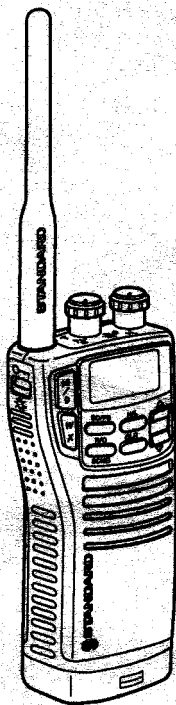


**Horizon  
HX250S**  
VHF/FM Marine  
Handheld Transceiver

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**Owner's Manual**



 **Standard**  
Communications

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## 1.1 INTRODUCTION

The Standard Communications Corp. (SCC) HX250S is a marine handheld two-way VHF transceiver. The transceiver has 65 channels: 55 marine and 10 weather. The 55 marine channels are switchable to comply with either USA, International, or Canadian regulations. It has an emergency channel 16 which can be immediately selected from any channel by pressing the red **16/9** key. Weather channels can be also be accessed immediately by pressing the **WX** key.

The transceiver includes the following features: scanning, priority scanning, weather alert, battery saver, easy-to-read LCD display, EEPROM memory back-up, battery life displayed on LCD, and a transmit time-out timer (TOT).

For privacy of communications, an optional CVS240 voice scrambler can be installed.

## 1.2 FCC/INDUSTRY CANADA INFORMATION

The following data pertaining to the transceiver is necessary to fill out the license application.

FCC Type Accepted .....	Part 80
Output Power with CNB250 battery .....	1 watt (Low) and 5 watts (High)
Emission .....	16KOF3E
Frequency Range .....	156.025 to 163.275 MHz
FCC Type Number .....	APV0194
Industry Canada Type Approval .....	363822164AP

**Additional FCC and Industry Canada data, including licensing requirements, are contained in the companion document titled OWNER'S MANUAL SUPPLEMENT. The document also contains charts for VHF channel assignments, transceiver procedures, maintenance, factory service information, and warranty data.**

## 2.1 PACKING LIST

When the package containing the transceiver is opened, please check for the following contents:

- HX250S Transceiver
- CNB250 Rechargeable battery pack
- CCA250 Charge adaptor with screws
- CWC230 120VAC Wall charger for CCA250
- CAT250 Flexible Antenna with SMA connector
- Lanyard
- Belt Clip with screws
- Owner's Manual.
- Owner's Manual Supplement.

## 2.2 OPTIONS

CAW230.....	Antenna Adaptor, SMA to SO-239
CAW240.....	DC Charge Cable with 12 V Cigarette Lighter
CMB240.....	Mobile Bracket
CSA240.....	120VAC Desktop Rapid Charger for CNB250
CSA240AB.....	230VAC Desktop Rapid Charger for CNB250
CVS240.....	Voice Scrambler Unit
CWC232.....	120/230 VAC Wall Charger for CCA250

## 2.3 REPLACEMENT PARTS

Flexible Antenna with SMA Connector .....	YR99014050
Rechargeable Battery Pack.....	CNB250
Belt Clip .....	484C258012
Screws for Belt Clip .....	51102604U0
Lanyard.....	458C156040
Volume Control Knob.....	238B154510
Squelch Control Knob.....	238B154510

**NOTE**

This section defines each control of the transceiver. For detailed operating instructions refer to section 4 of this manual.

Refer to Figure 1 for the location of the following controls, indicators, and connections.

**3.1 CONTROLS AND CONNECTIONS****① POWER SWITCH/VOLUME CONTROL**

Turns the transceiver on and off, and adjusts the volume.

**② SQUELCH CONTROL**

Sets the point at which random noise on the channel does not activate the audio circuits but a received signal does. This point is called the squelch threshold. Further adjustment of the squelch control will degrade the reception of wanted transmissions.

