

uniden®



WASHINGTON 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 WASHINGTON Citizens Band Transceiver. It has been especially designed to give you maximum performance and reliability. Your WASHINGTON is completely factory aligned and quality assurance tested.

To obtain the maximum benefit and pleasure from your WASHINGTON, 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>WARNING – TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.</p>
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CHANNEL INFORMATION

Channel	Channel Frequency in MHz	Channel	Channel Frequency in MHz
1	26.965	21	27.215
2	26.975	22	27.225
3	26.985	23	27.255
4	27.005	24	27.235
5	27.015	25	27.245
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

To insure that you obtain the maximum performance from this radio, please carefully read this owner's manual.

NOTE: This radio has been designed for operation in the 11 meter Citizens Radio Service. It uses a frequency synthesizing circuit with Phase Locked Loop (PLL) techniques to provide crystal controlled transmit and receive operation on all 40 channels. The PLL circuitry assures ultraprecise frequency control. It is designed to meet the Federal Communications Commission requirements applicable to equipment operating in the Citizens Radio Service, and is not to be used for any other purpose.

INSTALLATION

Location

Prior to beginning 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, 60Hz 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 VS-WR 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 WASHINGTON from an external 13.8V DC power supply for emergency power conditions or from an automobile battery for mobile operation. The WASHINGTON 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 positive lead.

PUBLIC ADDRESS

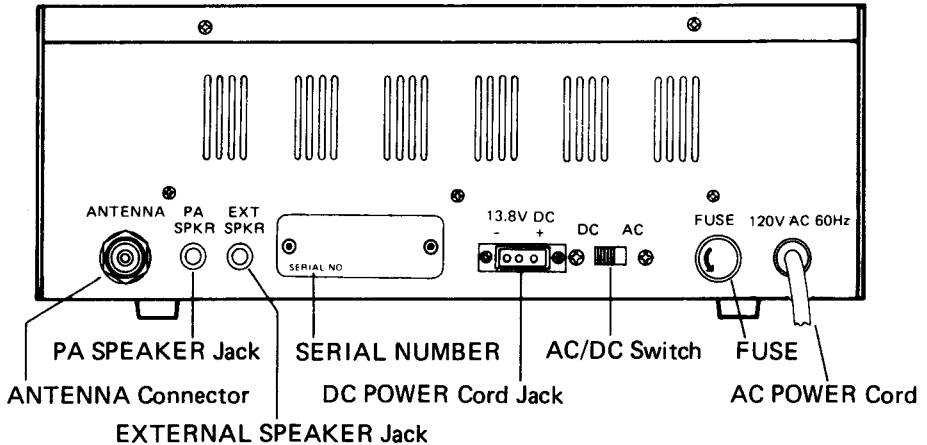
An external 8 Ohm, 4 watt speaker may be connected to the PA speaker jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feed-back.

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

REMOTE SPEAKER

The external speaker jack (EXT. SPKR.) on the rear panel is used for remote receiver monitoring. The external speaker should 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 WASHINGTON 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 WASHINGTON is equipped with a Clarifier. By tuning the Clarifier, you can slightly change the frequency of the receiver. So, you can get a normal tone.

1. Turn the SQUELCH control clockwise until click is heard, do not advance too far or you will not hear any background noise. 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

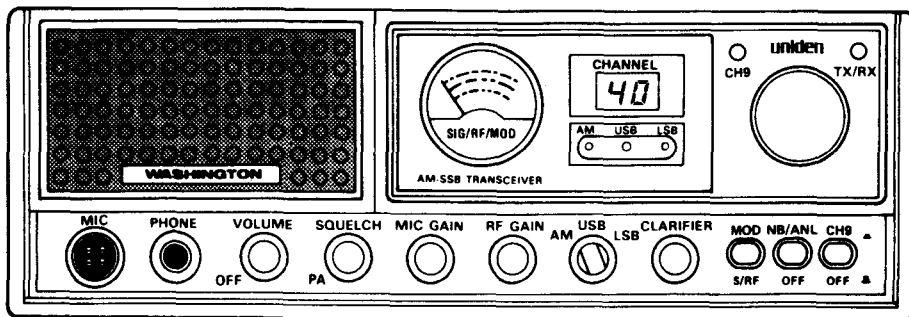
The transmitter Voltage Standing Wave Ratio (V.S.W.R.) measurement must be performed prior to the use of the transmitter. A.V.S.W.R. ratio in excess of 2:1 may damage the transmitter.

