AOR ®

AR950

Manuale di istruzioni

istruzioni per l'uso AOR AR950

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Quick Start

For those, and that is the vast majority of us, who want to listen to something immediately and read the Instruction Manual later, please carry out the following steps:-

1. Connect the mains power supply unit, or a suitable 12 volt dc supply, and switch on the receiver (red power push switch).

2.Screw the smaller of the two aerials into the BNC connector and fit to the aerial socket of the receiver (push on and turn).

3.Turn squelch (SQ) control fully counterclockwise.

4. Turn volume (VOL) control clockwise to a comfortable listening level.

5. Turn squelch clockwise until the background noise stops.

6.Press the following keypad buttons in order -
Search Progm. *If the letters* FM *show in the middle right hand edge of the display, move to the next step, but if* AM *shows press* AMFM *until* FM *shows.*

Next step - press 9,3,6,ENT,PRY LL/UL, 9, 4, 0, ENT, and then press LOCKOUT/INC *until 12.5 shows at the top of the display slightly right of centre,* ENT, SEARCH (NOT search progm). *The AR950UK should start searching part of the Cellular telephone band and you should hear signals. If the search stops on a signal which is unintelligible, pressing* SEARCH *(not search progm) will restart the search. If the AR950UK does not seem to be working properly, the battery may be flat - charging instructions follow a bit further on, but be absolutely sure you have carried out the above instructions to the letter before giving up in despair.*

INTRODUCTION.

The AR950UK is manufactured by A.O.R. Limited of Japan whose products, going back a long time, have gained a world-wide reputation for both performance and reliability second to none. It has been carefully engineered and manufactured to a rigid specification capable of giving satisfactory and dependable operation for many years.

After unpacking, it is as well to keep the packing material in case it should ever be needed for remote operation, maintenance or service, and check that it is supplied with the following accessories:

1 - AC Power Supply. Input 240VAC 50Hz 5W.

Output 12VDC 200mA.

(note that the power supply may have an incorrect label showing 6VDC). It will be necessary to attach a mains plug to this unit suitable for fitting into a standard domestic power socket.

2 - Two aerials; a telescopic whip and a short flexible helical. These aerials screw into the BNC adaptor which is also supplied.

1 - Instruction Manual.

Operating modes.

The AR950UK can be used in three different ways. In the MANUAL mode, any frequency within the tuning range may be entered into any of the 100 memory channels (A01 to E20) and recalled by entering the appropriate channel number. Additionally, repeated pressing of MANUAL goes through the memories sequentially, tuning to the different frequencies in them. The second mode of operation is the SCAN facility whereby up to 100 frequencies are manually put in the memories and then rapidly scanned. Should there be a signal present, the AR950UK will stop scanning to permit the signal to be heard. The 100 memories are in 5 (A,B,C,D,and E) banks of 20 and any bank or combination of banks may be scanned. One popular method of use is to have local airfield and airways frequencies in one bank, Radio Amateurs in another, Private Mobile Radio in a third, cellular car 'phones in a fourth and so on, scanning the bank or banks of current interest. Should interest in one or more frequencies temporarily wane, that frequency or frequencies may be temporarily locked out by pressing the LOCKOUT/INC key. Pressing a second time brings the frequency back into the scan. The SCAN operation presupposes that the user knows firstly what frequencies to put in the memories and secondly whether the transmission is AM or FM. There are several books which list various frequencies and your Dealer will be happy to advise. As to whether a transmission is AM or FM, a good general rule is that all airband, civil and military are AM, anything else is FM, but if in doubt, trying both will determine which is correct. For the beginner who has little or no idea of what frequencies are in general use in his area, the third mode of operation comes into its own. This is the search mode, and in this mode the AR950UK will scan between two

programmable limits, stopping wherever there is a signal. An example of this mode of operation was given at the start of this manual. A good starting point is to consult the "Band Plan" listed further on and decide what you would like to listen to. Take a small portion of the band and search that portion noting any interesting frequencies or putting them directly into a memory bank by use of the HOLD facility described later. Having exhausted the possibilities of that particular portion, repeat over the next portion, and so on, not attempting to search more than a 1MHz portion at a time, otherwise there is a strong possibility that some transmissions will be missed. After 20 frequencies have been entered into a memory bank, it will, of course, be necessary to start a fresh bank.

CONTROLS.

Firstly a description of the various switches and keys.

FRONT PANEL.

POWER ON/OFF — Push switch for turning on the receiver.

VOLUME — Controls the volume.

SQUELCH — Mutes the background noise, which, particularly in the FM mode, tends to be most objectionable. *Note that in order for the AR950UK to scan or search, it is essential to use the squelch control.* The best position for this control is when the noise is just, but only just, muted, otherwise sensitivity suffers slightly.

SEARCH — In the search mode, it initiates the search.

SEARCH PROGM — In the search mode it is used to programme the upper and lower limits of the search.

SCAN — In the scan mode it initiates the scan.