**③ TX/BUSY LED**

Lights RED to indicate that the Push-To-Talk switch is pressed. Lights GREEN to indicate that the selected channel is busy during reception.

**④ PUSH-TO-TALK (PTT) SWITCH**

Activates transmission.

**⑤ UP KEY **

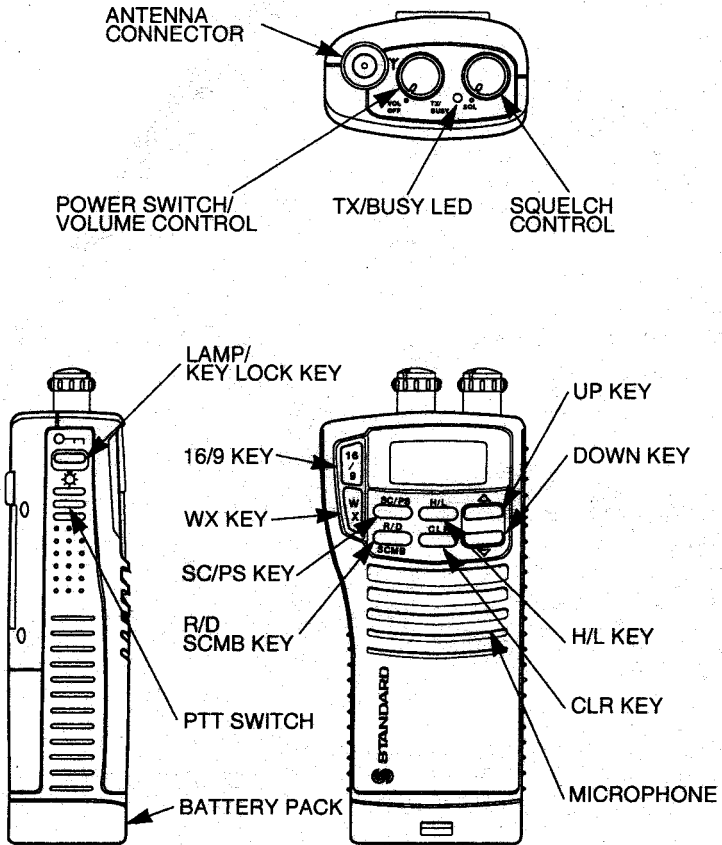
Selects the desired channel. Each press increases the channel number. When held down, the channels increase continuously.

**⑥ DOWN KEY **

Selects the desired channel. Each press decreases the channel number. When held down, the channels decrease continuously.

**⑦ 16/9 KEY**

Immediately recalls channel 16 from any channel location. Holding down this key recalls channel 9. When the **WX** key is pressed while holding down this key, the mode toggles between USA, International and Canadian.



**Figure 1. Controls and Connectors**

⑧ **WX KEY**

Immediately recalls a weather channel from any channel location. Recalls the previous channel when **CLR** key is pressed.

⑨ **SC/PS KEY**

Starts scanning programmed channels. Priority scan initiates scanning of programmed channels and channel 16. Press this key to turn on and off priority scan during scan.

⑩ **R/D SCMB KEY**

Reads the selected channel into memory. When pressed again, deletes the memorized channel. Hold down this key to turn the scrambler on and off. (if a scrambler is installed)

⑪ **H/L KEY**

Toggles between high and low power. To change from low power to high power, hold down this key on Canadian channel 13, USA channel 13 or 67.



⑫ **CLR KEY**

Recalls the previous channel when pressed after **CH16** or **WX** key is pressed. Stops the transceiver from scanning when pressed during the scan. Stops the transceiver from weather alert when pressed during the weather alert mode.

To erase all programmed scan channels from the transceiver's memory, held down the **CLR** key while turning the transceiver on and then off.

⑬ **Lamp/ Key Lock KEY** 

Turns the lamp for LCD backlighting on and off.

