

## OWNER'S MANUAL

# WE-800

2 METER SYNTHESIZED  
PORTABLE AMATEUR RADIO

### Wilson Electronics Corp.

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WE-800

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## I. GENERAL DESCRIPTION

The Wilson Model #WE-800 is a fully synthesized FM transceiver that covers the amateur 144-148 MHz band in 5 or 10 kHz selectable channels. Variable frequency selection is accomplished with thumb-wheel switches, while a rotary switch provides 5 programmable pre-selected channels in the band which can be selected by the user. A 3 position toggle switch provides automatic offset repeater or simplex operation.

The WE-800 may be utilized fully portable to produce 1 watt output with an internal battery pack. Mobile operation on 13.6 VDC provides selectable 1 or 12 watts of power output. A 3 position switch gives the option of internal battery operation or external power input. When this switch is in the "CHARGE" position, the internal battery may be charged by the external 13.6 VDC power source.

A flexible antenna is provided for portable operation, while a 2 position switch and standard SO-239 (type UHF) connector allows use of an external antenna for mobile or base station operation.

A hand-held speaker/microphone unit with push-to-talk function is supplied and is ideal for noisy portable or mobile operation. An optional speaker jack is provided for an external speaker when desired.

An illuminated meter gives indication of transmitter power output as well as relative strength of received signals. A rear panel switch disables the meter lamp for battery saving operation when used in the portable mode.

The case has a special swivel mounting bracket for mobile installations and doubles as a carrying handle for portable operation.

## II. SPECIFICATIONS

### General

Frequency range:	144.000-147.995 MHz
Frequency determination method:	C-MOS phase locked loop
Frequency stability:	$\pm 0.001\%$ -10 to +60° C
Operating mode:	Direct frequency modulation
Type of communication:	Simplex or transmitter offset $\pm$ 600 kHz
Operating voltage:	13.6 VDC negative ground (10 to 15 VDC range)
Current drain:	Transmit--290 MA @ 1 watt output. 2 amps @ 12 watts output.  Receive--45 MA squelched --250 MA at full AF rated output
Antenna impedance:	50 ohms nominal
Size:	8 $\frac{1}{2}$ x 6 $\frac{3}{4}$ x 1 $\frac{7}{8}$ inches (209.6 x 171.5 x 47.6 mm)
Weight:	1 lb, 15 oz (4.13 Kg); Radio Only 3 lb, 11 oz (8.16 Kg) with batteries & all accessories

### Transmitter

Power output:	1 or 12 watts selectable @ 13.6 VDC 1 watt with internal battery pack
Maximum deviation:	$\pm 5$ kHz 16F3

Transmitter (Continued):

Harmonics & Spurious Radiation: -60 DB below carrier

AF characteristics: Pre-emphasis, 300-3000 Hz @ +1,-3DB of 12 DB/octave

Receiver

System: Double conversion superheterodyne

Sensitivity: 0.3UV for 20DB quieting

Selectivity: + 6 kHz @ -3DB  
+ 15 kHz @ -80 DB

Spurious & Image Rejection: Greater than 80 DB

Modulation Acceptance: +7.5 kHz maximum

Squelch sensitivity: 0.2 UV

Intermodulation: 60 DB

AF Output: 2 watts @ 10% T.H.D. into 4 ohms

I.F. Frequencies: 21.4 MHz & 455 kHz

### III UNPACKING

#### Removing from Carton

Carefully remove the WE-800 from the packing carton and examine it for any signs of shipping damage.

#### In Case of Damage

The responsibility for safe delivery rests with the carrier. The responsibility in obtaining reimbursement for damage rests with you. Prompt action on your part will speed adjustment. Our warranty in no way covers malfunction or damage which is a result of improper handling by the carrier. Under no circumstance should you return merchandise to Wilson Electronics Corp. before obtaining prior approval. Contact Wilson Electronics Corp., Customer Service Department, for approved RGA Number.

#### Shipping Carton

Save the carton and packing materials, you may need it at a later date for storage or shipment of the WE-800.

### IV. Controls, Indicators & Connectors

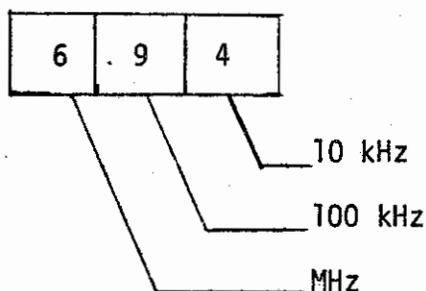
#### A. Front Panel

1. HI - OFF - LO -- This is a 3 position switch. In the "OFF" position, all unit power is deactivated. In the "LO" position, the receiver is on and the RF output level available from the low level power amplifier is 1 watt. In the "HI" position, the receiver is on and the power output available is maximum, a nominal 12W output on a 13.6 VDC mobile/base supply.

NOTE: With the "EXT/INT/CHA" switch in the "INT" (internal) position, power is limited to 1 watt output in both the "HI" and "LO" positions. (Ref. rear panel #4)

2. VOL -- A rotary potentiometer controls receiver volume from off to a full 2 watts audio output.
3. SQ. -- The squelch rotary potentiometer provides quiet receiver operation during periods of no received signals. When the squelch control is open, noise is received and weaker signals may be detected. Squelch sensitivity varies from 0.2 UV at the threshold to 1 UV at the limit sensitivity.
4. DIAL - A - B - C - D - E -- A six position rotary switch that provides several functions. When in the "DIAL" position, the thumbwheel switches determine frequency selection. When in the "A-B-C-D-E" position, 5 programmable user selected frequencies are available. (See section of frequency programming).
5. FREQUENCY MHz -- A three decade thumbwheel switch selects the operating frequency. Add 140 MHz to the dialed frequency to determine operating frequency.

