

## REGENCY SCANNERS LIMITED WARRANTY

1. The warranty applies to the original owner of the product for a period of one (1) year from the original purchase date.
2. We agree to repair or replace all parts showing defects in material or workmanship.
3. Warranty service will be provided free of charge if unit is delivered to us intact, transportation charges prepaid, within one (1) year of the date of sale to the original purchaser.
4. The warranty does not apply to units subject to misuse, neglect, accidents, incorrect wiring not our own, improper installation, or units used in violation of the instructions furnished by us. Nor does the warranty apply to units: damaged by lightning, excess current, repaired or altered outside the factory, or units with altered or removed serial numbers.
5. To have your unit serviced under the warranty, return it freight prepaid, with dated proof of purchase documents (sales receipt) to:  
Customer Service Department  
Regency Electronics, Inc.  
7707 Records St.  
Indianapolis, IN 46226  
Only factory personnel are authorized to perform warranty service.
6. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.




## Owner's Manual



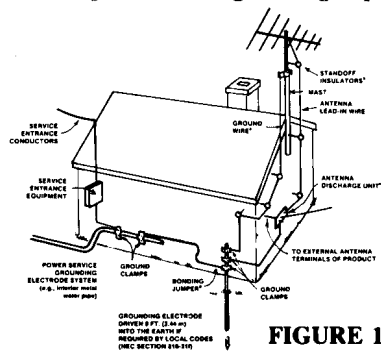
**Regency Scanner Model R806**

 **REGENCY ELECTRONICS, INC.**  
7707 Records Street  
Indianapolis, Indiana 46226-9989

# SAFETY PRECAUTIONS


1. Be sure to read and follow all safety and operating instructions before operating your unit. You should also retain all instructions for future reference.
2. Adhere to any warnings or special instructions which may appear in the operating instructions or on the unit itself.
-  3. **DO NOT** operate the unit near water (e.g. near a sink, in a wet basement, or near a pool), and **DO NOT** expose the unit to rain as electrical shock or fire could result.
4. Place the unit where the ventilation openings are not obstructed. Warm locations such as near heating vents or radiators should be avoided.
-  5. The power cord should be routed so that it will not be walked on or pinched by items placed upon or against it. **DO NOT** run a power cord under carpeting. Connect the unit to a power source only of the type described in the operating instructions or as marked on the appliance.
6. The unit should be used only with a cart or stand that is recommended by the manufacturer and should be mounted to a wall or ceiling with manufacturer's advice.
7. If the unit is to be left unused for a long period of time, the power cord should be unplugged from the outlet.
-  8. **DO NOT** attempt to service the unit yourself beyond what is described in the operating instructions. All servicing should be referred to a qualified technician. Should one of the following occur, send the unit to a qualified technician:
  - a). The unit shows a marked change in performance.
  - b). Power cord has been damaged.
  - c). The unit has been dropped or enclosure damaged.
  - d). The unit has been exposed to rain.
9. The unit should be cleaned only as recommended by the manufacturer.
10. Care should be taken so that objects do not fall and liquids are not spilled into enclosure through openings.
11. If an outside antenna is used, be sure it is located away from power lines. The antenna should also be grounded to protect against voltage surges and built up static charges. Refer to Figure 1 below.

## Example of antenna grounding as per National Electrical Code Instructions




**FIGURE 1**

- <sup>a</sup>Use No. 10 AWG (5.3 mm<sup>2</sup>) copper, No. 8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as a ground wire.
- <sup>b</sup>Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4–6 feet (1.22–1.83 m) apart.
- <sup>c</sup>Mount antenna discharge unit as close as possible to where lead-in enters house.
- <sup>d</sup>Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**CAUTION** RISK OF ELECTRIC SHOCK DO NOT OPEN

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**

# PACKING LIST

- 1-Receiver Unit
- 1-Model MA539 DC Power Cord Assembly
- 1-Model MA520 Telescopic Antenna with Right-angle adaptor (for assembly, see p. 7)
- 1-Model MA541 Wall-Mount Transformer (AC/DC Adaptor)
- 1-Model MA540 Mobile Mounting Bracket with mounting hardware
- 1-Instruction Manual

## Important

Please read all instructions thoroughly before operating your unit.