Hold down this key to lock the displayed channel functions (except the **H/L**, **PTT** and  keys) so that they are not accidentally changed. The key lock symbol "" appears to indicate that the channel is locked. Hold down until the key lock symbol disappears to unlock the channel.

⑭ **Antenna Connector**

Connects the flexible antenna CAT250.

⑮ **Battery Pack**

Provides DC power to the transceiver.

## 3.2 INDICATORS

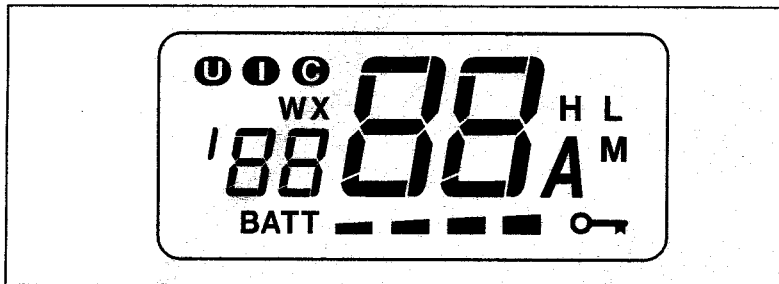


Figure 2. Indicators

### Channel Display

The operating channel in both transmission and reception mode.

### A Indicator

A simplex channel in USA or Canadian mode whose counterpart in the International mode is a duplex channel.

### U/I/C Indicator

The modes of operation for the particular channel. "U" indicates USA mode. "I" indicates International mode and "C" indicates Canadian mode.

### WX Indicator

A weather channel.


### M Indicator

The channel is in the transceiver's scan memory.

### H/L Indicator

"H" is high power. "L" is low power. Blank is a reception only channel.

### Key Lock Symbol

The channel is locked. All keys are disabled except for the H/L, PTT and  keys.



## Battery Indicator

Battery life, during transmission, as follows:

BATT ■ ■ ■ ■ (fully charged)

BATT ■ ■ ■ (75% charged)

BATT ■ ■ (50% charged)

BATT ■ (25% charged)

BATT blinks (needs to be charged)

(Also see Section 5.4)

### NOTE

The battery indicator should be used only as a guide in charging the CNB250 battery.

## Scrambler Code Indicator

The small characters 1, 8, and 8 above the letters BATT on the display indicate the scrambler code. (only when CVS240 scrambler is installed and activated)

# 4

# OPERATION



## 4.1 INITIAL PROCEDURE

### NOTE










Never key the transceiver without an antenna connected. Damage may occur to the transceiver. Do not operate the transceiver while charging.

1. Install the belt clip on the transceiver if desired. Use the 2 phillips-head screws included with the clip to mount the clip to the back of the transceiver.
2. Install the nylon carrying strap on the belt clip if desired. The steel ring on the strap attaches to a hole on a tab protruding from the belt clip.
3. Install the battery pack on the transceiver. (see section 5.2)
4. Install the antenna to the transceiver.
5. Turn the POWER /VOLUME CONTROL knob clockwise to turn the transceiver on.

## 4.2 RECEPTION

1. Turn the POWER /VOLUME CONTROL knob on.
2. Turn the POWER /VOLUME CONTROL knob to the desired level.
3. Turn the SQUELCH CONTROL knob fully counterclockwise. This state is known as "squelch off".
4. Turn up the POWER /VOLUME CONTROL knob until the noise or audio from the speaker is at a desired level.
5. Select a channel that has no signal being received (no one is transmitting on the channel) and only noise is heard.
6. Slowly turn the SQUELCH CONTROL knob clockwise and stop immediately after the noise disappears. This condition is known as the "Squelch Threshold". If the knob is turned clockwise past this point, weak signals may not be received. No noise and no signal are heard until a signal is received that exceeds the squelch threshold.
7. To change channels, press the  or  key. Sometimes, a slight adjustment of the squelch threshold is needed, some channels have a higher noise level than others.