See example below for 146.94 MHz:



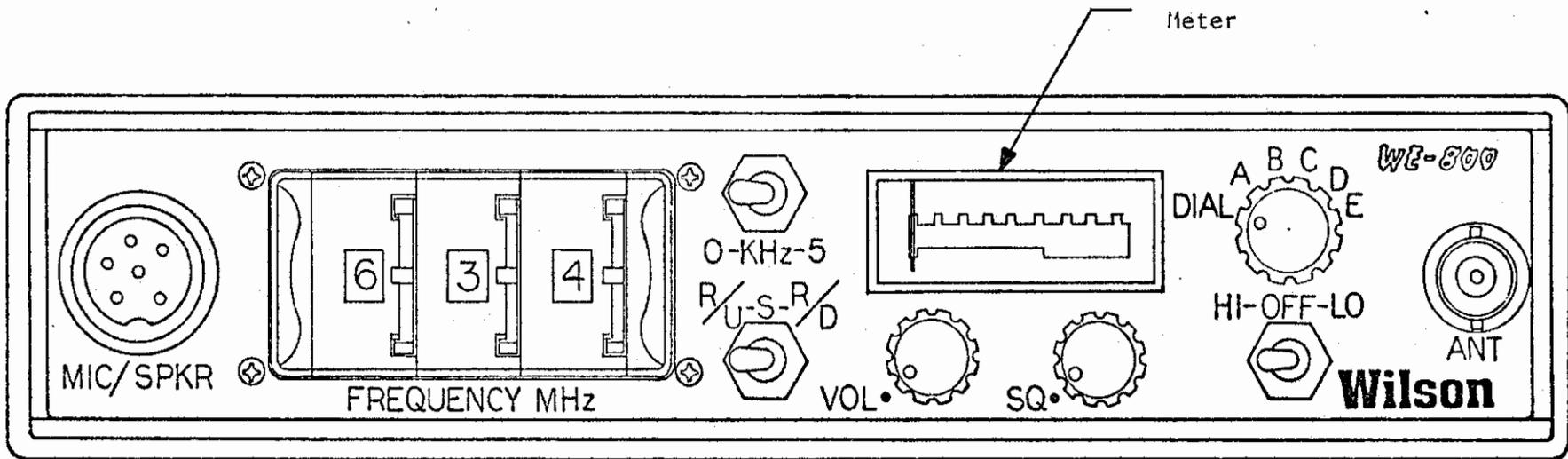
6. 0 - KHz - 5 -- A two position switch allows 5 KHz to be added to the dialed frequency when in the "5" position. Returning the switch to the "0" position maintains the dialed frequency of 10 kHz channels.
7. R/U - S - R/D -- A three position toggle switch will maintain the dialed frequency on receive and transmit when in the "S" position for simplex operation. "R/U" offsets the transmitter above the receive frequency. "R/D" offsets the transmitter below the receive frequency. In all positions, the dial indicates receive frequency. The amount of offset is determined by the "TX OFFSET" switch as selected on the rear panel. The furnished offset frequency is  $\pm 600$  kHz.
8. MIC/SPKR -- A six pin connector for the furnished microphone/speaker unit.
9. ANT -- A type "BNC" female jack is provided for the furnished whip antenna. Any resonant 50 ohm antenna may be used.

#### B. REAR PANEL

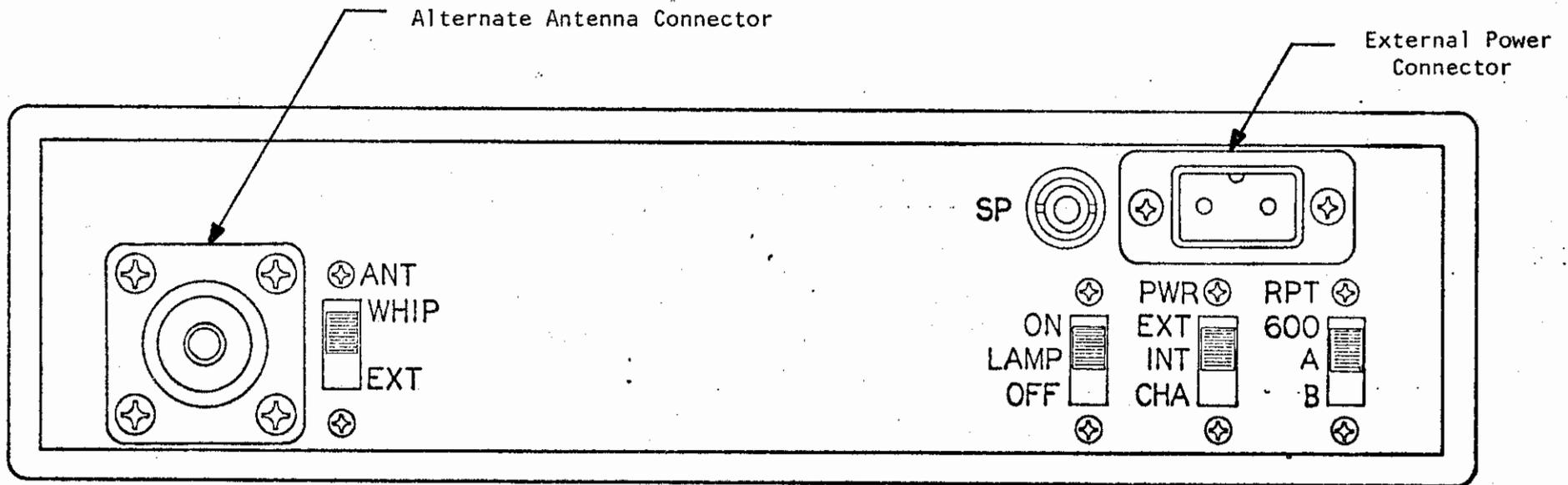
1. ANT -- WHIP/EXT -- A two position slide switch which selects the front panel antenna connector in the "WHIP" position, or the rear panel type "UHF" connector for use with an external resonant 50 ohm antenna when in the "EXT" position.
2. SP -- A 3.5 mm diameter female closed circuit jack provides for use with an external 4 ohm speaker. When an external speaker is used, audio originates from the external speaker and disconnects the speaker in the mike. The speaker/mike must be plugged in for proper operation.

3. LAMP ON/OFF -- A two position slide switch provides optional illumination of the front panel meter. Portable battery life is considerably extended when this switch is "OFF".
4. POWER EXT/INT/CHA -- A three position toggle switch provides power source options. In the "EXT" position, external batteries or power supply in the 10 - 15 VDC range supply power to the 2 pin male connector. A mating plug and cable are supplied. The red wire is (+) or positive. In the "INT" position, the internal battery pack supplies power. When in the "CHA" position, external 12.5-15 VDC power supplied to the unit through the 2 pin connector and charges the internal battery pack. Charging time varies, but overnight should be adequate for charging.
5. TX OFFSET 600 kHz A/B -- This is a 3 position toggle switch that programs the front panel R/U - S - R/D switch. The "600 kHz" position provides the standard offset required for normal repeater operation in the U.S.. Position "A" or "B" provides other splits selected by the user. Non-standard or other split arrangements may be programmed by installation of suitable crystals in the transmitter local oscillator.