## INDEX

Safety Precautions . . . . .	2
Maintenance . . . . .	3
Description . . . . .	4
Front Panel Controls and Indicators . . . . .	5
Rear Panel Connectors . . . . .	6
External Speaker . . . . .	6
Installation . . . . .	6
Programming Channels . . . . .	8
Choosing Crystals . . . . .	8
Installing Crystals . . . . .	9
Programming . . . . .	10
Operation . . . . .	
Power On/Off . . . . .	11
Scanning . . . . .	11
National Weather Service . . . . .	11
Specifications . . . . .	12
Troubleshooting . . . . .	13
National Frequencies . . . . .	14
Warranty . . . . .	Back Cover

Please record Serial Number and Date of Purchase:  
 Serial No. \_\_\_\_\_ Date Purchased \_\_\_\_\_  
**IMPORTANT:** To have your unit serviced under the warranty, dated proof of purchase (sales receipt) must be sent in with the unit. See Warranty on back cover.

## MAINTENANCE

If your unit does not operate properly, refer to the troubleshooting guide on page 13 and make the suggested adjustment. If the problem persists, send the unit to the Regency Customer Service Department as per the instructions outlined by the warranty statement on the back cover of this manual. **DO NOT** attempt additional service to this unit yourself. All servicing should be referred to the

Regency Customer Service Department. UNAUTHORIZED ADJUSTMENTS MAY DAMAGE THE EQUIPMENT OR RESULT IN IMPROPER OPERATION AS WELL AS INVALIDATE THE WARRANTY.

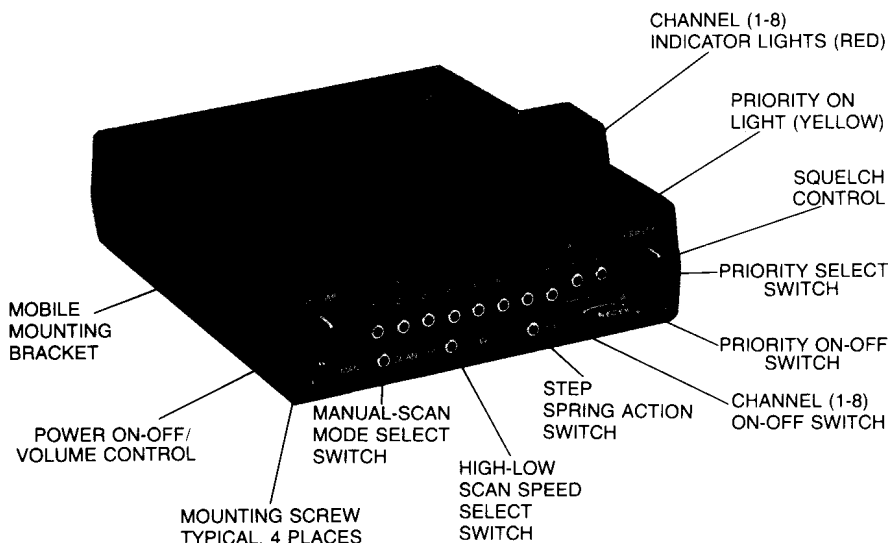
## DESCRIPTION

The Regency R806 is a programmable, 8-channel, crystal-controlled, microprocessor-based monitor receiver. It is a double-conversion, super-heterodyne unit used to receive the narrow band FM signals in the public service communications bands. Police, fire, civil defense and radio telephones are a few of the services in these bands.

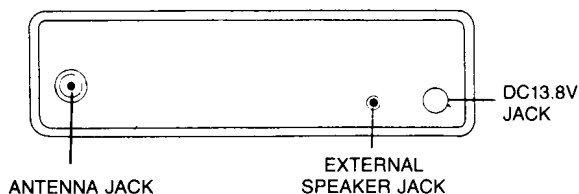
Channel switches are provided to permit scanning any combination of one to eight channels. Manual selection permits continuous monitoring of any one channel.