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. ON/OFF VOLUME CONTROL:** 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 for a comfortable audio level.
- 2. 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.
- 3. CHANNEL 9 SWITCH:** This switch is for use when emergency communications is needed on the emergency channel, CH9. Pressing the CH9 switch activates CH9 regardless of the position of the channel selector switch. When CH9 switch is pressed, the channel display is blanked and the CH9 indicator is activated.
- 4. 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 desire to communicate.
- 5. 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.

6. **PA(Public Address) SWITCH:** To engage the PA function, rotate the SQUELCH control counterclockwise past click. Press the press-to-talk switch on the microphone and speak in the microphone in a normal voice level. The PA function should not be used unless the PA speaker is connected.
7. **MIC GAIN:** This control is used to adjust, as required, microphone input sensitivity for the optimum amount of modulation in transmit.
8. **RF GAIN:** This control is used primarily to optimize reception in strong signal areas. Gain is reduced by counterclockwise rotation of the control.
9. **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 optimized the AM signal.
10. **NB/ANL SWITCH:** When the switch is placed in the NB/ANL position, the RF Noise Blanker and Automatic Noise Limiter circuits are activated. The Noise Blanker cut out annoying impulse-type noise such as ignition noise on both AM and SSB modes. The Automatic Noise Limiter reduces most undesirable interference noises.

INDICATOR FUNCTION

1. **S/R F PWR METER:** When the transceiver is in the receive mode, relative signal strength is indicated in S units on the lower scale of the meter. When transmitting, relative power output is indicated on the upper scale of the meter. When the MOD-S/RF switch is depressed, the meter indicates modulation percentage.
2. **TX/RX INDICATOR:** This indicator lights in red when the transmitter is in operation and lights in green when receiver is in operation.
3. **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.
4. **CH9 INDICATOR:** This indicator lights when the CH9 switch is depressed.

HEADPHONE

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

SPECIFICATIONS

GENERAL

F.C.C. Type Number	1001002
Channels	40 AM, 40 LSB, 40 USB
Frequency Range	26,965 to 27,405 MHz
Frequency Control	Phase Locked Loop(PLL) Synthesized Circuitry.
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., 75 watts. Receive: squelched, 45 watts.
Current Drain(13.8V DC)	Transmit: 2.2A typical; 3A maximum. Receive: squelched, 0.3A; full audio output, 1A
Size	5"H x 13½"W x 12"D
Weight	13.3 pounds.
Antenna Connector	UHF, S0-239
Meters	Shows relative power output and received signal strength and modulation.
Semiconductors	46 transistors, 1 field effect transistor, 6 integrated circuits, 61 diodes and 6 light emitting diodes.

TRANSMITTER

Power Output	AM, 4 watts SSB, 12 watts, P.E.P.
Modulation	AM, high and low level Class B.
Intermodulation Distortion	SSB: 3rd and 5th order, more than -25 dB. 7th and 9th order, more than -35 dB.
SSB Carrier Supression	More than -45 dB
Unwanted Sideband	More than -45 dB
Frequency Response	AM and SSB: 300 to 3000 Hz.
Output Impedance	52 ohms, unbalanced
SSB Filter	7.8 MHz, crystal lattice type 6 dB @ 4.2 KHz 60 dB @ 7.0 KHz
Output Indicator	Meter shows relative RF output power.

RECEIVER

Sensitivity	SSB: Less than 0.25 μ V for 10 dB (S+N)/N at greater than ½ watt of audio output. AM: Less than 0.5 μ V for 10 dB (S+N)/N at greater than ½ watt of audio output
Selectivity	SSB and AM: 6 dB @ 4.2 KHz, 60 dB @ 7.9 KHz
Cross Modulation	Better than -55 dB
Image Rejection	Better than -60 dB
I.F. Frequency	AM and 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 500,000 microvolts.
Squelch	Adjustable; threshold less than .5 μ 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	300 to 2500 Hz
Distortion	Less than 10% at 3 watts output
Built-in Speaker	8 ohms
External Speaker (Not Supplied)	8 ohms, disables internal speaker when connected

PA SYSTEM

Power Output	4.0 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 person 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.