Please refer to the OWNER'S MANUAL SUPPLEMENT for a complete listing of all USA, International and Canadian VHF Marine channels and their use.

8. If necessary, press the  key to turn on the lamp. The lamp automatically turns off in about 5 seconds. To turn off the lamp sooner, press the  key again.
9. To lock the channel in the operating mode so that it is not accidentally changed, hold down the  key for about 2 seconds. This locks the  or  keys and all the front panel controls except the H/L, PTT and  key. Key lock symbol "" appears on the display to indicate that the channel is locked. Hold down the  key for about 2 seconds to unlock the channel. Key lock symbol "" disappears from display.
10. When a message is received, the TX/BUSY LED lights green to indicate that the channel is busy.

## 4.3 TRANSMISSION

1. Perform steps 1 through 7 of RECEPTION.
2. Before transmitting, monitor the channel and make sure it is clear.  
**THIS IS AN FCC REQUIREMENT!**
3. For communications over short distance, press the H/L key until "L" is displayed on the LCD. This indicates low power, approximately 1 watt.

## NOTE

Transmitting on 1 watt prolongs battery life. Low power (1 watt) should be selected whenever possible.

4. If using low power is not effective, select high power by pressing the **H/L** key until "H" is displayed.
5. When receiving a signal, wait until the signal disappears before transmitting. The transceiver cannot transmit and receive simultaneously.
6. Press the **PTT** (push - to - talk) switch. The TX/BUSY LED lights red during transmission.
7. Speak slowly and clearly into the microphone. Hold the microphone about 1/2 to 1 inch away from your mouth.
8. When the transmission is finished, release the **PTT** switch.
9. Refer to the **OWNER'S MANUAL SUPPLEMENT** for standard transceiver operating procedures.



### 4.4 TRANSMIT TIME - OUT TIMER (TOT)

While the **PTT** switch is held down, transmission time is limited to 5 minutes. This prevents prolonged unintentional transmissions. About 10 seconds before automatic transmitter shutdown, a warning beep is sounded from the speaker. The transceiver automatically switches to the receiving mode, even if the **PTT** switch is held down. Before transmitting again, the **PTT** switch must first be released and pressed again. This time-out timer (TOT) prevents a continuous transmission that would result from an accidentally stuck **PTT** switch.

### 4.5 USA, CANADIAN AND INTERNATIONAL MODES



1. To change the mode of the transceiver, hold down the **16/9** key and press the **WX** key. The mode changes from USA, to International, to Canadian with each press.
2. A "U" appears on LCD for the USA mode, an "I" appears for International and a "C" appears in Canadian mode.
3. Refer to marine channel charts in **OWNER'S MANUAL SUPPLEMENT** for allocated channels in each mode.

### 4.6 WEATHER CHANNELS

1. To receive a weather channel, press the **WX** key. The transceiver changes channels to the weather channel.
2. Press the  or  key to change to other weather channels.

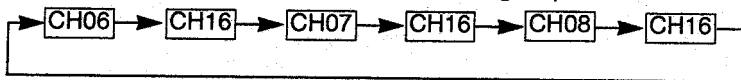
3. To exit from the weather channels, press the **CLR** key. The transceiver recalls the previous non-weather channel.

## 4.7 SCAN

1. Select the desired channel to be scanned using the  or  key.
2. Press the **R/D** key to store the channel into the transceiver's memory. An "M" is displayed.
3. Repeat step 1 to 2 for all the channels to be scanned.
4. To delete a channel from the transceiver's scan memory, press the **R/D** key again while the memorized channel is displayed. The "M" disappears.
5. All channels programmed remain in the transceiver's scan memory even if the power is turned off. See section 4.10 to clear all the transceiver's scan memory.
6. Adjust the SQUELCH CONTROL knob until the background noise is eliminated.
7. To start scan, press the **SC/PS** key. The scan proceeds from the lowest to the highest programmed channel number and stops on channels when a transmission is received.
8. To stop the scan, press the **CLR** key.

