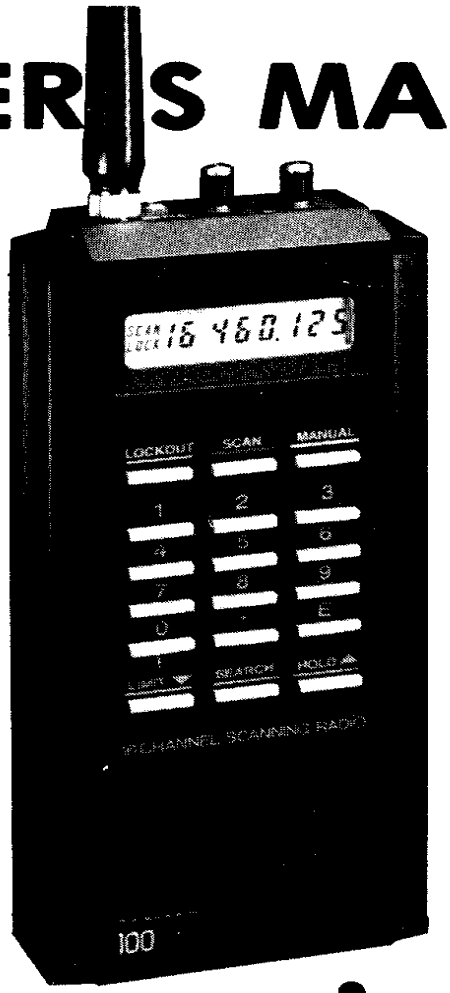
# OWNER'S MANUAL




# Bearcat® 100

## 16 CHANNEL HAND-HELD PROGRAMMABLE SCANNING MONITOR

Manufactured under one or more of the following patents:

| | | |
|---|---|---|
| 3,962,644 | 4,123,715 | 4,027,251 |
| 4,092,594 | 4,961,261 | 4,100,497 |

8 Band Coverage

Low VHF
Government Land/Mobile
2 Meter Amateur
High VHF
Government
70 CM Amateur
UHF
UHF-T

Electra

Electra Company
Division of Masco Corp. of Indiana
300 East County Line Road
Cumberland, Indiana 46229

International Business Office
Suite 102 • 1828 Swift
North Kansas City, Missouri 64116
Telex 426145 ELECTRA NKSC

# TABLE OF CONTENTS



**A.C. Adapter is UNDERWRITERS LABORATORIES LISTED**

Certified in accordance with FCC Rules and Regulations Part 15.63 as of date of manufacture.

## CAUTION

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

**For future reference, write the model number and serial number below. You will find them printed on the back of your unit.**

**Model No.** _____ **Serial No.** _____

**Purchased from:** _____ **Date** _____

# TECHNICAL SPECIFICATIONS*

| | |
|---|---|
| **Size:** | 3" W x 1 3/8" D x 7" H |
| **Weight:** | 1 lb. |
| **Cabinet:** | Extruded anodized aluminum with high impact plastic inserts |
| **Power:** | 7.2 Vdc provided by 6 AA Ni-Cad batteries (included) |
| **Antenna:** | Custom designed flexible antenna |
| **RF Sensitivity:** | Low band .6 uV for 12 dB SINAD<br>High band .6 uV for 12 dB SINAD<br>UHF band 1 uV for 12 dB SINAD<br>(typical midband, from 50 ohm source, E.I.A. method) |
| **IF Selectivity:** | 50 db @ ±25 kHz |
| **Audio Output:** | 300 milliwatts into 8 ohms |
| **Frequency Coverage:** | 30-50 MHz Low Band<br>138-144 MHz Military Land Mobile<br>144-148 MHz 2-Meter Amateur<br>148-174 MHz High Band<br>406-420 MHz Federal Govt. Land Mobile<br>420-450 MHz 70 cm Amateur<br>450-470 MHz UHF band<br>470-512 MHz "T" band |
| **Scan/Search Speed:** | 15 channels per second |
| **Channel Capacity:** | 16 |
| **Delay:** | 2 seconds-built in |
| **Lockout:** | Any channel(s) (selectable) |
| **Display:** | Liquid crystal |
| **Search:** | Keyboard-programmable limits within any one continuous frequency band |
| **Accessories:** | AC Adaptor-charger: Input - 117 Vac; Output 12 Vdc, 200 ma<br>Earphone: 8 ohms with one meter cord terminating in 2.5 mm plug |

***Specifications are typical and subject to change without notice.**

# GENERAL DESCRIPTION

The Bearcat 100 is the result of several years of research and development, and incorporates many unique design concepts. All of the components are integrated into an extruded aluminum frame which gives the unit rigid durability. The frame forms a solid protective rack for the two printed circuit boards, and the center wall provides an electronic shield between the circuits of each board. The batteries are held in two tubes which are integrated to the frame.

