Ham, VHF Lo, 6-Meter Ham
108–136.9875 MHz	Aircraft
137–174 MHz	Military Land Mobile, 2-Meter Ham, VHF Hi
380–512 MHz	UHF Aircraft, Federal Government, 70-cm Ham, UHF Standard, UHF "T"

Note: See "Specifications" on Page 31 for more information about the scanner's frequency steps.

THE FCC WANTS YOU TO KNOW

This equipment has been tested and found to comply with the limits for a scanning receiver, pursuant to *Part 15 of the FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if 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.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with *Part 15 of the FCC Rules*. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

SCANNING LEGALLY

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

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

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

This scanner has been designed to prevent reception of illegal transmissions. This is done to comply with the legal requirement that scanners be manufactured so as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that are illegal to monitor. Doing so could subject you to legal penalties.

We encourage responsible, safe and legal scanner use.

In some areas, mobile use of this scanner is unlawful or requires a permit. Check the laws in your area. It is also illegal in many areas to interfere with the duties of public safety officials by traveling to the scene of an incident without authorization.

PREPARATION

POWER SOURCES

You can power your scanner from any of three sources:

- internal non-rechargeable batteries or rechargeable batteries (not supplied – see “Using Batteries”).
- standard AC power (with a supplied AC adapter – see “Using AC Power” on Page 8).
- vehicle power (with an optional DC adapter – see “Using Vehicle Battery Power” on Page 9).

Notes:

- Connecting an AC or DC adapter to the scanner disconnects internal batteries when you use the supplied non-rechargeable battery holder (black), but it does not disconnect internal batteries when you use the supplied rechargeable battery holder (yellow).
- If you install the rechargeable battery holder, you can operate the scanner and recharge the rechargeable batteries at the same time. See “Using Batteries” and “Charging Rechargeable Batteries” on Page 8.
- If the scanner stops working properly after connecting it to power, try resetting it. See “Initializing the Scanner” on Page 29).

USING BATTERIES

You can power the scanner with four AA batteries (not supplied). For the longest operation and best performance, we recommend alkaline batteries.

You can use either the supplied non-rechargeable battery holder (black), or the supplied rechargeable battery holder (yellow). If you use the rechargeable battery holder, we recommend nickel-metal hydride (Ni-MH) batteries.

Warning: Never install non-rechargeable batteries in the rechargeable yellow battery holder. Non-rechargeable batteries can get hot or explode if you try to recharge them.

Note: You must charge rechargeable batteries before you use them the first time. See “Charging Rechargeable Batteries” on Page 8.

Cautions:

- The battery holder fits only one way. Do not force it.
- Use only fresh batteries of the required size and recommended type.
- Always remove old or weak batteries. Batteries can leak chemicals that destroy electronic circuits.
- Do not mix old and new batteries, different types of batteries (alkaline, or rechargeable), or rechargeable batteries of different capacities.
- If you do not plan to use the scanner with batteries for a month or longer, remove the batteries. Batteries can leak chemicals that can destroy electronic parts.

Follow these steps to install batteries.

1. Press in on the battery compartment cover on the back of the scanner and slide the cover down to remove it.
2. Pull the battery holder out of the battery compartment.
3. If you are using non-rechargeable batteries, place them into the black holder, as indicated by the polarity symbols (+ and –) marked on the holder. Or, if you are using rechargeable batteries, place them into the yellow holder, as indicated by the polarity symbols (+ and –) marked on the holder.
4. Place the battery holder into the battery compartment.
5. Replace the cover.

When battery power is low, **B** appears and the scanner beeps continuously. When battery power is depleted, the scanner turns itself off. Replace all four non-rechargeable batteries, or recharge the rechargeable batteries. See “Charging Rechargeable Batteries” on Page 8.

Warning: Always dispose of old batteries promptly and properly. Do not burn or bury them.

CHARGING RECHARGEABLE BATTERIES

Your scanner has a built-in charging circuit that lets you charge nickel-metal hydride (Ni-MH) or nickel cadmium (Ni-CD) rechargeable batteries (not supplied) while they are in the scanner. To charge rechargeable batteries, you need to use a supplied AC adaptor. To charge batteries with a DC adaptor from a DC power source, you must use a 9VDC at least 400mA adaptor with 4.75mm outer/1.7mm inner plug.

It takes about 16 hours to recharge fully discharged 1600mAh Ni-MH rechargeable batteries. You can operate the scanner while recharging the rechargeable batteries, but charging takes longer.

Notes:

- The scanner can also charge Ni-Cd batteries. 600mAh batteries require 6 hours and 850mAh batteries require 8 hours to charge.
- When you charge Ni-Cd batteries, do not over charge them. Overcharging shortens battery life.
- Rechargeable batteries last longer and deliver more power if you let them fully discharge once a month. To do this, use the scanner until **B** appears. Then fully charge the rechargeable batteries.

USING AC POWER

You can power the scanner using a supplied AC adaptor.

Cautions:

- ! You must use a supplied AC adaptor.
- Always connect the AC adaptor to the scanner before you connect it to AC power. When you finish, disconnect the adaptor from AC power before you disconnect it from the scanner.
- The correct orientation for the enclosed power adaptor is in a vertical or floor-mount position.