## 4.8 PRIORITY SCAN

1. For priority scan, press the **SC/PS** key during scan. Scanning proceeds between the memorized channels and channel 16. Channel 16 is the priority channel and is scanned after each programmed channel.
2. Example, channels 06,07 and 08 are memorized in the transceiver's memory. Priority scan proceeds in the following sequence:



3. Even when the transceiver stops and receives the signal on a memorized channel, the transceiver enters dual watch between the receiving channel and channel 16. The transceiver drops this signal when a signal is received on channel 16.

## 4.9 WEATHER ALERT

In the event of extreme weather disturbances such as storms and hurricanes, NOAA (National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050 Hz tone and subsequent weather reports on the weather channels. The transceiver is capable of receiving this alert if the following is performed:

1. Program weather channels into the transceiver's memory for scanning. Follow the same procedure as for regular channels under Section 4.7.
2. Press the **SC/PS** key to start the scan.
3. The memorized weather channels are scanned along with the regular memorized channels. Scan does not stop for normal weather broadcast.
4. When an alert is received on a weather channel, scanning stops and the transceiver enters the WEATHER ALERT MODE.
5. When the transceiver is in the WEATHER ALERT MODE, a loud tone is sounded.
6. Press the **CLR** key to stop the alert tone and receive the voice information on the weather channel.

## 4.10 CLEARING THE TRANSCEIVER'S MEMORY

To erase all channel from memory:

1. Turn the transceiver off.
2. Hold down the **CLR** key while turning the transceiver on.
3. Turn the transceiver off again.
4. Turn the transceiver on.

### NOTE

The above procedure also resets the microprocessor. Perform this procedure if an operational problem occurs.

## 4.11 EMERGENCY CHANNEL 16

1. To select the emergency channel, press the **16/9** key from any channel.
2. Transmit your emergency signal in the same manner as on regular channels. If you can not contact anyone on channel 16, switch to another channel.
3. See the OWNER'S MANUAL SUPPLEMENT for additional emergency operating practices.
4. To recall the previous channel from 16, press the **CLR** key.

## 4.12 CHANNEL 9

Channel 9 is used as a hailing channel for initial, non-emergency contact with other vessels. Hold down the **16/9** key to select channel 9.

## 4.13 OPERATING ON CHANNEL 13

Channel 13 is used at docks, bridges and for maneuvering in port. Messages on this channel must concern navigation only, such as meeting and passing in restricted waters.

In emergencies and when approaching blind river bends, high power is allowed. Hold down the **H/L** key to temporarily switch to high power. High power can only be accessed in USA and Canadian modes.

#### 4.14 OPERATING ON CHANNEL 67

When channel 67 is used for navigational bridge-to-bridge traffic between ships, high power may be used temporarily in the USA mode by holding down the **H/L** key.

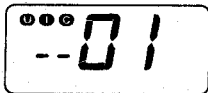
#### 4.15 SIMPLEX/DUPLEX CHANNEL USE



An channels are factory-programmed in accordance with FCC(USA), Industry Canada and International regulations. Mode of operation cannot be altered from simplex to duplex or vice-versa. Simplex or duplex mode is automatically activated, depending on the channel and whether USA, International or Canadian operating mode is selected. Refer to the channel charts in the OWNER'S MANUAL SUPPLEMENT.

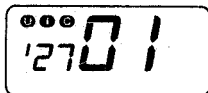
#### 4.16 VOICE SCRAMBLER



If private communication is desired, a CVS240 voice scrambler can be installed to the transceiver. Contact your SCC dealer or SCC factory to have the voice scrambler installed and programmed for your transceiver. With a voice scrambler installed in the transceiver, channels to be scrambled can be programmed as follows:

1. Hold down the **WX** key and turn on the transceiver. The display shows:



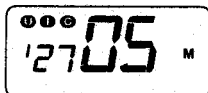
2. Hold down the **WX** key and press the  or  key to set the scrambler code. Any number from 00 to 127 can be selected as the scrambler code but all channels to be scrambled must have the same code. The display shows:



3. Select the channel to be scrambled by pressing the  or  key. The display shows:



4. Press the **R/D** key to store the channel to be scrambled in the transceiver's memory. The display shows the following with a "M" displayed.