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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 COPY OF THE SALES RECEIPT OR OTHER VALID EVIDENCE OF THE DATE OF THE ORIGINAL PURCHASE MUST ACCOMPANY THIS PRODUCT.**

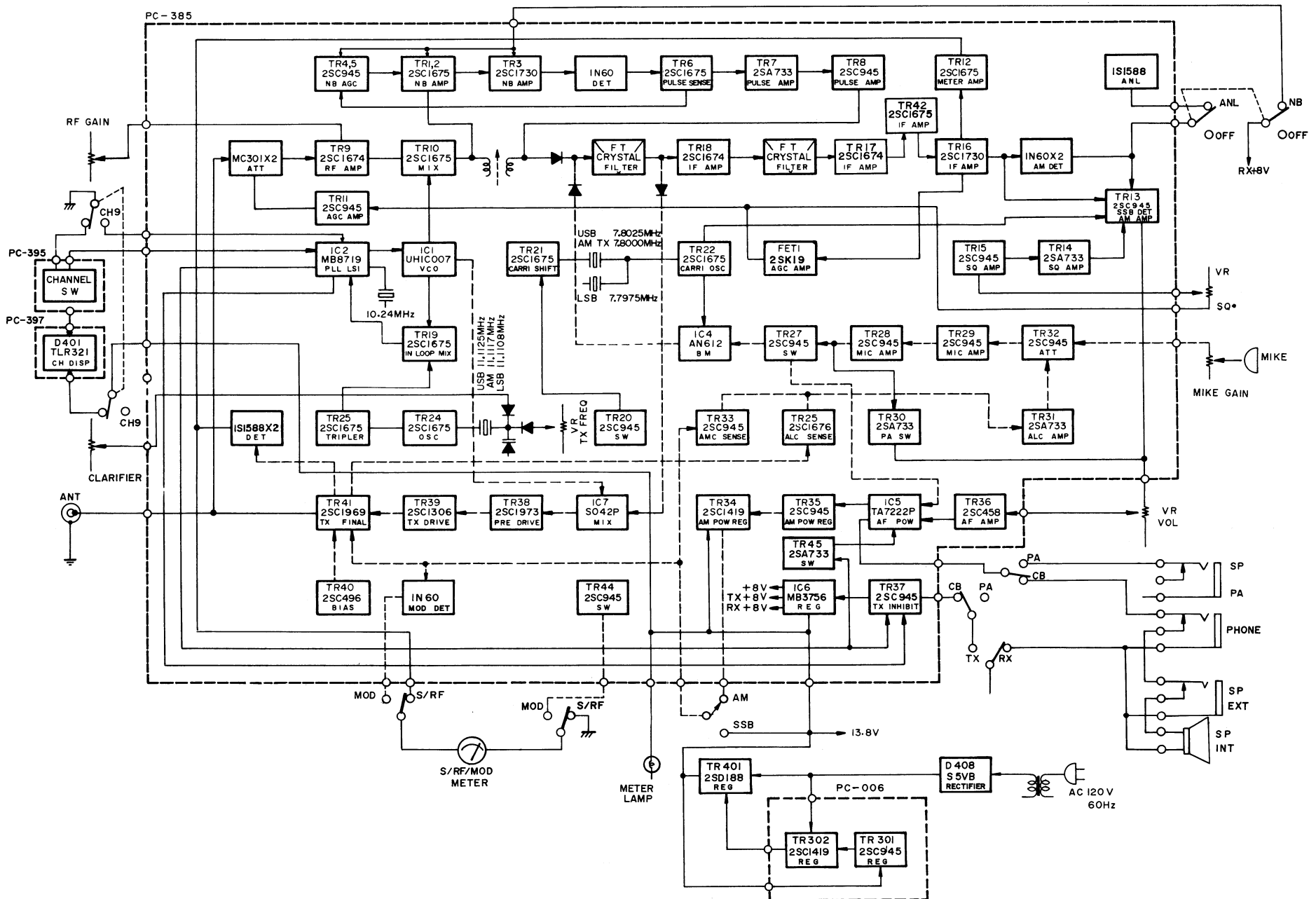
LEGAL REMEDIES. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty is void outside the United States of America.

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CORPORATION OF AMERICA

Personal Communications Division
6345 Castleway Court
Indianapolis, Indiana 46250

BLOCK DIAGRAM FOR WASHINGTON



CIRCUIT DIAGRAM FOR WASHINGTON