To power the scanner using an AC adaptor, connect the plug into the scanner's PWR DC 9V jack. Then connect the AC adaptor to a standard AC outlet.

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

USING VEHICLE BATTERY POWER

You can power the scanner from a vehicle's 12V power source (such as cigarette-lighter socket) using a 9VDC at least 400-mA adaptor with 4.75mm outer/1.7mm inner plug. Its center tip must be set to positive and its plug must fit the scanner's PWR DC 9V jack. Using an adaptor that does not meet these specifications could damage the scanner or the adaptor.

Cautions: Always connect the DC adaptor to the scanner before you connect it to the power source. When you finish, disconnect the adaptor from the power source before you disconnect it from the scanner.

To power the scanner using a DC adaptor, connect the plug into the scanner's PWR DC 9V jack. Plug the other end of the DC adaptor 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.

CONNECTING THE SUPPLIED ANTENNA

To attach the supplied flexible antenna to the antenna jack on top of your scanner, align the slots around the antenna's connector with the tabs on the antenna jack. Press the antenna down over the jack and turn the antenna's base clockwise until it locks into place.

Connecting an Outdoor Antenna

The antenna connector on your scanner makes it easy to use the scanner with a variety of antennas, such as an external mobile antenna or outdoor base station antenna.

Always use 50 Ohm coaxial cable, such as RG-58 or RG-8, to connect an outdoor antenna. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. If the antenna cable's connector does not have a BNC connector, you will also need a BNC adaptor.

Follow the installation instructions supplied with the antenna, route the antenna cable to the scanner, then connect it to the antenna jack.

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

CONNECTING AN EARPHONE/HEADPHONES

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

Listening Safely

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

- Set the volume to the lowest setting before you begin listening. After you begin listening, adjust the volume to a comfortable level.
- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Once you set the volume, do not increase it. Over time, your ears adapt to the volume level, so a volume level that does not cause discomfort might still damage your hearing.

Traffic Safety

Do not wear an earphone or headphones with your scanner when operating a motor vehicle or riding a bicycle in or near traffic. Doing so can create a traffic hazard and could be illegal in some areas.

If you use an earphone or headphones with your scanner while riding a bicycle, be very careful. Do not listen to a continuous transmission. Even though some earphones and headphones let you hear some outside sounds when you listen at normal levels, they still can present a traffic hazard.

CONNECTING AN EXTENSION SPEAKER

In a noisy area, an amplified extension speaker (not supplied), might provide more comfortable listening. Plug the speaker cable's 1/8 inch (3.5 mm) mini-plug into your scanner's  jack.

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

USING THE BELT CLIP

You can use the belt clip attached to the back of the scanner for hands-free carrying when you are on the go. Slide the belt clip over your belt or waistband.

To remove the belt clip, pull the top out and slide the clip upward.

ABOUT YOUR SCANNER

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

A *frequency* is the receiving signal location (expressed in kHz or MHz). To find active frequencies, you can use the search function.

You can also search the *One Touch Search Banks*, which are preset groups of frequencies categorized by type of service.

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

ABOUT THE KEYPAD

Here is a brief overview of your scanner's keys and their functions.



 – Activates the Spectrum Sweeper function.

PSE – Stops or restarts search or tune.

MAR – Lets you search the scanner's preprogrammed marine band.

FD/PD – Lets you search the scanner's preprogrammed fire/police band.

AIR – Lets you search the scanner's preprogrammed aircraft band.

HAM – Lets you search the scanner's preprogrammed amateur radio band.

WX/ – Lets you search the scanner's preprogrammed 7 weather channels, or jumps to a Skywarn channel you programmed (channel 200).

SCAN/MAN – Scans any preprogrammed channels or stops scanning and lets you directly enter a channel number.

PRI/ALERT – Turns on and off the priority feature; turns the SAME standby mode on and off.

Number Keys – Each key has single-digit (0 to 9) and a range of numbers. Use the range of numbers above the key (21–40 for example) to select the channel in a channel-storage bank.

TUNE/CLEAR – Lets you tune a frequency along with ▲ or ▼ or, clears an incorrect entry.

▲ / ▼ – Searches up or down for active frequencies or selects the direction when scanning channels.

L/O RVW/L/O – Reviews locked-out frequencies; lets you lock out selected channels or frequencies.

🔑 / 🔦 – Locks (and unlocks) the keypad to prevent accidental entries; turns the backlight on and off.

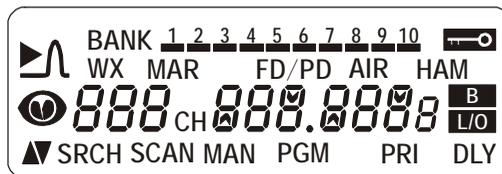
PGM – Programs frequencies into channels.

DELAY / • – Programs a 2-second delay for the selected channel; enters a decimal point.

ENT (enter) – Enters frequencies into channels.

A LOOK AT THE DISPLAY

The display has indicators that show the scanner's current operating status. This quick look at the display will help you understand how your scanner operates.



▶ — Appears when the scanner sweeps the frequencies to rapidly detect, monitor and store it for nearby radio transmissions.

🔑 — Appears when you lock the keypad.

BANK – Appears with numbers (1–10) to indicate the scan bank. Bank numbers with a bar under them show which banks are turned on for scanning (see “Understanding Banks” on Page 14).