5. If the channel was entered incorrectly, delete the channel from memory by pressing the **CLR** key, "M" disappears. To change the scrambler code, repeat step 2.
6. To program other channels to be scrambled, repeat steps 3 and 4. Only one scrambler code can be chosen for all channels programmed. All channels programmed show the scrambler code set in step 2.
7. If it is necessary to delete the scrambler code and all the channels programmed for scrambling, hold down the **WX** key and press the **CLR** key. This clears the memory and display recalls the one shown in step 1.
8. After all desired channels to be scrambled have been programmed, turn off the transceiver.
9. Turn on the transceiver. Normal operation resumes.
10. Select a channel that was programmed for scrambler mode.
11. Hold down the **R/D** key for 1 second to turn the scrambler on. The display shows the scrambler code to indicate that the scrambler is activated.
12. Hold down the **R/D** key for 1 second again to turn the scrambler off.

## 5

## BATTERY

### CAUTION

To avoid risk of explosion and injury, CNB250 battery pack should only be removed, charged or recharged in non-hazardous environments.

### 5.1 BATTERY CHARGING

To check the charge status, install the battery and press the **PTT** switch while observing the **BATT** indicator. (see page 7)

The battery charge system (CCA250 and CWC230) supplied with the transceiver recharges a completely discharged CNB250 battery pack in about 12 hours.

Battery pack should not be charged with the supplied battery charge system for longer than 16 hours.

The CSA240 is an optional desktop rapid charger that charges the CNB250 battery pack in 1 hour. The transceiver and its battery can be placed into this charger, and the charger set to rapid charge. Battery condition is automatically sensed: when full charge is achieved, the charger switches to trickle-charge mode to maintain the charge indefinitely without harm to either the battery or the charger. This charger and extra battery are highly recommended.

## **5.2 BATTERY REMOVAL/INSTALLATION**

1. Turn the transceiver off.
2. To remove, turn the battery lock screw counterclockwise 3 or 4 turns, and pull the battery pack until it slides out.
3. To install, slide the battery pack into the battery cavity until fully inserted, and turn the battery lock screw clockwise 3 or 4 turns to tighten (3.0 kgf.cm).

## **5.3 OPERATING BATTERY CHARGE SYSTEM**

1. Plug the end of CWC230 wall charger to the DC IN connector of the CCA250 charge adaptor.
2. Plug the wall charger into a 120 VAC wall outlet.
3. Turn the transceiver off.
4. Insert the transceiver. The indicator lights, and charging begins.
5. Remove the battery pack from charge adaptor when charging time has passed.

### **NOTE**

The CWC230 can be replaced CAW240 mobile cable, or CWC232 120/230 VAC wall charger.

### **CAUTION**

Never plug the power supply to CCA250 charge adaptor except with a CAW240, CWC230 or CWC232.



## 5.4 BATTERY SAFETY

Battery packs for your transceiver contain cadmium (Ni-Cd) batteries. This type of battery stores a charge powerful enough to be dangerous if misused or abused, especially when removed from the transceiver. Please observe the following precautions:

### DO NOT SHORT BATTERY PACK TERMINALS

Shorting the terminals that power to the transceiver can cause sparks, severe overheating, burns, and battery cell damage. If the short is of sufficient duration, it is possible to melt battery components. Do not place a loose battery pack on or near metal surfaces of objects such as paper clips, keys, tools, etc. When the battery pack is installed on the transceiver, the terminals that transfer current to the transceiver are not exposed. The terminals that are exposed on the battery pack when it is mounted on the transceiver are charging terminals only and not constitute a hazard.

