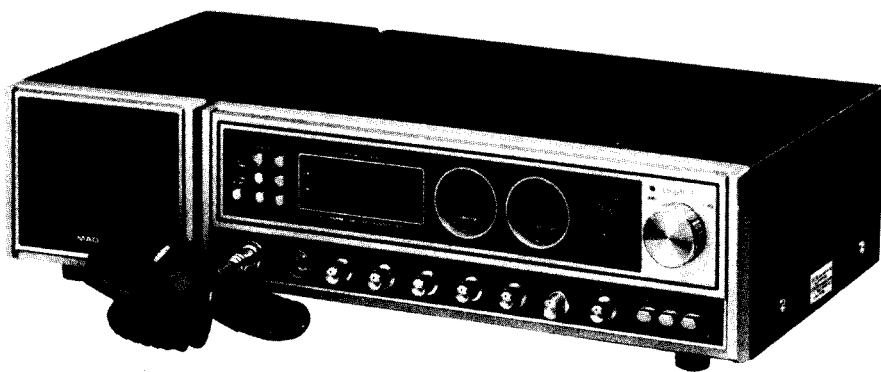


# uniden®



**MADISON CB RADIO  
OWNERS MANUAL**

## INTRODUCTION

UNIDEN CORPORATION OF AMERICA has combined superb workmanship and modern styling with the very latest state of the art circuitry to bring you the new "MADISON" Citizens Band Transceiver. It has been especially designed to give you maximum performance and reliability. Your "MADISON" is completely factory aligned and quality assurance tested.

To obtain the maximum benefit and pleasure from your MADISON, please read very carefully the contents of this manual before attempting to install or operate the transceiver.

## WARNING

The Citizens Band (CB) Radio Service is under the jurisdiction of the Federal Communications Commission (F.C.C.). Any adjustments or alterations which would alter the performance of the transceiver's original F.C.C. Type Acceptance or which would change the frequency determining method are strictly prohibited. Replacement or substitution of Crystals, Transistors, ICs, Regulator Diodes or any other part of a unique nature, with parts other than those recommended by us, may cause violation of the technical regulations of Part 95 of the F.C.C. Rules or violation of Type Acceptance requirements of Part 2 of the Rules.

## ELIMINATION OF LICENSING

The Federal Communications Commission (F.C.C.) has ruled that Citizens Band (CB) Radio Service operators no longer are required to obtain an F.C.C. license to operate their CB equipment. In doing so, the F.C.C. also decided to permit CB station operation without station identification.

Elimination of individual station licenses results in no lessening of the operating privileges or responsibilities of CB users. An operator of a CB radio station is still required to comply with the Communications Act and with the rules of CB Radio Service.

<p><b>WARNING – TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.</b></p>
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# INSTALLATION

## LOCATION

Prior to operation of the transceiver, a basic installation must be done. Installation of the transceiver itself is a rather simple procedure.

In selecting the location for the unit, two factors must be considered:

1. Access to a 117V AC, 60 Hz power source for your BASE STATION installation. Be sure to connect the AC power cord to an AC power source, not to a DC power source.
2. The location must be convenient for running the antenna lead-in cable to your transceiver.

## BASE STATION ANTENNA

Since the maximum allowable power output of the transmitter is limited by the F.C.C., the antenna is the most important factor affecting transmission distance. Only a properly matched antenna system will allow maximum power transfer from the 52 Ohm transmission line to the radiating element.

The recommended method of antenna tuning is to use an in-line watt-meter or VSWR bridge to adjust the antenna for minimum reflected power on channel 19.

The radio may be used with any type of 52 Ohm base station antenna. A ground plane vertical antenna will provide the most uniform horizontal coverage. This type of antenna is best suited for communication with a mobile unit. For point-to-point operation where both stations are fixed, a directional beam will usually increase communicating range since this type of antenna concentrates transmitted energy in one direction. The beam antenna also allows the receiver to "listen" in only one direction thus reducing interfering signals.

