CHANGER DE BANQUE.

- SCAN
- BANK
- PROG
- N° de BANQUE
- LIMIT
- N° (IDEM) de BANQUE
- ENT

ENREGISTRER UNE FREQUENCE

- MANUAL
- REGLER LA FREQUENCE
- PROG
- N° DE BANQUE
- N° de CANAL

Instruction Manual
for
Model AR1000XLT
Wide Range Portable Monitor

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About this manual

It is very important that you understand that this manual has been written to be read from beginning to end and is not an indexed reference. Also it is crucial that you actually try out every new command on your scanner as you read about it in this manual to familiarize yourself with the unit. If you follow this advice you will get the most out of this manual.

The outside of the unit.

The front of the AR1000XLT comprises, in the bottom one third, a built in loudspeaker and, in the top two thirds, a keypad and an LCD display.

The display shows a number of bits of information which will all be mentioned and explained in the process of explaining the general operation of the unit.

The keypad is made up of 26 keys divided into two distinct groups: The numerical part and the command or function part.

These keys will all be explained as you read through this manual.

On the right hand side of the AR1000XLT is a small concentric socket used to feed power to the unit for both operation from an external (11 to 18 volt) power source and charging of the internal NiCad. batteries.

On the top of the AR1000XLT can be found four controls and two connectors: A BNC antenna connector which can be used either to mount an antenna, such as the rubber duck antenna supplied, directly onto the unit or for connection to an external antenna; and a 3.5mm jack socket for earphones or external speaker of 8 Ohms or higher.

The four controls are volume, squelch, antenna attenuator switch (20dB) and the frequency/channel up/down control knob. These will be explained later.

Controls and functions

1. Antenna Connector. This is a standard BNC very high frequency connector mounted on the top face of receiver.

2. VOL (Volume). This is the inner knob of the concentric controls on the top face of the receiver, and is used to set the desired level of audio from the receiver. In its fully anti-clockwise position, it turns off the power to the receiver.

3. SQL (Squelch). The outer knob of the concentric controls, the squelch control is provided to eliminate the background noise on

unoccupied frequencies, and also to enable the receiver to decide whether or not to stop on a frequency when searching or scanning. Turn the SQL control from the fully anti-clockwise position until the background noise just disappears. This is the most sensitive setting for the SQL. It is usually preferable to advance the squelch control a little way further clockwise than the most sensitive setting to avoid inadvertent stopping on noise or very weak signals.

4. ATT (attenuator) switch. For most uses, the DX or long distance setting is used for most sensitive condition for the receiver. However, when operating the AR1000XLT in the presence of very strong signals such as those from TV stations or FM broadcast transmitters, some interference effects may be apparent. This can take the form of increase levels of background noise, or spitting noises occasionally spurious signals generated by intermodulation between the strong signals. The cure of most of these effects is the use of the ATT switch in the LOCAL position.

5. UP/DOWN knob. This is the tuning knob. For a full description of the use of the knob, please refer to following articles.

6. EAR (earphone or external speaker). This is used for connection of either the earphone supplied, or an external headset or loudspeaker. When a plug is inserted into this jack, the internal speaker of the AR1000XLT is automatically disconnected. The impedance of the external load should be 8 ohms or greater.

7. DISPLAY. This provides comprehensive information for the user in easy to understand form.

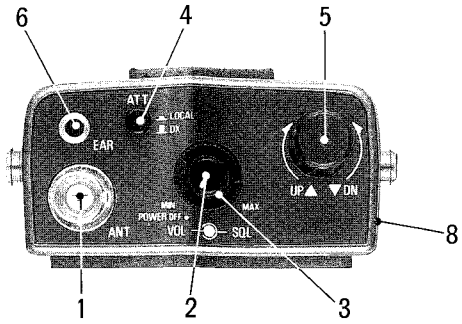
8. CHG. This concentric socket is mounted on the side of the case and is used for connection of the mains charger supplied, or the DC power cord supplied, or any suitable 11 to 14 volt DC supply.

