uniden®

Bearcat®

BC 100XL

HAND HELD PROGRAMMABLE SCANNER

- 16 CHANNELS
- 9 BAND COVERAGE
- CRYSTAL FREE
- AUTOMATIC SEARCH
- PRIORITY CHANNEL
- SELECTIVE SCAN DELAY
- DISPLAY LIGHT
- AUTOMATIC LOCKOUT
- TRACK TUNING
- DIRECT CHANNEL ACCESS
- BATTERY LOW LIGHT
- CUSTOM ANTENNA
- CARRY CASE, EARPHONE, AC ADAPTOR, BATTERY CHARGER INCLUDED

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OPERATING INSTRUCTIONS

TABLE OF CONTENTS

Technical Specifications 3
Unpacking 4
General Description 4
Instructions for Initial Use 4, 5
Description of Features . . . . . 5 - 7
Top Panel 5
Front Panel 6
Liquid Crystal Display 7
BC 100XL Display 7
Operating Instructions . . . . . 8 - 12
Programming Your Receiver . . . 8
Manual Channel Selection 9
Lockout 9
Scan Delay 9
Display Light 10
Search 10, 11
Manual Step-Search 11
Priority 12
Battery Recharging 12
Battery Low Indicator 13
Battery Replacement 13, 14
User Hints 14
Birdies 14
Service 15

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

WARNING

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

For future reference, write in the model number and serial number below. You will find them on the rear of the unit.

Model No. _____ Serial No. _____

Purchased from: _____ Date _____

TECHNICAL SPECIFICATIONS

Size:	2-29"/32 W x 1-7"/16 x 7" H
Weight:	1 lb., 4 oz.
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 with BNC Connector
RF Sensitivity:	Low band 0.3 µV for 12 dB SINAD Aircraft Band 0.8 µV for 12 dB SINAD High band 0.4 µV for 12 dB SINAD UHF band 0.5 µV for 12 dB SINAD (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 118-136 MHz Am Aircraft 136-144 MHz Military Land Mobile 144-148 MHz 2-Meter Amateur 148-174 MHz High Band 406-420 MHz Federal Gov't. Land Mobile 420-450 MHz 70 cm Amateur 450-470 MHz UHF band 470-512 MHz "T" band
Scan Speed:	15 channels per second
Search Speed:	25 frequencies per second
Channel Capacity:	16
Delay:	3 seconds (selectable)
Lockout:	Any channel(s) [selectable]
Display:	Liquid crystal with backlight
Search:	Keyboard-programmable limits within any one continuous frequency band
Accessories:	AC Power Supply/Battery Charger: Input 117 Vac; Model:AD-100U Earphone: with one meter cord terminating in 2.5 mm plug Carrying Case

SPECIFICATIONS ARE TYPICAL AND SUBJECT TO CHANGE WITHOUT NOTICE.

UNPACKING

Carefully remove the unit from the shipping carton. If there is any visible damage, DO NOT attempt to operate the equipment. Notify your dealer or shipping carrier immediately.

Keep the shipping carton and packing materials, as well as all printed material. The carton serves as an excellent method to transport the Uniden® Bearcat® 100XL to other locations.

The following parts are included in this carton:

Uniden® Bearcat® 100XL	Carrying Case	Power Supply/Battery Charger AD-100U
Earphone	Rubber Antenna	
Operating Instructions		

GENERAL DESCRIPTION

The Uniden® Bearcat® 100XL 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 100XL 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 Uniden® Bearcat® 100XL high quality performance while maintaining low battery drain.

The BC 100XL 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 Power Supply 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 Uniden® Bearcat® 100XL 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 rechargeable 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, charge the batteries for 8-10 hours. See page 11 for further details regarding charging operation.

3. Insert connector end of flexible antenna provided into receptacle on top ofunit 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 1/3 of its rotation and press the MANUAL key.
5. Rotate SQUELCH control clockwise until you hear background noise and then turn it back counterclockwise until the noise is silenced. Move the keypad lock switch to OFF position. You are now ready to program your scanner using instructions given on page 8.

DESCRIPTION OF FEATURES

TOP PANEL FEATURES (Figure 1)

1. **ON/OFF VOLUME:** Top mounted rotary control turns receiver ON and OFF, and adjusts VOLUME level.
2. **SQUELCH:** The radio should be squelched (silent) 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:** BNC connector 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).
6. **KEYPAD LOCK:** Locks out the keypad to prevent accidental keypad entry.

