

21-1521

REALISTIC[®]

Service Manual



TRC-452
CB TRANSCEIVER
Catalog Number: 21-1521



CUSTOM MANUFACTURED FOR RADIO SHACK  A DIVISION OF TANDY CORPORATION

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1. SPECIFICATIONS

GENERAL SPECIFICATIONS

Transmitter/Receiver	Frequency synthesizing circuit with digital phase-locked loop
Communicating frequencies	26.965 MHz to 27.405 MHz (all 40 channels)
Operating voltage	11–16V DC (positive or negative ground)
Temperature and Humidity Range	–20° C to +60° C and 10% to 90%
Transmitter/Receiver switching	Electronic (diode switching)

STANDARD TEST CONDITIONS

Battery supply voltage	13.8V DC
Modulation	1000 Hz, 30%
Audio output power	500 mW
Audio output load	8 ohm
Antenna impedance	50 ohm (non-inductive load)
Ambient conditions	
Temperature	25° C ±5° C
Humidity	50% to 70%

TRANSMITTER SPECIFICATIONS

	NOMINAL	LIMIT
RF output power:	3.8 W	3.5–4.0W
Spurious ratio:	–65 dB	–60 dB
Frequency tolerance:	±0.003 %	±0.005 %
Microphone input sensitivity:		
(1 kHz, 50% modulation)	1 mV	2 mV
Current drain at no modulation:	1000 mA	1300 mA
Current drain at 80% modulation:	1500 mA	2000 mA

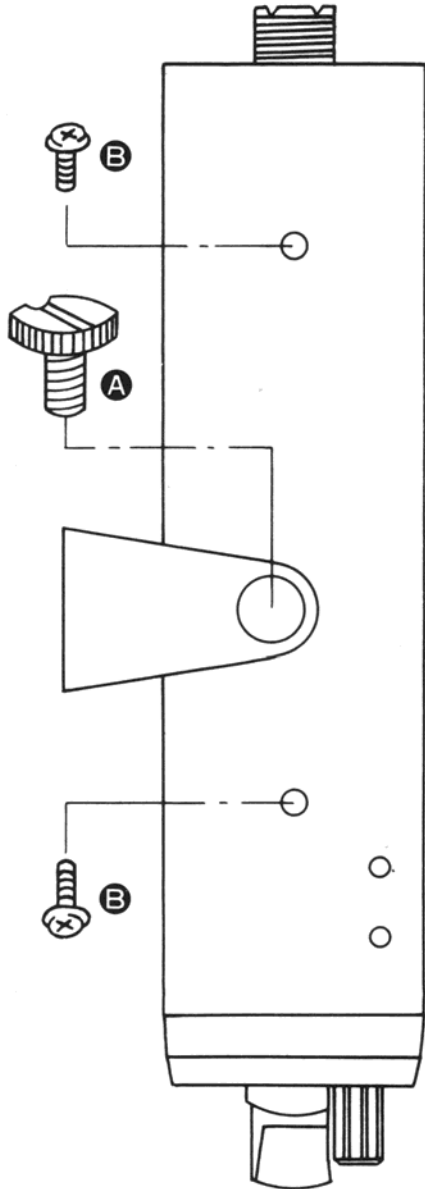
RECEIVER SPECIFICATIONS (ANL: OUT)

	NOMINAL	LIMIT
Maximum sensitivity:	0.4 μV	1 μV
Sensitivity at 10 dB S/N:	0.5 μV	1.0 μV
Image rejection ratio ($f_0 + 910$ kHz):	50 dB	40 dB
1st I.F. rejection ratio (9.785 MHz):	90 dB	80 dB
2nd I.F. rejection ratio (455 kHz):	100 dB	90 dB
Spurious rejection ratio:	40 dB	25 dB
RF GAIN control ratio (Max. control range):	40 dB	30 – 50 dB
Squelch sensitivity at threshold:	1 μV	2 μV
Squelch sensitivity at tight point:	500 μV	125 – 2000 μV
A.G.C. figure of merit		
(RF input 50 mV, AF 10 dB down):	90 dB	75 dB
I.F. bandwidth (-6 dB):	7 kHz	5 – 9 kHz
Adjacent channel selectivity:	60 dB	40 dB
Cross modulation:	50 dB	45 dB
Audio output power (RF input 1 mV)		
at maximum power:	4.0 W	3.0 W
at 10% distortion:	3.0 W	2.5 W
Audio distortion (RF input 1 mV)		
AF output 0.5 W:	4.5%	7.0%
Audio fidelity (RF input 1 mV)		
(1 kHz 0 dB reference) at 450 Hz:	-6 dB	-10 dB
at 2.5 kHz:	-6 dB	-10 dB
S-meter sensitivity (S-9):	100 μV	50 – 300 μV
Current drain at no signal:	500 mA	700 mA maximum
Current drain at maximum output:	1.5 A	1.8 A
Hum & Noise (RF input 1 mV) un-squelched:	45 dB	40 dB

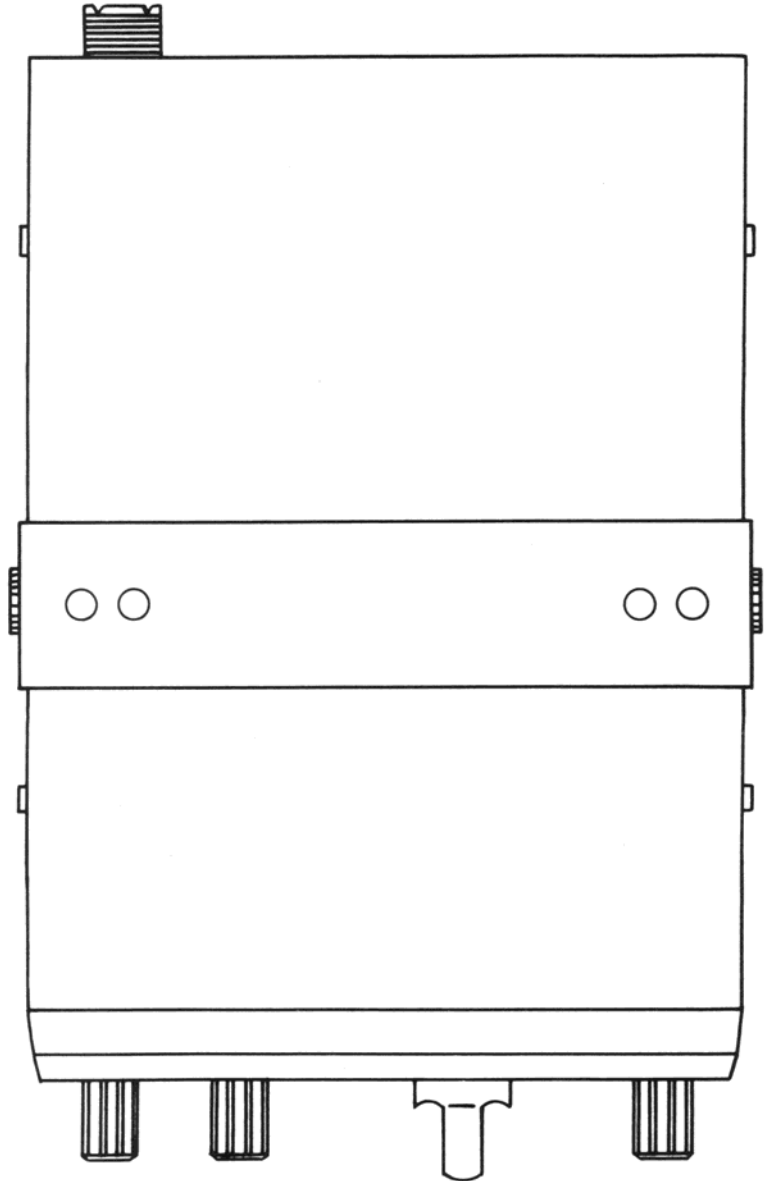
PA SPECIFICATIONS

Maximum output power (AF input 1 kHz, 10 mV):	5 W	4 W
10% distortion power (AF input 1 kHz, 10 mV):	4 W	3 W

2. DISASSEMBLY INSTRUCTIONS



SIDE VIEW



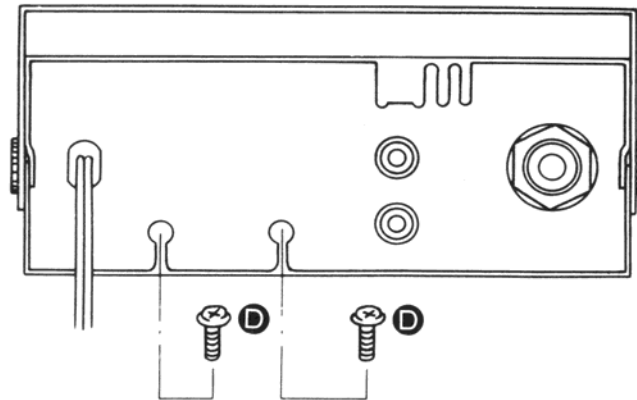
TOP VIEW

1. Remove 2 mounting bracket screws **A**
2. Remove 2 screws **B** from each side.

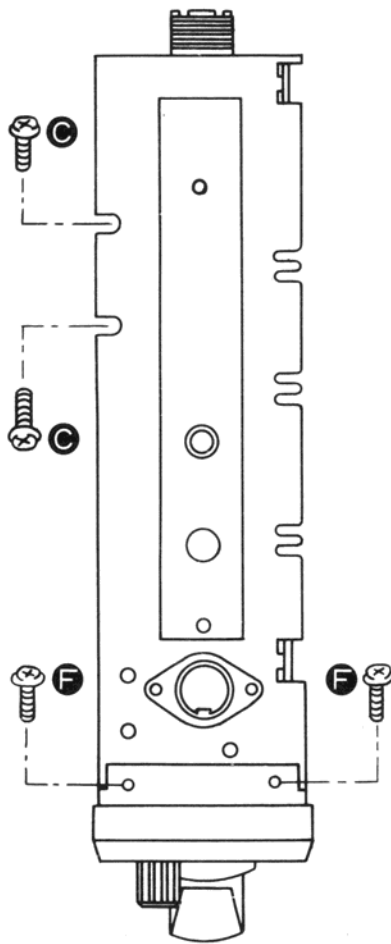
3. Remove top and bottom covers. Remember, the speaker is attached to the top cover so use care not to break the wires.

PRINTED CIRCUIT BOARD REMOVAL

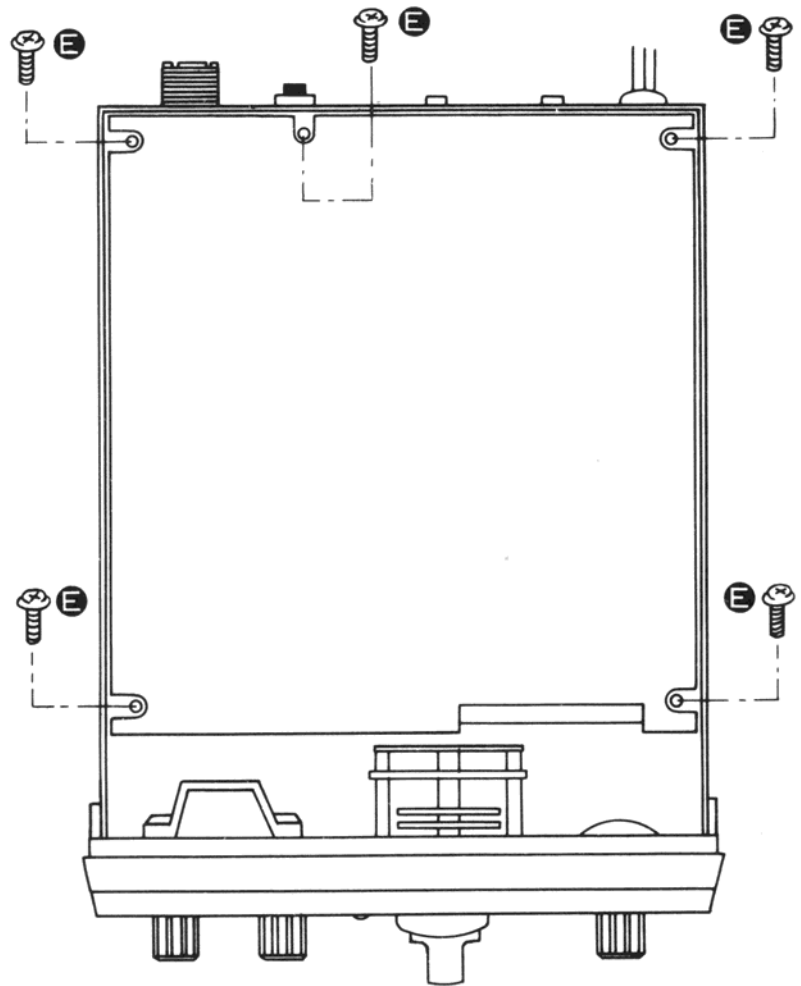
1. Remove 2 screws **C** holding heat sink to the side of the unit.
2. Remove 2 screws **D** holding heat sink to the rear of the unit.
3. Remove 5 screws **E** from Printed Circuit Board.
4. Remove 4 screws **F** from front panel.