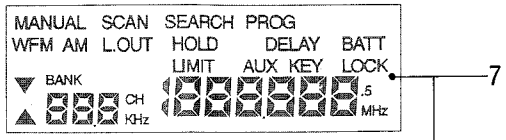
Keyboard controls

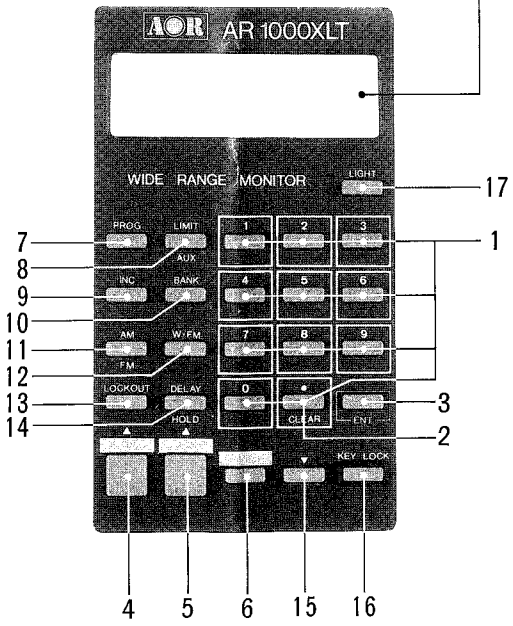
1. There are the numerical keys from 0 through 9, plus the decimal point (.). These are used for entering frequency, frequency step size, memory channel number, bank number, and so on. The same keys are used in the bank select mode, in which case the numbers 0 to 9 correspond to the frequency bands listed in the operating paragraph of this handbook. The bank designations are show on the lower side of each number key.

2. CLEAR.(.) Press once to enter a decimal point when entering frequency information. Press twice to clear an incorrect entry.

3. ENTER key. Used to enter frequency after selection by the keypad, or to complete many memory changes or operations.







4. SEAR key.Used to start the frequency search action of the receiver; also used to manually advance frequency after the search has stopped.

5. SCAN key. Used to start the memory scanning system of the receiver; also used to manually advance the memory channels when the scan has stopped.

6. MANUAL key. Used to engage the manual mode of receiver control, that is when the user wishes to directly enter a frequency of interest into the receiver, or directly select any memory channel.

7. PROG key. Used in programming search frequency limits.

8. LIMIT key. Used in conjunction with the PROG key in fixing search band limits.

9. INC key. Used when entering the desired frequency increments or steps, from 5KHz to 995KHz.

10. Bank key. Used to select the desired memory bank or search bank from 0 to 9 when scanning or searching.

11. AM/FM key. Selects either mode as required.

12. W-FM key. Selects either W(wide)FM or narrow FM as required.

13. LOCKOUT key. Press once to lockout the channel or frequency shown on the display.

14. DELAY/HOLD key. Press to change from DELAY to HOLD and back again sequentially in both search and scan mode. When "HOLD" is shown on the display, the scan or search stops on a busy channel and remains there even after the signal has gone off. When "DELAY" is shown on the display, the scan or each stops on a busy channel, but then automatically resumes the search or scan approximately 2 seconds after the signal has gone off.

15. Down arrow key. Initially, the search or scan action is always from lower frequencies to higher, or lower memory channels to higher. If when searching or scanning, the down arrow key is pressed, the search or scan stops, and the down arrow mark is shown on the display. Subsequent short press of the down arrow key will step the scan or search downwards. If the down arrow key is held pressed for more than about one seconds, the scan or search will re-start, but in the downwards direction.

16. KEY LOCK key. Press this key to disable all keyboard function. Press again to restore all function to normal. This key is used to prevent accidental mis-operating or changes of frequency when the receiver is being carried around but still in use, for example at air displays.

17. **LIGHT** key. Pressed momentarily, this will illuminate the display for approximately six seconds, after which the lamp will automatically be extinguished.

Operating the unit.

This document assumes that you understand the basics of scanners. If you don't know what the squelch control does, for example, then stop here and ask for help from someone who can advise you.

Where text appears in **BOLD UPPERCASE** It means you must press the keys exactly as shown. For example: **MANUAL BANK 176** means press the **MANUAL** key followed by the **BANK** key followed by the three numerical keys 1,7, and 6.

If you wanted to search all the ranges stored in search memories 1 to 5, for example, but with the exception of memory 4 then you would have

Manual Operation.

These operation all require that the scanner be in **MANUAL** mode which is activated by pressing the **MANUAL** key and shown by the legend **MANUAL** on the display.