WX – Indicates that the scanner is active for weather channels.

MAR – Indicates that the scanner is active for marine bank.

FD/PD – Indicates that the scanner is active for fire/police bank.

AIR – Indicates that the scanner is active for aircraft bank.

HAM – Indicates that the scanner is active for amateur radio bank.

 – Appears when you hear the skywarn channel.

 /  – Indicates the search or scan direction.

CH – Appears with digits (1–200) or P to show which channel the scanner is tuned to.

 – Appears when the batteries are low.

L/O (lockout) – Appears when you manually select a channel that was previously locked out during scanning or when you review a locked-out frequency.

SRCH – Appears during service bank searches.

SCAN – Appears when the scanner scans channels.

MAN – Appears when you manually select a channel.

PGM – Appears when you program frequencies into the scanner's channels.

PRI – Appears when the priority feature is turned on.

DLY – Appears when you program a 2-second delay.

ALL CH L-out – Appears when you lock out the all marine channels.

b X Ch-FULL – Appears when you try to enter a frequency during a search when all displayed banks channels are full.

b X StorE – Appears when you program the frequency into desired vacant channel.

CLOnE – Appears when the scanner stays in the clone mode.

-dUPL- – Appears when you try to store a frequency that is already stored in another channel.

Error – Appears when you make an entry error.

FLo ALL-CL – Appears when you remove all the locked-out frequencies during a FD/PD, AIR, HAM bank, or spectrum sweeper.

L-r – Appears when you review the locked-out frequencies.

L-O Fr-FULL – Appears when you try to lock out a frequency during a FD/PD, AIR, HAM, or spectrum sweeper when 50 frequencies are already locked out.

oFF tonE – Appears when you turn the key tone off.

On tonE – Appears when you turn the key tone on.

P – Appears when the scanner is tuned to the priority channel.

-t- – Appears during a tune mode.

MAR – Appears about 2 seconds when you press **MAR** key.

FlrE – Appears about 1 second when you press **FD/PD** key.

PoLICE – Appears about 1 second when you press **FD/PD** key.

Air – Appears about 2 seconds when you press **AIR** key.

HAM – Appears about 2 seconds when you press **HAM** key.

WEaThEr – Appears about 2 seconds when you press **WX** key.

Lo VHF – Appears when you turn on the low VHF sub-bank while fire/police bank searching.

Hi VHF – Appears when you turn on the high VHF sub-bank while fire/police bank searching.

UHF – Appears when you turn on the UHF sub-bank while fire/police bank searching.

10 M – Appears when you turn on the 10m sub-bank while HAM bank searching.

6 M – Appears when you turn on the 6m sub-bank while HAM bank searching.

2 M – Appears when you turn on the 2m sub-bank while HAM bank searching.

70CM – Appears when you turn on the 70cm sub-bank while HAM bank searching.

UNDERSTANDING BANKS

Channel Storage Banks

A bank is a storage area for a group of channels. Channels are storage areas for frequencies. Whereas a channel can only contain one frequency, a bank can hold numerous channels.

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

For example, a police department might use four frequencies, one for each side of town. You could program the police frequencies starting with Channel 1 (the first channel in bank 1) and program the fire department frequencies starting with Channel 21 (the first channel in bank 2).

One-Touch Service Search

The scanner is preprogrammed with the frequencies allocated by marine, fire/police, aircraft, ham radio, and weather services. This is handy for quickly finding active frequencies instead of searching through an entire band (see “Searching the One-Touch Service Search Bands” on Page 18).

Note: The frequencies in the scanner’s one-touch service bands are preset. You cannot change them.

Fire/Police

Group	Frequency Range (MHz)	Step (kHz)
1	33.420-33.980	20
	37.020-37.420	20
	39.020-39.980	20
	42.020-42.940	20
	44.620-45.860	40
	45.880	-
	45.900-46.060	40
	46.080-46.500	20
2	153.770-154.130	60
	154.145-154.445	15
	154.650-154.950	15
	155.010-155.370	60
	155.415-155.700	15
	155.730-156.210	60
	158.730-159.210	60
	166.250	-
	170.150	-
3	453.0375-453.9625	12.5
	458.0375-458.9625	12.5
	460.0125-460.6375	12.5
	465.0125-465.6375	12.5

Air

Group	Frequency Range (MHz)	Step (kHz)
1	108.000-118.000	12.5
2	118.0125-136.9875	12.5

Amateur Radio

Group	Frequency Range (MHz)	Step (kHz)
1	29.000-29.700	5
2	50.000-54.000	5
3	144.000-148.000	5
4	420.000-450.000	12.5

Marine

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	156.0500	63	156.1750
02	156.2500	64	156.2250
06	156.3000		160.8250
07	156.3500	65	156.2750
08	156.4000	66	156.3250
09	156.4500	67	156.3750
10	156.5000	68	156.4250
11	156.5500	69	156.4750
12	156.6000	70	156.5250
13	156.6500	71	156.5750
14	156.7000	72	156.6250
15	156.7500	73	156.6750
16	156.8000	74	156.7250
17	156.8500	77	156.8750
18	156.9000	78	156.9250
19	156.9500	79	156.9750
20	157.0000	80	157.0250
	161.6000	81	157.0750
21	157.0500	82	157.1250
22	157.1000	83	157.1750
23	157.1500	84	157.2250
24	157.2000		161.8250
	161.8000	85	157.2750
25	157.2500		161.8750
	161.8500	86	157.3250
26	157.3000		161.9250
	161.9000	87	157.3750
27	157.3500		161.9750
	161.9500	88	157.4250
28	157.4000		
	162.0000		