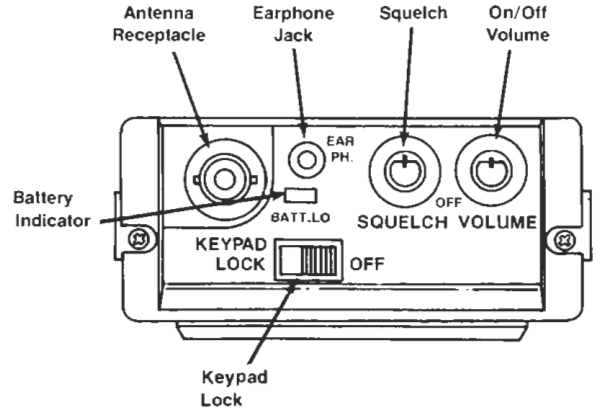

Figure 1

FRONT PANEL FEATURES (Figure 2)

DELAY Adds a three-second delay on desired channels to prevent missing transmissions when "calls" and "answers" are on the same frequency. (See page 8.)

PRIORITY Samples Channel 1 every two seconds regardless of other operational settings. Priority function will be retained in memory.

LIGHT Provides light for easier viewing of display in darkness. (See page 9.)

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 10.)

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 10.) To resume the automatic search operation, press [SEARCH].

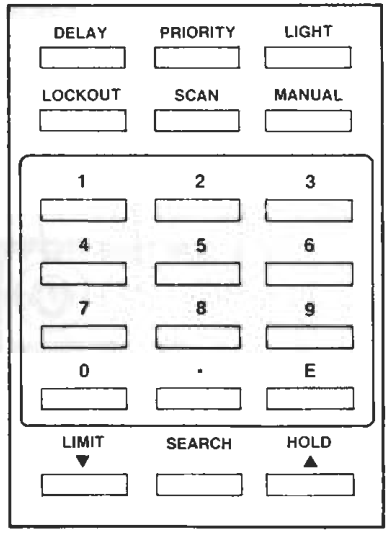

Figure 2

LIQUID CRYSTAL DISPLAY

The BC 100XL 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 temperature 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 100XL 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 100XL DISPLAY Figure 3)

PRIORITY Indicates that the unit is in PRIORITY mode. Channel 1 will be sampled every two seconds regardless of other scanner operations.

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

DELAY Indicates that a three second delay will occur befor scanning resumes.

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

122.800 Indicates that the receiver is tuned to (monitoring) 122.800 MHz. Frequency is **not** displayed in scan mode unless a signal is present.

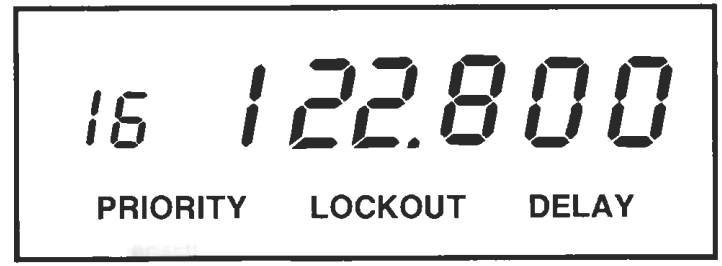

Figure 3

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 Uniden® Bearcat® 100XL, 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:

Press: [3] [MANUAL] selects channel 3.

Press: [1] [6] [2] [·] [5] [5] [E] 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] [E]

Read: 4 471.237 (rounded off to 3 places)

If you attempt to enter a frequency outside the range of the BC 100XL, "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 Aircraft band (118-136), VHF high band (136-174 MHz), and UHF (406-512 MHz) frequencies. Your Uniden® Bearcat® 100XL 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 until the battery low indicator ceases flashing, (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: [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: [CHANNEL NUMBER] [MANUAL]

Press: [LOCKOUT]

LOCKOUT will appear beneath the 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.

To remove lockout:

Press: [LOCKOUT]

again while on that channel. Lockout will be removed and LOCK will disappear.

SCAN DELAY

Your scanner may be programmed to pause for about three seconds after a transmission ends on any selected channel. This is useful in preventing the continuation of scanning when there is only a slight pause in the transmission. It is also useful when both sides of a conversation are occurring on the same frequency.

For example, to program Delay on channel 1, select channel 1, then:

Press: [DELAY]

DELAY will appear beneath the frequency indicating scan delay for that channel.

To remove Delay:

Press: [DELAY]

again while on that channel. Scan delay will be removed and DELAY will disappear from display.

DISPLAY LIGHT

The Uniden® Bearcat® 100XL is equipped with a light to enhance readability of the display in darkened conditions. To activate the light at any time, simply:

Press: **LIGHT** Display will be illuminated for 15 seconds in scan and search modes, 45 seconds in manual mode. Then light *automatically* turns off.

The display may be turned off manually, if desired, in this manner:

Press: **LIGHT**

Light will turn off immediately.

SEARCH

It is often desirable 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, 118-136, 136-174 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 152.575 MHz on memory channel 4 will be initiated.