REAR VIEW

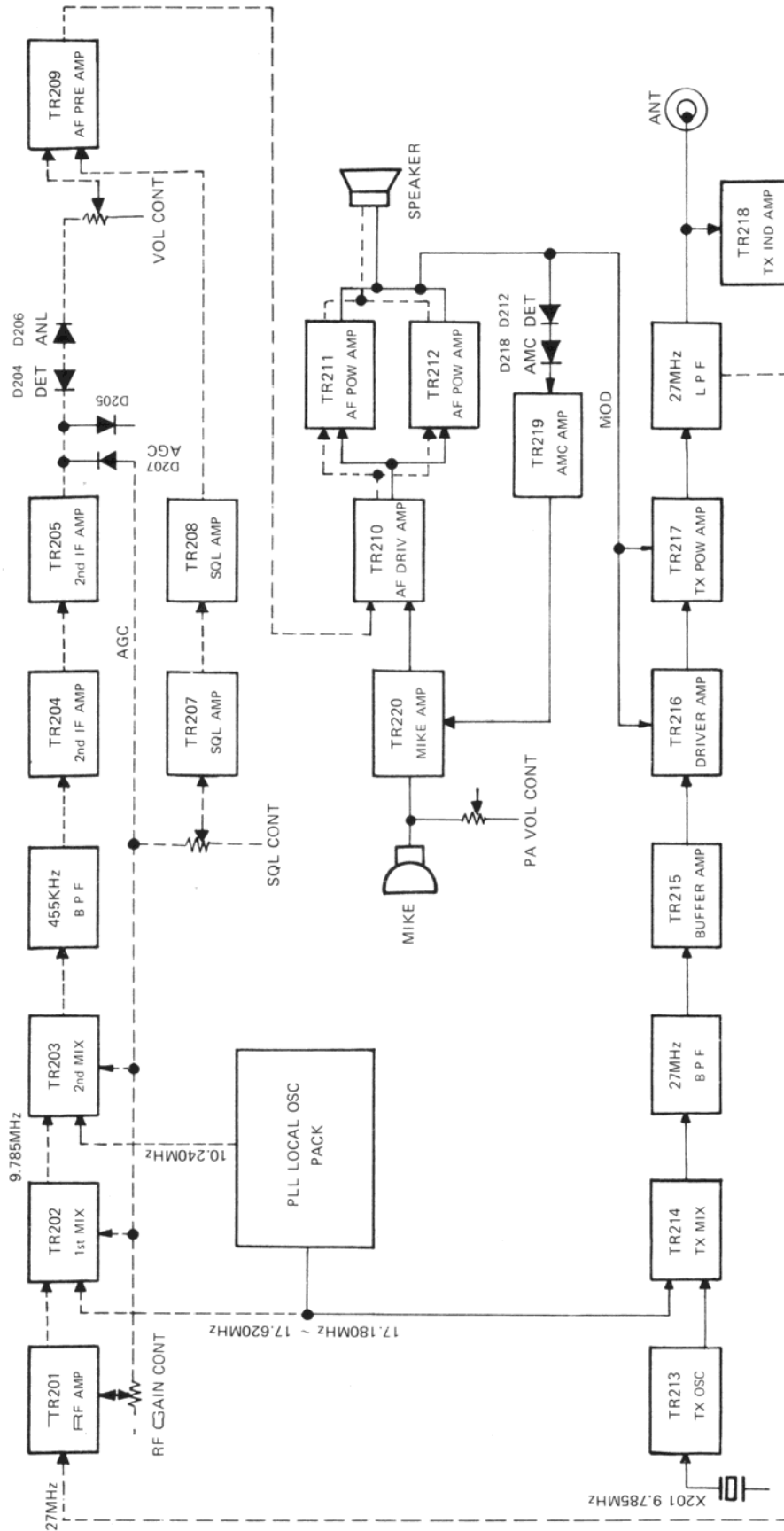


SIDE VIEW



TOP VIEW

3. BLOCK DIAGRAM

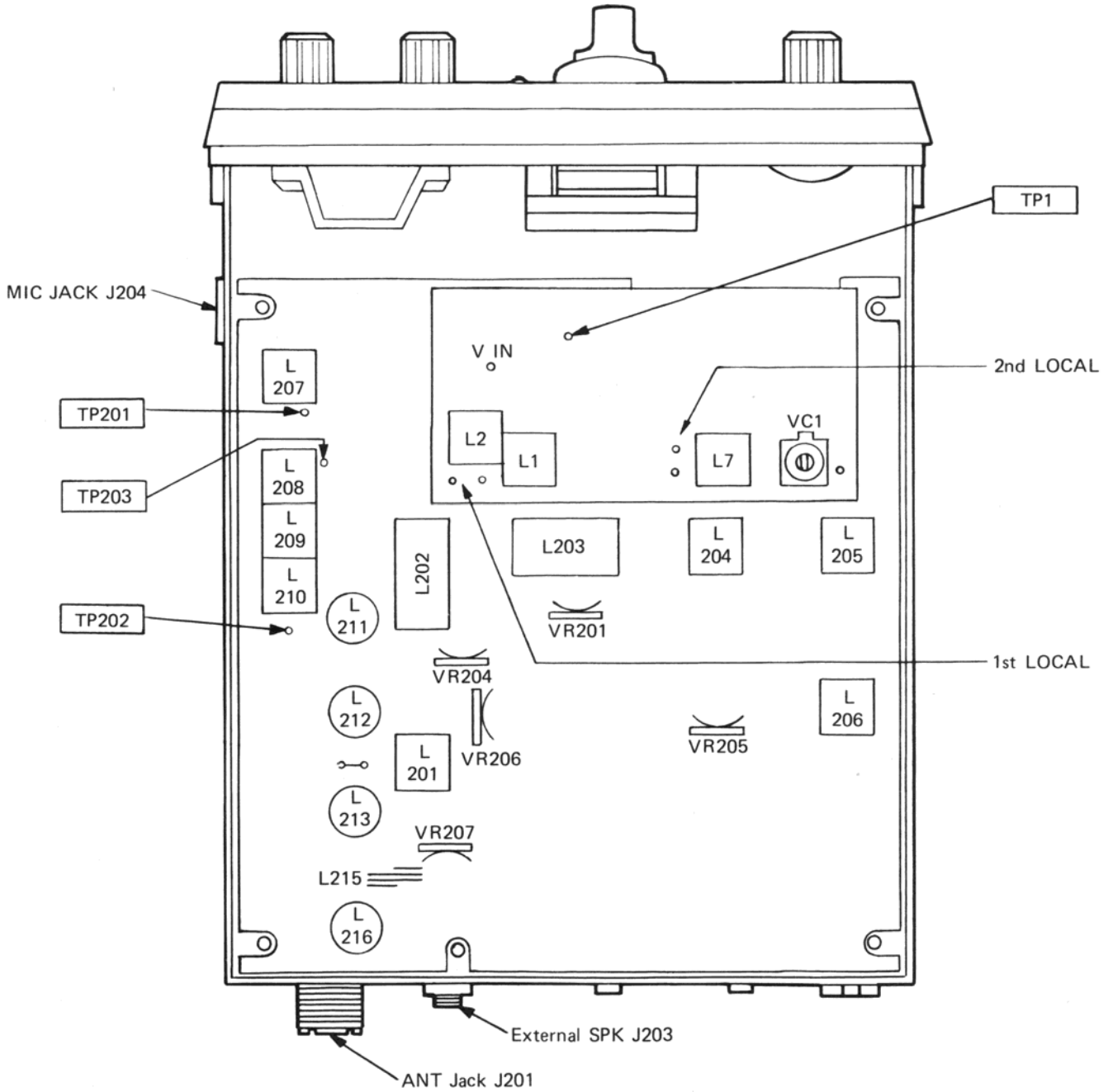


--- Shows receiving circuit

— Shows transmitting circuit

4. ALIGNMENT INSTRUCTIONS

CHASSIS LAYOUT-ALIGNMENT POINTS



ALIGNMENT OF PLL UNIT

1. Test equipment required:

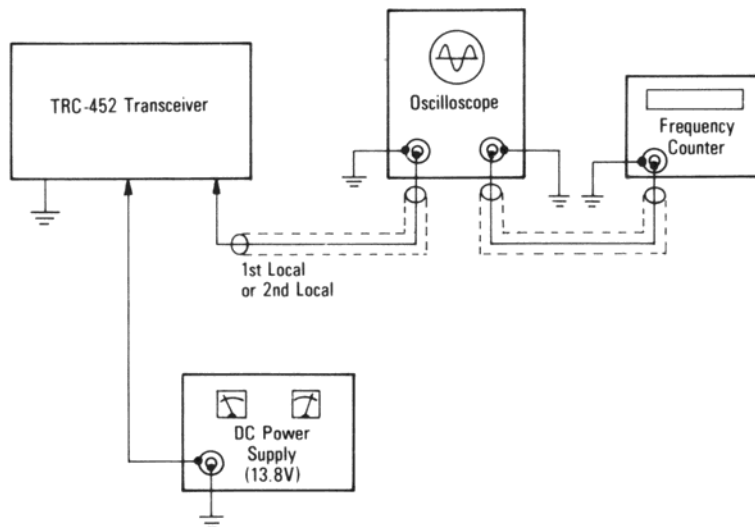
- a. Oscilloscope (0 – 30 MHz)
- b. Frequency counter (0 – 30 MHz)
- c. DC Power Supply (9.0V/100 mA)
- d. DC Volt Meter (10 Volt Maximum 100K ohm/V)

2. Alignment procedure

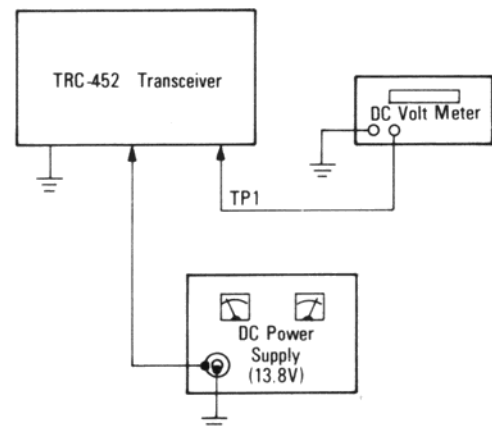
STEP	PRESET TO	CONNECTIONS	ADJUSTMENT	REMARKS
1	Channel 40	Oscilloscope to secondary of L7 (2nd Local)	L7	Adjust for max. 2nd Local Output (10.24 MHz OSC alignment).
2	Same as Step 1	DC Volt Meter to Pin No. 5 of IC 1 (TP-1)	L2	Adjust L2 for about 3.5 V (VCO OSC Alignment).
3	Channel 19	Oscilloscope to secondary of L1 (1st Local)	L1	Adjust for max. OSC output (17 MHz output alignment).
4	Same as Step 1	Same as Step 2	L2	Adjust L2 for 3.50 V (VCO OSC alignment).
5	Same as Step 1	Frequency Counter to Secondary of L1 (1st Local)	VC-1	Adjust VC1 for 17620 kHz (Frequency alignment).

To connect test equipment, see the following diagrams.