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

OPERATION

TURNING ON THE SCANNER/SETTING VOLUME AND SQUELCH

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

Notes:

- To listen to a weak or distant station, turn **SQUELCH** counterclockwise. If reception is poor, turn **SQUELCH** clockwise to cut out weak transmissions.
- If **SQUELCH** is adjusted so you always hear a hissing sound, the scanner will not scan or search properly.
- 4. To turn off the scanner when you finish, turn **VOLUME** counterclockwise to **OFF**.

STORING KNOWN FREQUENCIES INTO CHANNELS

Follow these steps to store frequencies into channels.

1. Press **PGM**, then **PGM** appears. Enter the channel number (1–200) where you want to store a frequency, then press **PGM** again.
2. Use the number keys and **•** to enter the frequency (including the decimal point) you want to store.
3. Press **ENT** to store the frequency into the channel.

Notes:

- If you made a mistake in Step 2, **Error** appears and the scanner beeps three times when you press **ENT**. Simply start again from Step 2.
- Your scanner automatically rounds the entered frequency down to the closest valid frequency. For example, if you enter a frequency of 151.473, your scanner accepts it as 151.470.
- If you entered a frequency that is already stored in another channel, the scanner beeps three times and displays the lowest channel number where the frequency is already stored, and **-DUPL-** then the frequency flashes. If you want to store the frequency anyway, press **ENT** again. Press **TUNE/CLEAR** to clear the frequency.

- Press **DELAY** if you want the scanner to pause 2 seconds on this channel before it proceeds to the next channel after a transmission ends (see “Delay” on Page 25). The scanner also stores this setting in the channel.
4. To program the next channel in sequence, press **PGM** and repeat Steps 2 and 3.

FINDING AND STORING ACTIVE FREQUENCIES

Searching the One-Touch Service Search Bands

Your scanner contains groups of preset frequencies called One Touch banks. Each one touch search bank is associated with a specific activity (see “One Touch Banks” on Page 15). You can search for marine, fire/police, air, ham, and weather transmissions even if you do not know the specific frequencies that are used in your area. Then you can store the frequencies you found into the scanner’s channels (except weather and marine banks).

Notes:

- You can use the scanner’s delay feature while searching the banks, see “Delay” on Page 25.
 - To listen to the marine bank, see “Listening to the Marine Bank” on Page 21.
 - To listen to the weather bank, see “Listening to the Weather Band” on Page 22.
1. Press **FD/PD** or **AIR** or **HAM**. **FlrE POLICE** or **Air** or **HAM** appears. After about 2 seconds, the scanner starts search.

Notes:

- To reverse the search direction at any time, press **▲** or **▼**.
 - To pause the search while receiving a signal, press **PSE**. To resume searching, press **PSE** again.
 - If necessary, you can select search groups using the number keys.
2. To search for another active frequency in the selected band, press **▲** or **▼**. To select a different band and search for another active frequency, repeat Steps 1.

Once you find interesting frequencies during the search, you can store them into the scanner’s channel-storage banks.

1. To store the displayed frequency in the desired bank’s lowest vacant channel, press **ENT** when you find a frequency. The bank number and **Store** appears.
2. If you desired to store the other bank, press number key.

3. Press **ENT** to store the frequency. The channel and frequency flash twice. If you want to cancel the operation, press **TUNE/CLEAR** instead of **ENT**.

Note: If you entered a frequency that is already stored in another channel, **-dUPL-** (duplicate) and the lowest numbered channel containing the duplicate frequency flash for about 3 seconds. If you want to store the frequency anyway, press **ENT** again. You can then delete the frequency later. See “Clearing a Stored Channel” on Page 21.

If there is no empty channel in the bank, **Ch-FULL** appears after you press **ENT**. To store more frequencies, you must clear some channels or you may program the other bank. See “Clearing a Stored Channel” on Page 21. To continue searching after **Ch-FULL** appears, press **TUNE/CLEAR**.

Using Tune

During a tune, the scanner tunes up or down, starting from a frequency you specify. Follow these steps to use tune.

Note: You can use the scanner’s delay feature while using tune.

1. Press **TUNE**. **PSE** and start frequency appears.
2. If desired you can change the start frequency. To change the start frequency, enter frequency with numeral keys, then press **ENT**.
3. Press **PSE** to start tune. **-t-** appears on the display.
4. To change the tuning direction, press **▲** or **▼**.

The scanner displays **▲** or **▼** and start tune.

Note: To pause the tune, press **PSE**. To resume tune, press **PSE** again.

5. To tune for another active frequency, press **▲** or **▼**.

Once you find interesting frequencies during the tune, you can store them into the scanner’s channel-storage banks.