### DO NOT OVERCHARGE

Do not charge the transceiver for more than 16 hour with the battery charge system. Heat generated by overcharging can shorten battery life and cause other battery pack component failures. The CSA240 rapid charger changes to trickle charge to maintain charge after their rapid charge cycle. Battery packs may be left in the chargers without harm to either the battery pack or charger.

### DO NOT INCINERATE

Do not dispose of any Ni-Cd battery in a fire or incinerator. The heat of fire may cause battery cells to explode and/or release dangerous gases.

### DISPOSE OF BATTERY PACKS PROPERLY

Ni-Cd batteries must be recycled or disposed of properly. For requirements in your area, check with the dealer from whom you purchased your transceiver. The symbol shown below is a reminder that the battery packs are recyclable.



Ni-Cd

For preventive maintenance and instructions on obtaining factory service, please refer to the OWNER'S MANUAL SUPPLEMENT. For general troubleshooting, refer to this Troubleshooting Chart.

TROUBLESHOOTING CHART		
SYMPTOM	PROBABLE CAUSE	REMEDY
The <b>SC/PS</b> key does not start the scan.	No channels memorized.	Use the <b>R/D</b> key to memorize desired channels into the transceiver's memory.
	Squelch is not adjusted.	Adjust the squelch to threshold or to the point where noise just disappears. Further adjustment of the squelch control may eliminate incoming signals.
The <b>U/C</b> modes do not function.	Proper operation not followed.	Hold down the <b>16/9</b> key and press the <b>WX</b> key.
Rotating the squelch control does not eliminate background noise.	Low battery.	Charge battery. Refer to section 5 of this manual.
Cannot change any function.	Lock key is on.	Turn Lock key off.
Lock key does not function.	Proper operation not followed.	Hold down for 2 seconds.
LED on <b>CCA250</b> or <b>CWC230</b> does not light when charging a battery.	Defective battery, <b>CCA250</b> or <b>CWC230</b> .	Contact your <b>SCC</b> dealer or <b>SCC</b> for servicing.

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

## 7.1 GENERAL

Frequency Range.....	156.025 to 163.275 MHz
Channels .....	All currently allocated USA, Canadian and International channels, plus 10 weather channels.
RF Power Output with CNB250 Battery.....	5.0 W (high) 1.0 W (low)
Operating Voltage .....	7.2 VDC
Current Drain:	
Standby .....	40 mA
Receive .....	200 mA
Transmit .....	1.8 A (high power) 0.7 A (low power)
Dimensions .....	5.51" H x 2.17" W x 1.50" D (140.0 mm x 55 mm x 38 mm)
Weight.....	1.0 lb. (0.45 Kg)
FCC Type Acceptance Number .....	APV0194
Industry Canada Type Approval Number.....	363 822-164A
Battery Life(5% TX, 5% RX, 90% Standby).....	10hrs. (low) 6hrs. (high)

## 7.2 TRANSMITTER

Conducted Spurious Emissions.....	.65 dB (high); 55 dB (low)
Audio Response .....	within +2/-8 of 6 dB/octave pre-emphasis characteristic from 300 Hz to 3000 Hz
AF Harmonic Distortion .....	3 %
Hum and Noise .....	37 dB
Frequency Stability (-20° to +50°C).....	± 0.0005 %

## 7.3 RECEIVER

Sensitivity:	
20 dB Quieting.....	0.35 $\mu$ V
12 dB SINAD .....	0.30 $\mu$ V
Squelch Sensitivity (Threshold).....	0.20 $\mu$ V
Modulation Acceptance Bandwidth .....	± 4.5 kHz
Selectivity:	
Spurious and Image Rejection .....	60 dB
Intermodulation Rejection.....	60 dB
Channel Spacing .....	25 kHz