**WARNING!** Out of band operation of the WE-800 can occur when operating below 144.600 or above 147.400 MHz with the front panel selector in "R/D" or "R/U" positions respectively, using 600 kHz or greater offsets.



FRONT PANEL



REAR PANEL

FIGURE 1

## V. OPERATION & INSTALLATION

### PORTABLE

The WE-800 should have 10 size "AA" NICAD batteries installed in the internal battery pack. To install or remove the internal batteries, disassemble the plastic case from the unit. Remove four slot head screws and the accompanying handle hardware. Next, remove two small phillips flat head screws from the battery pack.

Observe polarity carefully when installing batteries. To place unit in operation, set the controls and switches as follows:

- HI - OFF - LO switch in either the "HI" or "LO" position
- PWR EXT/INT/CHA switch on "INT"
- LAMP ON/OFF switch to "OFF"
- ANT WHIP/EXT to "WHIP"
- Vol to 12 o'clock
- SQ to 11 o'clock

Select an operating frequency.

See section on controls, indicators & connections to determine operating frequency. The whip antenna must be connected and the speaker/mike plugged in. A signal present on the receiver will indicate its presence on the meter. A signal strength of S9 is approximately equal to 4 microvolts. Received audio will emit from the speaker/mike at a comfortable level even in noisy loc-

ations. When on transmit, a slight upward deflection of the meter results with a power output of 1 watt. Speaking across the mike is preferred to speaking directly into the mike for undistorted transmission. The lamp ON/OFF switch may be activated momentarily to aid visibility when using the internal batteries, but the off position assures normal battery life. Batteries in the unit may be recharged without removal by placing the power switch on the rear panel to "CHA" (charge) and connecting the power cable to a 12.5 - 15 VDC source.

#### MOBILE OR BASE

The WE-800 is designed for negative ground operation. The power cable red lead shall be connected to the positive terminal of the external battery or power supply. The black lead shall be connected to battery negative or power supply negative (or common) terminal. Usually, connection of the black lead to an automobile chassis shall suffice. Special care for grounding should be observed in boats or aircraft. An in-line fuse connector with a 3 amp SLO-BLO fuse in the red lead gives over-current protection.\* The WE-800 is diode protected in case of accidental reverse polarity connection.

The choice is left to the user for which antenna connector shall be used for mobile or fixed operation. The rear panel antenna selector switch should be positioned in the "EXT"

\*NOTE: Standard 3 amp fuse is furnished with unit

position to utilize the rear panel "UHF" (S0-239) connector. In a typical automobile installation, under-dash mounting of the WE-800 will require 17-20 ft of 50-52 ohm coax to reach a rear mounted antenna. This length will vary depending upon automobile used.

The use of an external speaker in lieu of the speaker/mike in a mobile or base installation will greatly enhance the volume and clarity of the received audio. A 3.5 mm connector marked "SP" on the rear panel should be connected with a mating plug (not furnished) thru a 2 wire cable to a 4 ohm, 2 watt speaker.

For mobile operation, the controls should be set up similar to portable operation except:

- PWR EXT/INT/CHA Switch to "EXT"

See section IV, Control, Indicators and Connectors for details.

## VI. THEORY OF OPERATION

The basic frequency determining elements in the WE-800 are comprised of a C-MOS/LSI phased locked loop (PLL) IC, a C-MOS/LSI frequency divider/oscillator IC and a voltage controlled oscillator (VCO). Synthesizing occurs when the reference oscillator divider signal of 5 kHz is locked by the phase comparator to the 5 kHz signal output of the divided down VCO. The output of the phase comparator is a DC voltage processed by a low pass filter to eliminate any low frequency signal variations. The voltage output of the PLL is directly proportional to frequency and provides control of the receiver front end tuning circuits and varies the VCO frequency. The output of the VCO .

is buffered and provides a frequency range of 122.600-126.595 MHz which has 3 outputs. One output drives the receiver 1st mixer. The difference results in the receiver 1st I.F. of 21.4 MHz. The second output drives the ring modulator in the transmitter and when mixed with the output of a local oscillator (L.O.) buffer on 21.4 MHz, produces an output on 144.000-147.995 MHz. The third output goes through an isolator driving a mixer which heterodynes the 122.600-126.595 MHz VCO output signal with the 118.600 or 118.605 MHz resultant output of a L.O./tripler chain. The L.O./tripler chain produces either normal 10 kHz channel selection or 5 kHz options as selected by the 0-kHz-5 switch on the front panel.

The output of the mixer result is 4.000-7.995 MHz which is amplified and squared to provide a proper waveform to drive the programmable counter/divider in the PLL. Actual frequency selection is accomplished manually with 3 thumbwheel switches which have BCD outputs in increments of MHz, 100 kHz and 10 kHz. Also a toggle switch gives the option of 5 or 10 kHz channels as noted above and a 6 position rotary switch allows the selection of 5 programmed channels selected by the user or manual selection in the "DIAL" position. All switch outputs are interfaced with a diode matrix board which provide diode switched BCD outputs to drive the PLL programmable counter/divider.

In the receiver, the incoming signal is fed to a dual MOS-FET transistor. The front end signal is tracked across the bandpass

Input with DC voltage supplied by the PLL to 5 varactor diode tuned circuits. The incoming frequency of 144.000-147.995 MHz is heterodyned in the 1st mixer to 21.4 MHz.

The output of the 1st I.F. is shaped by a 2 pole monolithic crystal filter. This is then converted by the 2nd mixer to 455 kHz. The 2nd mixer output is then shaped by a 9 pole ceramic filter and fed to 4 stages of low phase shift amplifiers. This output is then passed through two limiter diodes and the limiter circuit which drives a monolithic ceramic discriminator detector. The output is shaped by two stages of high pass filters to greatly attenuate any low frequency components of CTCSS signals which may be present in the recovered audio. The audio frequency output module provides a two watt low distortion output to drive the speaker in the furnished speaker/mike or an external speaker of 4 ohms.

The VCO output is also fed to the ring modulator which is mixed with an L.O. output on 21.4 MHz to produce the operating frequency of 144.000-147.995 MHz. The L.O. output is selectable and reversible so the transmitter output is offset from the receiver frequency for repeater operation. For +600 kHz (upper) split, a 22.0 MHz crystal is used, and for -600 kHz (lower) split, a 20.6 MHz is used and furnished as standard. Optional splits of up to the full bandpass (4 MHz) are available with two pairs of crystal positions and switch selection. The front panel switch (R/U-S-R/D) allows opposite split polarity.