Press: **4** **MANUAL**

Press: **1** **5** **2** **.** **1** **5** **LIMIT▼**

Read: 4 152.150 (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.

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

Press: **HOLD▲** (once)

To store the displayed frequency in the displayed channel:

Press: **E**

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: **CHANNEL NUMBER** **MANUAL**

(to select a new memory channel directly, then)

Press: **SEARCH**

Search limits are retained in memory unless the unit looses power, e.g. batteries removed.

NOTE: 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.

MANUAL STEP-SEARCH

Your Uniden® Bearcat® 100XL 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** above)

Press: **HOLD▲** repeatedly to step upward to the desired higher frequency.

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.

PRIORITY

It is often desirable to be alerted to a transmission occurring on a channel other than that to which you are listening. The priority feature samples any frequency which has been entered into channel 1, every 2 seconds.

If a signal is detected on the priority frequency, (channel 1) when sampled, the receiver will remain tuned in to it until the transmission ceases, at which time the scanner will revert to the last mode of operation.

To activate the priority function:

Press:	PRIORITY

Note that the word PRIORITY will appear beneath the channel number. See fig. 3.

To remove priority:

Press:	PRIORITY	again.

BATTERY RECHARGING

CAUTION: Use only the AC Power Supply AD-100U provided with your Uniden® Bearcat® 100XL 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 Uniden® Bearcat® 100XL 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 Power Supply included with the scanner. This charger provides 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-Cadmium rechargeable type, AA size rated 1.2 Vdc. Remove the battery cover from the bottom of the radio by removing the screws as shown in Figure 4.

There are variations in batteries from brand to brand even as to size of the batteries. Uniden® suggests the use of SANYO or PANASONIC batteries, for the BC 100XL, although batteries from other suppliers may work satisfactorily. Uniden® 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. (See Figure 4)

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.

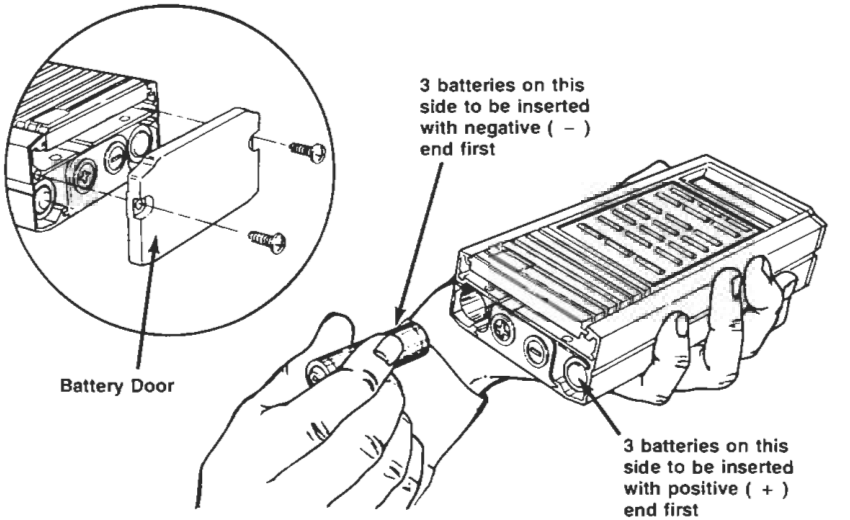

Figure 4

IF THE BATTERIES ARE DEAD

If the batteries are allowed to go completely dead, there is the possibility the microprocessor will not initialize properly. This will be indicated by the keyboard not functioning properly and/or the display changing slowly while scanning.

When this situation occurs, follow this procedure:

1. Turn the unit OFF with the ON/OFF switch.
2. Charge the batteries in the normal manner for 20 to 30 minutes as described in BATTERY RECHARGING on page 11.
3. Disconnect the AC Power Supply from the unit.
4. Remove the two screws holding the battery door in place as illustrated in Figure 4.
5. Leave the door removed for 10 to 15 seconds then replace it and the holding screws.
6. Continue charging the unit in the normal manner for an additional 8 to 10 hours.

After following this procedure, it will be necessary to re-program the desired frequencies into the appropriate channels.

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 100XL 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 ranges 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. Make sure the unit is turned ON.
4. Check to see that the flexible antenna has been properly installed.
5. See the procedure on page 13 concerning dead batteries.
6. If "ERROR" appears on the readout, you have entered an invalid frequency or attempted some other incorrect operation.
7. If it is determined that the receiver requires servicing, refer to the warranty instructions enclosed with your unit for the proper repair facility.
8. When preparing the receiver for shipment, remove the flexible antenna, but leave the batteries installed. Make sure the unit is turned OFF.
9. 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.