OSC Output Adjustment

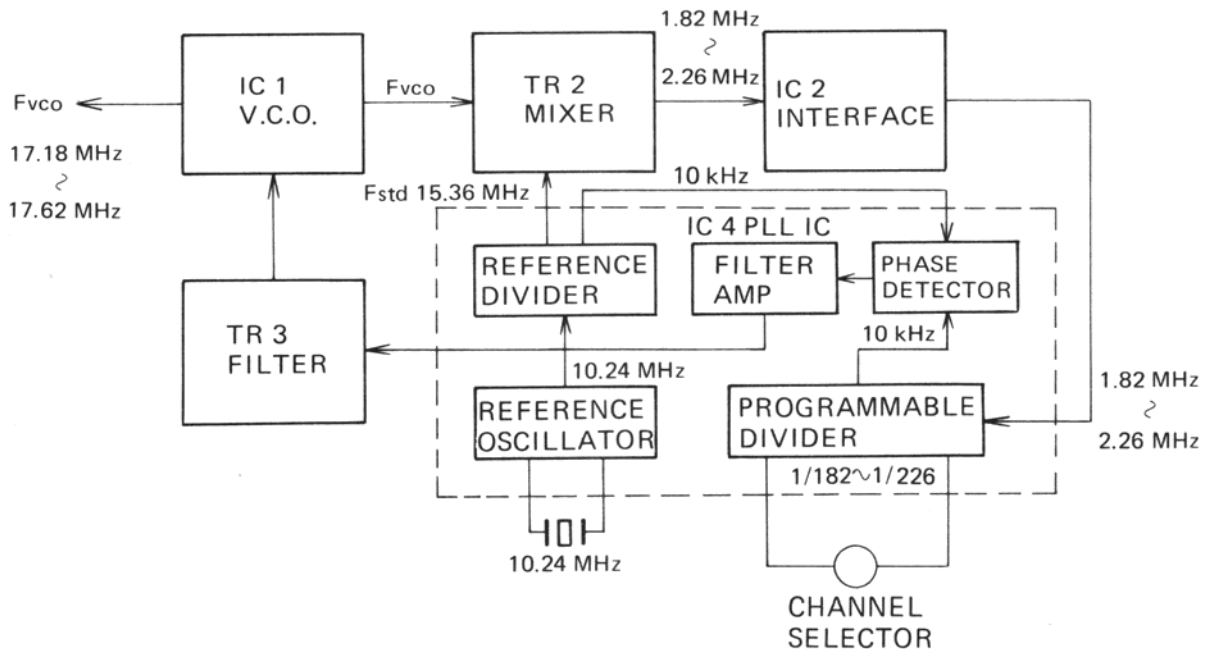


VCO OSC Alignment



PLL (Phase Lock Loop) CIRCUIT

The PLL (Phase Lock Loop) circuit used in the TRC-452 consists of 4 major components: Phase Detector, Low Pass Filter (LPF), Voltage Controlled Oscillator (VCO) and 1/N Divider, plus other supporting components.



The Phase Detector produces a voltage proportional to the phase difference of two input signals. The Low Pass Filter integrates the output voltage of the Phase Detector and also filters harmonics of frequency components given to the Phase Detector. Then it produces a continuous voltage component in proportion to the phase difference. The VCO is an oscillator whose frequency is controlled by the voltage applied to it. The VCO frequency is fed back to the Phase Detector thru 1/N Divider. (The constant N is given by the Channel Selector Switch.) So, the output frequency from the VCO becomes N times input frequency.

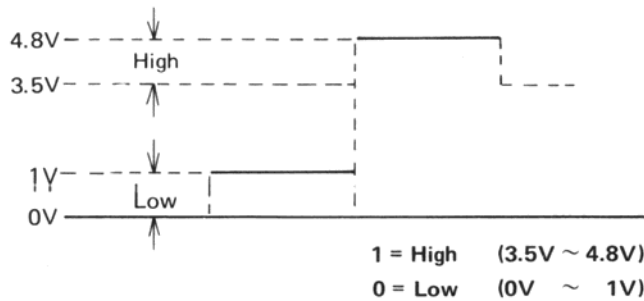
10.24 MHz frequency from the Reference Oscillator is divided to 10 kHz by Reference Divider and applied to one input of the Phase Detector. On the other hand, the VCO frequency is mixed with a 15.36 MHz signal (from oscillator) and goes thru IC-2 interface and then divided to 10 kHz by 1/N Divider. This is applied to another input of the Phase Detector. The Phase Detector detects the difference of these two input signals and produces a voltage which controls the VCO frequency. When the phase of two input signals to the Phase Detector is the same, this loop is "locked".

As mentioned earlier, the output frequency from the VCO is N times input frequency 10 kHz. By varying the constant N, the output frequency can be varied one 10 kHz step at a time. The constant N is controlled by the Channel Selector Switch (from 182 to 226).

FREQUENCY CHART

CH	ANT. FREQ. (MHz)	VCO. FREQ. (MHz)	DIVIDE RATIO (N)	1A	1B	1C	1D	2A	2B	2D	3A	3B
1	26.965	17.180	182	0	1	0	0	0	0	1	0	0
2	26.975	17.190	183	1	1	0	0	0	0	1	0	0
3	26.985	17.200	184	0	0	1	0	0	0	1	0	0
4	27.005	17.220	186	0	1	1	0	0	0	1	0	0
5	27.015	17.230	187	1	1	1	0	0	0	1	0	0
6	27.025	17.240	188	0	0	0	1	0	0	1	0	0
7	27.035	17.250	189	1	0	0	1	0	0	1	0	0
8	27.055	17.270	191	1	0	0	0	1	0	1	0	0
9	27.065	17.280	192	0	1	0	0	1	0	1	0	0
10	27.075	17.290	193	1	1	0	0	1	0	1	0	0
11	27.085	17.300	194	0	0	1	0	1	0	1	0	0
12	27.105	17.320	196	0	1	1	0	1	0	1	0	0
13	27.115	17.330	197	1	1	1	0	1	0	1	0	0
14	27.125	17.340	198	0	0	0	1	1	0	1	0	0
15	27.135	17.350	199	1	0	0	1	1	0	1	0	0
16	27.155	17.370	201	1	0	0	0	0	0	0	0	1
17	27.165	17.380	202	0	1	0	0	0	0	0	0	1
18	27.175	17.390	203	1	1	0	0	0	0	0	0	1
19	27.185	17.400	204	0	0	1	0	0	0	0	0	1
20	27.205	17.420	206	0	1	1	0	0	0	0	0	1
21	27.215	17.430	207	1	1	1	0	0	0	0	0	1
22	27.225	17.440	208	0	0	0	1	0	0	0	0	1
23	27.255	17.470	211	1	0	0	0	1	0	0	0	1
24	27.235	17.450	209	1	0	0	1	0	0	0	0	1
25	27.245	17.460	210	0	0	0	0	1	0	0	0	1
26	27.265	17.480	212	0	1	0	0	1	0	0	0	1
27	27.275	17.490	213	1	1	0	0	1	0	0	0	1
28	27.285	17.500	214	0	0	1	0	1	0	0	0	1
29	27.295	17.510	215	1	0	1	0	1	0	0	0	1
30	27.305	17.520	216	0	1	1	0	1	0	0	0	1
31	27.315	17.530	217	1	1	1	0	1	0	0	0	1
32	27.325	17.540	218	0	0	0	1	1	0	0	0	1
33	27.335	17.550	219	1	0	0	1	1	0	0	0	0
34	27.345	17.560	220	0	0	0	0	0	1	0	0	1
35	27.355	17.570	221	1	0	0	0	0	1	0	0	1
36	27.365	17.580	222	0	1	0	0	0	1	0	0	1
37	27.375	17.590	223	1	1	0	0	0	1	0	0	1
38	27.385	17.600	224	0	0	1	0	0	1	0	0	1
39	27.395	17.610	225	1	0	1	0	0	1	0	0	1
40	27.405	17.620	226	0	1	1	0	0	1	0	0	1

SCOPE WAVE FORMS FOR LEVEL REFERENCE



ALIGNMENT OF TRANSMITTER SECTION

1. Equipment Required

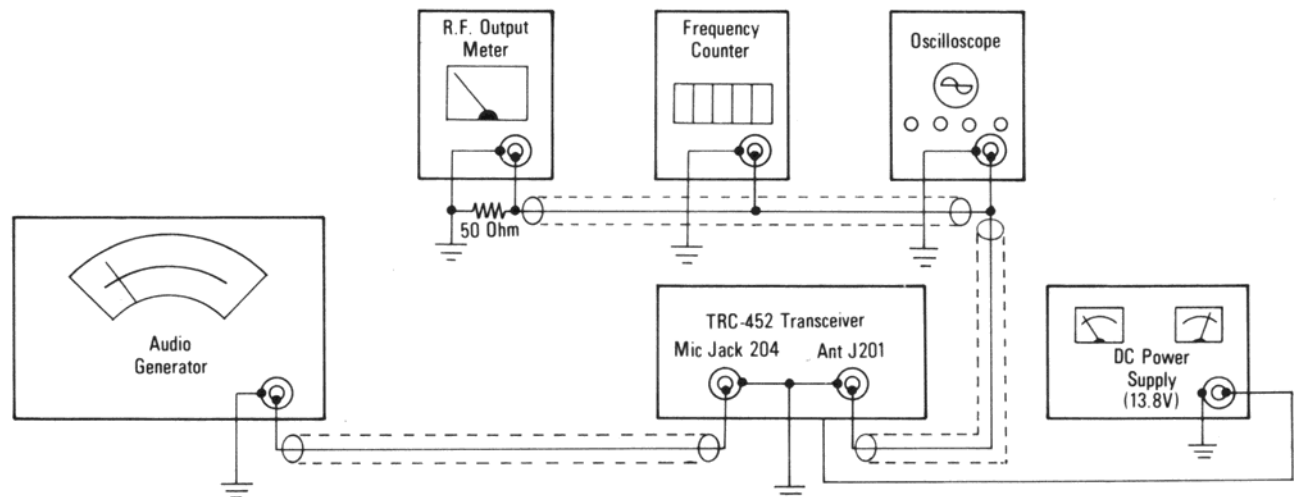
- | | |
|---|----------------------------------|
| a. VTVM (full scale: 1V DC with RF Probe) | e. DC Power Supply (13.8V/2-Amp) |
| b. RF Output Power Meter | f. 50 ohm load and attenuator |
| c. Tunable Field Strength Meter (Wavemeter) | g. Oscilloscope |
| d. Frequency Counter | h. AF Oscillator |

2. Procedure

STEP	SET UP	CONNECTIONS	ADJUSTMENTS	REMARKS
1	TX Mode, No Modulation	VTVM to Secondary of L207 (TP-201)	L207	Adjust for a maximum indication on VTVM.
2	TX Mode, No Modulation, Channel 19	VTVM to Secondary of L210 (TP202)	L208, 210	Adjust for a maximum indication.
			L209	Adjust for a minimum indication.
3	Same as Step 2	RF Output Power Meter to Ant. Jack J201	L211, 212, 214	Adjust for a maximum indication on RF Output Power Meter.
4	Same as Step 2	Same as Step 3	L214	Adjust to obtain Nominal 3.8W of RF Output Power.
5	Repeat the above adjustments, in order to confirm if the adjustments were made correctly.			
6	TX Mode. Modulating Channel 19 with 1 kHz, 100 mV applied to Mic Input	Audio Generator to Microphone Jack J204. Oscilloscope to ANT. Jack J201 through a suitable load and attenuator.	VR207	Adjust for 100% Modulation.
7	Same as Step 2	RF Output Power Meter to Ant. Jack J201	VR206	Check that RF Output Power Meter reads 3.8W then adjust VR206 so that the transceiver's Meter pointer just approaches the red line mark.
8	TX Mode, No Modulation, All channels.	Frequency Counter to Ant. Jack J201 through a suitable load and attenuator		Check Frequency of all channels.

NOTE: To assure this transceiver complies with FCC regulations, check spurious radiation—particularly the 2nd harmonic. This can be done with a Tunable Field Strength Meter (Wavemeter).

TRANSMITTER TEST EQUIPMENT SETUP DIAGRAM



ALIGNMENT OF RECEIVER SECTION

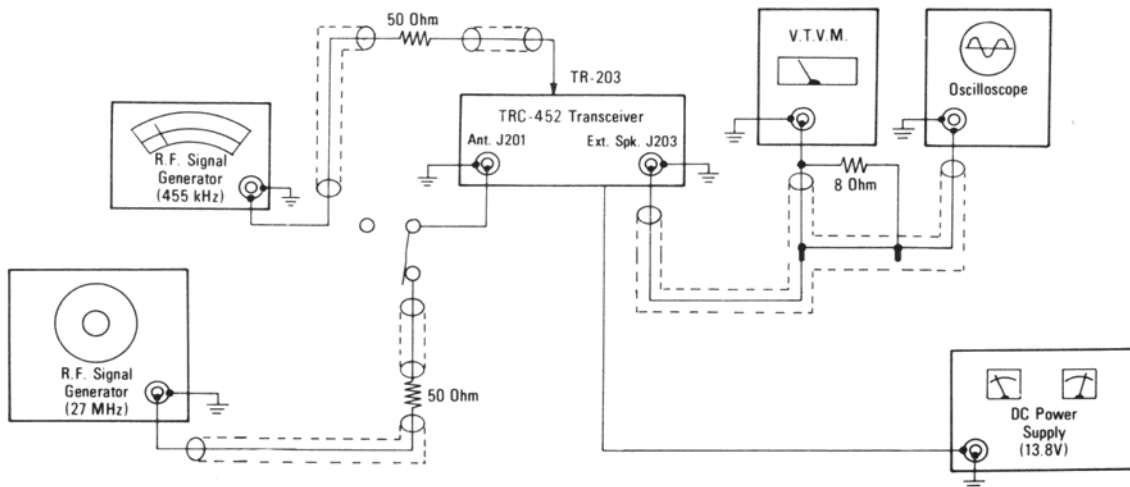
1. Equipment Required

- Signal Generator (455 kHz and 27 MHz Band, 1,000 Hz., 30% AM Modulation & Output Impedance 50 ohm)
- Audio VTVM.
- Oscilloscope
- Dummy Load (8 ohm, 5 watts, resistive)
- DC Power Supply (13.8 V, 2 Amp).