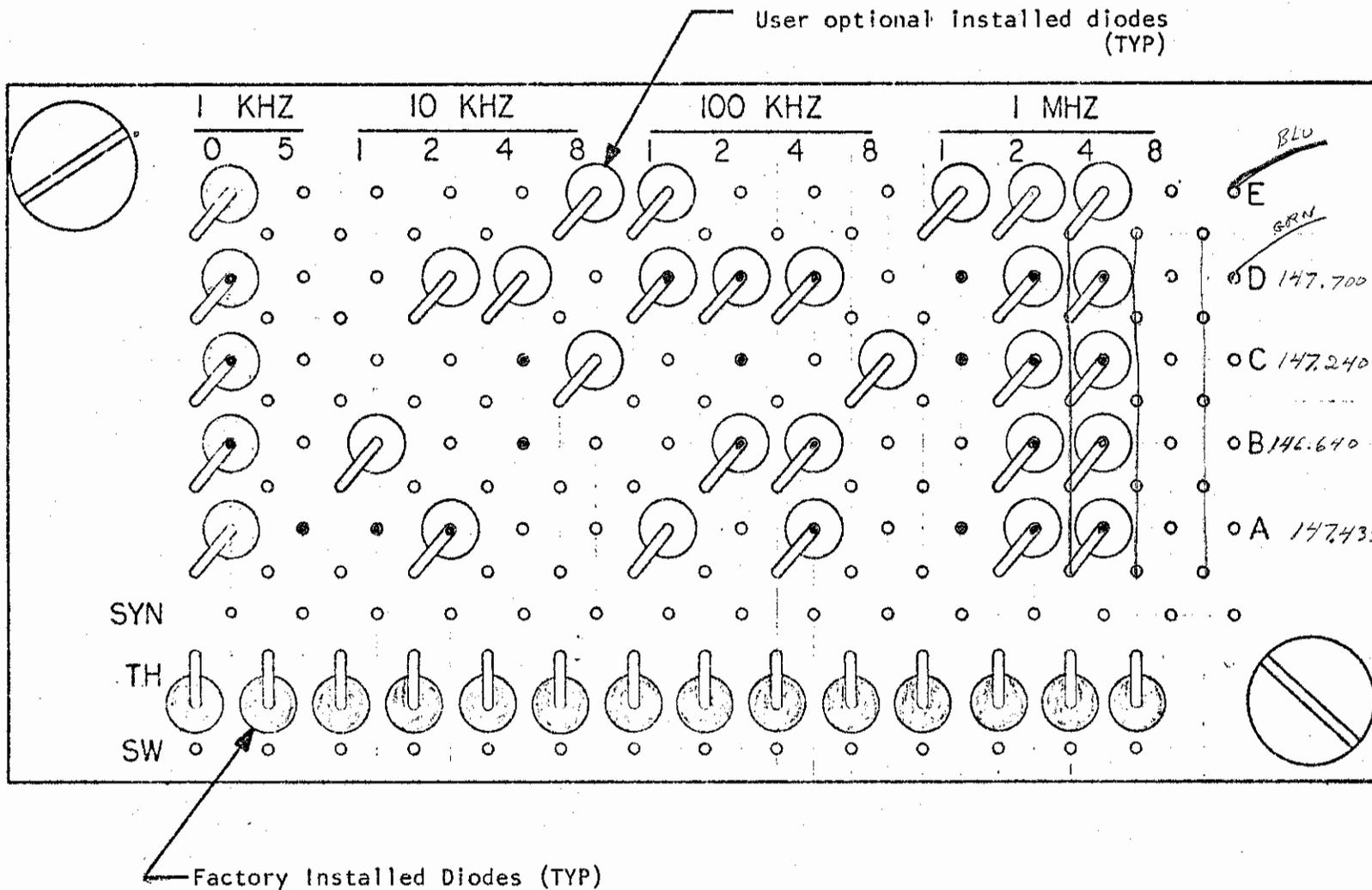
The output of the ring modulator is fed to four buffer amplifiers with bandpass shaping characteristics. These drive

the low P.A. to 1 watt RF output. When the rear panel power selector switch is in the "INT" position, the front panel selector switch may be in either the "HI" or "LO" position, but only 1 watt output will result. When the power selector switch is in the "HI" position and the power function switch is in the "EXT" (external) position, the final P.A. is supplied voltage and a relay diverts the 1 watt output of the low level P.A. to the input of the HI level P.A. and full output of 12 watts will result from an input of 13.6 VDC. An R.F. detector circuit samples the transmitter output and provides a D.C. voltage to the meter which shows relative R.F. power output. The push-to-talk (PTT) switch of the external speaker/mike controls the receive and transmit transistor switching circuit in the output of the voltage regulator. The voltage regulator and associated control circuits provides a 10 VDC stable output as required for precise frequency control of the PLL, VCO, L.O.'s and other critical stages.

## VII. FREQUENCY PROGRAMMING

Up to 5 channels of user selected programmed frequencies may be installed in the WE-800 with the simple addition of diodes on the diode Matrix Board.

This board is located under the chassis behind the Thumbwheel Selector Switch. The board is in clear view but should be removed from the chassis for diode installation. Refer to the illustration for a typical installation. Specific example frequencies are programmed as follows:

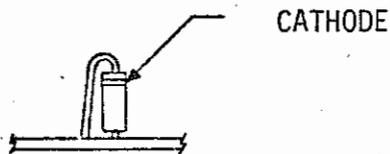


Diode Matrix Frequency Programming Board  
(Viewed from the top)

Figure 2

"A"	146.52 MHz
"B"	146.61 MHz
"C"	146.88 MHz
"D"	146.76 MHz
"E"	147.18 MHz

Note that for repeater operation, always install the receive frequency to allow for the proper transmit offset. Example: For 146.34/146.94 MHz, install 146.94 on the Diode Matrix Board. All diodes shall be installed with cathode side up. Example:



Any good low voltage switching silicon diode may be used, however, type IN914 or equivalent is recommended.

#### VIII. SERVICE

##### Return shipment procedure

Do not return equipment to Wilson Electronics Corp without prior Returned Goods Authorization. If time is extremely important, call for approval. It is very important that the shipment be well packed and fully insured. Damage claims must be settled between you and the carrier and will greatly delay any returns. Proper packing will normally avoid this trouble. All shipments must be sent to us prepaid. We do not accept collect shipments. All returns should be made in standard cartons only.