1. To store the displayed frequency in the desired bank’s lowest vacant channel, press **ENT** when you find a frequency. The bank number and **Store** appears.
2. If you desired to store the other bank, press number key.
3. Press **ENT** to store the frequency. The channel and frequency flash twice. If you want to cancel the operation, press **TUNE/CLEAR** instead of **ENT**.

Note: If the scanner displays **-dUPL-**, the entered frequency is already stored in another channel. See above Note on this page.

If there is no empty channel in the bank, **Ch-FULL** appears after you press **ENT**. To store more frequencies, you must clear some channels or you may program the other bank.

SCANNING THE STORED CHANNELS

To set the scanner to continuously scan through all channels with stored frequencies, simply pressing **SCAN** until **SCAN** and ▲ appear, then the scanner begins to rapidly scan until it finds an active frequency.

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

Notes:

- To reverse the scanning direction, press ▲ or ▼.
- To set the scanner to remain on the current channel for 2 seconds after the transmission ends, see “Delay” on Page 25.
- To set the scanner to remain on the current channel, even after the transmission stops, press **SCAN/MAN** at any time during the transmission so **MAN** appears and **SCAN** disappears (see “Monitoring a Stored Channel”).
- To lock out channels so the scanner does not stop for a transmission on those channels, see “Locking Out Channels or Frequencies” on Page 25.

TURNING CHANNEL-STORAGE BANKS OFF AND ON

Channel-storage banks (1–10) are on when they have a bar underneath them and off when no bar appears underneath them. To turn off a channel-storage bank, press the bank’s number key during scanning. The bar under the bank’s number disappears.

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

To turn on a channel-storage bank (1–10) during scanning, press the bank’s number key. A bar appears under the bank’s number.

Notes:

- You cannot turn off all banks. There must be at least one active bank.
- You can manually select any channel in a bank, even if the bank is turned off.
- When you turn on a bank during scanning, the scanner moves to the selected bank and scans it.

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

MONITORING A STORED CHANNEL

You can continuously monitor a specific channel without scanning. This is useful if you hear an emergency transmission on a channel and do not want to miss any details — even though there might be periods of silence — or if you simply want to monitor that channel.

Follow these steps to manually select a channel.

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

CLEARING A STORED CHANNEL

If you no longer want a frequency stored in a channel (and you do not want to replace that frequency with a different one), follow these steps to clear the stored frequency.

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

LISTENING TO THE MARINE BANK

To listen to the marine bank, press **MAR**. **MAr** appears about 2 seconds, then the scanner starts searching from marine channel 16.

To stop searching the channels, press **PSE**. **SRCH** disappears and **MAN** appears.

To change the channel manually, press **▲** or **▼**.

To search through the marine bank again, press **PSE**. **MAN** disappears and **SRCH** appears. To change the searching direction, press **▲** or **▼**.

You can select a marine channel directly. When the scanner stops scanning the marine bank, use the number keys to enter the two-digit channel number.

Note: While Marine band search, lock out functions. See “Locking Out Marine Channels” on Page 26.

LISTENING TO THE WEATHER BAND

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

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

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

Listening to a Weather Channel

To hear your local forecast and regional weather information, press **WX**. **WEAthEr** appears for about 2 seconds, then the scanner starts searching the weather bank.

To stop searching the channels, press **PSE**. **SRCH** disappears and **MAN** appears.

To change the channel manually, press ▲ or ▼.

To search through the weather bank again, press **PSE**. **MAN** disappears and **SRCH** appears. To change the searching direction, press ▲ or ▼.

SAME Standby Mode

The National Weather Service precedes each weather alert with a digitally encoded SAME (Specific Area Message Encoding) signal, then a 1050 Hz tone. The SAME signal includes a FIPS (Federal Information Processing Standard) area code, and an event code that corresponds with the type of alert being sent. You can configure your scanner to operate in SAME Standby mode, where it monitors a selected weather radio station for SAME alerts for areas you specify. You can program your scanner with up to 7 FIPS codes for the areas you desire. The National Weather Service maintains a current list of FIPS codes at <http://www.nws.noaa.gov/nwr/>.

To configure your scanner for SAME Standby mode, follow these steps:

1. Press **WX**.
2. Press **PGM** to access the FIPS code entry table.
3. Use ▲ or ▼ keys to select the desired FIPS code storage location.

4. Use the number keys to enter the desired FIPS code, and then press **ENT** to store the code. Repeat this process for all the FIPS codes that you wish to store.
5. Press **L/OUT** to lock out or enable specific FIPS entries.
6. Press **WX** to exit the FIPS code entry table. The scanner displays **F** at the left hand if you enter the FIPS code(s).

Notes:

- Your scanner can also detect the 1050 Hz weather alert tone when a weather channel is set as the priority channel and weather priority operation is enabled (see “Priority”). In this mode all alerts are received. FIPS settings are ignored.
 - The scanner sounds an alert or beep when it receives the SAME code. If you do not stop the alert (or beep) for five minutes, the alert stops and the scanner beeps every ten seconds. If the scanner receives a new message after five minutes, it sounds the alert or beep. To stop the sound and ready the scanner to receive a new alert signal before the five minute time out, press any key except **LIGHT**.
7. Press **PRI/ALERT** to initiate SAME standby. The scanner will monitor the all weather radio station for alerts with FIPS codes that match the codes you entered in the FIPS entry table. To exit SAME standby, press **PRI/ALERT** again.