The priority feature, controlled by the microprocessor, enables a selected channel to be sampled on a priority basis every 2 seconds.

The unit may be operated from a 117 VAC power line with a wall-mount transformer (12V DC adaptor, supplied), or in any car, truck, boat or vehicle equipped with a 12-volt negative ground system.



### Rear View



## FRONT PANEL CONTROLS & INDICATORS

### OFF/VOLUME Knob

Turn the knob clockwise to apply power to the receiver. Turn further to increase audio level. Turn the knob counterclockwise all the way to turn unit off.

### MAN/SCAN Switch

This slide switch is used to select either automatic scanning or manual selection of the channels. With the switch in the right (SCAN) position and the squelch set, the unit will scan up to 8 channels from left to right. Sliding the switch to the left (MAN) allows each channel to be selected manually using the STEP switch.

**NOTE:** Channels that are de-activated (channel ON/OFF switch in down position) will be skipped in scanning.

### HI/LOW Switch

Use this slide switch to select two scanning speeds. Slide switch to HI for fast and to LOW for slow scanning.

### STEP Switch (Spring Action)

When the MAN/SCAN switch is in MAN, the step switch can be used to select the channels. Pushing the STEP switch to the left and then releasing it causes the scanner to move one channel. Push the STEP switch whatever number of times is necessary to reach the desired channel. To step continuously, push and hold the switch.

### PRIORITY Switches

Use these to select a priority channel sampled every 2 seconds. With MAN/SCAN in MAN, use STEP switch as required till the desired channel number indicator lights up. Slide left PRIORITY ON-OFF switch down (OFF) and push right PRIORITY SELECT switch down and let go. That channel is now the priority channel. Slide PRIORITY ON-OFF switch up (ON). The yellow indicator light should come on and that channel will be sampled. The red light for the priority channel will blink each time it is sampled (every 2 seconds).

To remove priority, slide PRIORITY ON-OFF switch down.

**NOTE:** Although any channel may be selected for priority sampling, we highly recommend that you select Channel 1. This is because channel 1 is selected automatically whenever the unit is turned off (and then on), or if there is a power loss.

### SQUELCH Control Knob

The knob marked "SQUELCH" is used to eliminate background noise in the absence of a signal. Turning the knob clockwise decreases the squelch action. When turned all the way clockwise, background noise will be heard. In addition, the unit will stop on a channel and not scan. The proper adjustment is the point

where the background noise just disappears and proper scanning action is obtained. Turn the squelch knob counterclockwise until this is achieved. Further counterclockwise turning of the squelch knob past this point may result in poor reception of weaker signals. During scan, the squelch knob may have to be turned slightly more counterclockwise to eliminate false stopping on channels without a signal or a crystal.

## Channel On/Off Switches (1-8)

Slide the switch up (On) to be included in the scanning sequence. Push the switch down (Off) to exclude (skip) the channel in scanning.

## Channel Indicator Lights (1-8)

These red lights are turned on from left to right each time that channel is sampled for activity provided the channel switch is on (up). The light for the priority channel will blink each time it is sampled (every 2 seconds).

# REAR PANEL CONNECTORS

## Antenna Jack

Connect the supplied telescopic antenna here. Assemble the antenna prior to inserting the antenna plug. See INSTALLATION.

## External Speaker

An external (or remotely mounted) 8 ohm speaker such as Regency's MA108 can be used by merely inserting the mating phone plug into the 3.5mm jack on the unit's rear panel. (See rear panel diagram on page 4). An 8 ohm speaker is recommended for optimum performance. DO NOT use a less-than-8 ohm speaker. The internal speaker is automatically disconnected when an external speaker is used. For a much higher audio level, use Regency's MA542, a 10-watt amplified speaker. Note that the MA542 requires a 12 VDC, 2 Ampere Supply for proper operation.