### Shipping Methods

When a shipment is returned it will be handled in one of three ways. Where all service is in warranty, the shipment will be returned prepaid via a carrier of our choice. If there are any charges not covered by warranty, we will return shipment COD. The carrier will collect these charges and transportation costs on arrival. Unclaimed or refused COD shipments will not be reshipped until payment of service and transportation charges is received. Shipment will then be made collect for reshipment transportation charges unless adequate funds have been included to ship prepaid. Unclaimed equipment automatically becomes the property of the manufacturer 60 days after the date of refusal or return and will be disposed of for payment due. Note: We will not ship by means of a carrier that will not fully insure the equipment. The exception to this is when there is no other means (APO/FPO, etc.) of shipment than parcel post and then we will ship by this means with your written agreement that you assume any loss over that which the carrier will insure. COD shipments cannot be made through APO/FPO addresses. Registered mail and U.P.S. are the best methods of shipment.

## IX. PARTS LIST

SEMICONDUCTOR COMPLEMENTTransistors

<u>Reference Designation</u>	<u>Type</u>	<u>Function</u>
Q1	3SK39	RF Amplifier
Q2	2SK33E	1st Mixer
Q3	2SC710	1st IF Amplifier
Q4	2SC710	2nd Mixer
Q5	2SC710	2nd IF Amplifier
Q6	2SC710	2nd IF Amplifier
Q7	2SC710	2nd IF Amplifier
Q8	2SC710	2nd IF Amplifier
Q9	2SC710	Limiter
Q10	2SC710	High Pass Filter
Q11	2SC710	High Pass Filter
Q13	2SC710	2nd Local Oscillator
Q14	2SC710	IF Amplifier
Q15	2SC710	Noise Amplifier
Q16	2SC710	Noise Amplifier
Q17	2SC710	Switch
Q101	2SK33E	VCO
Q102	2SK33E	Buffer

SEMICONDUCTOR COMPLEMENT

Transistors

<u>Reference Designation</u>	<u>Type</u>	<u>Function</u>
Q103	2SC710	Isolator
Q201	2SC710	Local Oscillator
Q202	2SC710	Tripler
Q203	2SC710	Mixer
Q204	2SC710	IF Amplifier
Q205	2SC710	IF Amplifier
Q206	2SC710	Squaring Amplifier
Q301	2SC710	Offset L.O.
Q302	2SC710	Offset L.O. Buffer
Q303	2SC710	Buffer Amplifier
Q304	2SC710	Buffer Amplifier
Q305	2SC710	Buffer Amplifier
Q306	2SC2053	Buffer Amplifier
Q307	2SC730	Low Power Amplifier
Q308	2SC1729	High Power Amplifier
Q309	2SA695	Power Amplifier Switch

### Transistors

<u>Reference Designation</u>	<u>Type</u>	<u>Function</u>
Q401	2SC710	Mike Pre-Amplifier
Q402	2SC710	Modulator Amplifier
Q403	2SC710	Low Pass Filter
Q404	2SC710	Low Pass Filter
Q501	2SA695	10 Volt Regulator
Q502	2SC710	Voltage Control
Q503	2SC1209	Receiver Switch
Q504	2SA695	Transmitter Switch

### Integrated Circuits

<u>Reference Designation</u>	<u>Type</u>	<u>Function</u>
Q12	AN214	Audio Frequency Power Amplifier
Q207	TR0320	Phase Locked Loop
Q208	CD4060	Reference Oscillator Frequency Divider

SEMICONDUCTOR COMPLEMENT

Diodes

<u>Reference Designation</u>	<u>Type</u>	<u>Function</u>
D1 - D5	1S1944	Front End Tuning
D6 , D7	FM-1	Receiver Limiter
D8 , D9	FM-1	Discriminator
D10 , D11	FM-1	Detector
D12 , D13	FM-1	Noise Detector
D14	MZ-206	Noise Switch Regulator
D101 , D102	1S1944	VCO Tuning
D201 , D202	1S2473	L.O. Switching
D203	1S2473	Squaring Shaper
D301 - D307	1S2473	Offset L.O. Switching
D308 - D311	1S2473	Ring Modulator
D312	M1-301	Transmitter Switch
D313	M1-301	Receiver Switch
D314	1S2473	Relay Switch Gate
D315	1S2473	Relay Suppressor
D316	FM-1	Meter R.F. Detector
D317	FM-1	Charger Polarity
D318	FM-1	P.A. Switch Blocking
D401 , D402	1S2473	Modulator Limiter
D501	FM-1	Receiver Switch Blocking
D502	MZ-205	10V Regulator

PARTS LIST

TRANSISTORS

<u>Reference Designation</u>	<u>Type</u>	<u>Quantity</u>
Q3-Q17, Q103, Q201-Q206, Q302-Q305	2SC710	26
Q307	2SC730	1
Q308	2SC1729	1
Q306	2SC2053	1
Q2, Q101, Q102	2SK33E	3
Q1	3SK39	1

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INTEGRATED CIRCUITS

Q12	AN214	1
Q208	CD4060	1
Q207	TR0320	1

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DIODES

D1-D5, D101, D102	Varactor #1S1944	7
D201-D203, D301-D311, D314, D315, D401, D402	Varactor #1S2473	18
D6-D13, D316-D318, D501	Germanium #FM-1	12
D312, D313	Silicon M1-301	2
D502	Zener MZ-205	1
D14	Zener MZ-206	1

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## R.F. TRANSFORMERS

T1	RF Input	#11.3395Y
T2	1st Mixer Output	#21A
T3	1st IF Input	#21B
T4	1st IF Output	#21B
T5	2nd Mixer Input	#21B
T6	Limiter	#1624JQ
T101	Isolator Output	#3395
T201	Offset L.O. Mixer Output	#3395
T301	Ring Modulator	#22A
T302	Ring Modulator Output	#12B
T303	XMTR Buffer Input	#11SN3395
T304	XMTR Driver Coupling	#113SN3392Y