1. In order to set the scaner to any particular frequency and mode **AM, FM or WFM)** simply enter the frequency followed by **ENTER** and then, if needed select the mode using the **AM/FM** and/or **WFM** keys.

   Example: To set the scanner to 126.700MHz AM key in the following: **126.7 ENTER AM.** The mode (AM/FM/WFM) is shown on the display.

   The mode can be changed by simply pressing the appropriate mode key.

2. To select the step size (frequency interval) press the **INC** key followed by the appropriate step size in KHz followed by **ENTER.** Example: To set 12.5KHz steps press: **INC 12.5 ENTER.**

3. Manual tuning is accomplished by turning the manual tuning knob on the top of the unit. The frequency will be stepped up or down in accordance with the step size set by the **INC** key.

Storing frequency in Memory

The AR1000XLT has 1000 memory locations divided into 10 banks of 100 memories each. In addition, there are 10 search range memories - more on them later.

The memory location is displayed as a single three digit number in the range 000 to 999. The first digit is the bank number and the last two digits are the channel number so that bank six, channel seven is shown as 607.

1. Storing the currently displayed frequency is done by pressing the **PROG** key followed by the bank and channel number. Example: To store the currently displayed frequency in bank 3, channel 27 press **PROG 327.**

2. To recall any memory press **BANK** (bank and channel number). For example: To recall bank 3, channel 27 press: **BANK 327.** Note that only channels in selected banks can be recalled - see notes under the heading Scanning and Searching.

3. To clear a memory, the main frequency display is cleared by pressing the **CLEAR** key followed by **ENTER** and then the displayed (blank) frequency is stored in the memory by following the steps in point 1. Example: To clear bank 1, channel 3. Press **CLEAR ENTER PROG 103.**

Scanning and Searching.

It is important to appreciate the difference between scanning and searching. SCANNING is the automatic, sequential monitoring of a range of direct frequencies. For example, if you had stored all the local airport frequencies in bank 1 you would SCAN bank 1 to automatically monitor activity on any of these pre-stored frequencies. If, however, you wanted to check the entire range of frequencies from 118MHz to 136MHz.

Now there are, as mentioned earlier, 1000 memories for storage of spot frequencies as well as another 10 memories for storing SEARCH ranges. Don't confuse the two. We refer to the ten banks of a hundred memory BANKS and the individual 100 memories in each bank as CHANNELS and the ten search range memories as SEARCH MEMORIES or SEARCH RANGE MEMORIES. Each of the 1000 channels store a frequency and a mode (AM/FM/WFM)while the 10 search memories each store a lower and upper frequency limit, step size and mode.

This means that you can store, say, all the air traffic frequencies in bank 2 etc.. .

You can store frequency RANGES in the 10 search memories. That is to say you could program the range 144MHz to 146MHz, step size 25KHz, mode FM into search memory 1. Then, every time you tell the unit to SEARCH memory 1 it will continually search through the range 144MHz to 146MHz FM in steps of 25KHz.

Also important is the feature whereby certain banks or search memories can be either excluded or included in the operation. What this means is that you may have frequencies stored in all 10 memory banks, eg... fire departments, air traffic etc.. . but you only wish to scan, say, the air traffic frequencies. You can either lock out the banks you don't want or tell the scanner to only include the one/s you do want. Obviously if you want to scan 8 out of the 10 banks it may be easier to lock out the two you don't want while you are wanting to scan only 1 bank it would be better to simply include just this one bank rather than tell the scanner to exclude the other nine. When you see how to perform each method you will see that excluding banks is tedious and has to be done one bank at a time while the "include" method involves one single operation and is, in our opinion, the better method for all occasions.

Be aware that if a bank has been locked out or not included then that bank is unavailable in ALL modes. If, for example, you had set the unit to scan only banks 1 to 4 and then, in manual mode, you tried to recall bank 6, channel 27, it would just sit there and look at you because as far as it's concerned only banks 1 to 4 exit. You will have to go back to scan mode and select all the banks (or the banks you want) to be included before you can use them. You'll see how to do this in a moment.

Interestingly enough, this does not apply to STRONG a frequency. You can store a frequency in any bank whether it's selected or not.