Note: In the SAME Standby mode, the scanner receives all alert/warning messages for receivable areas if you do not enter the FIPS code.

Skywarn

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

This function lets you quickly move to the skywarn channels (Channel 200) from any mode by pressing and holding **WX** about 2 seconds. The scanner displays **SKYWARN** symbol.

Note: To activate this function, you must program your desired Skywarn frequency into the Skywarn channel.

Spectrum Sweeper

Your scanner's Spectrum Sweeper feature provides a powerful new tool for you to rapidly detect, monitor and store frequencies for nearby radio transmissions. The Spectrum Sweeper feature is similar in functionality to portable frequency counters that cost much more than your scanner, but provides many advantages over typical portable frequency counters. For example:

The Spectrum Sweeper allows you to sweep the entire range of your scanner's design frequencies, or you can specify those frequency ranges that you wish to sweep and exclude ranges that you do not want to sweep. This allows you to omit frequency ranges with constant strong frequency activity, such as those with paging or broadcast transmitters. Many portable frequency counters will remain locked to a nearby constant signal, such as a paging or broadcast transmitter, and will not function properly until you have left the vicinity of the transmitter.

The Spectrum Sweeper feature is more sensitive than portable frequency counters and will detect transmissions at a greater distance.

Once an active frequency is found, the transmission is played through your scanner's speaker, and you can quickly store it in any of your scanner's memory locations.

Using Spectrum Sweeper

The Spectrum Sweeper can be set to watch for activity on all band, Police/Fire, Aircraft, or Ham frequencies. When the scanner is in manual, scan or tune mode, press   to watch for activity on all band. When the scanner is in Police/Fire search band, press   to watch for activity on Police/Fire band. When the scanner is in Aircraft band, press   to watch for activity on Aircraft band. When the scanner is in Ham band, press   to watch for activity on Ham band.

You can also turn on/off frequency sub-bands using the corresponding number keys while Spectrum Sweeper is active.

Note: Priority mode is not available while using the Spectrum Sweeper.

SPECIAL FEATURES

DELAY

Many agencies use a two-way radio system that has a period of several seconds between a query and a reply. To avoid missing a reply, you can program a 2-second delay into any channel or frequency. When your scanner stops on a channel or frequency with a programmed delay, **DLY** appears and the scanner continues to monitor that channel or frequency for 2 seconds after the transmission stops before resuming scanning, searching, tuning, or spectrum sweeping.

You can program a 2-second delay in any of these ways:

- If the scanner is scanning and stops on an active channel, quickly press **DELAY/•** before it resumes scanning.
- If the desired channel is not selected, manually select the channel, then press **DELAY/•**.
- If the scanner is searching, tuning, or spectrum sweeping, press **DELAY/•**. **DLY** appears and the scanner automatically adds a 2-second delay to every transmission it stops on in that band.

To turn off the 2-second delay in a channel or for all frequency, press **DELAY/•** while the scanner is monitoring that channel or frequency. **DLY** disappears.

LOCKING OUT CHANNELS OR FREQUENCIES

You can increase the effective scanning or search speed by locking out individual channels or frequencies that have a continuous transmission, such as a weather channel or a birdie frequency (see “Birdie Frequencies” on Page 29).

Locking Out Channels

To lock out a channel during scanning, press **L/O** when the scanner stops on the channel.

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

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

Notes:

- Your scanner automatically locks out empty channels.
- You can still manually select locked-out channels.

Locking Out Marine Channels

To lock out a Marine channel during searching, press **L/O** when the scanner stops on the channel.

To manually lock out a Marine channel, select the channel then press **L/O**.

To remove the lockout from a Marine channel, press **PSE** and ▲ or ▼ to select channel manually, then press **L/O** until **L/O** disappears.

Locking Out Frequencies

To lock out a frequency during a one-touch service search or spectrum sweeper, press **L/O** when the scanner stops on that frequency. The scanner locks out the frequency then continues searching/sweeping.

Notes:

- You can lock out as many as 50 frequencies during a search (or spectrum sweep). If you try to lock out more, **FLo -FULL** appears (see “Reviewing Locked-Out Frequencies” and “Removing Lockouts From All Frequencies”).
- The scanner uses same Lockout List between one touch search bank and spectrum sweeper. (ex.: the scanner uses same lock out list between aircraft search band and aircraft spectrum sweeper band.)

Reviewing Locked-Out Frequencies

To review the frequencies you locked out, hold down **L/O/L/O RVW** for about 2 seconds during a search or spectrum sweeper. And you press ▲ or ▼ repeatedly. **L-r** (Lockout Review) appears and the scanner displays all locked out frequencies as you press ▲ or ▼, or, **EMpty** appears when the search bank has no locked out frequencies. When you reach the highest locked-out frequency, the scanner beeps twice and returns to the lowest locked-out frequency.

Removing Lockouts Form All Frequencies in a One-Touch Service Search Bank

Note: These steps do not clear any lockouts in the marine bank.

1. Hold down **L/O/L/O RVW** for about 2 seconds during a desired search band. **L-r** appears.
2. While holding down **TUNE/CLEAR**, press **L/O** to clear the lockout. **FLo ALL-CL** appears about 2 seconds. After 2 seconds, **YES —Ent and No —CLEAR** appears alternately.
3. Press **ENT**. **L-r EMpty** appears. The scanner clears any lockouts from all frequencies in a one touch bank. Or, if you do not want to clear the lockouts, press **TUNE/CLEAR**.