Antenna height is an important factor when maximum range is desired. Keep the antenna clear of surrounding structures or foliage. F.C.C. regulations limit antenna height to 20 feet above an existing structure.

## MOBILE OPERATION/EMERGENCY POWER OPERATION

It is possible to operate the MADISON from an external 13.8V DC power supply for emergency power conditions or from an automobile battery for mobile operation. The MADISON is supplied with a polarized plug for operation with an external DC supply.

Negative lead is black.

Positive lead is red and has the in-line fuse holder as an integral part of the lead.

## PUBLIC ADDRESS

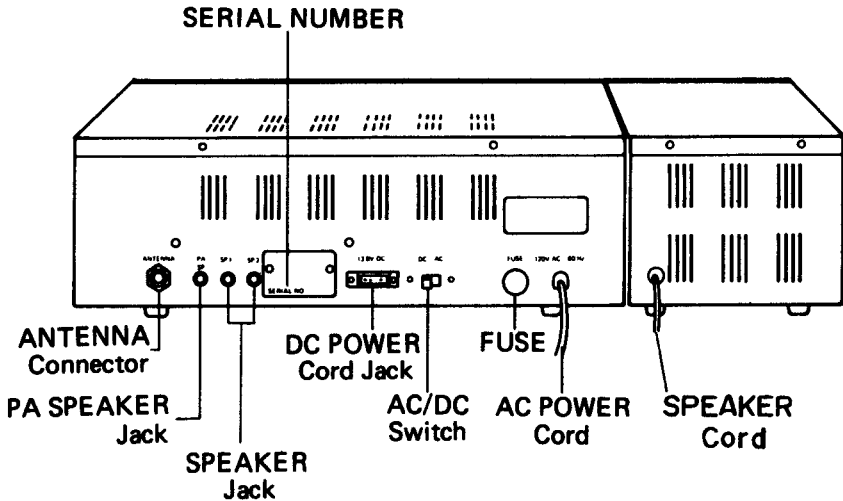
An external 8 Ohm, 4 watt speaker may be connected to the PA speaker jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feed-back.

Physical separation or isolation of the microphone and speaker must be used when operating the PA at high output levels.

## SPEAKER JACKS

The speaker jacks (SP 1 & SP 2) at the rear of the panel are used for the separate speaker box supplied and for an optional additional speaker to be used for remote receiver monitoring. Any speaker used must have 8 ohms impedance and be able to handle at least 4 watts.

## RADIO BACK PANEL CONNECTORS



## IMPORTANT!

The above illustration shows the location of the various accessory, antenna, and power receptacles, as well as the SERIAL NUMBER.

You are urged to record your model number and your SERIAL NUMBER in the spaces provided below:

Model \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

# OPERATING PROCEDURE

## TO RECEIVE:

The MADISON operates on 40 AM channels, 40 upper side band channels and 40 lower side band channels.

When you receive the SSB signal in the proper mode, audio sound may be either too high pitched, or low pitched, indicating that your receiver may not be tuned to the exact same frequency as the transmitter it is listening to. The MADISON is equipped with a Clarifier. By tuning the Clarifier, you can slightly change the frequency of the receiver. This allows you to obtain more natural sounding voice communication.

1. Make certain the SQUELCH control is rotated just past the click to turn off the PA function and advance the RF gain control fully clockwise.
2. Turn the set on by turning the VOLUME CONTROL clockwise, past click.  
**NOTE:** Microphone must be plugged in for the receiver to operate.
3. Set the VOLUME CONTROL to a comfortable level.
4. Set the Mode Selector Switch to the desired mode.
5. Listen to the background noise from the speaker. Turn the SQUELCH CONTROL slowly clockwise, until the noise just disappears. The Squelch is now properly adjusted. The receiver will remain quiet until a signal is received. Do not advance the control too far, or some of the weaker signals will not be heard.
6. Set the Channel Selector to the desired channel.
7. Adjust the CLARIFIER to clearly receive SSB or AM signals.