2. Procedure

STEP	SG CONNECTION FREQUENCY	PRESET TO	AUDIO VTVM CONNECTION	ADJUSTMENT	REMARKS
1	To the base of TR203 through 0.01 μ F Cap. Freq: 455 kHz	VOLUME Max. SQUELCH: Min.	To Ext. Spk. Jack J203	L204, 205, 206	Adjust for a max. output.
2	To Ant. Connector J201 Freq: 27.185 MHz	Same as Step 1 Channel 19	Same as Step 1	L201	Adjust for a max. output.
3	Same as Step 2 Freq.: 27.405 MHz	Same as Step 1 Channel 40	Same as Step 1	L202	Adjust primary core with black vinyl tube for max. output.
4	Same as Step 2 Freq.: 26.965 MHz	Same as Step 1 Channel 1	Same as Step 1	L202	Adjust secondary core with red vinyl tube for max. output.
5	Same as step 2 Freq.: 27.185 MHz	Same as Step 1 Channel 19	Same as Step 1	L203	Adjust for max. output.
6	Same as Step 2	Same as Step 1	Same as Step 1	VR201	Adjust for 2 volts output with SG output level of 0.4 μ V.
7	Same as Step 2	VOLUME: Max. SQUELCH: Max.	Same as Step 1	VR204 (Squelch)	Adjust for 2 volts output with SG output level of 200 μ V.
8	Same as Step 2	Same as Step 1	Same as Step 1	VR205 (S-meter)	Adjust for a reading of S-9 on the Transceiver's S-meter, with SG output level of 100 μ V.

RECEIVER TEST EQUIPMENT SETUP DIAGRAM



5. TROUBLESHOOTING HINTS

UNIT WILL NOT TURN ON

1. Defective power switch.
2. Fuse blown.
3. Broken DC power cable.
4. Poor solder connection or other open connection in power circuit.

NO RECEIVE SOUND

1. Defective external speaker jack.
2. Poor contact on microphone connector.
3. Defective push switch on microphone.
4. Defective internal speaker.
5. Defective semiconductor in RX circuit.

NO NOISE

1. Apply audio signal to TR209 base (signal inject/trace).
2. Measure transistor voltages in all audio stages and receiver section.
Compare with voltages noted on the schematic.
3. Improper local oscillator or main oscillator adjustment.

NO AMC (Automatic Modulation Control)

1. Check following voltages of Transistor (TR-219).

Modulation	%	10	20	30	40	50	60	70	80	90
Input signal (1kHz) J204	mV	0.15	0.3	0.45	0.67	0.74	0.96	5	15	40
Base of TR-219	V	0.03	0.27	0.55	0.92	1.30	1.64	1.77	1.84	1.95
Emitter of TR-219	V	1.17	1.17	1.17	1.17	1.17	1.17	1.19	1.23	1.27

2. Poor adjustment of VR 207

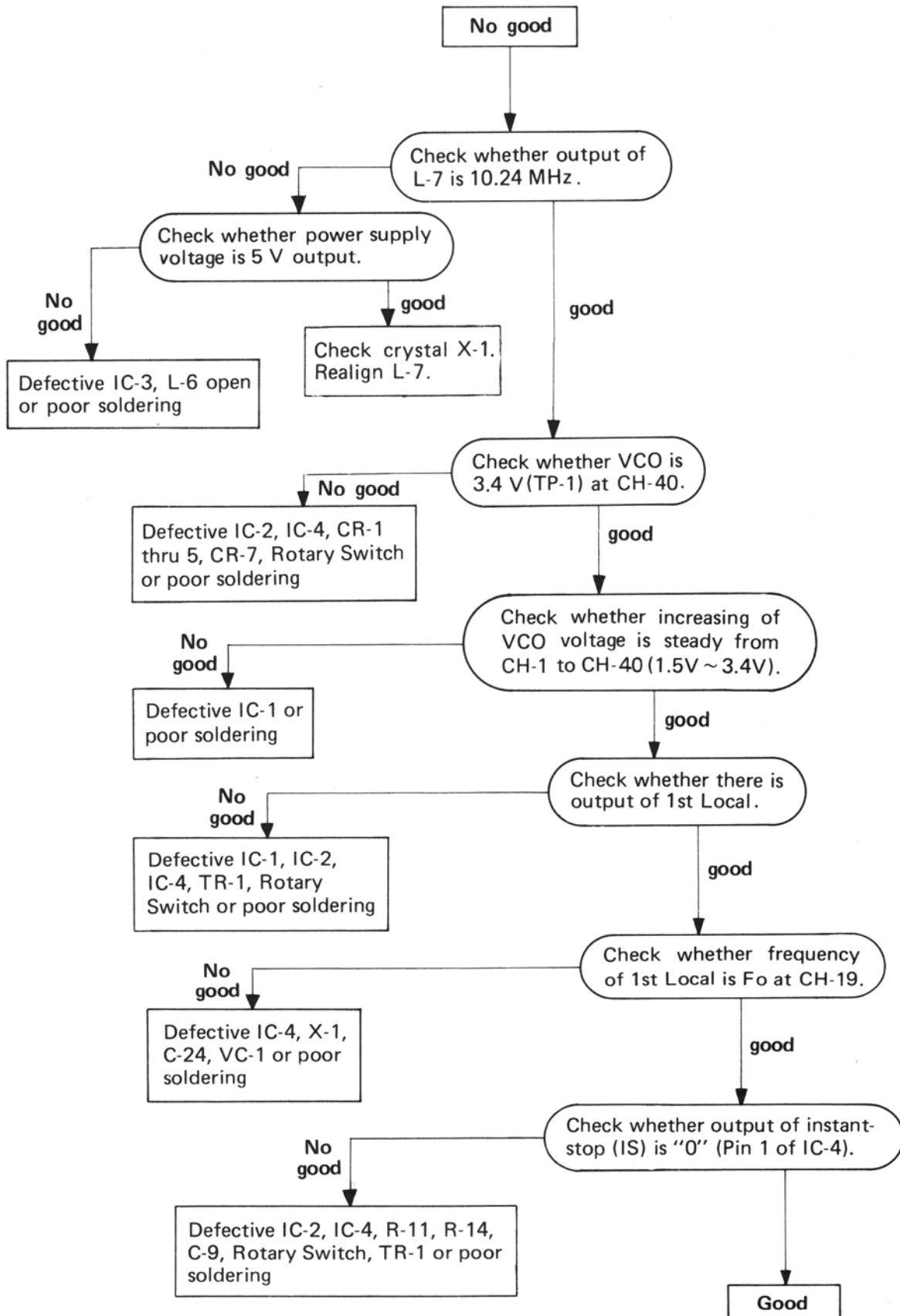
NO TRANSMISSION

1. Defective microphone connector.
2. Defective push switch on microphone.
3. Improper adjustment of main oscillator or local oscillator.
4. If you have checked all channels and obtain no RF output, check crystals and/or signal trace through transmitter circuit.
5. Defect in power supply.
6. Defective antenna connector.

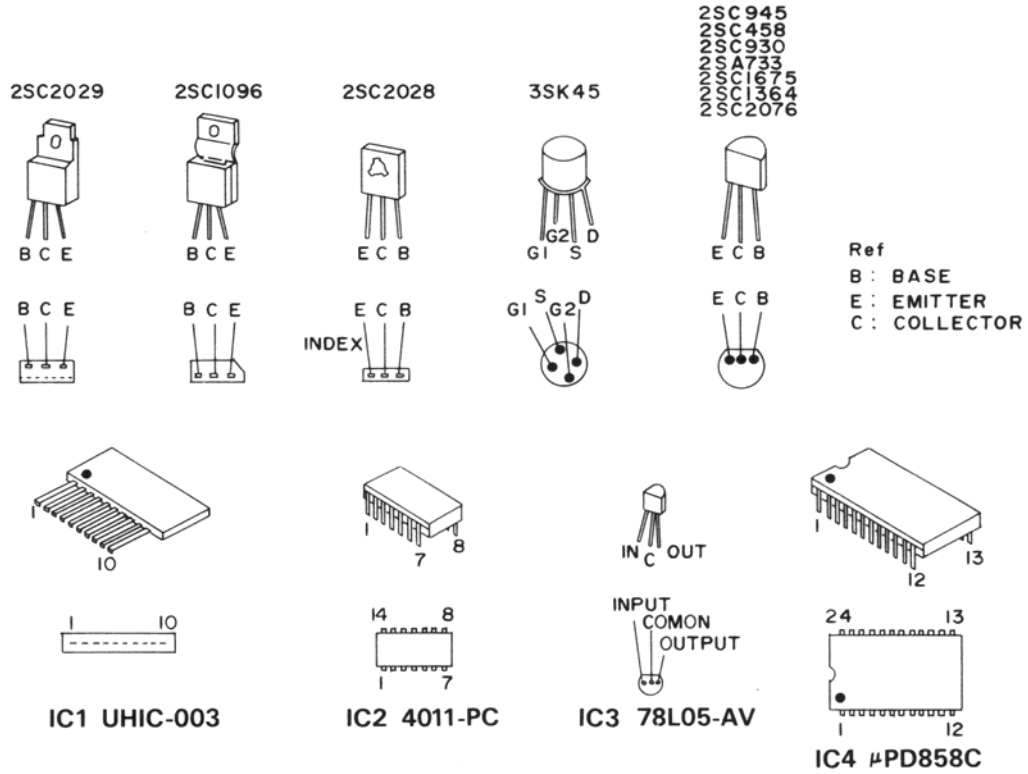
NO MODULATION

1. Defective microphone.
2. Poor audio output/defective modulator.
3. Inoperative microphone amplifier.
4. Defective microphone connector.
5. Apply audio signal to pin No. 4 of microphone connector and trace to defective stage.

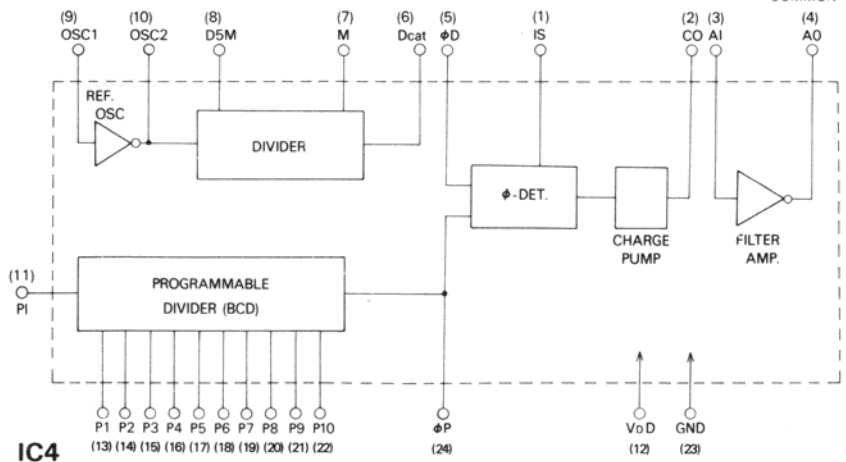
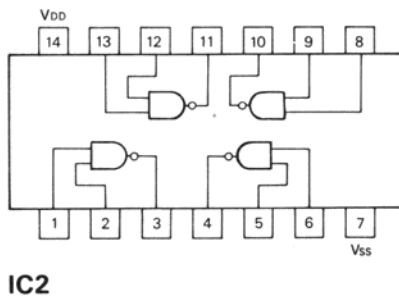
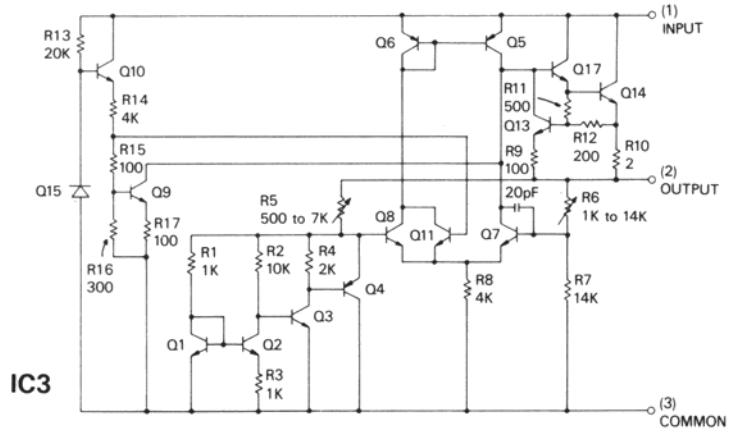
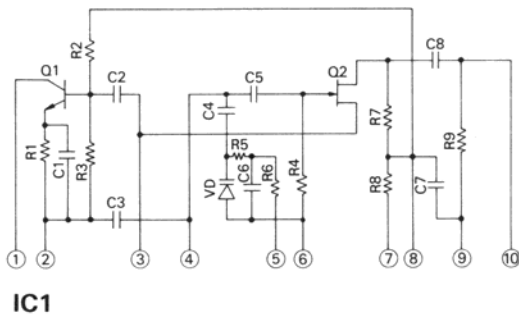
6. PLL SUB-ASSEMBLY TROUBLESHOOTING