## DC 13.8V Jack

Connect DC power plug here. See INSTALLATION.

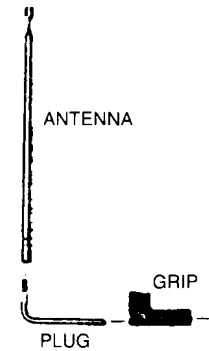
# INSTALLATION

## Home (120VAC) Use

1. Plug the cable end of the wall-mount transformer to the unit's DC jack (See Figure, Page 4). Plug the other end of the DC adaptor to a 117V AC, 60 Hz wall outlet.

**NOTE:** The receiver requires very little ventilation. However, avoid very warm locations such as near radiators, heating vents or under direct sunshine.

2. Assemble the supplied antenna per Figure below. Make sure the antenna plug is fully seated in the grip. Then insert the antenna to the rear panel ANT jack.



## NOTES:

- a. In areas of very low signal strength, it may be necessary to use a better antenna system for proper reception. An external antenna mounted as high above the ground as practical will greatly increase the signal strength. If it is determined that proper reception will require an external or outside antenna, then it is suggested that a tri-band antenna (it covers both VHF bands, 30-50 MHz and 146-174 MHz, and UHF) be used. There are several manufacturers of tri-band, monitor type antennas. They are usually available at the source from which the receiver was purchased. Refer to the Safety Precautions on the front cover of this manual for proper installation and grounding instructions.
- b. For proper input matching, 50  $\Omega$  coaxial cable such as RG-58/U should be used. A Motorola type antenna plug (Cinch-Jones No. 13B or H.H. Smith No. 1200) will have to be installed on the receiver end of the cable in order to utilize the antenna connector located on the rear panel of the unit (see rear panel diagram).

## Mobile (12 VDC) Installation

**NOTE:** Mobile reception of a POLICE frequency by UNAUTHORIZED personnel is ILLEGAL in some areas. It is the responsibility of the person making the installation to be sure that the user of this receiver is authorized or cleared through the local police department. Under no conditions can Regency Electronics, Inc., the manufacturer of this set, be held responsible for its unauthorized installation or use.

The receiver can be used in any car, truck, boat, etc. that has a 12 volt negative ground electrical system. Make sure there are no wires or obstructions in the area. Plug the DC cord into the DC jack on the receiver's rear panel. Connect the red DC lead to the positive (+) battery terminal for direct wiring, or to the accessory terminal if the radio is to be turned off with the ignition switch. Connect the black DC lead to the nearest negative (-) or ground point in the system.

# PROGRAMMING CHANNELS

**NOTE:** This radio will not operate until the proper crystals are installed.

## Choosing Crystals

This receiver requires one crystal for each frequency you wish to monitor. The following information must be specified when ordering the crystals.

### A. Low VHF Band Crystals (30 to 50 MHz)

1. Crystal frequency determined as follows:  
Crystal frequency = Channel frequency + 10.7 MHz
2. Frequency tolerance of .002%
3. Series resonance – 450 Hz; 3rd Overtone
4. Maximum impedance of 35 ohms
5. Holder is an HC-25/U with pin leads (plug-in type).

### B. High VHF Band Crystals (144 to 174 MHz)

1. Crystal frequency determined as follows:  
Crystal frequency =  $\frac{\text{Channel frequency} - 10.7 \text{ MHz}}{3}$
2. Frequency tolerance of .001%
3. Series resonance – 450 Hz; 3rd Overtone
4. Maximum impedance of 35 ohms
5. Holder is an HC-25/U with pin leads (plug-in type).

### C. UHF Band Crystals (440 to 470 MHz)

1. Crystal frequency determined as follows:  
Crystal frequency =  $\frac{\text{Channel frequency} - 10.7 \text{ MHz}}{9}$
2. Frequency tolerance of .001%
3. 3rd Overtone; load capacitance of 18 PF; drive level of 0.5 milliwatts.
4. Maximum impedance of 35 ohms.
5. Holder is an HC-25/U with pin leads (plug-in type).