PRY LL/UL — This is a dual function key used in the search mode to set lower (LL) or upper (UL) limits to the search. The other function is, in the scan mode, to make memory A01 a priority channel. Every 7 seconds or so A01 is examined and if a signal is present that signal takes priority over all others.

MANUAL	The key which enables frequencies to be entered and permits manual examination of the memories.
LOCKOUT /INC	This is a dual function key which stops the reception of unwanted signals in the scan or manual modes. It also selects the frequency steps in the search mode.
DELAY HOLD	This is a dual function key. The delay function operates in both the scan and search mode to hold the frequency of a received signal for about 5 seconds after the transmission has ended. The hold facility operates in the search mode only and holds the signal frequency as long as desired. This gives the user a chance to make a note of the frequency or put it directly into one of the memories simply by pressing ENT followed by the memory location (e.g. C09). Searching resumes on pressing SEARCH.
AM/FM	This selects AM or FM during initial programming (*generally speaking everything outside the Air Band is* FM).
THE WHITE 4 and 7	In the search mode, it is possible to obtain manual operation, stepping up or down by repeatedly pressing one of these keys, or altering direction of the search, resuming by pressing the search key.
CLEAR	If an error is made when programming a frequency, the clear key may be used to erase it.
0 - 9	Frequency entry keys.
ENT	Enters a frequency into the memory from manual, scan, or search programme modes.
A - E	Selects from one to five memory banks.
DISPLAY	In addition to the frequency, the display shows the memory bank or banks in use (A - E), the search increment (5,10,12.5 or 25kHz), mode (manual MAN, scan SCAN, search SRCH or search programme PROG), delay (DLY) or hold (HLD), priority (PRY),Direct access (DIR-ACC), AM or FM mode, lockout of a scan channel (L/O), memory bank and channel number.

OPERATION.

SEARCH MODE. To look for active frequencies within a chosen range press SEARCH PROGM, one of the letters A - E, AMFM to select mode (*Usually FM outside the Airband*). the lower limit frequency may now be entered (*the decimal point may be ignored*) followed by pressing the ENT key. To enter the upper limit, press the PRY LL/UL key followed by the frequency and then ENT. The search increment may now be selected by pressing LOCKOUT/INC followed by ENT then press SEARCH. The AR950UK will start searching the selected frequency range. *Note that recommended search increments are incorporated in the Band Plan and that it is wise to limit the search to about 1MHz to avoid missing anything. Also Note the use of the hold facility - an active frequency may be held and entered into a memory simply by pressing ENT and then a memory channel (e.g. D12) pressing SEARCH to restart. The only problem is that it will replace anything that is already in D12 which is then lost, so it is essential to keep track of what memories are used. Also Note the use of the white 4 and 7 keys described above. The only other point to remember is always to enter the upper and lower limit frequencies by pressing ENT even if they are already displayed.*

SCAN MODE. Assuming that you have found a few frequencies or know frequencies which you would like to scan, press MANUAL; select bank and channel by ENT, A,B,C,D, or E, (*note that DIR ACC appears on the display because this is how channels are directly accessed in the manual mode*) followed by a number 01 - 20. The frequency displayed is that which is already in the memory, so be sure it is no longer needed because it will be lost when a new frequency is entered. If it is needed, simply re-enter a different channel number. If the AR950UK is new, the frequencies entered are merely those used for our pre - sales check and are of no significance. Enter the desired frequency by the numeric keys (*the decimal point and final 0 or 00 may be ignored*), select AM or FM

(Airband AM) and press ENT. Repeat this process for other channels. Scanning is started (*or restarted*) by pressing SCAN. Whilst scanning, banks may be temporarily added or deleted by one or more of the letter keys A - E. These act as an on/off switch - press once to switch from on to off, or vice versa, and again to reverse the process. Channels not of current interest may be locked out by the use of LOCKOUT/INC, and the lockout removed by accessing the channel in the manual mode and again pressing the LOCKOUT/INC key. The DELAY HOLD key, if pressed will activate the delay of about 6 seconds, a second press removing it. For correct operation of SCAN and SEARCH modes, the DELAY should always be set.

The scan may be stopped by pressing MANUAL, and stepping through the memory channels achieved by repeatedly pressing MANUAL. A01 is the priority channel and is switched in or out by the PRY LL/UL key. Remember that the AR950UK must be squelched before it will scan but that every synthesised receiver has certain "birdies" which cannot be silenced by the squelch control, and it may be necessary to restart the scan by pressing the SCAN key.

MANUAL MODE. Virtually every aspect of this mode has already been covered, so nothing can be added. This completes the operating of the AR950UK, but the following one or two notes may be of interest.

AERIALS.