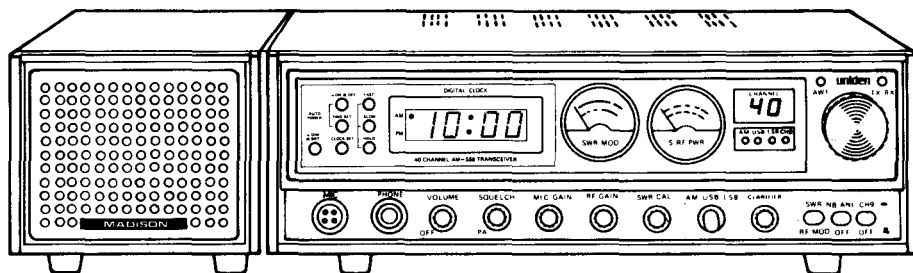
## TO TRANSMIT:

### CAUTION

The transmitter Voltage Standing Wave Ratio (V.S.W.R.) measurement must be performed prior to the use of the transmitter. A.V.S.W.R. ratio in excess of 2:1 may damage the transmitter.

1. Be sure the operator has read and understands part 95, F.C.C. Rules and Regulations prior to operating the transmitter.
2. Select the desired channel.
3. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice.

# CONTROLS AND THEIR FUNCTIONS



1. **OFF/ON VOLUME:** To turn the transceiver on, rotate the control clockwise past click. To turn the transceiver off, rotate the control counterclockwise past click. Rotate the control clockwise for a comfortable audio level.
2. **SQUELCH:** The Squelch control is normally set to a position which eliminates undesired background noise with no signal present. With the audio adjusted to a satisfactory level, rotate the Squelch control clockwise to the point where the sound from the speaker is cut off. In this position, there will be no sound from the speaker until a signal is received. In order to hear weak signals, it may be necessary to rotate the Squelch control counterclockwise, allowing some background noise to be heard.
3. **PA SWITCH:** The PA function is engaged by turning the SQUELCH control fully counterclockwise past the click. The PA function should not be used unless an external speaker is connected. In the CB position, the PA function is disabled and the radio will transmit and receive on the selected channel.
4. **MIC GAIN:** This control is used to adjust, as required, microphone input sensitivity for optimum amount of modulation in transmit. Uniden Corporation of America citizen's band transceivers have been designed to permit the user to attain levels of modulation up to 100%, depending on the setting of the microphone gain control, using the microphone provided with the unit. Uniden's automatic compression and peak limiting circuits assure maximum modulation with minimum distortion.
5. **RF GAIN:** This control is used primarily to optimize reception in strong signal areas. Gain is reduced by counterclockwise rotation of the control

6. **SWR/CAL CONTROL:** This control is used for meter calibration when antenna SWR is to be measured.