### D. UHF Band Crystals (470 to 512 MHz)

1. Crystal frequency determined as follows:  
Crystal frequency =  $\frac{\text{Channel frequency} - 10.7 \text{ MHz}}{10}$
2. Frequency tolerance of .001%
3. 3rd Overtone; load capacitance of 18 PF; drive level of 0.5 milliwatts.
4. Maximum impedance of 35 ohms.
5. Holder is an HC-25/U with pin leads (plug-in type).

### E. UHF Band Crystals (406 to 420 MHz; requires re-alignment. See p. 12.)

1. Crystal frequency determined as follows:  
Crystal frequency =  $\frac{\text{Channel frequency} - 10.7 \text{ MHz}}{8}$
2. Frequency tolerance of .001%
3. 3rd Overtone; load capacitance of 18 PF; drive level of 0.5 milliwatts.

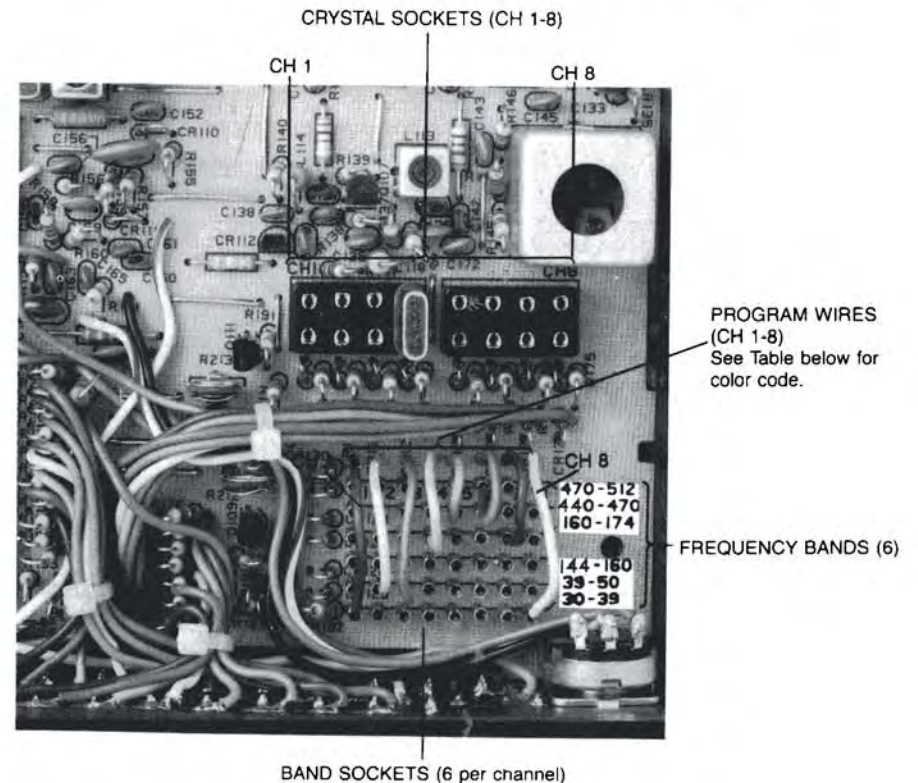
4. Maximum impedance of 35 ohms.
5. Holder is an HC-25/U with pin leads (plug-in type).

## Installing Crystals

To access the crystal sockets, disconnect DC power and then the antenna. Remove the mounting knobs on the unit's side. Remove four Phillips screws from bottom. Lift cover and lay it next to the main chassis. See Figure for location of crystal sockets, colored program wires and band sockets for various frequency ranges.

Crystals may be installed in any order desired: all low band, all high band all UHF or in any combination. To simplify programming, group the crystals to be installed according to band (Low VHF, High VHF or UHF).