7. TRANSISTOR & IC LEAD IDENTIFICATIONS

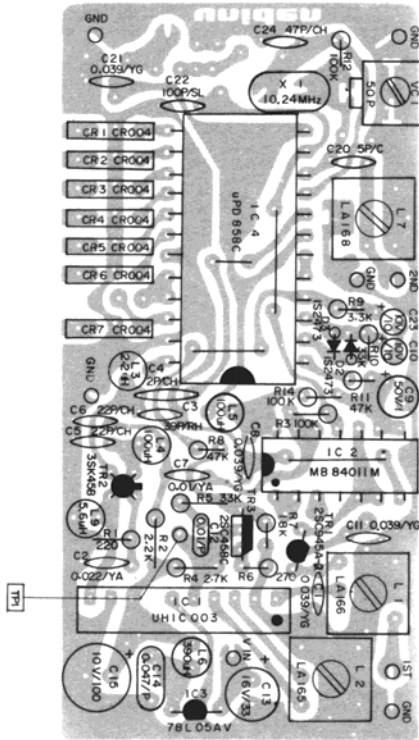


IC INTERNAL DIAGRAMS

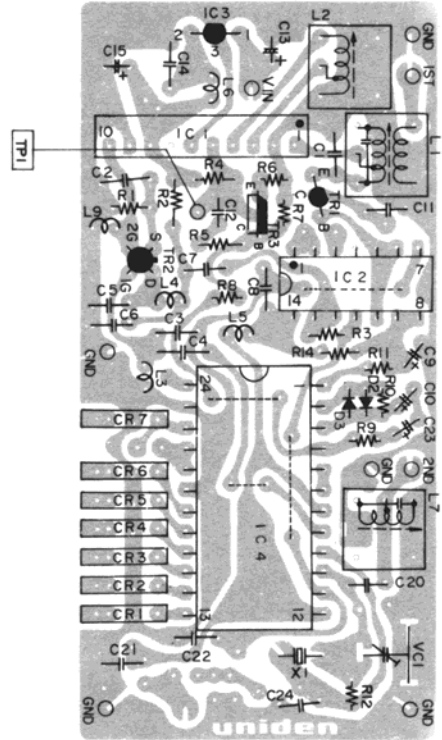


8. PLL SUB-ASSEMBLY

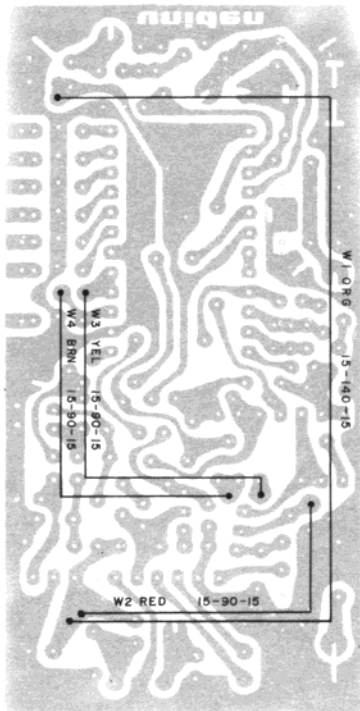
P.C. BOARD (TOP VIEW)



P.C. BOARD (BOTTOM VIEW)

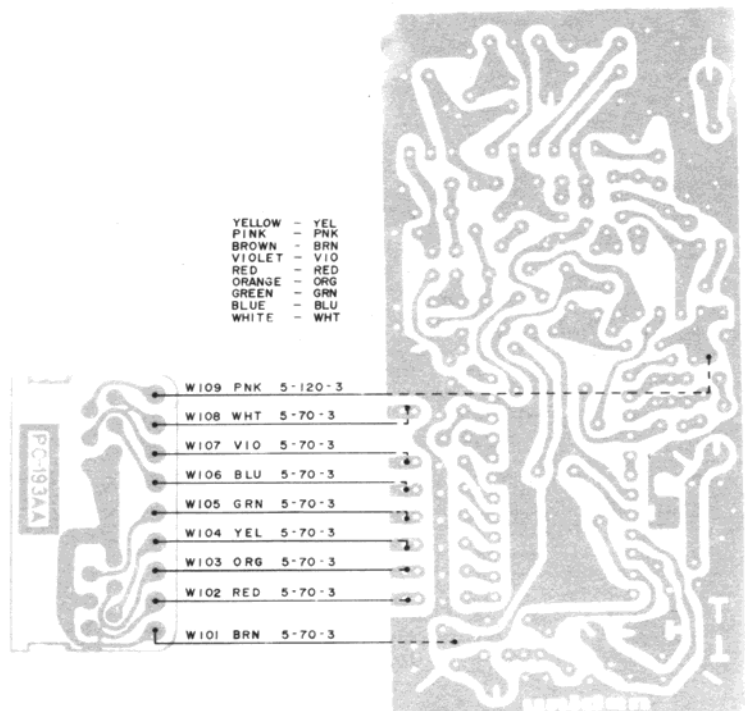


JUMPER WIRES (TOP VIEW)



ORANGE - ORG
YELLOW - YEL
BROWN - BRN
RED - RED

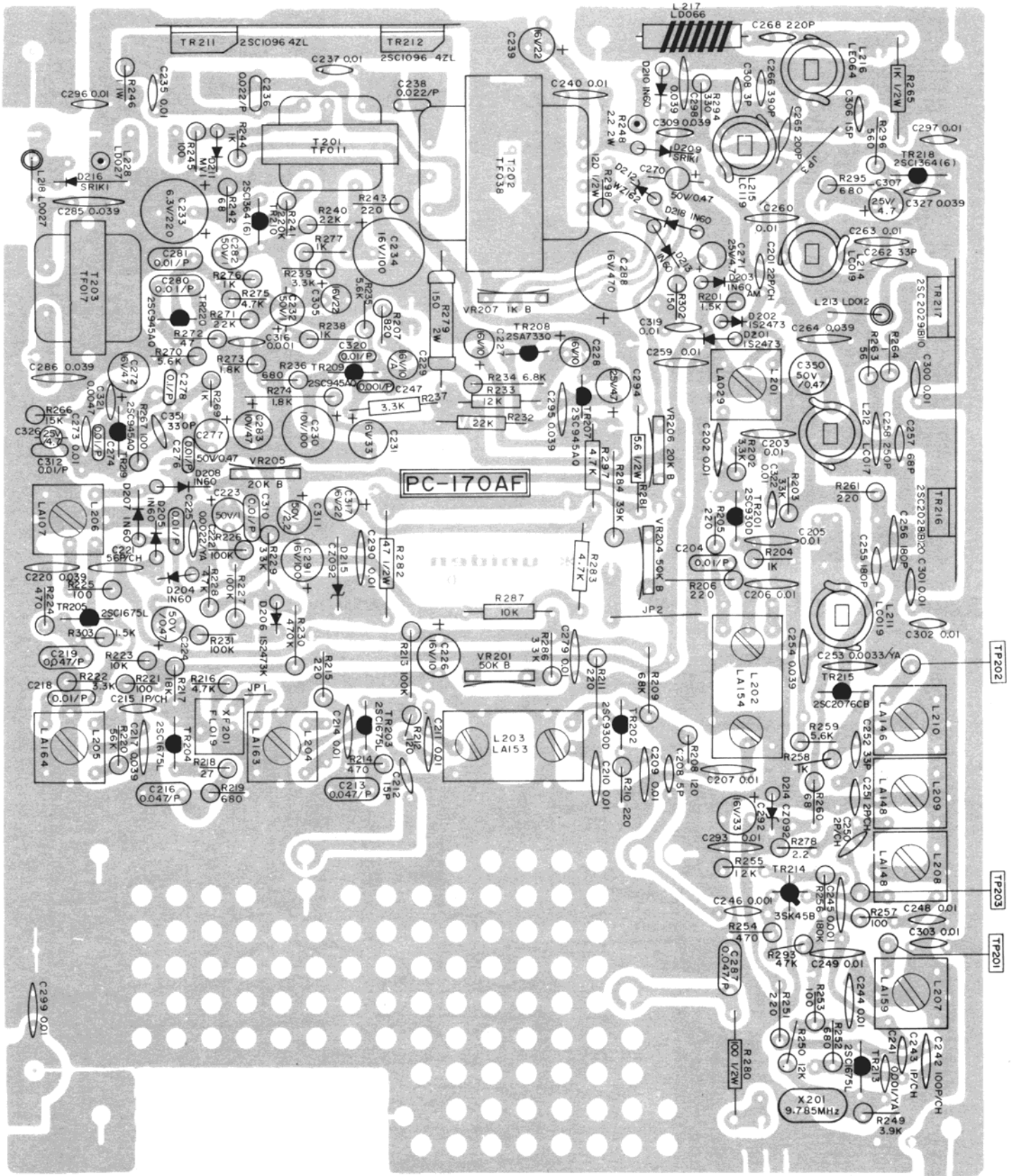
WIRING DIAGRAM



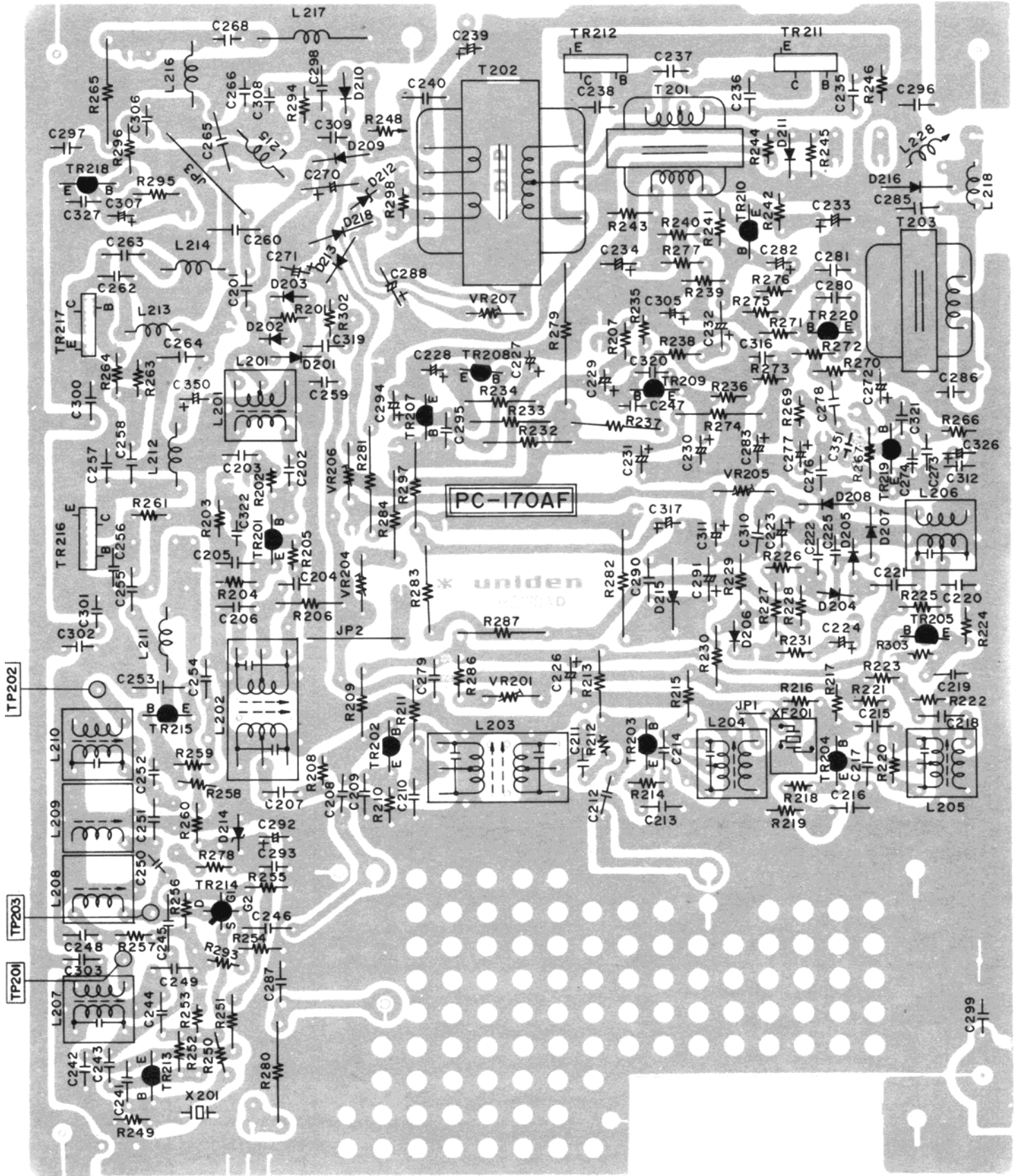
YELLOW - YEL
PINK - PNK
BROWN - BRN
VIOLET - VIO
RED - RED
ORANGE - ORG
GREEN - GRN
BLUE - BLU
WHITE - WHT

