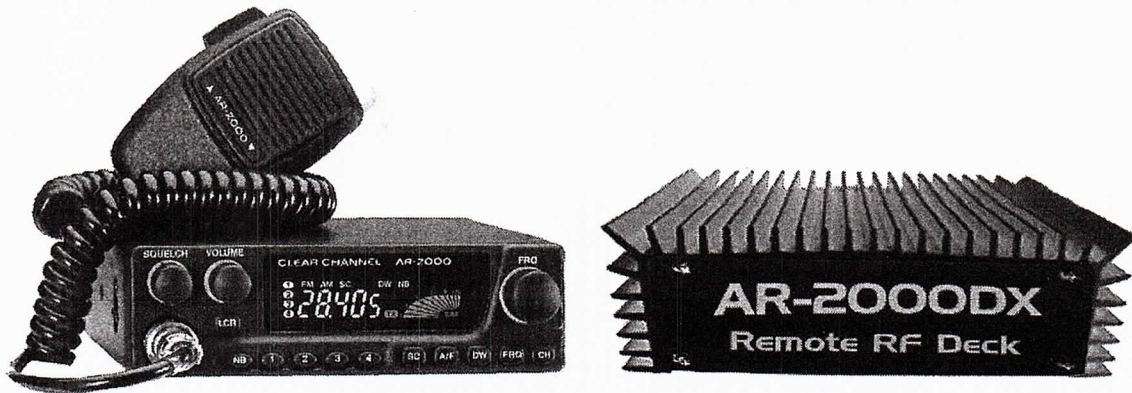


AR-2000DX

200 WATT 10 METER AMATEUR RADIO with REMOTE RF DECK



INTRODUCTION TO THE CLEAR CHANNEL AR-2000DX

The AR-2000DX is a 200 watt multi-function, computer-controlled HF amateur transceiver that operates on the 10 meter band.

Internally, the incorporation of surface mount with strip-line technologies and a remote RF deck allow the AR-2000DX control deck to be compact in size without any loss of features. Features such as a highly sensitive, selective dual conversion superheterodyne receiver, a dual GaAs MOSFET tuned RF stage crystal, ceramic filters, an automatic noise limiter and a maximum power output of 200 watts PEP.

Externally, the AR-2000DX features space and motion saving designs throughout. For example, an easy to read black matrix LCD with large 5/8" frequency characters, a digital 10 segment signal and power meter, back lit front panel controls, 4 programmable memory channels, a noise blanker system, a dual watch receiver, one-touch priority frequency, rotary control knobs, front mounted microphone connector, manual or automatic frequency scan (in 10KHz steps), last frequency recall, both FM and AM modes of transmission, and frequency scanning from the microphone.

All the functions described above as well as installation instructions and technical diagrams are detailed in this manual.

Limited Warranty

Clear Channel Corporation warrants this product to be free from defects of labor and material for a period of 6 months from the original date of purchase. This limited warranty is subject to repair or replacement of defective components only. The warranty is void if the unit has been tampered with or misused in any way.

****IMPORTANT****

To validate your warranty a copy of the original sales receipt and the official owner's name, address and telephone number must be mailed to Clear Channel Corporation within 15 days of the purchase date. Owner must retain the original sales receipt or proof of purchase for their records.

Optional Speech Processor

The SP-1 Speech Processor can be installed inside the AR-2000 and is available through Clear Channel Corporation. The SP-1 will increase the average talkpower of the AR-2000 to 10% of the transceiver's maximum. This will in effect increase the transceiver's modulation in DXing situations. Features of the SP-1 include a variable compression up to 110dB dynamic range, tone quality improvements, easy installation and a variable input control to reduce background noise. For more information on the SP-1 contact:

Transmitter Specifications

Frequency Range	: 28.000 - 29.700 MHz
Tuning Steps	: 10 KHz
Frequency Accuracy	: +/- 10 PPM
Emission Types	: FM, AM
Modulation Type	: FM - Phase Modulation : AM - High Level Collector Modulation
Maximum FM Deviation	: 2 KHz
Maximum AM Modulation	: 95%
Audio Response	: 350 Hz - 2500 Hz (-6dB)
Microphone Impedance	: low (500 ohm)
Power Output	: 2-50 Watts RMS / 200 Watts PEP
Spurious Radiation	: better than 50dB below peak output
Output Impedance	: 50 ohm (SO-239 connector)
Power Consumption	: 30 Amps
Weight	: Approx. 2.5 lbs.

Receiver Specifications

Frequency Range	: 28.000 - 29.700 MHz
Circuit Type	: Dual conversion, superheterodyne
Sensitivity	: FM - 1.0uV 20dB(S+N)N : AM - 0.8uV 10dB
Intermediate Frequencies	: 10.7 MHz & 455 KHz
Image Rejection	: better than 70dB
IF Rejection	: better than 80dB
Selectivity	: FM - -60dB +/- 24 KHz : AM - -6dB +/- 8 KHz
Noise Blanker	: Ignition pulse blanking type
Audio Output Power	: 2 Watts max.
Audio Output Impedance	: 8 ohm
Power Consumption	: 0.52 Amps
Control Deck Dimensions	: 159(W) x 138(D) x 48(H) mm : 6-1/4(W) x 5-1/2(D) x 2(H) inches

Installation

The Clear Channel AR-2000 transceiver is easy to install. All the necessary parts have been included with your radio.

1. Unpack the unit and inspect all parts provided. Carefully remove the radio from the packing carton and examine it for any damage that may occurred during shipping. If any damage is found, contact your dealer immediately. Save the carton and all packing materials for future storage or shipping.