## Section of PC Board showing Programming Components



**Program Wire Color Code**

CHANNEL	COLOR	CHANNEL	COLOR
1	Brown	5	Green
2	Red	6	Blue
3	Orange	7	Purple
4	Yellow	8	Gray

## Programming

**NOTE:** Prior to leaving the factory, the receiver is programmed as follows:

Channel No.	Programmed Frequency Bands
1	30- 39 MHz
2	39- 50 MHz
3, 4	144-160 MHz
5	160-174 MHz
6, 7	440-470 MHz
8	470-512 MHz

1. Select the desired crystal and note the frequency marked on the crystal.
2. Install the crystal in the desired channel's crystal socket.
3. Locate the colored program wire for the channel selected in step 2.  
The colors of the channel program wires are:

CHANNEL COLOR	CHANNEL COLOR
1 Brown	5
2 Red	6 Blue
3 Orange	7 Purple
4 Yellow	8 Gray

4. Locate the row of six band-programming pins below the program wire for each channel you are programming.
5. Insert the connector at the end of the program wire into the band program pin in the row whose frequency range includes the frequency of the crystal.
6. Repeat this process for all remaining crystals to be installed. **ALL WIRES MUST BE CONNECTED TO A PIN.** The wire for each channel that does not have a crystal may be connected to any pin in its column. Write down the frequencies and the corresponding channel numbers for future reference.

**NOTE:** If the noise is low with no signal and squelch control set fully clockwise, consult the factory

7. After programming is completed, re-attach the cover and the knobs. Install the DC cord and the antenna.

**EXAMPLE** (See Figure, Page 9):

To program a frequency of 162.550 MHz (Weather channel):

1. Choose a crystal whose receive frequency = 162.550 MHz.
2. Plug the 162.550 MHz crystal into, say, channel 4 socket.
3. Connect the Ch. 4 program wire (yellow from Table) to a pin (in the same column) for the 160-174 MHz band (row 3).
4. Connect all other unused program wires (channels 1-3 and 5-8) to any band pins but in the same column. For instance:

Channel 1 (Brown) to Row 6 (30-39)  
 Channel 2 (Pink) to Row 5 (39-50)  
 Channel 3 (Orange) to Row 4 (144-160)  
 Channel 5 (Green) to Row 4 (144-160)

Channel 6 (Blue) to Row 3 (160-174)  
 Channel 7 (Purple) to Row 2 (440-470)  
 Channel 8 (White) to Row 1 (470-512)

## OPERATION

**NOTE:** The MAN/SCAN, HI/LOW, Channel On/Off, Priority Channel are all 2-position slide-type switches. The channel STEP Switch and Priority SELECT are also slide-type switches but with a spring-return action.

### Power on/off

Turn the OFF/VOLUME knob clockwise. Adjust volume by further turning to the right. Adjust SQUELCH control.

### Scanning

**NOTE:** Prior to scanning, select speed (HI/LOW) and priority channel (See page 5).

Each of the 8 channels has an on/off switch located just below the channel number. When the switch for any channel is ON (up position) that channel will be included in the scanning sequence. Pushing the switch to OFF (down position) turns the channel off and it will not be included in the scanning sequence. In the Manual (MAN) mode, all channels are included, whether the channel switches are up (ON) or down (OFF). To scan each channel automatically, push the MAN/SCAN switch to SCAN. Each channel with its switch up will be sampled for activity. Be sure squelch has been set properly (see page 5). The red channel indicator above each channel will light as it is sampled. When a signal is received, the unit will stop scanning and the channel's indicator will remain lighted while the transmission is broadcast. At its conclusion, scanning then resumes automatically.

If the unit stops on a very active channel during the scanning process, push the MAN/SCAN switch to MAN. Now the unit is in manual on that channel. Instead of resuming scanning after the transmission ends, the unit will stay on that channel for continuous monitoring until the MAN/SCAN switch is moved to SCAN.

With the MAN/SCAN switch in the MAN position, the STEP switch can be used to step to a desired channel manually, one at a time in numerical order. Simply push the STEP switch to the left and release. Continue until the desired channel is reached.