There are two aerials supplied, the smaller one more suitable for frequencies above 400MHz and the telescopic whip for below this. If you are scanning a mixture of frequencies, it is a question of trying both aerials to see which performs best. Slightly greater range will result by using the whip aerial, trying it at different lengths, but with the snag that it is more prone to damage both itself and anyone close-by. Although connection of an outside aerial system such as a discone or ground plane on the house roof will often produce better signal strengths, such aerials will generally produce blocking or overloading effects on the

AR950UK, which is designed to operate with the aerials supplied. Your Dealer will be able to advise and supply suitable aerials, or reading any of the books on scanners (*our own little pamphlet makes sound sense*) will aid your understanding of the factors involved. Some form of roof aerial is to be recommended when using the AR950UK in the car - if you have a favourite band, an aerial for that band is a good idea and again your Dealer can advise.

QUERIES.

Years of experience have led us to lump the queries into the following groups:-

1. "Why can I hear much more on my £19.95 Hong Kong Super Airbander?" Well, the £19.95 HKSA suffers very badly from images and spurii so transmissions appear at more than one spot on the dial giving the impression of lots of activity. Also, with a scanner it is essential to know the exact frequencies and scan them.

2. "In the search mode the scan occasionally stops on a signal but there is no sound present." This could be due to two causes, either you are trying to receive an AM signal with the scanner in the FM mode or it is one of the "birdies" previously mentioned and which are unavoidable. Fortunately the AR950UK is well above average in this respect.

3. " When I try and programme a certain frequency, the readout is 2kHz out." Yes, the thing to consider is the incremental steps for the band in question - anything above 220MHz has a 12.5kHz increment and so any frequency which falls between two 12.5kHz step cannot be programmed exactly. In fact this is of negligible importance because anything which does not fall into the U.K. frequency allocations is going to be something oddball like a satellite. Either you will have a suitable aerial to receive it, in which case the bandwidth of the AR950UK is sufficient for any voice transmissions, or you won't in which case the problem is academic.

4. "There is a gap between 290 and 291MHz in the middle of the Military air band and between 380 and 400MHz at the top end - is there any way I can programme frequencies in these gaps?" Try it - although not guaranteed, I wouldn't mind betting it works, although I doubt very much indeed that there will be any activity at all between 380 and 400MHz.To be correct, the Military airband starts at 195MHz, but there does not appear to be any activity at the present time below 225MHz, or above 375MHz.

5. "I have heard a controller request an aircraft captain to continue with London on 134.22 but when I try to enter this frequency 134.218 comes up in the display and nothing is heard". To understand why, you have to remember that the air band is in 25kHz channels, so the frequency steps are, for example, 122.025, 122.050, 122.075, 122.100, 122.125, 122.150, 122.175, 122.200, and so on. When the controller says "134.17", or "124.22", he is simply abbreviating, and what he actually means is "134.175", "124.225". He knows this, the aircraft captain knows this, but the AR950UK doesn't. It does its best, but when you enter 124.22 it simply goes to the nearest valid frequency. The answer is straightforward; when the controller says "134.22", all you have to do is enter the correct frequency which is of course 134.225.

6. "With some services such as Volmet, although I enter the correct frequency it sounds off tune". Quite correct. When there is a network of ground stations on the same nominal frequency transmitting the same message, for technical reasons some of the transmitters may be deliberately offset by up to 10kHz from the nominal frequency, and this is why the signal sounds "off tune", because it is.

This completes the operating procedures of the AR950UK and I trust that you will not have any problems, but if you have, the Dealer from whom you bought the AR950UK will be happy to help in any way he can.

BANDPLAN.

FREQUENCY	SERVICE
60 - 88	Commercial mobile radio
108 - 136	Civil Airband
136 - 139.5	Satellite
139.5 - 141	Gas, Electricity
141 - 141.9	Broadcast link
144 - 146	amateurs
146 - 148	Police, Gas, Electricity
153 -	radio paging
156 - 168	Marine
161 -	Radio Paging
163 - 165	Radio Message Handling
165 - 173	PMR,Taxis etc.
195 - 395	Military Airband
425 -	PMR
430 - 440	Amateurs
448 -	PMR
450 -	Police
850 - 865	Govt.Emergency Services
869 - 905	Cellular Radio
934 - 935	CB
935 - 942	Cellular Radio

Note that we recommend a search increment of 25kHz throughout with the exception of Cellular Radio when it should be 12.5kHz.

SPECIFICATION

Frequency Range:	60 - 88MHz; 12.5, 25kHz steps
	108 - 136MHz; 12.5, 25kHz steps
	137 - 174MHz; 5,10,25kHz steps
	220 - 290MHz; 12.5,25kHz steps
	291 - 390MHz; 12.5,25kHz steps
	406 - 470MHz; 12.5,25kHz steps
	830 - 950MHz; 12.5,25kHz steps
Sensitivity	Better than 0.3μV for 12dB SINAD at 156MHz FM mode.
Image Rejection	30dB at 120MHz; 11dB at 935MHz
Scan Rate	up to 15 channels/second
Memory	100 channels
Backup	By EEPROM (No battery needed)