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## INDUCTORS

L1	Front End Input Tuning	#11.3392Y
L2	Front End Input Tuning	#11.3392Y
L3	RF Choke	3.3UH
L4	Front End Output Tuning	#3392
L5	Front End Output Tuning	#11.3392Y
L6	Noise Amplifier RF Choke	
L7	Noise Amplifier RF Choke	
L101	VCO Tank	
L102	VCO RF Choke	3.3UH
L103	VCO Buffer Choke	#3410
L201	Offset L.O. Mixer Input	#3410
L202	Mixer Coupling	10 UH Choke
L301	XMTR 1st Buffer Input	113S3392Y
L302	XMTR 1st Buffer Output	113s3392Y
L303	XMTR 2nd Buffer Input	113S3392Y
L304	XMTR 2nd Buffer Output	113S3392Y
L305	XMTR 3rd Buffer Input	113S3392Y
L306	XMTR 3rd Buffer Output	113S3392Y
L307	XMTR Driver Input	
L308	XMTR Driver RF Choke	
L309	XMTR Low PA RF Choke	(Wound on R330)
L310	XMTR Low PA RF Output	
L311	XMTR Low PA Output	
L312	XMTR Low PA Output RF Choke	
L313	XMTR Low PA Output	
L314	XMTR Low PA Output	
L315	T/R Switch Receive Coupling	
L316	HI PA Input	
L317	HI PA Input RF Choke	(Wound on R333)
L318	HI PA Output	
L319	HI PA Output	
L320	XMTR Filter Input	
L321	XMTR Filter Section	
L322	SMTR Filter Output	

FILTERS

FL1	21.4 MHz Bandpass 8 Pole Crystal Lattice	#21M15A
F12	455 kHz Bandpass 4 Pole Monolythic	#LFC-12

DISCRIMINATOR

FL3	Monolythic Ceramic Discriminator Dector
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CRYSTALS

Y1	Rx 2nd L.O.	20.945 MHz
Y201	P.L.L. L.O. Lower Offset	39.5333 MHz
Y202	P.L.L. L.O. Upper Offset	39.5350 MHz
Y203	REF. L. O. Freq. Divider	5.120 MHz
Y301	Tx L. O. Simplex	21.400 MHz
Y304	Tx L. O. STD Upper Split	22.000 MHz
Y307	Tx L.O. STD Lower Split	20.600 MHz
Y302	Tx L.O. Upper Split	
Y303	Tx L.O. Lower Split	
Y305	Tx L.O. Upper Split	
Y306	Tx L.O. Lower Split	

Frequencies selected by user-optional  
at extra cost:  
R/U = 21.4 MHz + Offset Fmhz  
R/D = 21.4 MHz - Offset Fmhz

SWITCHES

S1	BCD Frequency Sel.	3P Decade BCD Thumbwheel	#3R177602M
S2	0-5 kHz Channel Select	1 PST Toggle	
S3	R/U-S-R/D Simplex/Repeater Offset	2PDT Toggle	
S4	LO-OFF-HI Power Selector/OFF	2P3T Toggle	
S5	Dial A-B-C-D-E	2P6T Rotary	
S6	Lamp on/off	2PDT Slide	
S7	POWER EXT/INT/CHA	2PDT Slide	
S8	Tx Offset - 600 kHz/A/B/	2P3T Slide	
S9	Antenna - Front/Rear	2PDT Slide	

CONNECTORS

J1	Antenna (Front)	Type BNC
J2	Antenna (Rear)	Type UHF
J3	Spkr (ext) Closed CKT	3.5 MM
J4	Spkr/Mike	6 Pin
J5	Pwr (ext)	2 Pin

CAPACITORS

C1	40P	C60	.03	C211	3P	C334	.001
C2	.001	C61	.0068	C212	30P	C335	5P
C3	10P	C62	.0068	C213	15P	C336	1P
C4	1P	C63	.0068	C214	.02	C337	10P
C5	.001	C64	.0068	C215	.02	C338	10P
C6	10P	C65	.0068	C216	50P	C339	.02
C7	1P	C66	.0068	C217	.001	C340	.001
C8	.001	C67	10/10	C218	.001	C341	.02
C9	10P	C68	300P	C219	.001	C342	.001
C10	.001	C69	60P	C220	.001	C343	5P
C11	100P	C70	.001	C221	.02	C344	8P
C12	.02	C71	.001	C222	.02	C345	.02
C13	3P	C72	.02	C223	10/16	C346	FEED THRU 1000P
C14	.02	C73	.05	C224	1/35	C347	10P
C15	10/10	C74	.02	C225	.02	C348	10P
C16	.001	C75	0.1/35	C226	10/16	C349	10P
C17	10P	C76	0.1/35	C227	1/35	C350	.001
C18	1P	C77	0.1/35	C228	10/16	C351	.02
C19	.001	C78	1/35	C229	1/35	C352	15P
C20	.001	C79	10/10	C230	1/35	C353	VAR 20P
C21	10P	C80	33/16	C231	30P	C354	.02
C22	0.5P	C81	4.7/16	C232	10P	C355	.001
C23	100P	C82	.001	C233	VAR 20P	C356	10P
C24	15P	C83	33/16	C234	FEED	C357	10/10
C25	.001	C84	.02	C250	THRU 1000P	C358	50P
C26	.02	C85	100/25	C251	10/16	C359	VAR 20P
C27	.02	C86	100/25	C301	VAR 20P	C360	20P
C28	15P	C87	1/16	C302	10P	C361	30P
C29	.001	C88	10/10	C303	VAR 20P	C362	.02
C30	.02	C89	1/10	C304	10P	C363	15P
C31	15P	C90	10/10	C305	VAR 20P	C364	VAR 20P
C32	0.5P	C101	.001	C306	10P	C365	VAR 20P
C33	15P	C102	10P	C307	VAR 20P	C366	50P
C34	.02	C103	3P	C308	10P	C367	470P
C35	.02	C104	470P	C309	VAR 20P	C368	.02
C36	.001	C105	10P	C310	10P	C369	VAR 20P
C37	10P	C106	.001	C311	VAR 20P	C370	100P
C38	.02	C107	5P	C312	10P	C371	10/10
C39	.02	C108	.001	C313	VAR 20P	C372	30P
C40	.001	C109	10/10	C314	10P	C373	15P
C41	200P	C110	15P	C315	.02	C374	30P
C42	.001	C111	.02	C316	100P	C375	6P
C43	200P	C112	50P	C317	.001	C376	30P
C44	.02	C113	50P	C318	470P	C377	15P
C45	.001	C114	.001	C319	.02	C378	0.5P
C46	1/35	C115	.001	C320	30P	C379	.001
C47	.001	C116	10P	C321	8P	C401	0.1/35
C48	.001	C117	.02	C322	1P	C402	470P
C49	.02	C200	.02	C323	8P	C403	470P
C50	.02	C201	.001	C324	15P	C404	33/16
C51	.02	C202	.001	C325	.02	C405	1/35
C52	100P	C203	VAR 20P	C326	.02	C406	100/10
C53	1/35	C204	VAR 20P	C327	.001	C407	4.7/16
C54	.02	C205	10P	C328	5P	C408	33/16
C55	.02	C206	10P	C329	1P	C409	.01
C56	.02	C207	60P	C330	10P	C410	.0068
C57	500P	C208	100P	C331	10P	C411	.002
C58	500P	C209	.02	C332	.02	C412	.0068
C59	.01	C210	15P	C333	.02	C413	.001