Using the most recent technical advances, the BC 100 satisfies the highest performance standards that can be expected in a hand-held instrument of this type. The custom integrated circuits, microprocessor, liquid crystal display, and other parts have been designed to give the Bearcat 100 high quality performance while maintaining low battery drain.

The BC 100 employs a sophisticated battery charge controller not normally provided in consumer products. The battery indicator flashes to show "battery low" condition, and is lighted continuously when operating from the external power supply. This confirms that the AC adaptor is providing power to the system. Also, the battery charge controller prevents damage to the batteries due either to overcharge or excessive discharge. With the proper care and maintenance and by following the instructions in this manual, your Bearcat 100 will provide the highest level of performance.

# INSTRUCTIONS FOR INITIAL USE

Please read the following instructions carefully and completely before operating your scanner.

1. Carefully remove the unit from the carton and custom inner packing. (Save these materials for possible future use.) Check your scanner and accessories for shipping damage; if damage has occurred, contact your dealer immediately.
2. Remove scanner from carrying case and read caution statement printed on the battery caution band as follows:

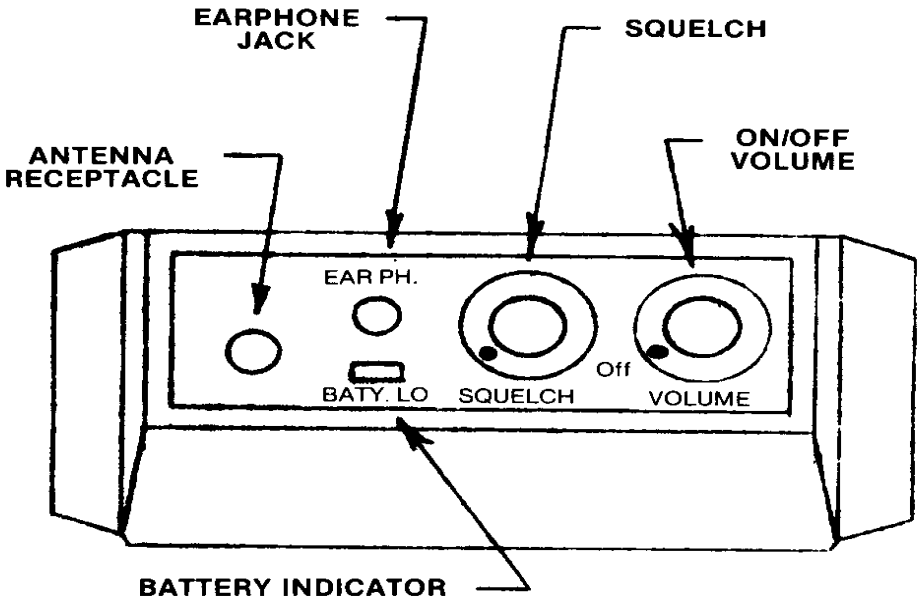
**CAUTION**

The six (6) ni-cad rechargable batteries installed within this scanner have been charged and tested at the factory. However, they may have become discharged in transit. To use the unit on batteries, remove the red protective strip and charge the batteries for 8-10 hours. See page 11 for further details regarding charging operation.

3. Insert threaded end of flexible antenna provided into receptacle on top of unit and finger tighten.
4. After the batteries have been fully charged, or with the scanner attached to the external power supply, turn the unit ON by turning the VOLUME control clockwise about ⅓ of its rotation and press the MANUAL key.

5. Rotate SQUELCH control clockwise until you hear background noise then turn it back counterclockwise until the noise is silenced. You are now ready to program your scanner using instructions given on page 7.