USING PRIORITY

The priority feature lets you scan through channels and still not miss important or interesting calls on a frequency you select. You can program one frequency into the priority channel. As the scanner scans, if the priority feature is turned on, the scanner checks the priority channel for activity every 2 seconds.

1. Press **PGM**, then press **PRI/ALERT**. **PCH** and **000.0000** or the previously-stored frequency appear.
2. Enter the frequency you want to enter into the priority channel, then press **ENT**. The display flashes twice.

To program a weather channel as the priority channel:

1. Press **WX**.
2. Select the weather channel you want to program as the priority channel.
3. Press and hold **ENT** then **PRI**. **P ChAnnEL** is displayed momentarily. After **P ChAnnEL** appears, **PCH** flashes and **000.0000** or the previously-stored frequency appears.
4. Press **ENT** to store the priority channel and display blinks two times. Press **CLEAR** to cancel.

To turn on the priority feature, press **PRI/ALERT** during scanning or searching. **PRI** appears. The scanner checks the priority channel every 2 seconds and stays on the channel if there is activity. **PCH** and the frequency appear whenever the scanner is set to the priority channel.

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

Note: If you program a weather frequency into the priority channel and the scanner detects a WX alert tone on that frequency (see “SAME Standby Mode” on Page 22), the scanner sounds the alert tone and **ALERT** flashes. Press any key to turn off the alarm.

USING THE DISPLAY BACKLIGHT

You can turn on the display’s backlight for easy viewing in the dark.

Press  to turn on the light for 5 seconds. To turn off sooner, press  again.

Press and hold **PGM** then press  to turn on the display’s backlight for an extended period of time. To turn it off, press .

TURNING THE KEY TONE ON AND OFF

The scanner is preset to sound a tone each time you press one of its keys (except ). You can turn the key tone off or back on.

1. If the scanner is on, turn **OFF/VOLUME** counterclockwise until it clicks to turn it off.
2. Turn **OFF/VOLUME** clockwise to turn the scanner on. **Welcome** message appears.
3. While **Welcome** message appears, press **1** to turn on the key tone or **2** to turn it off.

USING THE KEY LOCK

Once you program your scanner, you can protect it from accidental program changes by turning on the keylock feature. When the keypad is locked, the only controls that operate are **LIGHT**, **VOLUME**, and **SQUELCH**.

Note: The keylock does not prevent the scanner from scanning channels or monitoring a single channel, whichever feature you last selected.

To turn on the keylock, hold down  for about 3 seconds until the scanner beeps three times and  appears. To turn it off, hold down  for about 3 seconds until the scanner beeps three times and  disappears.

Cloning the Programmed Data

You can transfer the programmed data to and from another PSR-100 (or PSR-200) scanner using an optional connecting cable with 1/8-inch (3.5mm) stereo phone plugs on both ends (not supplied).

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

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

CLOnE and **Error** may alternately appear when the scanner receives data from a scanner other than a PSR-100/200. If this happens when the scanner receives data from another PSR-100/200, turn off the scanner and then turn it on again.

INITIALIZING THE SCANNER

If the scanner's display locks up or does not work properly after you connect a power source, you might need to initialize the scanner.

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

1. Turn off the scanner, then turn it on again. **WELCOME SCAnnInG rECEIVER** appears.
2. Press **0** while welcome message. Then press **1**. **INITIAL** appears about 2 seconds. After 2 seconds, **YES —Ent** and **No —CLEAR** appears alternately.
3. Press **ENT**. **WAIt** appears for about 2 seconds.

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

A GENERAL GUIDE TO SCANNING

Birdie Frequencies

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

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

FREQUENCY CONVERSION

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

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

- To convert MHz to kHz, multiply the number of megahertz by 1,000:
30.62 (MHz) x 1000 = 30,620 kHz
- To convert from kHz to MHz, divide the number of kilohertz by 1,000:
127,800 (kHz) / 1000 = 127.8 MHz
- To convert MHz to meters, divide 300 by the number of megahertz:
300 / 50 MHz = 6 meters

FAQs (Frequently Asked Questions)

The scanner is not working at all. What's wrong?

- The AC or DC adaptor might not be connected. Be sure the adaptor's barrel plug is fully inserted into the **PWR DC 9V** jack. The center tip of the adaptor's barrel plug must be set to positive.
- The batteries might be dead or need to be recharged. Recharge the rechargeable batteries or replace the standard batteries.

The scanner does not receive any stations or reception is poor. What's wrong?

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

The scanner is on but does not scan. What's wrong?

- The squelch might not be adjusted correctly. Turn **SQ** clockwise. There might only be one channel or no channels stored in the scanner. Store frequencies into more than one channel.
- Only one channel or no channels are stored. Store frequencies into more than one channel.

The keypad does not work. What's wrong?

- Keylock is turned on. Turn off keylock.
- The scanner might need to be reset or initialized. Turn the scanner off then on again, or initialize the scanner (see "Initializing the Scanner").

While scanning, the scanner locks on frequencies that have an unclear transmission. What’s wrong?