## NATIONAL WEATHER SERVICE

The National Oceanic and Atmospheric Administration (NOAA) broadcasts continuous (24 hours) weather information throughout the U.S. on the following frequencies (MHz):

161.400	162.425	162.500
161.775	162.450	162.525
162.400	162.475	162.550

(Canadian weather can be monitored on 161.650 MHz).

If you are located within 25 to 30 miles of one of these sites, reception can usually be obtained with the telescopic antenna supplied with the unit.

**NOTE:** When set to automatic scan, the unit will stop and remain on the Weather Channel (because it broadcasts continuously). Thus, this channel should only be activated when you desire to hear the current weather report.

## SPECIFICATIONS

(Subject to change without notice)

### Frequency Ranges:

VHF (Low Band).....	30-50 MHz
VHF (Amateur).....	144-148 MHz
VHF (High Band).....	148-174 MHz
UHF (Amateur).....	440-450 MHz
UHF (Standard).....	450-470 MHz
UHF (Extended).....	470-512 MHz

**NOTE:** Unit can receive 406-420 MHz. However, re-alignment is necessary. Consult Customer Service Dept.

### Sensitivity (12 dB Sinad; at tune up)

Low VHF (30-50 MHz).....	0.35 $\mu$ V
High VHF (144-174 MHz).....	0.45 $\mu$ V
UHF (440-512 MHz).....	0.5 $\mu$ V

### Frequency Separation

VHF Band (Low).....	6 dB Bandwidth; 30-39 MHz 6 dB Bandwidth; 39-50 MHz
VHF Band (High).....	10 dB Bandwidth; 144-160 MHz 10 dB Bandwidth; 160-170 MHz
UHF Band.....	10 dB Bandwidth; 450-470 MHz 10 dB Bandwidth; 470-500 MHz

Selectivity.....  $\pm 7$  KHz at 6 dB  
 $\pm 18$  KHz at 50 dB

### Scanning Rate

Fast.....	15 Channels/Sec (Approx.)
Slow.....	8 Channels/Sec (Approx.)

Priority Sampling Rate..... Every 2 seconds

Audio Output (8-ohm Speaker)..... 1.5W at 10% or less distortion

Power Requirements..... 108-130V AC, 60 Hz; 10W Max.  
11-15V DC; 7W Max.

Power Transformer (Wall-Mount)..... UL Listed

Weight (Approx.)..... 1 lb. (0.5Kg)

Size..... 1 $\frac{3}{8}$ " (3.5cm)H; 5" (12.7cm)W; 6 $\frac{1}{2}$ " (16.5cm)D

FCC Certification..... Part 15, Subpart C

## TROUBLESHOOTING GUIDE

**NOTE:** Please perform the simple checks indicated for improper operation before returning the unit for service.

TROUBLE	CHECK
No channel light, no sound	OFF/VOLUME switch should be on (knob turned clockwise). Power Cord (AC or DC connection). See also specifications for power requirements. DC cord-Replace 1.5 AMP fuse, if blown.
Channel light, no sound	Volume control setting — check by turning knob clockwise. Squelch control setting — see page 5
Sound present (no light)	Channel switches — should be up (see page 6).
No reception (no station heard)	Channel switches — should be up (see page 6). Antenna should be installed and fully extended. Channel programming wire (see page 9). Crystal installed properly — both leads must be firmly inserted into the sockets (see page 9). Crystal frequency — see page 8 (can only be measured by service personnel). Station too far away — external antenna may be needed.
Weak or poor reception	Antenna should be fully extended. Station too far away — external antenna may be needed. Channel programming wire — see page 9. Crystal frequency — see page 8 (can only be measured by service personnel).
Does not scan	Squelch control setting — see page 5. Channel switches — should be up (see page 6). MAN/SCAN switch — should be to right (SCAN).
Does not manually step	Channel switches — should be up (see page 6). MAN/SCAN switch — should be to left (MAN). STEP switch — must be pushed and released to move to next channel.