W109 PNK 5-120-3
W108 WHT 5-70-3
W107 VIO 5-70-3
W106 BLU 5-70-3
W105 GRN 5-70-3
W104 YEL 5-70-3
W103 ORG 5-70-3
W102 RED 5-70-3
W101 BRN 5-70-3

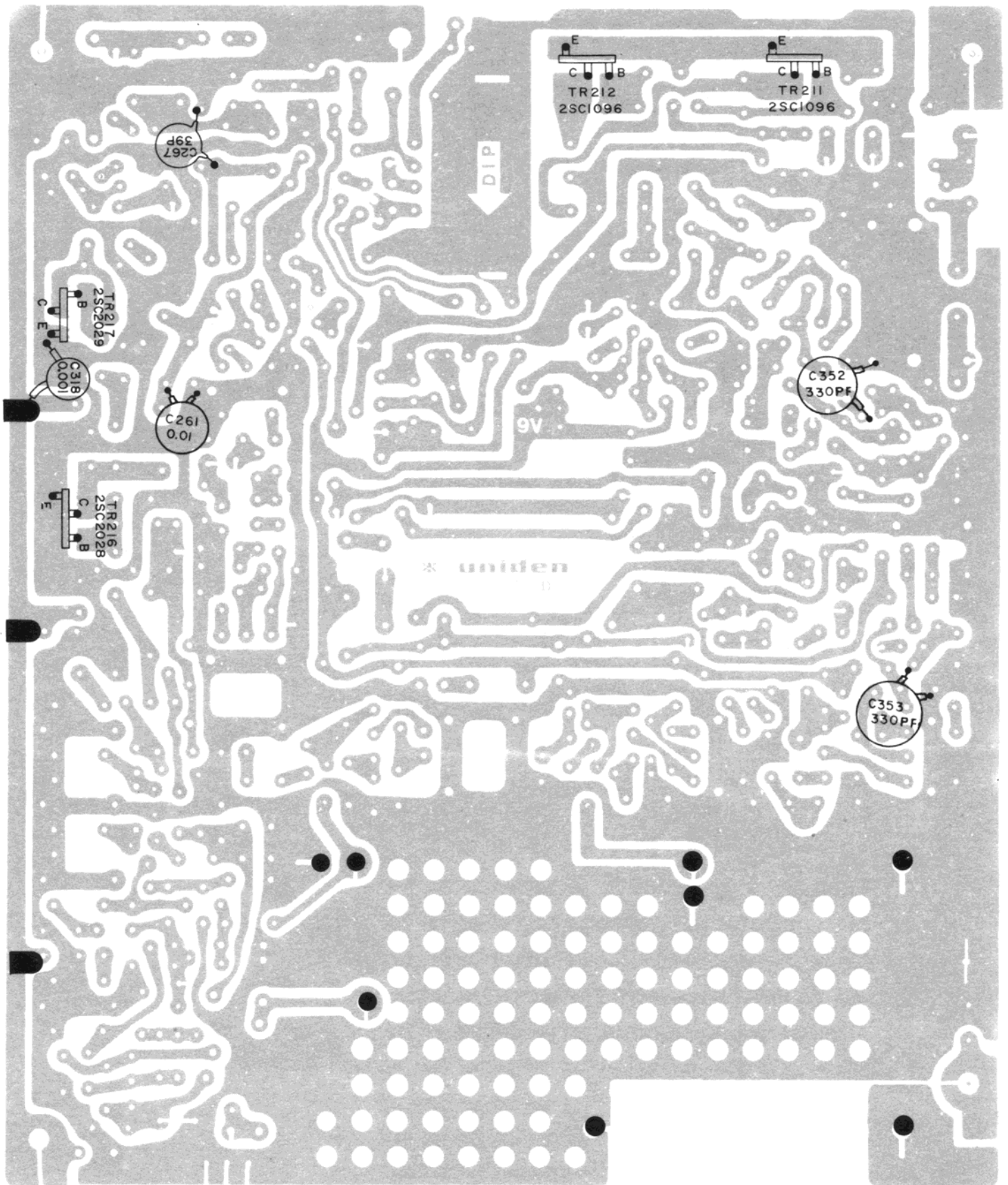
9. MAIN BOARD (TOP VIEW)



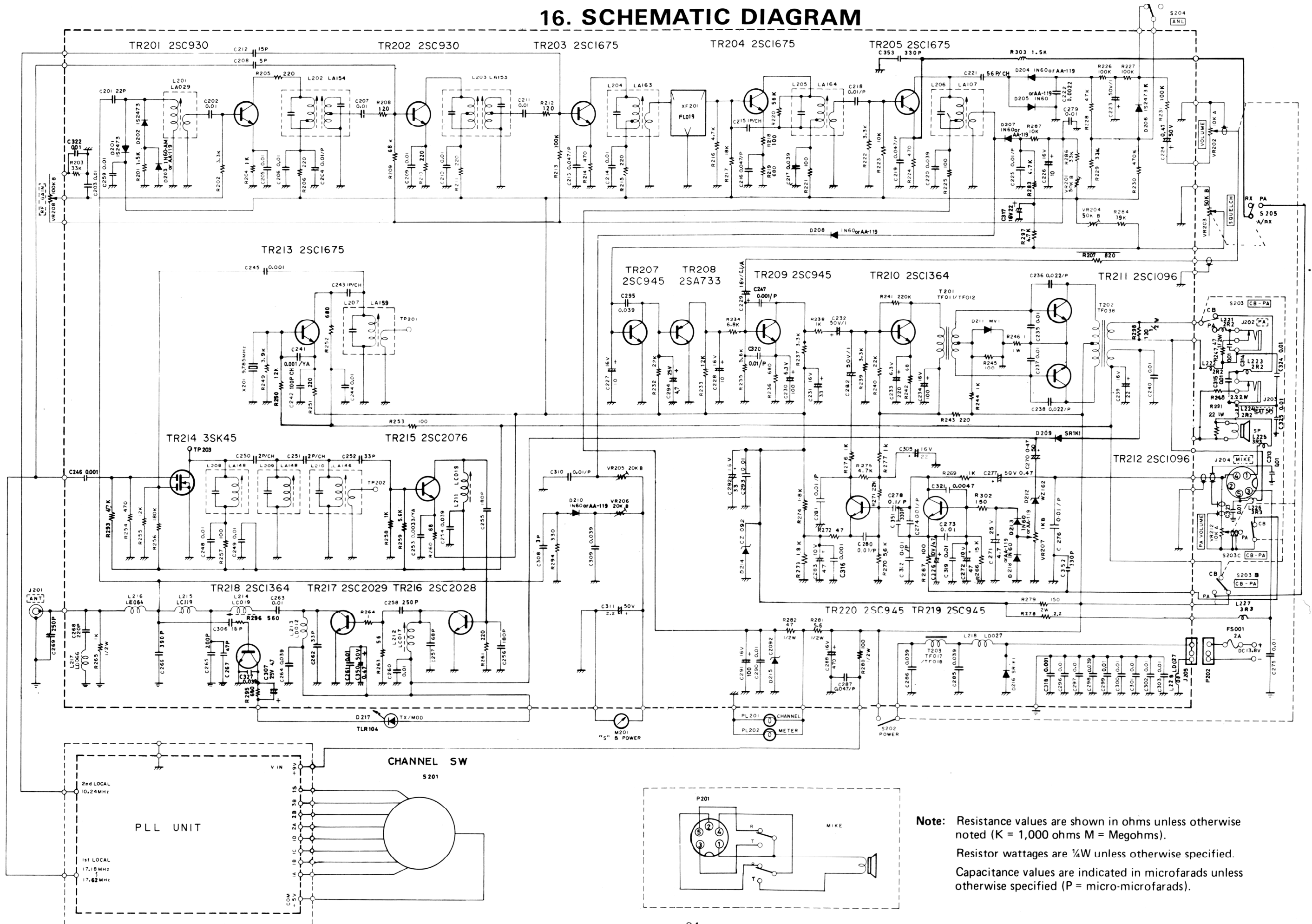
10. MAIN BOARD (BOTTOM VIEW)



11. ADDITIONAL PARTS ON THE BOTTOM

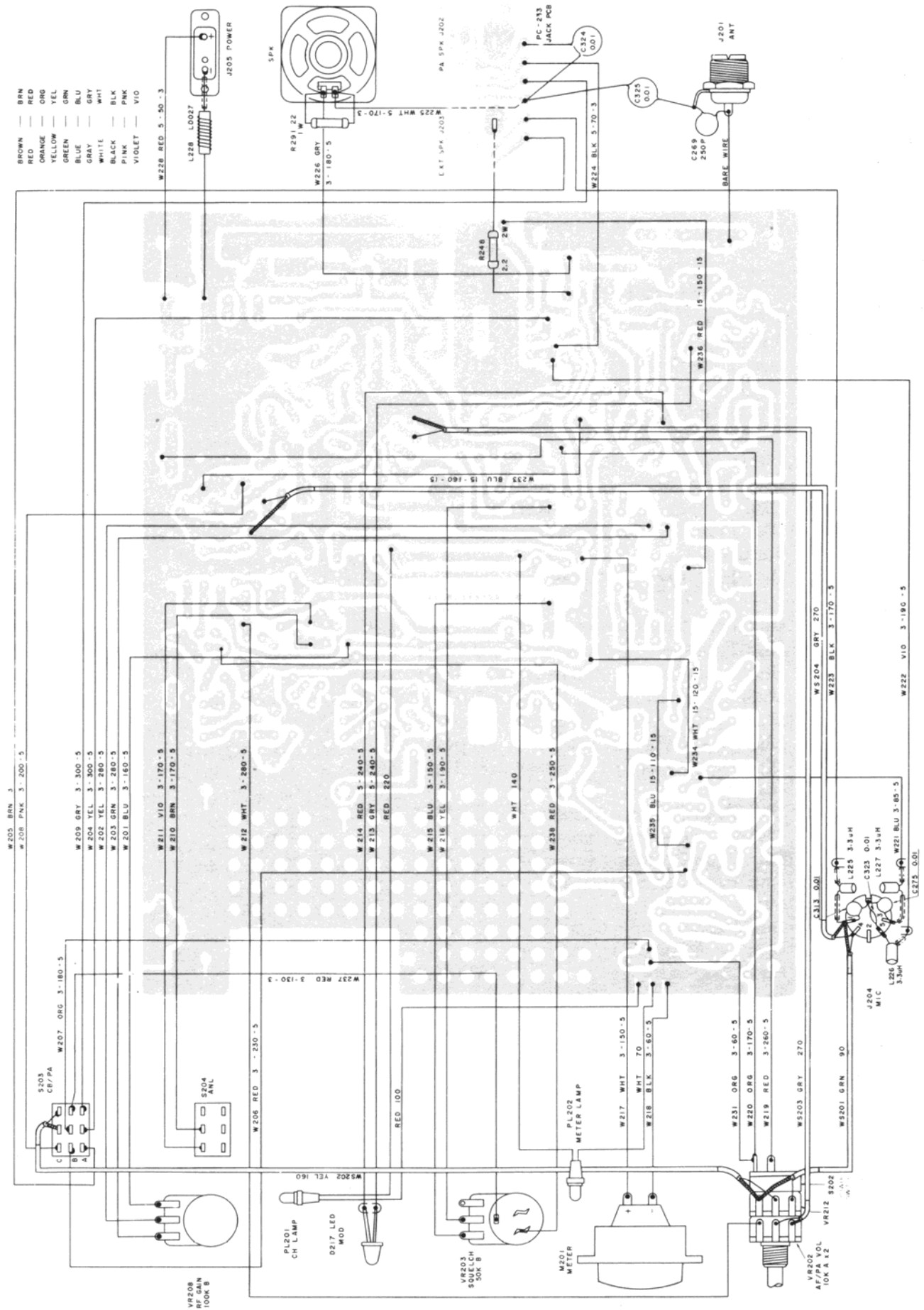


16. SCHEMATIC DIAGRAM



Note: Resistance values are shown in ohms unless otherwise noted (K = 1,000 ohms M = Megohms).
 Resistor wattages are 1/4W unless otherwise specified.
 Capacitance values are indicated in microfarads unless otherwise specified (P = micro-microfarads).