In order for you to achieve maximum radiated power and range, it is important that your antenna be in good condition, properly adjusted and matched to your transceiver. The built-in SWR (standing wave ratio) meter lets you easily measure your antenna condition. To operate this function, connect your antenna to the transceiver antenna connector. Select a channel near the middle of the band. Turn the set on and press SWR-RF/MOD switch to set it to SWR position. Press and hold the microphone push-to-talk button, then use the SWR/CAL control. Adjust the meter to read the CAL position indicated on the S/RF CAL meter face. The SWR/MOD meter simultaneously responds to this adjustment. By setting the S/RF CAL meter to CAL point, you automatically measure SWR at the same time on the SWR/MOD meter. A reading of 1 is ideal. Generally speaking, readings up to 3 are acceptable, but over 3 indicates that you are losing radiated power, and an antenna adjustment may be advisable. Readings over 6 or 7 indicate trouble and serious loss in radiated signal and may result in damage to the transceiver.
7. **MODE SELECTOR:** This switch selects AM, USB, or LSB mode of operation. This selector changes the mode of operation of both transmitter and receiver simultaneously. Set the selector to the mode on which you wish to communicate.
8. **CLARIFIER:** The clarifier is normally set to the center position. This feature has several uses and can greatly enhance receiver operation. If a received signal is slightly off frequency, this control can be operated to optimize the received signal. This control is primarily intended to tune in SSB signals, but it may also be used to optimize the AM signal.
9. **SWR—RF/MOD:** This switch is used to select the mode of the meter. For meter calibration and SWR measurement, set the switch to the SWR (depressed) position. In the RF/MOD position, the meter shows relative transmitter RF output power, and percentage of modulation when transmitting.
10. **NB/ANL SWITCH:** When the switch is placed in the NB/ANL position, both of RF Noise Blanker and Automatic Noise Limiter circuits are activated. The NB is very effective for repetitive impulse noise such as ignition noise. The ANL reduces most undesirable interference noises.
11. **CH 9 SWITCH:** This switch is for use when emergency communication is needed on the emergency channel, CH 9. Pressing the CH 9 switch activates CH 9 regardless of the position of the channel selector switch. When CH 9 switch is pressed, the channel display is blanked and the CH 9 indicator is activated.
12. **CHANNEL SELECTOR:** This switch is used to select any one of the 40 Citizens Band channels. Channel 9 has been reserved by the F.C.C. for emergency communications involving the immediate safety of life of individuals or immediate protection of property. Channel 9 may also be used to render assistance to a motorist.

## INDICATOR FUNCTION

1. **METERS:** The meters are multi-function meters. As explained above, one meter lets you easily measure SWR and modulation percentage. Transmitter relative RF output power and received signal strength are indicated on the other meter.
2. **TX/RX INDICATOR:** This indicator lights red when the transmitter is in operation and lights green when the receiver is in operation.
3. **ANTENNA WARNING INDICATOR:** This indicator comes on when you have a problem with your antenna system such as broken, short circuit, mismatch, etc.
4. **MODE INDICATOR:** This radio is equipped with mode indicator lights for AM, USB and LSB modes. When you set the mode selector to the mode desired, the related indicator light comes on.
5. **CH 9 INDICATOR:** When the CH 9 switch is pressed, the channel display will be blanked and the CH 9 indicator comes on.

## HEADPHONE

This radio is provided with a standard ¼ inch headphone jack for private listening. To use this feature, just plug a headphone plug into the jack labeled "phone" on the front panel.

## SETTING THE LED CLOCK

Flashing numerals in the clock LED display will indicate there has been an AC power interruption and that it is necessary to reset clock time. To set the proper time on the clock, proceed as follows:

1. Depress the CLOCK SET switch to activate the clock set function.
2. Depress the FAST switch. Hold the switch in until the clock display indicates a time approximately two to three minutes before the correct time, and then use the clock SLOW advance switch to set the clock LED display for a time one minute ahead of the correct time.
3. Depress the HOLD switch and hold the time indicated in the clock display until that hour and minute is reached.

## SETTING THE AUTO POWER CLOCK

The auto power function in the MADISON allows the operator to select a pre-determined time at which the radio will automatically turn on for a period of 60 minutes.

To set the AUTO PWR time, proceed as follows:

1. Depress the AUTO PWR switch. The LED display will now show a previously selected alarm time. Use the FAST or SLOW Advance to select the predetermined alarm time. Once this time has been selected, place the set AUTO PWR switch so that it is placed in its depressed position.



When the "AUTO" mode is selected, primary power will be applied to the radio and the radio will be turned on when the main clock time passed the preselected alarm time.