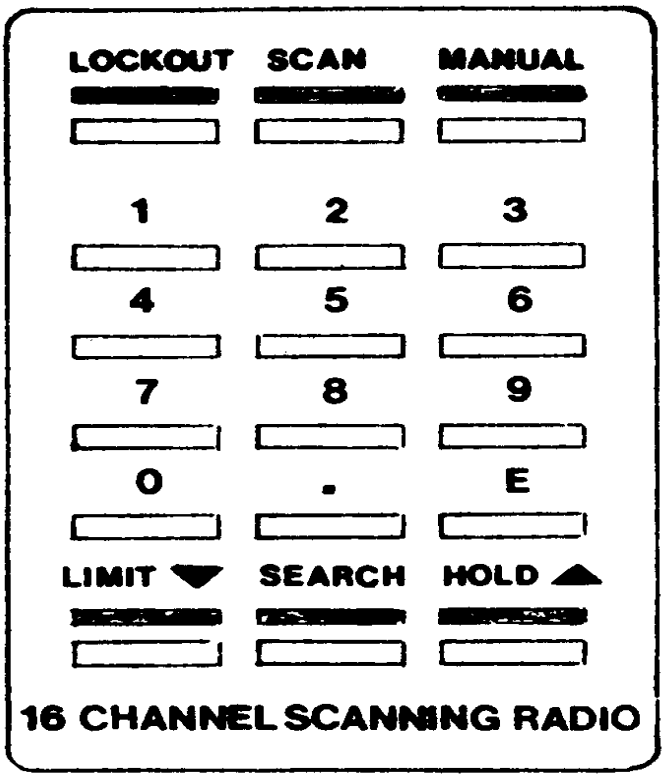
## DESCRIPTION OF FEATURES




## TOP PANEL FEATURES

1. ON/OFF VOLUME: Top mounted rotary control turns receiver ON and OFF, and adjusts VOLUME level.
2. SQUELCH: The radio should be squelched (muted) when a signal is not present. The squelch control sets the radio signal level that will cause the scanner to "unsquelch" and produce an audio output. Turn the control clockwise to receive more distant (weaker) signals.
3. BATTERY INDICATOR: Alerts user of need for recharging batteries by flashing, and indicates that scanner is operating properly from external power when lit continuously.
4. ANTENNA RECEPTACLE: Threaded connection for custom flexible antenna.
5. EARPHONE JACK: 2.5 mm jack for connection of earphone for private listening (disconnects main speaker when earphone is in use).

# DESCRIPTION OF FEATURES (continued)




## FRONT PANEL FEATURES

**Lockout** — Locks out reception of signals on any selected channels while scanning only. (See page 8.)

**Scan** — Starts scan of all active channels.

**Manual** — Stops scan or search. Steps scanner through channels in sequence. Also permits direct channel access. (See page 8.)

**1** — Numeric keys **0** through **9** and decimal point **.** are used to program frequencies and search limits into scanner. **E** enters frequencies into 16 scan channels. (See page 7.)

**Limit▼** — Enters two selected frequencies as upper and lower search limits. During search mode, it also permits manual stepping of frequency toward limit. (See page 11.)

**Search** — Starts search operation; resumes after **Hold▲** is pressed. (See page 9.)

**Hold▲** Stops search. Permits manual stepping of frequency toward upper limit in search mode. (See page 11). To resume the automatic search operation, press **Search**

A two-second scan delay is built in to allow the radio to receive reply transmissions before resuming search or scan.

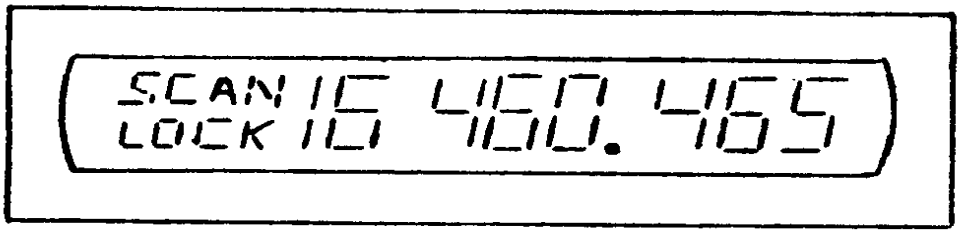
## LIQUID CRYSTAL DISPLAY

The BC 100 is equipped with a custom-designed liquid crystal display to indicate channel number, frequency, and operating modes.

## CAUTION

Because of inherent limitations, liquid crystal displays should not be subjected to extremes of temperature or humidity. If the unit is exposed to temperatures below −20°C (−5°F) or above +60°C (+140°F), the liquid crystal display may temporarily cease to function properly, and in some cases **permanent** damage may result. It is, therefore, recommended that the radio not be subjected to extreme conditions, such as a closed automobile in direct sunlight or continuous sub-zero temperatures.