NOTE; Unless Otherwise Indicated, All Capacitors are in Microfarads. P= Picofarads

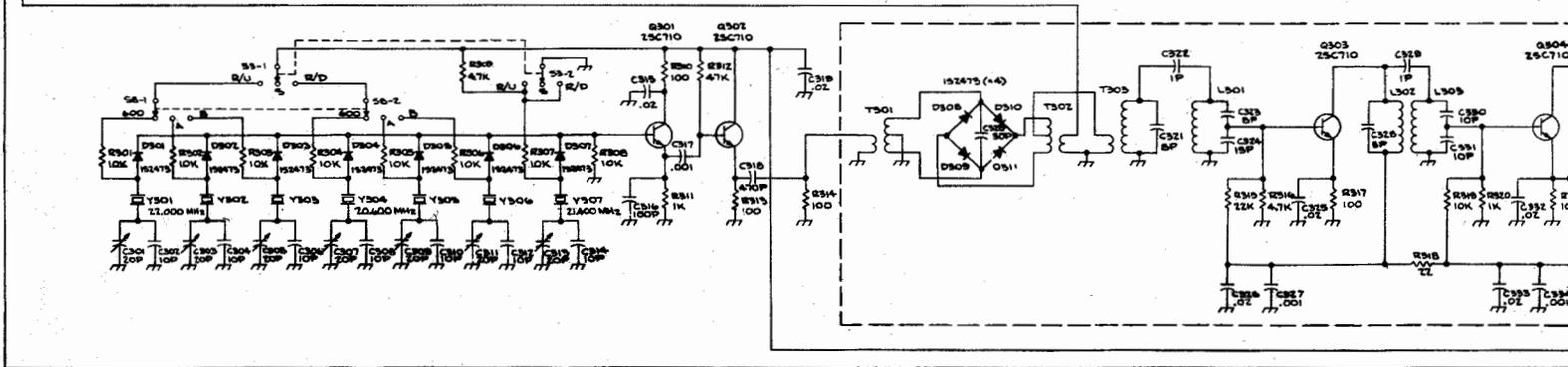
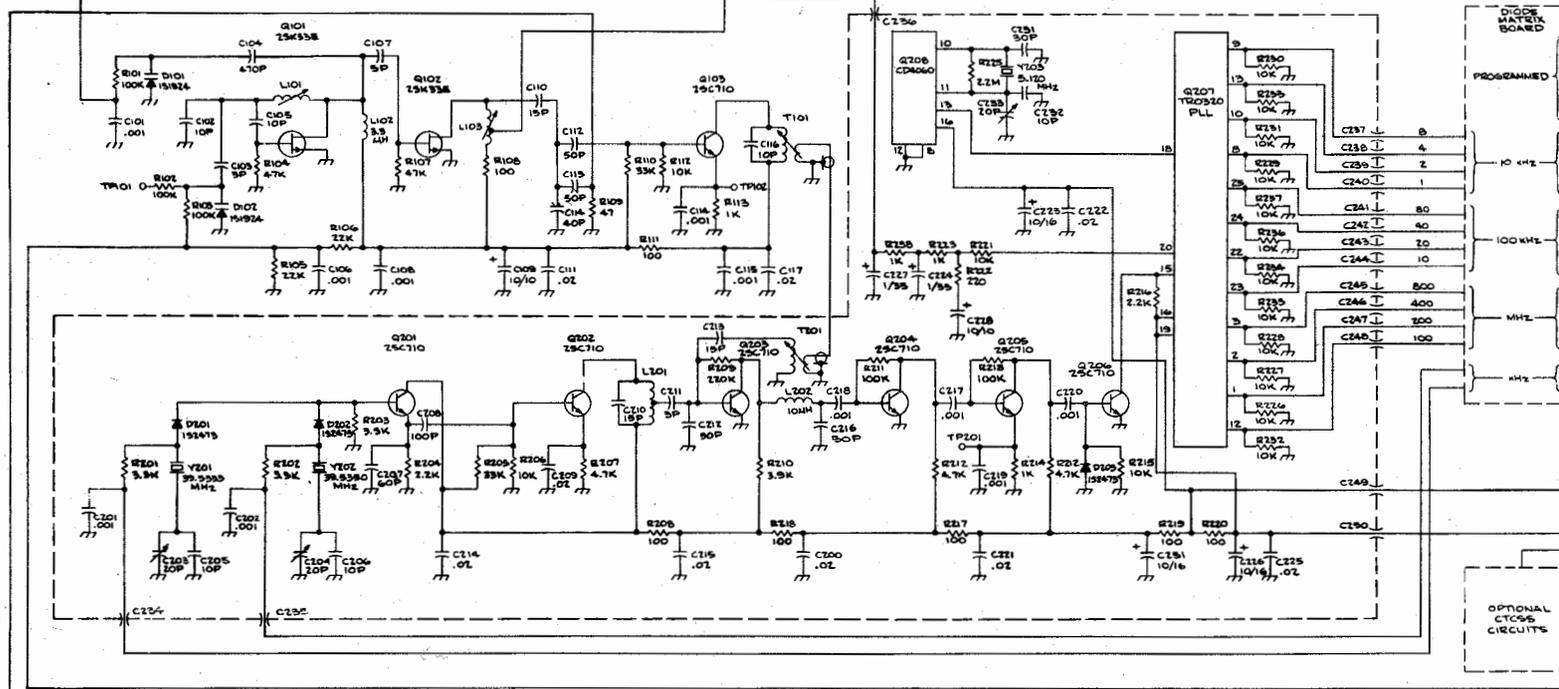
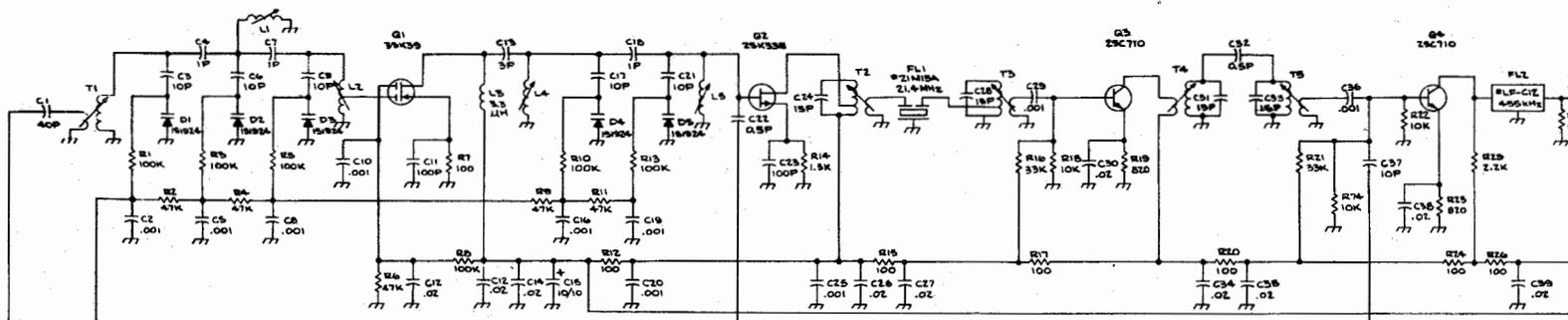
## RESISTORS, POTS &amp; TRIMMERS