## SPECIFICATIONS

### GENERAL

F.C.C. type Number	1010002
Channels	40 AM, 40 LSB, 40 USB
Frequency Range	26.965 to 27.405 MHz
Frequency Control	Phase Locked Loop (PLL) synthesizer
Frequency Tolerance	0.0005% Typical
Frequency Stability	0.001%
Operating Temperature Range	-20°C to +50°C
Microphone	Plug-in type; dynamic with push-to-talk switch and coiled cord.
Input Voltage	117V AC nominal. 13.8V DC nominal, (positive or negative ground)
Power Consumption (120V AC)	Transmit: full mod., 100 watts. Receive: squelched, 45 watts.
Current Drain (13.8V DC)	Transmit: AM full mod., 3A SSB, 12 watts P.E.P. output, 2.8A Receive: squelched, 1A Maximum audio output, 2A
Cabinet Dimensions	Transceiver 4-11/16"H x 14-7/8"W x 11-5/16"L Speaker 4-11/16"H x 5-3/4"W x 11-5/16"L
Weight	Transceiver 14.5 lbs. Speaker 3.5 lbs.
Antenna Connector	UHF, SO-239
Meters	Illuminated, indicates relative RF received signal strength, modulation percentage, TX power and SWR.
Semiconductors	54 transistors, 3 field effect transistors, 7 integrated circuits, 72 diodes and 8 light emitting diodes.
<b>TRANSMITTER</b>	
Power Output	AM, 4 watts SSB, 12 watts, P.E.P.
Modulation	100% capability.
Intermodulation Distortion	SSB: 3rd and 5th order, better than -25 dB. 7th and 9th order, better than -35 dB.

SSB Carrier Supression	Better than -45 dB
Unwanted Sideband	Better than -45 dB
Frequency Response	AM and SSB: 350 to 2500 Hz.
Output Impedance	52 ohms, unbalanced
SSB Filter	7.8 MHz, crystal lattice type 6 dB @ 2.2 KHz 60 dB @ 4.6 KHz
Output indicator	Meter shows relative RF output power.
<b>RECEIVER</b>	
Sensitivity	SSB: Better than 0.25 $\mu$ V for 10 dB (S+N)/N at greater than ½ watt of audio output. AM: Better than 0.5 $\mu$ V for 10 dB (S+N)/N at greater than ½ watt of audio output.
Selectivity	SSB and AM: 6 dB @ 2.2 KHz, 60 dB @ 7.5 KHz
Cross Modulation	Better than -60 dB
Image Rejection	Better than -60 dB
I.F. Frequency	AM: 455 KHz SSB: 7.8 MHz
AM and SSB RF Gain Control	Adjustable for optimum signal reception.
Automatic Gain Control	(AGC): Less than 10 dB change in audio output for inputs from 10 to 50,000 micro-volts.
Squelch	Adjustable; threshold less than 0.5 $\mu$ V.
Noise Blanker	RF type, effective on AM and SSB.
Clarifier Range	$\pm$ 1.25 KHz
Audio Output Power	4 watts into 8 ohms
Frequency Response	350 to 2500 Hz
Distortion	Less than 10% at 3.0 watts output.
Speaker (supplied in separate box)	8 ohms
<b>PA SYSTEM</b>	
Power Output	3.0 watts into external speaker.
External Speaker for PA	8 ohms (not supplied)

## SERVICING YOUR TRANSCEIVER

The technical information, diagrams and charts will be supplied upon request. It is the user's responsibility to see that this radio is operating at all times in accordance with the F.C.C. Citizens Radio Service regulations. We highly recommend that you consult a qualified radiotelephone technician for the servicing and alignment of this CB radio product.

Please refer to the WARNING information contained in the 1st page of this Owner's Manual.

(NOTE: When ordering parts, it is essential to specify the correct model number and serial number of the unit.)

# MAINTENANCE AND ADJUSTMENT

This transceiver is especially designed for the environment encountered in base station installations. The use of all solid state circuitry and its light weight result in high reliability. Should failure occur, however, replace parts only with identical parts. Do not substitute.

## PREVENTIVE MAINTENANCE

At six to twelve month intervals, the following system checks should be made:

1. Check Standing Wave Ratio (SWR).
2. Inspect all electrical connections to ensure that they are tight.
3. Inspect antenna coaxial cable for wear or breaks on shielding.
4. Inspect all screws and other mounting hardware for tightness.