- Some frequencies programmed into the scanner might be the same as “birdie” frequencies. Avoid programming “Birdie Frequencies” or only listen to them manually.

CARE

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

IN CASE OF FAULT

Where a fault arises, contact your supplier. However, before you do so check that the fault was not caused by an operational error. Carefully reread the relevant section in the instructions.

SPECIFICATIONS

Frequency Coverage (MHz):

10 Meter Amateur Radio	29–30 (in 5 kHz steps)
VHF Lo	30–50 (in 5 kHz steps)
6 Meter Amateur Radio	50–54 (in 5 kHz steps)
Aircraft.....	108–136.9875 (in 12.5 kHz steps)
Government	137–144 (in 12.5 kHz steps)
2 Meter Amateur Radio	144–148 (in 5 kHz steps)
VHF Hi	148–150.8 (in 12.5 kHz steps)
VHF Hi	150.8–162 (in 5 kHz steps)
VHF Hi	162–174 (in 12.5 kHz steps)
Amateur Radio/Government	380–450 (in 12.5 kHz steps)
UHF Standard	450–470 (in 12.5 kHz steps)
UHF “T”	470–512 (in 12.5 kHz steps)
Channels of Operation	200 channels

Sensitivity (S+N)/N 20 dB:

29–54 MHz	0.5 μ V
108–136.9875 MHz	1.0 μ V
137–174 MHz	0.5 μ V
380–512 MHz	0.7 μ V
Spurious Rejection (FM @154 MHz)	50 dB

Selectivity:

\pm 8 kHz	-6 dB
\pm 17 kHz	-50 dB
Search Speed	Up to 80 Steps/Sec
Scan Speed	Up to 40 Channels/Sec
Delay Time	2 Seconds

IF Frequencies:

1st IF	10.7 MHz
2nd IF	455 kHz
IF Interference Ratio (10.7 MHz)	70 dB at 150 MHz

Squelch Sensitivity:

Threshold	Less than 0.5 μ V
Tight (FM)	(S + N)/N 25 dB
Tight (AM)	(S + N)/N 20 dB
Antenna Impedance	50 Ohms
Audio Output Power (10% THD)	180 mW Nominal
Built-In Speaker	1 3/8 Inches (36 mm), 8 Ohms
Operating Temperature	14° to 140°F (-10° to 60°C)
Power Requirements	4 AA Batteries 9V AC Adaptor (Supplied) 9V DC Adaptor (Optional)

Current Drain (Squelched)	50 mA
Dimensions (HWD)	5 11/16 x 2 3/8 x 1 9/16 Inches (145 x 63 x 40 mm)
Weight (without antenna)	approx. 7.8 oz (220 g)
Supplied Accessories	Flexible Antenna, Rechargeable & Non-Rechargeable Battery Holder, AC Adaptor Belt Clip

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

NOTE

Limited Warranty

General

GRE America, Inc. warrants all parts of each new product to be of sound design, good material and workmanship, and will repair or exchange any parts proven to be defective under normal use at no charge for a period of 12 months from the date of sale to the end user.

GRE America will correct defects. There will be no charge for labor for a period of 12 months from the date of original sale, except as provided below. Overtime premiums and/or expedited handling and shipping costs must be paid by the owner.

An enclosed Warranty Card is included with each unit of purchase. We request the Warranty card be filled and return back to GRE America to validate the Warranty of purchase along with Proof-of-purchase or you may also register online from the link below.

Online Product Registration is also available at <http://www.greamerica.com/register>

Warranty Limitations

This warranty does not apply to equipment or parts that have been subject to accident, abuse, incorrect service, alterations, service by non-authorized service personnel, misuse.

A copy of the purchase receipt must be supplied or validated Warranty Registration must be on GRE database either by mail or through online when requesting for service.

Equipment must be sent to GRE America at the owner or dealer's expense and will be returned via surface carrier at no cost to the owner.

This warranty is strictly limited to the terms indicated herein, and no other warranties or remedies thereunder, express or implied, shall be binding on GRE America.

Warranty Returns

RETURN DEFECTIVE PRODUCTS TO YOUR DEALER OR CALL GRE AMERICA FOR A RETURN AUTHORIZATION NUMBER (RMA). YOU SHOULD HAVE A COPY OF YOUR ORIGINAL RECEIPT TO VERIFY DATE PURCHASE. UNIT IN WHICH THE WARRANTY HAS EXPIRED MAY BE SERVICED AT A FIXED RATE + PARTS FOR FACTORY REPAIRS. RETURN SHIPPING FOR UNITS UNDER WARRANTY WILL BE PAID BY GRE AMERICA. SHIPPING FOR UNITS OUT OF WARRANTY WILL BE PAID BY THE SENDER IN BOTH DIRECTIONS. AN RMA# OUTSIDE THE BOX NEXT TO THE SHIPPING ADDRESS MUST BE ACCOMPANIED WITH ALL UNITS BEING RETURN BACK TO GRE AMERICA. RETURNS WITHOUT RMA# WILL DELAY IN PROCESSING YOUR WARRANTY OR NON-WARRANTY REPAIRS.

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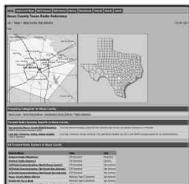
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