The same thing applies to limited search memories although this only affects search operation. If you have told the unit to include search range memories 1 to 4 and you then tell it search the range stored in memory 7 you'll get nothing. You have to specifically select the search memories you want.

Note that the search memory selection has no effect on any mode of operation other than search mode, unlike the scan selection which does affect manual mode as far as memory banks and channels are concerned.

During scanning or searching, when a busy frequency is found the scan or search will stop. What happens next depends on the status of DELAY/HOLD. Pressing SCAN or SEARCH depending on whether you were SCANNING or SEARCHING when it stopped.

In DELAY mode the scan or search will resume automatically approximately two seconds after the frequency the unit stopped at becomes quiet. (This means, in practice, when the squelch closes.).

Scanning

1. Simply pressing **SCAN** will cause a scan of all selected banks to occur.

2. To start the scan at a particular bank within the selected bank range press: **SCAN** (bank number). For example to start scan at bank 4 press: **SCAN 4**.

3. To select a range of banks to scan press: **SCAN BANK PROG** (number of starting bank) **LIMIT** (number of upper bank) **ENTER**. Example: To scan banks 3 to 6 press: **SCAN BANK PROG 3 LIMIT 6 ENTER**.

4. If you wish to lock out a specific channel within a bank then, while that channel is being monitored, press: **LOCKOUT**.

5. Unlocking a channel (locked by following 4) is accomplished by manually recalling that memory and pressing **LOCKOUT** so that the LOCKOUT legend stops flashing on the display.

6. To lock out a whole bank press: **MANUAL BANK** (bottom channel number in bank) **BANK LOCKOUT**. For example: To lockout bank 3 (300 to 399) you would press: **MANUAL BANK 300 BANK LOCKOUT**.

7. To unlock a bank press: **MANUAL BANK** (bottom channel number in bank) **LOCKOUT**. At first this point looks the same as the previous one but there is a difference, look again.

Searching

1. Pressing **SEARCH** will cause the unit to begin searching repeatedly through all selected search memory ranges.

2. Pressing **SEARCH** (memory number) will have the same effect as point 1 but with the difference that the search will commence with the search memory specified.

   Pressing a memory number during searching will cause the unit to immediately jump to that search range and continue from there.

3. If the scanner stops searching on a busy frequency and you wish

to store that frequency in a memory then, when the search stops, press ENTER (memory number). For example, if the search stop on a frequency and you wish to store that frequency for future use in bank 7 channel 3 then press **ENTER 703**. The search will resume at this point.

4. Search mode will search all ranges stored in all 10 search range memories (If they're programmed) unless you limit the range of search memories. To select a range of search memories to search press: **SEARCH BANK PROG 3 LIMIT 7 ENTER.**

5. Sometimes when searching, a particular frequency or frequencies will be constantly busy causing the search to stop each time. These may be "birdies" or just frequencies that are constantly busy. These can be locked out by simply pressing **LOCKOUT** when the search is topped on that particular frequency. From then on, that frequency will be skipped.

6. To unlock a locked out frequency (locked by following point 5) press: **SEARCH BANK PROG LOCKOUT** at which point the locked out frequency, or one of them if there's more than one, will be displayed. To unlock it press: **LOCKOUT** whereupon the next locked out frequency, if there is one, will be displayed giving you the opinion to unlock it if you want. Pressing **MANUAL** at any time will exit the locked out memories allowing you to selectively unlock whichever one/s you want (by pressing **LOCKOUT**) if you have more than one locked.

   If you have many frequencies locked out and don't wish to unlock them all one by one then simply re-programming that particular search memory (see point 9) will clear all locked out frequencies.

7. If you wanted to search all the ranges stored in search memories 1 to 5, for example, but with the exception of memory 4 then you would have to select the range of search memories as being 1 to 5 (see point 4) and then lock out memory 4 so that only memories 1,2,3 and 5 were active. To lock out a search range memory first open the squelch control so that the search will not run, otherwise you'll end up locking out the wrong memory unless you've got very quick fingers, then press: **SEARCH BANK** (memory number)

BANK LOCKOUT. For example: To lock out search memory 4, as in our example, you would press: **SEARCH BANK 4 BANK LOCKOUT.**

8. Unlocking a locked out search memory (locked by followed point7) is almost identical to unlocking an individual frequency as per point 6. Press **SEARCH BANK PROG LOCKOUT.** At this point the locked out memory (or first locked out memory if there are more) will be displayed. Pressing **LOCKOUT** will unlock it and move on either to the next locked out memory (if there is one) or any locked out frequencies (locked by following point 5 (if there are any)). Any locked out memory or frequency can be unlocked by pressing **LOCKOUT** or skipped by pressing **ENTER.** Pressing **MANUAL** at any time will exit this procedure.