12. WIRING DIAGRAM



13. ELECTRICAL PARTS LIST

REF. NO.	DESCRIPTION	PS PART NO.	MFRS PART NO.
CAPACITORS			
C1	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C2	Disc Type Ceramic Capacitor 0.022 μ F 50V M YA		CKAZ 812236
C3	Disc Type Ceramic Capacitor 39 pF 50V K RH		CCRZ 813905
C4	Disc Type Ceramic Capacitor 2 pF 50V C CH		CCCZ 812091
C5	Disc Type Ceramic Capacitor 22 pF 50V K CH		CCCZ 812205
C6	Disc Type Ceramic Capacitor 22 pF 50V K CH		CCCZ 812205
C7	Disc Type Ceramic Capacitor 0.01 μ F 50V M YA		CKAZ 811036
C8	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C9	Electrolytic Capacitor 1 μ F 50V		CELZ 811090
C10	Tantalum Capacitor 10 μ F 10V M		CSEZ 111006
C11	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C12	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C13	Electrolytic Capacitor 33 μ F 16V		CELZ 313300
C14	Mylar Capacitor 0.047 μ F 50V K		CQMZ 814735
C15	Electrolytic Capacitor 100 μ F 10V		CELZ 111010
C20	Disc Type Ceramic Capacitor 5 pF 50V C CH		CCCZ 815091
C21	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C22	Disc Type Ceramic Capacitor 100 pF 50V K SL		CCGZ 811015
C23	Tantalum Capacitor 10 μ F 10V M		CSEZ 111006
C24	Disc Type Ceramic Capacitor 47 pF 50V K CH		CCCZ 814705
C201	Disc Type Ceramic Capacitor 22 pF 50V K SL		CCCZ 812205
C202	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C203	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C204	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C205	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C206	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C207	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C208	Disc Type Ceramic Capacitor 5 pF 50V C SL		CCGZ 815091
C209	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C210	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C211	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C212	Disc Type Ceramic Capacitor 15 pF 50V K SL		CCGZ 811505
C213	Mylar Capacitor 0.047 μ F 50V K		CQMZ 814735
C214	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C215	Disc Type Ceramic Capacitor 1 pF 50V C CH		CCCZ 811091
C216	Mylar Capacitor 0.047 μ F 50V K		CQMZ 814735
C217	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C218	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C219	Mylar Capacitor 0.047 μ F 50V K		CQMZ 814735
C220	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C221	Disc Type Ceramic Capacitor 56 pF 50V K CH		CCCZ 815605
C222	Disc Type Ceramic Capacitor 0.0022 μ F 50V M YA		CKAZ 812226
C223	Electrolytic Capacitor 1 μ F 50V		CELZ 811090
C224	Electrolytic Capacitor 0.47 μ F 50V		CELZ 814780
C225	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C226	Electrolytic Capacitor 10 μ F 16V		CELZ 311000
C227	Electrolytic Capacitor 10 μ F 16V		CELZ 311000
C228	Electrolytic Capacitor 10 μ F 16V		CELZ 311000
C229	Aluminum Capacitor 0.1 μ F 16V M		CAAZ 311086
C230	Electrolytic Capacitor 100 μ F 6.3V		CELZ 901010

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	RS. PART NO.	MFRS PART NO.
C231	Electrolytic Capacitor 33 μ F 16V		CELZ 313300
C232	Electrolytic Capacitor 1 μ F 50V		CELZ 811090
C233	Electrolytic Capacitor 220 μ F 6.3V		CELZ 902210
C234	Electrolytic Capacitor 100 μ F 16V		CELZ 311010
C235	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C236	Mylar Capacitor 0.022 μ F 50V K		QQMZ 812235
C237	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C238	Mylar Capacitor 0.022 μ F 50V K		QQMZ 812235
C239	Electrolytic Capacitor 22 μ F 16V		CELZ 312200
C240	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C241	Disc Type Ceramic Capacitor 0.001 μ F 50V M YA		CKAZ 811026
C242	Disc Type Ceramic Capacitor 100 pF 50V K CH		CCCZ 811015
C243	Disc Type Ceramic Capacitor 1 pF 50V C CH		CCCZ 811091
C244	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C245	Disc Type Ceramic Capacitor 0.001 μ F 25V Z YG		CKFZ 511020
C246	Disc Type Ceramic Capacitor 0.001 μ F 25V Z YG		CKFZ 511020
C247	Mylar Capacitor 0.001 μ F 50V K		QQMZ 811025
C248	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C249	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C250	Disc Type Ceramic Capacitor 2 pF 50V C CH		CCCZ 812091
C251	Disc Type Ceramic Capacitor 2 pF 50V C CH		CCCZ 812091
C252	Disc Type Ceramic Capacitor 33 pF 50V K SL		CCGZ 813305
C253	Disc Type Ceramic Capacitor 0.0033 μ F 50V M YA		CKAZ 813326
C254	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C255	Disc Type Ceramic Capacitor 180 pF 50V K SL		CCGZ 811815
C256	Disc Type Ceramic Capacitor 180 pF 50V K SL		CCGZ 811815
C257	Disc Type Ceramic Capacitor 68 pF 50V K SL		CCGZ 816805
C258	Disc Type Ceramic Capacitor 250 pF 50V K SL		CCGZ 812515
C259	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C260	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C261	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C262	Disc Type Ceramic Capacitor 33 pF 50V K SL		CCGZ 813305
C263	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C264	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C265	Disc Type Ceramic Capacitor 200 pF 50V K SL		CCGZ 812015
C266	Disc Type Ceramic Capacitor 390 pF 50V K SL		CCGZ 813915
C267	Disc Type Ceramic Capacitor 47 pF 50V K SL		CCGZ 814705
C268	Disc Type Ceramic Capacitor 220 pF 50V K SL		CCGZ 812215
C269	Disc Type ceramic Capacitor 250 pF 50V K SL		CCGZ 812515
C270	Electrolytic Capacitor 0.47 μ F 50V		CELZ 814780
C271	Electrolytic Capacitor 4.7 μ F 25V		CELZ 514790
C272	Electrolytic Capacitor 47 μ F 10V		CELZ 114700
C273	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C274	Mylar Capacitor 0.01 μ F 50V K		QQMZ 811035
C275	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C276	Mylar Capacitor 0.01 μ F 50V K		QQMZ 811035
C277	Electrolytic Capacitor 0.47 μ F 50V		CELZ 814780
C278	Mylar Capacitor 0.1 μ F 50V K		QQMZ 811045
C279	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C280	Mylar Capacitor 0.01 μ F 50V K		QQMZ 811035
C281	Mylar Capacitor 0.01 μ F 50V K		QQMZ 811035
C282	Electrolytic Capacitor 1 μ F 50V		CELZ 811090
C283	Electrolytic Capacitor 47 μ F 10V		CELZ 114700

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	PS PART NO.	MFRS PART NO.
C285	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C286	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C287	Mylar Capacitor 0.047 μ F 50V K		CQMZ 814735
C288	Electrolytic Capacitor 470 μ F 16V		CELZ 314710
C290	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C291	Electrolytic Capacitor 100 μ F 16V		CELZ 311010
C292	Electrolytic Capacitor 33 μ F 16V		CELZ 313300
C293	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C294	Electrolytic Capacitor 4.7 μ F 25V		CELZ 514790
C295	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C296	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C297	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C298	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C299	Disc Type Ceramic Capacitor 0.01 μ F 25V Z		CKFZ 511030
C300	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C301	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C302	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C303	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C305	Electrolytic Capacitor 22 μ F 16V		CELZ 312200
C306	Disc Type Ceramic Capacitor 15 pF 50V K SL		CCGZ 811505
C307	Electrolytic Capacitor 4.7 μ F 25V		CELZ 514790
C308	Disc Type Ceramic Capacitor 3 pF 50V C SL		CCGZ 813091
C309	Disc Type Ceramic Capacitor 0.039 μ F 50V Z YG		CKFZ 513930
C310	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C311	Electrolytic Capacitor 2.2 μ F 50V		CELZ 812290
C312	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C313	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C314	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C315	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C316	Disc Type Ceramic Capacitor 0.001 μ F 25V Z YG		CKFZ 511020
C317	Electrolytic Capacitor 22 μ F 16V		CELZ 312200
C318	Disc Type Ceramic Capacitor 0.001 μ F 25V Z YG		CKFZ 511020
C319	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C320	Mylar Capacitor 0.01 μ F 50V K		CQMZ 811035
C321	Disc Type Ceramic Capacitor 0.0047 μ F 25V Z YG		CKFZ 514720
C322	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C323	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C324	Disc Type Ceramic Capacitor 0.01 μ F 25V YG		CKFZ 511030
C325	Disc Type Ceramic Capacitor 0.01 μ F 25V Z YG		CKFZ 511030
C326	Disc Type Ceramic Capacitor 4.7 μ F 10V Z YG		CELZ 514790
C327	Disc Type Ceramic Capacitor 0.039 μ F 25V Z YG		CKFZ 513930
C350	Electrolytic Capacitor 0.47 μ F 50V		CELZ 814780
C351	Disc Type Ceramic Capacitor 330 pF 50V K SL		CCGZ 813315
C352	Disc Type Ceramic Capacitor 330 pF 50V K SL		CCGZ 813315
C353	Disc Type Ceramic Capacitor 330 pF 50V K SL		CCGZ 813315
VC-1	Trimmer Capacitor 50 pF CV-024		CCVY 024006
DIODES			
D-2	1S2473		DDAY 048001
D-3	1S2473		DDAY 048001
D-201	1S2473		DDAY 048001
D-202	1S2473		DDAY 048001
D-203	1N60-AM		DDAY 001001
D-204	1N60-AM		DDAY 001001

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	RS. PART NO.	MFRS PART NO.
D-205	1N60-AM		DDAY001001
D-206	1S2473-K		DDAY048007
D-207	1N60-AM		DDAY001001
D-208	1N60-AM		DDAY001001
D-209	SR1K-1		DDAY002001
D-210	1N60-AM		DDAY001001
D-211	Varistor MV-1		DDAY007001
D-212	Zener Diode WZ-162		DDAY008021
D-213	1N60-AM		DDAY001001
D-214	Zener Diode CZ-092		DDAY010002
D-215	Zener Diode CZ-092		DDAY010002
D-216	SR1K-1		DDAY002001
D-217	L.E.D. TLR-104		DDAY007001
D-218	1N60-AM		DDAY001001
INTEGRATED CIRCUITS			
IC-1	UHIC-003		DDEY076001
IC-2	MB84011M		DDEY084001
IC-3	NJM78L05A		DDEY088001
IC-4	μ PD858-C		DDEY055001
COILS			
L-1	Coil, LA-166	CA 3627	LLAY 166001
L-2	Coil, LA-165	CA 3628	LLAY 165001
L-3	Micro Inductor, LF-2 2.2 μ H, LZ-002	C-0697	LLZY 002005
L-4	Micro Inductor, LF-1 100 μ H, LZ-001	C-0698	LLZY 001013
L-5	Micro Inductor, LF-1 100 μ H, LZ-001	C-0698	LLZY 001013
L-6	Micro Inductor, LF-1 390 μ H, LZ-001	C-0699	LLZY 001020
L-7	Coil, LA-168	CA 3629	LLAY 168001
L-9	Micro Inductor, LF-2 5.6 μ H	C-0700	LLZY 002010
L-201	Coil, LA-029	CA 3630	LLAY 029001
L-202	Coil, LA-154	CA 3631	LLAY 154001
L-203	Coil, LA-153	CA 3632	LLAY 153001
L-204	Coil, LA-163	CA 3633	LLAY 163001
L-205	Coil, LA-164	CA 3634	LLAY 164001
L-206	Coil, LA-107	CA-3635	LLAY 107001
L-207	Coil, LA-159	CA 3636	LLAY 159001
L-208	Coil, LA-148	CA 3637	LLAY 148001
L-209	Coil, LA-148	CA 3637	LLAY 148001
L-210	Coil, LA-146	CA 3638	LLAY 146001
L-211	Coil, LC-019/LC-073	CA 3639	LLCY 019001
L-212	Coil, LC-017/LC-071	CA 3640	LLCY 017001
L-213	Coil, LD-012/LD-033	CA 3641	LLDY 012001
L-214	Coil, LC-019/LC-073	CA 3639	LLCY 019001
L-215	Coil, LC-119		LLCY 119001
L-216	Coil, LE-064		LLEY 064001
L-217	Coil, LD-066/LD-067	CA 3644	LLDY 066001
L-218	Coil, LD-027/LD-031	CA 3645	LLDY 027001
L-221	Micro Inductor, LF-2 2.2 μ H		LLZY 002005
L-222	Micro Inductor, LF-2 2.2 μ H		LLZY 002005
L-223	Micro Inductor, LF-2 2.2 μ H		LLZY 002005

