AOR®

AR8600

MOBILE WIDE RANGE ALL MODE RECEIVER
530 kHz ~ 2040 MHz

OPERATING MANUAL

1-1 Introduction

Thank you for purchasing the AR8600 transportable wide band all mode receiver. The AR8600 is designed using the very latest technology to ensure the highest levels of performance and reliability. To get the best possible results from your AR8600 we recommend that you read this manual and familiarise yourself with the receiver. Although carefully designed, this receiver (like all receivers) suffers from a degree of internal noises known as spurii. They are a product of the receiver's circuitry and do not represent a fault. Apparent faults may be due to accidental misoperation of the receiver, if you think there is a problem, carefully read all of the manual before deciding to contact your equipment supplier for advice.

It is acknowledged that sections of this manual are repetitive, this is to enable the manual to be used as a reference book (you don't have to read it all from cover to cover in one go). Due to the international nature of the product, some graphics contain Japanese characters.

Every effort has been made to make this manual correct and up to date. Due to continuous development of the receiver and by error or omission anomalies may be found and this is acknowledged.

1-2 Take care of your radio

There are no internal operator adjustments. In the unlikely event of servicing being required, please contact your dealer for technical assistance.

Do not use or leave the receiver in direct sunlight (especially the LCD). It is best to avoid locations where excessive heat, humidity, dust and vibration are expected. Always keep the AR8600 free from dust and moisture. Use a soft, dry cloth to gently wipe the set clean, never use abrasive cleaners or organic solvents which may damage certain parts. Treat the AR8600 with care, avoid spillage or leakage of liquids into the receiver and associated power supply. Special care should be taken to avoid liquid entering around the controls, through the speaker grille or via the connection jacks.

The AR8600 is designed for operation from a good quality regulated d.c. supply of 12 to 14V, which should be capable of supplying 1Ampre. **Never connect the AR8600 directly to the a.c. supply.** The AR8600 also has the provision of the optional BP8600 NiCad battery pack, see ***section 1-6-1***.

The d.c. input socket uses a 2.1mm power connector. This connector is configured CENTRE POSITIVE, the chassis of the receiver is at negative ground. Where provided (depending upon world market location), the power supply is pre-wired and provides a nominal 12V d.c. output with suitable connectors being fitted as standard for the a.c. power input and connection to the AR8600.

SAFETY NOTICE - Always disconnect the power supply from the a.c. socket when not in use. If used mobile, it should be noted that the AR8600 has not been manufactured or tested to meet any specific mobile safety requirements. The AR8600 has no internally user adjustable parts, refer any technical work such as the fitting of the optional BP8600 internal NiCad battery pack to an authorised service engineer.

If using the AR8600 in a base station situation, the best short wave reception is usually achieved by the fitting of a separate external earth rod, however consider the implications carefully if your a.c. building supply uses a Protective Multiple Earth (PME) system. If in doubt consult an expert electrician. Never earth to a gas pipe!

The AR8600 has a single BNC aerial socket for all frequencies. This is intended for connection to its supplied whip aerial or preferably a 50 OHM (unbalanced) coaxial fed aerial such as a discone, dipole, unipole, yagi etc. When sighting the aerial, avoid power cables. Ensure that you do not confuse the aerial and i.f. output sockets as they both employ BNC sockets.

📖Note: ***It is very important that the squelch is advanced to cancel background noise for the search & scan facilities to operate.*** This is because the AR8600 believes that it has found an active frequency when the squelch opens and "S" 'squelch open' legend is displayed to the left of the signal meter. Advance the squelch control clockwise until the background noise is just cancelled, this is known as the threshold position. If the squelch control is advanced too far, weaker signals may be missed.

No noise and no "S" legend displayed (with squelch advanced clockwise passed threshold) = **squelch closed.**

Signal received or 'noise' emanating from speaker (squelch fully anti-clockwise, below threshold) with "S" legend displayed = **squelch open.**

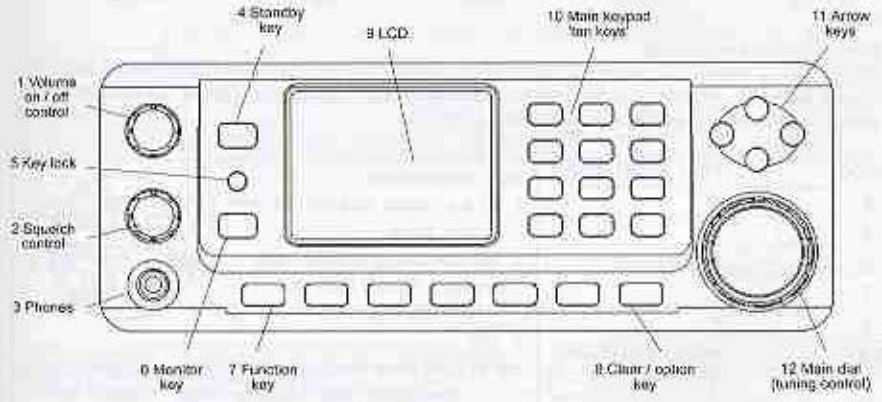
1-4 Accessories supplied

The following items are provided in the carton box:

1 x	AR8600 receiver
1 x	Whip aerial on a right-angle BNC connector (RA8600)
1 x	Medium Wave (MW) bar aerial
1 x	Power supply (may be supplied in some world market areas and in a separate carton)
1 x	Operating manual (this booklet)

1-5 Controls & functions

Controls are located on the front with most connection sockets on the rear of the AR8600, a brief identification is given here:

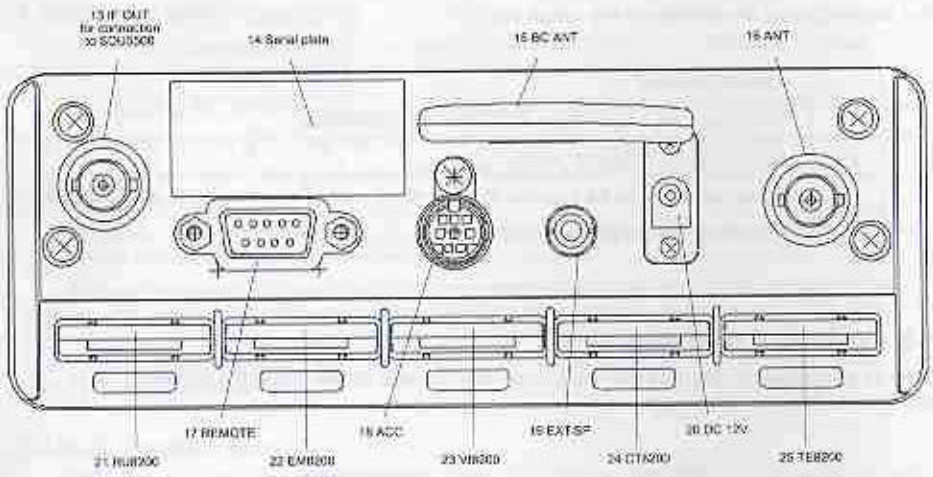


Front cabinet

1. Rotary volume control plus isolate power On/Off
2. Rotary squelch control
3. Phones socket 3.5mm (mono or stereo may be used)
4. Standby key, for daily use as On/Off
5. Key Lock key
6. Monitor key
7. Function key
8. Clear / option key
9. LCD (Liquid Crystal Display)
10. Main keyboard (ten keys plus decimal and enter)
11. Arrow keys (frequency change and menu manipulation)
12. Main rotary dial (frequency change and menu manipulation)

Rear cabinet

13. IF output (10.7MHz) for connection to the SDU5500 Spectrum Display Unit (requires internal activation in a workshop)
14. Serial number plate
15. BC ANT, medium wave bar aerial connection
16. ANT BNC aerial socket (all frequencies)
17. REMOTE RS232 socket (9-pin D-type)
18. ACC socket, 8-pin mini-DIN, tape record etc
19. EXT.SP speaker socket 3.5mm mono 8 OHMS
20. DC 12V d.c. input nominal 12V @ 1A (centre positive)
21. RU8200 socket for record / playback slot card
22. EM8200 socket for external memory slot card
23. VI8200 socket for analogue voice inverter slot card
24. CT8200 socket for CTCSS slot card
25. TE8200 socket for audio tone eliminator slot card



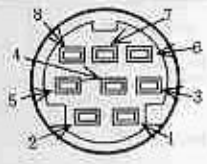
RS232 connection requirements:

The REMOTE RS232 socket (17 above) is designed for connection directly to an RS232 serial port of a computer such as a PC. No interface is required, just a standard RS232 lead... avoid null-modem leads as they are not suitable. Connections for a PC are as follows:

AR8600	PC 9 way RS232
2	2
3	3
5	5 GROUND
7	7
8	8

AR8600	PC 25 way RS232
2	3
3	2
5	7 GROUND
7	4
8	5

ACC connections



1 5V d.c. output max current 30mA
2 Detector output (without audio filtering). 100mV RMS @ 100k OHMS or greater
3 N/C
4 & 5 Tape motor switching contact for low voltage 12V d.c., max current 350mA with insulating voltage of 40V Switch on impedance is 1.2 OHMS
6 High level audio output 300mV RMS @ 600 OHMS
7 Low level audio output 30mV @ 600 OHMS
8 Ground

(22) AR8600 specification

Frequency Range:
530 kHz to 2040 MHz
(Actual frequency input 100 kHz to 2040 MHz, performance between 100 kHz to 530 kHz is not guaranteed).

Receive Modes:
WFM, NFM, SFM, WAM, AM, NAM, USB, LSB, CW

Sensitivity:

500 kHz ~ 2.0 MHz
AM: 3.50 µV (10dB S/N)
2.0 MHz ~ 30 MHz
SSB: 1.50 µV (10dB S/N)
AM: 2.50 µV (10dB S/N)
30 MHz ~ 470 MHz
SSB: 0.30 µV (10dB S/N)
AM: 0.70 µV (10dB S/N)
NFM: 0.35 µV (12dB SINAD)
WFM: 1.00 µV (12dB SINAD)
470 MHz ~ 1 GHz
NFM: 0.50 µV (12dB SINAD)
WFM: 1.50 µV (12dB SINAD)
1.0 GHz ~ 1.3 GHz
NFM: 1.00 µV (12dB SINAD)
1.3 GHz ~ 2.039 GHz
NFM: 2.50 µV (12dB SINAD)

Selectivity:

SSB/NAM	3kHz (-6dB),	9kHz (-60dB)
AM/SFM	9kHz (-6dB),	20kHz (-40dB)
WAM/NFM	12kHz (-6dB),	25kHz (-40dB)
WFM	150kHz (-3dB),	380kHz (-20dB)

Power Consumption:
350mA (nominal)
external 12 - 14V d.c. centre positive, negative ground

Dimensions:
155(W) x 57(H) x197(D) mm excluding projections such as feet and knobs

Weight:
1.5kg

Memory channels: 1,000 (20 banks)
Select scan channels: 50
Priority channels: 1
Search banks: 40
PASS channels: 50 per search bank + 50 for VFO search
Scan/Search Rate: Maximum 37.42 steps per second

Specifications subject to change without notice due to continuous development of the receiver. E&OE.