   Locked out memories are distinguished from individual locked out frequencies by the fact that when a locked out memory is displayed the LOCKOUT legend will show steadily on the display while the BANK legend will be flashing. When an individual frequency is displayed both the LOCKOUT and BANK legends will show steadily.

   This sounds VERY complicated, and I suppose it is, but if you actually play around a bit you'll soon get the hand of it and find that it's a very intelligent way of managing a complicated function. It ends up being quite easy to scroll through all locked out memories and/or frequencies and selectively unlock the ones you want to.

9. To program the search memory's range, step size and mode press: **SEARCH PROG**(lower frequency)**LIMIT**(upper frequency)**ENTER** search step/increment in KHz) **ENTER** (mode **AM/FM/WFM) ENTER** (memory umber) **ENTER** for example: To program search memory 3 to scan 144MHz to 146MHz FM, 25KHz step press: **SEARCH PROG 144.0 LIMIT 46.0 ENTER 25 ENTER FM ENTER 3 ENTER.**

The **DOWN** key (immediately to the right of the **MANUAL** key) has a useful function in scan and search modes. Pressing it while scanning or search will stop the operation and allow you to step backwards through the sequence. Pressing and holding the **DOWN** key for 2 seconds or so will result in the search or scan resuming but in reverse direction.

A point worth mentioning here, now that you're totally confused and need a bit of help, is that you should watch the display while performing the various programming tasks such as point 8 above. Watch which legends suddenly appear on the display either showing steadily or flashing as you press each key. You will find that the scanner actually prompts you by flashing various legends on the display during programming as a tip or hint as to what to press next. It is quite intuitive when you've had a bit of practice.

If you're prepared to try out each example and exercise a LOT of patience you'll wind up being able to competently use all the features of the AR1000XLT and you'll be most impressed by what has got to be the most versatile hand held scanner available today.

Priority

This feature enables you to carry on scanning, searching or whatever while the scanner automatically checks one of the 1000 memory channels every 2 seconds for activity. If this channel is found to be busy the scanner will stop whatever it's doing and switch to that channel until it clears or until you tell it to do something else.

The priority mode is automatically suspended during the entry of frequencies from the keypad and also while manually tuning with the frequency up/down knob to avoid jumping to the priority channel while you're busy.

Programming which channel will be the priority channel is quite simple. You press: AU PROG (bank and channel number) ENTER. For example: if you want bank 1 channel 23 to be used then press: AU PROG 123 ENTER.

To switch the facility on or off press the AU key. The AU legend will show on the display when the priority feature is active.

To check which channel was last programmed as being the priority channel simply activate the priority mode and fully open the squelch control. Obviously when the priority channel is checked it will be found"busy" as the squelch is open causing the scanner to change to that channel allowing you to see which one it is.

It is important to note that this programming cannot be done while the unit has stopped on the priority channel. What this means is that if you have previously programmed a priority channel and now wish to change it
then you first keystroke (the AU key) will activate the feature for that brief period before you press the second key (PROG) in the sequence. If it happens that your existing priority channel is busy at that moment then the unit will jump to that channel preventing you from re-programming it.

The first way to avoid this problem is simply to make sure that you press the AU PROG key sequence with less than about 2 seconds delay between the keystrokes so that the scanner is busy at that moment6 then the unit will jump to that channel preventing you from re-programming it.

The first way to avoid this problem is simply to makes sure that you press the AU PROG key sequence with less that about 2 seconds delay between the keystrokes so that the scanner doesn't have a chance to check the priority channel. Naturally if the channel isn't busy in the first place then this problem won't occur.

The second method is to press set AU key so that the AU legend shows on the display and the priority feature is active. Then proceed as above with the AU PROG... sequence. What happens here is that because the priority mode is active when you start, pressing the AU key switches it off instead of on thus avoiding the problem.