All liquid crystal displays have a preferred viewing angle where the display contrast is maximum. This best viewing point depends on design considerations, temperature, and battery condition. Optimum viewing of the BC 100 display is achieved by holding the unit so that the battery door end is pointed about half-way between straight down and straight at the user. This also provides the best position to view and operate the keyboard.




**BC 100 DISPLAY**

**Scan** - Indicates that the unit is in SCAN mode. Channel numbers are indistinct in scan mode because the receiver's scan speed is faster than the display can follow. The scan indicator describes what the receiver is doing.

**Lock** - Indicates that present channel is programmed to be skipped in the scan sequence, scan mode.

## DESCRIPTION OF FEATURES (continued)

**16** - Indicates that channel 16 is being monitored in MANUAL mode or when receiving a signal in scan mode.

460.475 - Indicates that the receiver is tuned to (monitoring) 460.475 MHz. Frequency is not displayed in scan mode unless a signal is present.

# OPERATING INSTRUCTIONS

## PROGRAMMING YOUR RECEIVER

Read this section thoroughly before attempting frequency programming.

Now that you are aware of the controls and features of your Bearcat 100, you are ready to enter desired frequencies.

You can program your radio to scan 16 different frequencies, one in each channel.

## EXAMPLES

To program 162.550 MHz into channel (3): (Complete instructions given on page 3.)

PRESS: [Manual] [3] [Manual] selects channel 3.

PRESS: [1] [6] [2] [·] [5] [5] [Enter] final zeroes to the right of the decimal will enter automatically.

READ: 3 162.550

To program 471.2375 into the next channel (4):

PRESS: [Manual] advances to next channel (4).

PRESS: [4] [7] [1] [·] [2] [3] [7] [5] [Enter]

READ: 4 471.237 (rounded off to 3 places)

# OPERATING INSTRUCTIONS

## PROGRAMMING YOUR RECEIVER

If you attempt to enter a frequency outside the range of the BC 100, "Error" will be displayed. If this happens, simply enter a correct frequency. If you make an error while entering a frequency, press the decimal key [ · ] twice and begin again. You may omit the decimal point on VHF high band (138-174 MHz) and UHF (406-512 MHz) frequencies. Your Bearcat 100 has been designed to enter trailing zeroes automatically on these bands. On low band (30-50 MHz), you must press the decimal point key.

When first turned on after purchase or after batteries have been removed, a test frequency will be found in each of the memory channels. Be sure to recharge the batteries when the battery low light flashes. Your frequencies will be retained long after the batteries have discharged to the point that the battery charge controller turns the system off, (see page 11), but if batteries are not recharged, eventually the frequencies will be lost.

## MANUAL CHANNEL SELECTION

If you wish to select manually one specific memory channel, you may:

| | | |
|---|---|---|
| PRESS: | **Manual** | repeatedly until desired channel number appears; |
| | or | |
| PRESS: | **Manual** | **Channel Number** |
| | **Manual** | |

## LOCKOUT

There will be times that you wish to skip over certain programmed channels while scanning. Any number of channels may be individually locked out as follows:

| | | |
|---|---|---|
| PRESS: | **Manual** | **Channel Number** |
| | **Manual** | |
| PRESS: | **Lockout** | Lock will appear to left of channel number indicating lockout for the channel. When in scan mode with a signal present, pressing Lockout causes the current memory channel to be locked out and scan to resume. |

# OPERATING INSTRUCTIONS

## LOCKOUT

To remove lockout:

| | | |
|---|---|---|
| PRESS: | Lockout | again while on that channel. Lockout will be removed and lock will disappear. |

## SEARCH

It is often desireable to sample all frequencies within a range of frequencies to locate signals that would otherwise be unknown. To search for these, it is only necessary to input an upper frequency and a lower frequency to specify a search range within one band (30-50, 138-174, or 406-512 MHz). First select a channel number, then enter the two search limits. In the following example, a search between 152.150 and 155.575 MHz on memory channel 4 will be initiated.

| | | | |
|---|---|---|---|
| PRESS: | Manual | 4 | Manual |
| PRESS: | 1 5 2 · 1 5 | Limit | |
| READ: | 4 | 151.150 | (One limit is entered) |
| PRESS: | 1 5 5 · 5 7 5 | Limit | |
| READ: | 4 | 155.575 | (Second limit is entered. Sequence of entering limit frequencies is not important.) |
| PRESS: | Search | | (Start searching from low limit frequency to high limit frequency.) |

When an active channel is found, the search stops and the frequency is displayed. During search a powerful signal may cause the scanner to "lock-on" at a frequency lower than the one that gives the best reception; this may be noticeable as a distorted sound quality. For example, 162.550 MHz weather may first be received at 162.545, and the search will stop. If this happens, simply press the Hold▲ key one or more times until the best quality signal is received. If the best frequency is passed, simply press the Limit▼ key to step frequency in the reverse direction.