## CAPACITORS

## CONT.

C501	.02
C502	.02
C503	.02
C504	40/16
C505	0.1/35
R1	100K
R2	47K
R3	100K
R4	47K
R5	100K
R6	47K
R7	100
R8	100K
R9	47K
R10	100K
R11	47K
R12	100
R13	100K
R14	1.5K
R15	100
R16	33K
R17	100
R18	10K
R19	820
R20	100
R21	33K
R22	10K
R23	820
R24	100
R25	2.2K
R26	100
R27	1.5K
R28	220K
R29	2.2K
R30	220K
R31	2.2K
R32	220K
R33	2.2K
R34	220K
R35	100
R36	2.2K
R37	22K
R38	12K
R39	1.5K
R40	1.5K
R41	22K
R42	33K
R43	33K
R44	15K
R45	15K
R46	220K
R47	33K
R48	33K
R49	33K
R50	220K
R51	33K

R52	POT	20K	R224	1K	R507	.10K
R53		220K	R225	2.2M	R508	47K
R54		47K	R226-R237	10K	R509	100
R55		220K	R238	1K		
R56		2.2K	R301	10K		
R57	Trim Pot	4.7K	R302	10K		
R58		10K	R303	10K		
R59	Trim Pot	20K	R304	10K		
R60		220K	R305	10K		
R61		2.2K	R306	10K		
R62		220K	R307	10K		
R63		2.2K	R308	10K		
R64		100	R309	4.7K		
R65		100	R310	100		
R66		56K	R311	1K		
R67		22K	R312	47K		
R68		15K	R313	100		
R69		150	R314	100		
R70		560	R315	22K		
R71		4.7K	R316	4.7K		
R72		10K	R317	100		
R73		100	R318	22		
R74		10K	R319	10K		
R75		820	R320	1K		
R101		100K	R321	100		
R102		100K	R322	22		
R103		100K	R323	10K		
R104		47K	R324	1K		
R105		22K	R325	100		
R106		22K	R326	22		
R107		47K	R327	10K		
R108		100	R328	470		
R109		47	R329	Trim Pot	250	
R110		33K	R330	Across	L309	75
R111		100	R331		1K	
R112		10K	R332	Trim Pot	10K	
R113		1K	R401		10K	
R201		3.3K	R402		22	
R202		3.3K	R403		5.6K	
R203		3.3K	R404	POT	150	
R204		2.2K	R405		680	
R205		33K	R406		1.8K	
R206		10K	R407		4.7K	
R207		4.7K	R408		10K	
R208		100	R409		100K	
R209		220K	R410		10K	
R210		3.9K	R411		330K	
R211		100K	R412		15K	
R212		4.7K	R413		15K	
R213		100K	R414		15K	
R214		1K	R415		15K	
R215		10K	R416		15K	
R216		2.2K	R417	Trim Pot	10K	
R217		100	R418		22	
R218		100	R501		2.2K	
R119		100	R502		1K	
R220		100	R503		2.2K	
R221		10K	R504	Trim Pot	10K	
R222		220	R505		2.2K	
R223		1K	R506		470	







## 90 DAY LIMITED WARRANTY RADIOS

WILSON ELECTRONICS CORP. ("WILSON") warrants that your new RADIO has been manufactured free of defects in design, material and workmanship. If this product fails to give satisfactory service due to defects covered by warranty, including any warranty implied by law such as WARRANTIES OF MERCHANTABILITY OR FITNESS, for a period of 90 DAYS FROM THE DATE OF PURCHASE, "WILSON" will, at its option, replace or repair the unit, or any defective part free of charge.

To obtain warranty service, return the RADIO to your dealer, or should this be inconvenient, pack it securely, and send it with proof of purchase date and a letter explaining the problem, shipping cost prepaid, to CUSTOMER SERVICE DEPT., WILSON ELECTRONICS CORP., 4288 SO. POLARIS, LAS VEGAS, NEVADA 89103.

### IMPORTANT

Please note: A written "Return Goods Authorization" must first be obtained from "WILSON" prior to shipping anything to the plant, with a copy of the authorization included inside the carton. Warranty service covers only repair or replacement of the RADIO only. "WILSON" is not responsible for costs of removal or reinstallation, or shipping to the place of repair. The warranty period is not extended due to repair or replacement.

"WILSON" reserves the right to make reasonable charges for service if there is evidence of damage due to alteration, misuse or installation not according to the enclosed instructions.

"WILSON" IS NOT RESPONSIBLE FOR DAMAGE TO OTHER EQUIPMENT OR PROPERTY OR FOR ANY OTHER CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, WHETHER BASED ON CONTRACT, NEGLIGENCE OR STRICT LIABILITY. MAXIMUM LIABILITY SHALL NOT, IN ANY CASE, EXCEED THE PURCHASE PRICE OF THE UNIT.

(Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.)

(This warranty gives you specific legal rights. You may also have other rights which may vary from state to state.)



**Wilson Electronics Corp.**

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