## ADJUSTMENT

This transceiver is factory aligned and should not require any adjustment when used with a 52 ohm antenna. If an antenna other than 52 ohm impedance is used, adjustment of the transmitter output circuit may be made to obtain optimum power transfer to the antenna. This adjustment should be made only by a qualified technician using a high quality in-line RF wattmeter which will not produce standing waves when inserted in the antenna cable.

## OPERATOR TROUBLESHOOTING

Should the unit malfunction or not perform properly, the operator should perform the procedures indicated below:

1. If the transceiver is completely inoperative.
  - \* Check the power cord and fuse.
2. If trouble is experienced with receiving.
  - \* Check ON/OFF VOLUME CONTROL setting.
  - \* Be sure SQUELCH is adjusted properly. Is the radio over squelched?
  - \* Check to see that the radio is switched to an operational mode.
3. If trouble is experienced with transmitting.
  - \* Check to see that the transmission line (coaxial cable) is securely connected to the ANTENNA CONNECTOR.
  - \* Be sure that the antenna is fully extended for proper operation.
  - \* Be sure that all transmission line (coaxial cable) connections are secure and free of corrosion.



## TWO-YEAR LIMITED WARRANTY

**WARRANTOR.** UNIDEN CORPORATION OF AMERICA ("UNIDEN"), 6345 Castleway Court, Indianapolis, Indiana 46250.

**ELEMENTS OF WARRANTY.** UNIDEN warrants, for the duration of this warranty, its UNIDEN CB Product to be free from defects in materials and craftsmanship with only the limitation or exclusions set out below.

**WARRANTY DURATION.** This Warranty shall terminate and be of no further effect Two (2) years after the date of original purchase of the Product or at the time the Product is (a) damaged or not maintained as reasonable and necessary, (b) modified, (c) improperly installed, (d) is repaired by someone other than Warrantor for a defect or malfunction covered by this Warranty, or (e) used in a manner or purpose for which the Product was not intended.

**PARTS COVERED.** This Warranty covers all components of the Products.

**STATEMENT OF REMEDY.** In the event that the Product does not conform to this Warranty at any time while this Warranty is effective, Warrantor will repair the defect and return it to you prepaid, without charge for parts, service, or any other costs incurred by Warrantor or its representatives in connection with the performance of this Warranty. In addition, if the Product contains a defect or malfunction which is not repaired after a reasonable number of attempts by Warrantor to repair the Product, the Product or defective component will, at your election, either be replaced without charge or the purchase price for the Product will be refunded when the defective Product is delivered to Warrantor at 6345 Castleway Court, Indianapolis, IN 46250 free and clear of all liens and encumbrances. Please note that while the Product will be remedied under this Warranty without charge. **THIS WARRANTY DOES NOT COVER OR PROVIDE FOR THE REIMBURSEMENT OR PAYMENT OF INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Some states do not allow this exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

**WARRANTY REGISTRATION CARD.** In order to facilitate the servicing of this Warranty by Warrantor, the Warranty Registration Card should be returned to Warrantor. However, return of the Warranty Registration Card is not a precondition of this Warranty, and this Warranty will be observed by Warrantor whether or not the Warranty Registration Card is returned, on the condition that other satisfactory evidence of the date of the original purchase is provided by Warrantor.

**PROCEDURE FOR OBTAINING PERFORMANCE OF WARRANTY.** In the event that the Product does not conform to this Warranty, the Product should be shipped prepaid to Warrantor at 8034 Castleway Drive, Indianapolis, IN 46250. **THE ORIGINAL OR A COPY OF THE SALES RECEIPT OR OTHER VALID EVIDENCE OF THE DATE OF THE ORIGINAL PURCHASE MUST ACCOMPANY THIS PRODUCT.**

**LEGAL REMEDIES.** This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty is void outside the United States of America.



Personal Communications Division  
6345 Castleway Court  
Indianapolis, Indiana 46250