2. Verify that you have received all parts and accessories. The following items should have been included in your shipment:

- Control Deck
- Remote RF Deck
- Microphone
- Microphone hanging bracket
- Easy removal mounting bracket
- Installation hardware

3. Make power connections. The transceiver works on any regulated 13.8 volt DC negative ground source of at least 35 amps (if a power supply other than Astron is used it is recommended that a 50 amp supply be used). **CAUTION : Install the radio to a negative ground only! Voltage above 15 volts DC will damage your radio. Be sure to check the source voltage before connecting the power cord.** If your vehicle is not a negative ground consult your dealer for options. Typically, an automobile's 12 volt negative ground system is usually more than adequate for powering the radio. Note that the condition of a vehicle's electrical system can affect operation. A low battery, worn generator/alternator, or poor voltage regulator will impair the performance of the transceiver. For example, high noise generation or low voltage delivery from the radio can result from these conditions.

The DC power cable extending from the remote RF deck's rear panel has a positive (+) red wire and a negative (-) black wire. The remote RF deck fuse is located inside the RF deck (it is a 20 amp automobile type fuse). The 5 amp fuse located on the rear panel of the remote RF deck is for the control deck. If you are installing the radio in a vehicle it is recommended that you connect these wire directly to the battery terminals. Make sure to use the same gauge wire or larger.

5. Connect the antenna. You can operate the transceiver with any standard 50 ohm ground-plane, vertical, mobile whip, long wire or similar antenna. The *Penetrator* and *Super Penetrator* series antennas by RF Limited are ideal for the AR-2000DX (contact Clear Channel Corporation or your local dealer for more information). A standard SO-239 type connector is provided on the rear panel of the remote RF deck for use with a PL-259 antenna connector.

A ground-plane antenna provides greater coverage and is ideal for base station to mobile operation since it is essentially non-directional. From base station to base station, or point-to-point operation a directional beam operates at greater distances even under adverse conditions. A non-directional antenna should be used in a mobile installation. These antennas usually use the metal car body as a ground-plane. The shield of the base as well as the metal case of the transceiver should be grounded.

Antenna and coaxial cable installation and mounting procedures should be provided with your antenna.

6. Final attachments. Connect the control deck to the remote RF deck by inserting the 8-pin connector extending from the control deck into the 8-pin jack on the remote RF deck. If you are using an external speaker insert the speaker's plug into the external speaker jack on the back of the radio (marked EXTSP). Attach the microphone to the front of the radio. To transmit, press the PTT (Press-to-Talk) lever on the microphone and release the lever to receive.

Operating Controls

Once installed, your transceiver is ready to use. The frequency range is preset at 28.000 to 29.700 MHz and the radio automatically scans in 10 KHz increments. Basic operations using these pre-established settings are listed below.

CONTROL DECK OPERATIONS

SQUELCH : Turned clockwise, the squelch quiets the receiver when signals are not being received and allows a quiet standby operation. When no signals are present, adjust the squelch clockwise until the receiver is quieted. Incoming signals will automatically release the squelch action.

VOLUME : Turns the transceiver on and adjusts the audio level.

LCR : Returns transceiver to last frequency operated on. Also, use the LCR to return to a missed active frequency during scan operation.

NB : Has two functions - noise blanker and Turbo. The noise blanker reduces man made and atmospheric noise. The turbo function provides an increased level of modulation. When NB appears on display the noise blanker is turned on and the radio operates normally. When there is no NB on the display the noise blanker is turned off and the turbo stage is on. The turbo stage provides a higher level of modulation (peaks exceed 225 watts).

1, 2, 3, 4 : The AR-200DX has four user selectable memory channels. To program a frequency into memory first select the operating frequency then press and hold any of the four memory buttons for three seconds. The display will indicate that the frequency has been saved. To erase and save over a memory repeat the above steps. Note: memory is lost when unit is disconnected from power source.

SC : The transceiver will scan through frequencies and pause for five seconds on an active frequency, then continue scanning. To activate scan, set squelch at threshold and push the SC button. SC will appear on the display and the transceiver will begin scanning. To stop scanning push the SC button a second time.

A/F : Press A/F to switch modes. Either FM or AM will appear on display depending on mode of operation.

DW : Dual watch allows the transceiver to monitor two frequencies at once for receptions. For example, if you want to monitor two frequencies, set the transceiver to the first frequency and press the DW button. DW will appear on the display. Next, set the transceiver to the second frequency and adjust the squelch so no noise is present (at threshold). The two frequencies will appear alternatively at half second intervals. The dual watch stops when squelch is broken and a transmission is received. At this time the operator can communicate with the received party. After transmissions the dual watch will automatically continue unless the DW button is pressed again.

FRQ : Unused control.

CH : Priority frequency. The transceiver will automatically tune to 28.300 MHz and all functions (except transmit and receive) will lock until the CH button is pressed again.

FRQ : Continuous rotary control for frequency selection.

SRF : Indicates strength of received signal and transmitted power on a ten segment indicator.

HI/LOW POWER : The high and low power toggle switch is located on the rear panel of the control deck. This controls the level of carrier power (unmodulated power) the AR-2000DX outputs. With the toggle switch in the down position the unit has low carrier power (2-3 watts). With the toggle switch in the up position the unit has a high carrier level (50 watts). See chart below for more details.

REMOTE RF DECK OPERATIONS

REAR PANEL SWITCH : High / Low Power.
Down Position = Low Power (2-3 watts RMS / 200 watts PEP).
Up Position = High Power (50 watts RMS / 200 watts PEP).