It sounds complicated but try it out and you'll get the idea.

Light

Pressing the LIGHT key will cause the display to be illuminated for approximately six seconds.

Key Lock

Pressing the KEY LOCK key toggles the key lock mode on and off. When active, the KEY LOCK legend will show on the display. This function simply disables the keypad and the up/down knob for occasions when you have set up the unit to do something and don't wish accidental keystrokes to mess it up.

You will know by now that in order to enter a frequency from the keypad the scanner must be in manual mode. When the scanner is in manual mode, either having defaulted to manual mode on switch on or having been put in manual mode by pressing the MANUAL key, the display shows a memory number, usually 000 but this depends on how you've got the unit programmed, and the frequency and mode stored in that memory.

If you enter a frequency at this point from the keypad and change the mode from that displayed to any other mode, including back to the mode you started from that displayed to any other ode, including back to the mode stored in that memory.

If you enter a frequency at this point from the keypad and change the mode from that displayed to any other mode, including back to the mode you started at, then the new mode and frequency will be stored in the displayed memory even though you have not press the PROG key.

To make this little clearer let me give you an example; lets say that you have previously stored the frequency 126.700MHz mode AM in bank 0 channel 0. Now you switch your scanner on and it either defaults to manual or you put it in manual mode. The display shows 000 as being the bank and channel in use and the frequency and mode displays show

126.700MHz AM. Now you decide to set the unit to 145.650MHz FM. You press 145.650 ENTER FM.

The scanner is now still displaying memory 000 but the frequency and mode are those that you have just keyed in i.e.,. 145.650MHz FM. This is al normal and is what you expected. The quirk is that this new frequency and ode is now stored in memory bank 0 channel 0. Check it out. Press BANK 000 to recall 000 and you'll see that it now contains 145.650MHz FM and no longer 126.700MHz AM.

This problem occurs on any memory, I have just used 000 as an example but if you were busy scanning and pressing MANUAL and happened to land on bank 3 channel 26 and then changed the frequent y and mode then 326 would change to this new frequency and mode.

This is initially irritating as it keeps on corrupting your memory settings if you're not aware of it. The only way around this is to run the frequency/channel up/down knob a click or two in either direction whilst in manual mode. This clears the memory number display and any changes you make will then not reprogram any memories. From this point you can enter frequencies from the keypad safely.

Remember: If a memory number is shown on the display, twiddle the tuning knob first to clear the memory number from the display before entering a frequency.

This problem only occurs if you change the mode (AM/FM/WFM) setting. If you ONLY change the frequency it does/t happen. Also, if your batteries are running low and the BATT legend is flashing on the display the unit does not allow any memory programming and the problem ceases to exist.

Very strange quirk but there you have it. Don't be put off by it, it's really very minor and totally surmountable where you are ware of it.

Just a feq general points:

We would recommend that you take along a set of alkaline batteries if our planning on using the scanner for more than about 4 hours without charging it as that's when the NiCads. will die on you. Alkaline batteries, while they're expensive and not re-chargeable, will give you a good 15 hours use from the AR1000XLT.

The ATT switch on the top of the scanner is useful to attenuate (by 20dB) strong local signals that may interfere with your monitoring. The normal position for this switch is DX which is no attenuation and gives the best sensitivity. Switching to LOCAL gives fairly substantial attenuation and should only be selected when necessary to avoid unnecessary signal loss.

Specifications

Frequency Range	500KHz - 1300MHz
Step sizes	5KHz to 995KHz, user-programmable in 5KHz or 12.5KHz
Sensitivity	FM - 0.5uV or better AM - 3uV or better across the band
Modes	AM, Narrow FM and Wide FM
Scan speed	Approx 20 channels/second
Search speed	Approx 20 steps/second
Memory channels	1000 arranged as 10 banks of 100 EA
Search Range memory	10
Priority	2 sec. of sampling rate
Antenna Input	50 ohm BNC connector
Audio output	>100mW at 10% distortion
Power supply	4 x 1.2V Nicad batteries (supplied) or 4 x AA batteries or 11 to 18VDC from external source.
Size	170mm x 35mm x 65mm
Weight	300g without batteries.
Accessories	Soft Carrying case, rubber duck antenna, NiCd batteries, m\Mains DC power cord for cigarette lighter