# OPERATING INSTRUCTIONS

## SEARCH

To stay on a frequency after signal goes off the air:

PRESS: [Hold▲] (once)

To store the displayed frequency in the displayed channel:

PRESS: [Enter]

Pressing the [Enter] key will store a search frequency regardless of whether [Hold▲] has been pressed.

Additional search frequencies may be stored into the various memory channels as follows:

PRESS: [Manual] [Channel Number] [Manual]
(to select a new memory channel directly, then)

PRESS: [Search]

Search limits are retained in memory unless all power is disconnected (batteries removed). If search limits have never been entered, pressing [Search] will produce "ERROR" in the display.

**NOTE 1**

First Press of [Hold▲] key causes search to halt. If signal is present when [Hold▲] key is pressed, receiver frequency will advance to next frequency in search. Sequence and signal quality may improve or degrade. If it is desired to return to original frequency press [Limit▼] key once.

# OPERATING INSTRUCTIONS
# MANUAL STEP-SEARCH

Your Bearcat 100 has been provided with the ability to be stepped, one frequency at a time, either up or down throughout its search range. This feature is helpful in centering on a frequency when search stops early, or for stepping back to a frequency previously searched.

To step search while in search mode:

| | | |
|---|---|---|
| PRESS: | Hold▲ | Stops search on present frequency. (See Note 1 on previous page) |
| PRESS: | Hold▲ | Repeatedly to step upward to the desired higher frequency. (See Note 1 on previous page) |

or

| | | |
|---|---|---|
| PRESS: | Hold▲ | Stops search on present frequency. |
| PRESS: | Limit▼ | Repeatedly to step downward to the desired lower frequency. |

Normal Search will not be resumed until Search is pressed.

## BATTERY RECHARGING

CAUTION: Use only the AC Adaptor Charger provided with your Bearcat 100 so as to avoid the possibility of improper charging, damage to the batteries, the charger, or the scanner, or an injury from burn or explosion of the battery or charger.

Your Bearcat 100 is equipped with six (6) AA Ni-Cad rechargeable batteries rated at 1.2 Vdc each for a total of 7.2 Vdc. When fully charged, these batteries will power the scanner for about 8 hours of normal usage. When the Battery Indicator is flashing, the unit should be recharged immediately for 8-10 hours with the AC Adaptor-Charger included with the radio. This charger provides an output of 12 VDc at 200 ma when connected to a 117 outlet for fast recharging of the 7.2 Vdc battery supply in the radio. Although this output is adequate for operating the scanner, the time for recharging will be lengthened. A sophisticated battery charge controller included in the scanner will assure maximum battery life. Battery suppliers specify that Ni-Cad batteries may be recharged up to 1000 times or more under normal conditions. Actual battery life depends on scanner activity, how many stations are active, how high volume is set, length of broadcasts, etc. Battery age and temperature are also factors.

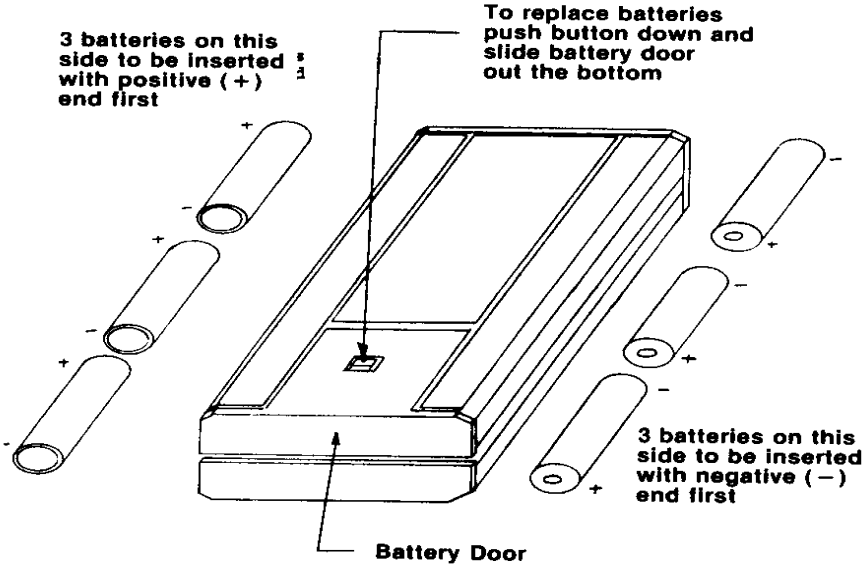
# BATTERY LOW INDICATOR

The Battery Low Indicator operates in four stages:

1. The indicator is **OFF** when the scanner is operating from its battery, and the battery does not require recharging.
2. The indicator **FLASHES** when the scanner is operating from the battery, and the battery needs to be recharged.
3. The indicator is **ON** continuously when the scanner is connected to its AC adaptor/charger, signifying both AC operation of the scanner and battery charging. (The charging circuit also protects the batteries from overcharging.)
4. The indicator will again go **OFF** when the batteries have discharged below a safe minimum level.

# BATTERY REPLACEMENT

If it becomes necessary to replace your batteries, use only high quality Nickel-Cadium rechargeable type, AA size rated at 1.2 Vdc. Remove the battery cover form the bottom of the radio by pressing on the retainer clip as shown in the drawing below. There are variations in batteries from brand to brand even as to size of the batteries. Electra suggests the use of Panasonic or Gould batteries, for the BC 100 although batteries from other suppliers may work satisfactorily. Electra accepts **no** responsibility when unauthorized batteries are used.




Slide old batteries from tubes and insert replacements in the proper position. Snap battery cover back into place.

CAUTION: Improper installation of the batteries may cause damage to the batteries, the charger, or scanner, and possible injury from burn or explosion of the battery or the charger.

# USER HINTS

1. Always remember to press the Enter key when programming a desired frequency.

2. When shipping the radio, be sure to remove the flexible antenna.

3. Remember that the liquid crystal display is subject to permanent damage if exposed to excessive temperatures.

4. The BC 100 never sleeps - its memory is always active even though the power is turned off. Battery drain in this mode is almost as low as the self-discharge rate of the batteries alone. So, memory will not be lost unless the user is particularly slow in placing the unit on charge.

5. Receiver sensitivity is affected by location of antenna and proximity to some objects. Best reception will occur when the unit is placed on a level metal surface with the antenna pointed upward.

# BIRDIES

Receivers having broad tuning range are subject to interference from internally generated signals on a few receiver frequencies. On these frequencies, reception of external signals may be impaired. Nothing is wrong with the unit in these cases unless such interference occurs on a large number of frequencies.

# SERVICE

If your scanner does not seem to be functioning properly:

1. Refer to operating instructions to confirm that the proper procedure for operation has been followed.

2. Be sure the batteries are charged.

3. Is it turned ON?

4. Check that the flexible antenna is properly installed.

5. If "Error" appears on the readout, you have entered an invalid frequency or attempted some other incorrect operation.

6. If it is determined that the receiver requires servicing, refer to the warranty instructions enclosed with your unit for the proper repair facility.

7. When preparing the receiver for shipment, remove the flexible antenna, but leave the batteries installed. Make sure the unit is turned OFF.

8. Pack the unit in its original packing carton and include a brief, concise description of the observed problem you are having along with your name, address, phone number, and a copy of your purchase receipt.

# LIMITED WARRANTY

This Bearcat® receiver is warranted to the original consumer purchaser to be free from defects in material and workmanship for a period of one (1) year from the date of purchase as shown on purchaser's receipt.

Electra will repair or replace, AT ITS OPTION AND FREE OF CHARGE, during the warranty period, any part which proves defective in material or workmanship under normal installation, use, and service, provided the receiver is returned to our factory (address below) or to one of our authorized Service Centers (list enclosed), TRANSPORTATION CHARGES PREPAID. Receivers returned to our factory or authorized Service Center must be accompanied by a copy of purchase receipt. In the absence of such purchase receipt, the warranty period shall be one (1) year from the date of manufacture as indicated by the serial number on your unit.

Any damage to this receiver as a result of misuse, abuse, neglect, accident, improper installation, destruction or alteration of the serial number, repair or alteration outside our factory or Service Center, or any use violative of instructions furnished by us WILL VOID THE WARRANTY. THIS WARRANTY IS LIMITED TO DEFECTIVE PARTS REPAIR AND/OR REPLACEMENT ONLY AND EXCLUDES ANY INCIDENTAL AND CONSEQUENTIAL DAMAGES CONNECTED THEREWITH.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. In the event of a problem with warranty service or performance, you may be able to go to a small claims court, a state court, or a federal district court.

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