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	RS. PART NO.	MFRS PART NO.
L-224	Micro Inductor, LF-2 2.2 μ H		LLZY 002005
L-225	Micro Inductor, LF-2 3.3 μ H		LLZY 002010
L-226	Micro Inductor, LF-2 3.3 μ H		LLZY 002010
L-227	Micro Inductor, LF-2 3.3 μ H		LLZY 002010
L-228	Coil, LD-027		LLDY 027001
RESISTORS			
R1	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R2	Carbon Film Resistor 2.2K ohm 1/4W J		RUBZ 142224
R3	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R4	Carbon Film Resistor 2.7K ohm 1/4W J		RUBZ 142724
R5	Carbon Film Resistor 33K ohm 1/4W J		RUBZ 143334
R6	Carbon Film Resistor 270 ohm 1/4W J		RUBZ 142714
R7	Carbon Film Resistor 18K ohm 1/4W J		RUBZ 141834
R8	Carbon Film Resistor 47K ohm 1/4W J		RUBZ 144734
R9	Carbon Film Resistor 3.3K ohm 1/4W J		RUBZ 143324
R10	Carbon Film Resistor 33K ohm 1/4W J		RUBZ 143334
R11	Carbon Film Resistor 47K ohm 1/4W J		RUBZ 144734
R12	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R14	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R201	Carbon Film Resistor 1.5K ohm 1/4W J		RUBZ 141524
R202	Carbon Film Resistor 3.3K ohm 1/4W J		RUBZ 143324
R203	Carbon Film Resistor 33K ohm 1/4W J		RUBZ 143334
R204	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R205	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R206	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R207	Carbon Film Resistor 820 ohm 1/4W J		RUBZ 148214
R208	Carbon Film Resistor 120 ohm 1/4W J		RUBZ 141214
R209	Carbon Film Resistor 68K ohm 1/4W J		RUBZ 146834
R210	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R211	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R212	Carbon Film Resistor 120 ohm 1/4W J		RUBZ 141214
R213	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R214	Carbon Film Resistor 470 ohm 1/4W J		RUBZ 144714
R215	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R216	Carbon Film Resistor 4.7K ohm 1/4W J		RUBZ 144724
R217	Carbon Film Resistor 18K ohm 1/4W J		RUBZ 141834
R218	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R219	Carbon Film Resistor 680 ohm 1/4W J		RUBZ 146814
R220	Carbon Film Resistor 56K ohm 1/4W J		RUBZ 145634
R221	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R222	Carbon Film Resistor 3.3K ohm 1/4W J		RUBZ 143324
R223	Carbon Film Resistor 10K ohm 1/4W J		RUBZ 141034
R224	Carbon Film Resistor 470 ohm 1/4W J		RUBZ 144714
R225	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R226	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R227	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044
R228	Carbon Film Resistor 47K ohm 1/4W J		RUBZ 144734
R229	Carbon Film Resistor 33K ohm 1/4W J		RUBZ 143334
R230	Carbon Film Resistor 470K ohm 1/4W J		RUBZ 144744
R231	Carbon Film Resistor 100K ohm 1/4W J		RUBZ 141044

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	RS. PART NO.	MFRS PART NO.
R232	Carbon Film Resistor 22K ohm 1/4W J		RPBZ 142234
R233	Carbon Film Resistor 12K ohm 1/4W J		RPBZ 141234
R234	Carbon Film Resistor 6.8K ohm 1/4W J		RUBZ 146824
R235	Carbon Film Resistor 5.6K ohm 1/4W J		RUBZ 145624
R236	Carbon Film Resistor 680 ohm 1/4W J		RUBZ 146814
R237	Carbon Film Resistor 3.3K ohm 1/4W J		RPBZ 143324
R238	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R239	Carbon Film Resistor 3.3K ohm 1/4W J		RUBZ 143324
R240	Carbon Film Resistor 22K ohm 1/4W J		RUBZ 142234
R241	Carbon Film Resistor 220K ohm 1/4W J		RUBZ 142244
R242	Carbon Film Resistor 68 ohm 1/4W J		RUBZ 146804
R243	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R244	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R245	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R246	Metal Film Resistor 1 ohm 1W K		RSJZ 101095
R247	Solid Resistor 47 ohm 1/2W K		RCEZ 124705
R248	Metal Film Resistor 2.2 ohm 2W K		RSJZ 202295
R249	Carbon Film Resistor 3.9K ohm 1/4W J		RUBZ 143924
R250	Carbon Film Resistor 12K ohm 1/4W J		RUBZ 141234
R251	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 146814
R252	Carbon Film Resistor 680 ohm 1/4W J		RUBZ 145614
R253	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R254	Carbon Film Resistor 470 ohm 1/4W J		RUBZ 144714
R255	Carbon Film Resistor 12K ohm 1/4W J		RUBZ 141234
R256	Carbon Film Resistor 180K ohm 1/4W J		RUBZ 141844
R257	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R258	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R259	Carbon Film Resistor 5.6K ohm 1/4W J		RUBZ 145624
R260	Carbon Film Resistor 68 ohm 1/4W J		RUBZ 146804
R261	Carbon Film Resistor 220 ohm 1/4W J		RUBZ 142214
R263	Carbon Film Resistor 56 ohm 1/4W J		RUBZ 145604
R264	Carbon Film Resistor 1 ohm 1/4W J		RUBZ 141094
R265	Solid Resistor 1K ohm 1/2W K		RCEZ 121025
R266	Carbon Film Resistor 15K ohm 1/4W J		RUBZ 141534
R267	Carbon Film Resistor 100 ohm 1/4W J		RUBZ 141014
R269	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R270	Carbon Film Resistor 5.6K ohm 1/4W J		RUBZ 145624
R271	Carbon Film Resistor 22K ohm 1/4W J		RUBZ 142234
R272	Carbon Film Resistor 47 ohm 1/4W J		RUBZ 144704
R273	Carbon Film Resistor 1.8K ohm 1/4W J		RUBZ 141824
R274	Carbon Film Resistor 1.8K ohm 1/4W J		RUBZ 141824
R275	Carbon Film Resistor 4.7K ohm 1/4W J		RUBZ 144724
R276	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R277	Carbon Film Resistor 1K ohm 1/4W J		RUBZ 141024
R278	Carbon Film Resistor 2.2 ohm 1/4W J		RUBZ 142294
R279	Metal Film Resistor 150 ohm 2W K		RSJZ 201515
R280	Solid Resistor 100 ohm 1/2W K		RCEZ 121015
R281	Solid Resistor 5.6 ohm 1/2W K		RCEZ 125695
R282	Solid Resistor 47 ohm 1/2W K		RCEZ 124705
R283	Carbon Film Resistor 4.7K ohm 1/4W J		RPBZ 144724
R284	Carbon Film Resistor 39K ohm 1/4W J		RPBZ 143934

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	PS PART NO.	MFRS PART NO.
R286	Carbon Film Resistor 33K ohm 1/4W J		RUBZ 143334
R287	Carbon Film Resistor 10K ohm 1/4W J		RPBZ 141034
R291	Metal Film Resistor 22 ohm 1W K		RSJZ 102205
R293	Carbon Film Resistor 47K ohm 1/4W J		RUBZ 144734
R294	Carbon Resistor 330 ohm 1/4W J		RUBZ 143314
R295	Carbon Film Resistor 680 ohm 1/4W J		RUBZ 146814
R296	Carbon Film Resistor 560 ohm 1/4W J		RUBZ 145614
R297	Carbon Film Resistor 4.7K ohm 1/4W J		RPBZ 144724
R298	Solid Resistor 120 ohm 1/2W J		RCEZ 121215
R302	Carbon Film Resistor 150 ohm 1/4W J		RUBZ 141514
R303	Carbon Film Resistor 1.5K ohm 1/4W J		RUBZ 141524
SWITCHES			
S201	Rotary Type SR-154		SSRY 154001
S203A-C	Slide Type SW-057, PA-CB/SW-045/SW-030	S2334	SSWY 057001
S204	Slide Type SW-054, ANL/SW-047/SW-023	S2335	SSWY 054001
TRANSFORMERS			
T201	Input Transformer, TF-011/TF-069	TN-0105	TTFY 011001
T202	Output Transformer, TF-038/TF-068	TD-0144	TTFY 038001
T203	Choke Transformer, TF-017/TF-083	DB-2293	TTFY 017001
TRANSISTORS			
TR1	Transistor 2SC945, AQ/2SC372/2SC458/2SC536 D2SC828		DDBY 224003
TR2	FET 3SK45-B/3SK45-B-09/3SK41/3SK45		DDCY 104003
TR3	2SC458-C/2SC945/2SC372/2SC828		DDBY 273001
TR201	2SC930-D/2SC1359/2SC930/2SC394		DDBY 261002
TR202	2SC930-D/2SC930/2SC1359/2SC394		DDBY 261002
TR203	2SC1675L/2SC1675/2SC372/2SC829		DDBY 259001
TR204	2SC1675L/2SC2675/2SC372/2SC829		DDBY 259001
TR205	2SC1675L/2SC1675/2SC372/2SC829		DDBY 259001
TR207	2SC945,AQ/2SC458/2SC828/2SC945		DDBY 224003
TR208	2SA733-Q/2SA733/2SA495/2SA564		DDBY 003002
TR209	2SC945,AQ/2SC458/2SC828/2SC945/2SC545/ 2SC536		DDBY 224003
TR210	2SC1364-6/2SC1364/2SC733/2SC1684		DDBY 233001
TR211	2SC1096-4ZL/2SC1419		DDBY 227004
TR212	2SC1096-4ZL/2SC1419/2SD325/2SC1226A		DDBY 227004
TR213	2SC1675L/2SC1675/2SC372/2SC829		DDBY 259001
TR214	FET3SK45-B/3SK41/3SK45/3SK49		DDCY 104001
TR215	2SC2076-CB/2SC735/2SC2076/2SC1364		DDBY 270001
TR216	2SC2028-B/20/2SC2028/2SC1760/2SC1846		DDBY 256002
TR217	2SC2029-B/10,2SC1816/2SC2029/2SC1678		DDBY 257001
TR218	2SC1364-6/2SC1364/2SC735/2SC1317		DDBY 233001
TR-219	2SC945,AQ/2SC458/2SC828/2SC1364		DDBY 224003

13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	PS PART NO.	MFRS PART NO.
TR220	2SC945,AQ/2SC458/2SC828/2SC1364/2SC945		DDBY 224006
VARIABLE RESISTORS			
VR201	Semi-fixed, RV-103 50K ohm 6BM/RV-129	P-6365	RRVY103010
VR202	VOLUME, RV-117 10KAx2/RV-123	P-1693	RRVY117001
VR203	SQUELCH, RV-238 50KB	P-1694	RRVY238001
VR204	Semi-fixed, RV-103 50K ohm 6BM/RV-129	P-6365	RRVY103010
VR205	Semi-fixed, RV-103 20K ohm 6BM/RV-129	P-6318	RRVY103008
VR206	Semi-fixed, RV-103 20K ohm 6BM/RV-129	P-6318	RRVY103008
VR207	Semi-fixed, RV-102 1KB ohm 5BM/RV-170	P-6366	RRVY102004
VR208	RF GAIN, RV-048 100K ohm B/RV-126	P-1603	RRVY048001
VR212	P.A. Volume, RV-117 10KAx2/RV-123	P-1693	RRVY117001
CRYSTALS			
X-1	QX-074, 10.24 MHz		QQXY074001
X-201	QX-070, 9.785 MHz		QQXY070001
MISCELLANEOUS			
XF-201	Printed Circuit Board, PC-193AA for Channel Switch		PPCY 193011
	Printed Circuit Board, PC-151AD for PLL	X-7219	PPCY 151014
	Printed Circuit Board, PC-170AF for Main	X-7220	PPCY 170016
	Printed Circuit Board, PC-233AA for Jack		PPCY 233011
	Ceramic Filter, FL-019, LF-B6/FL-009	C-0672	FFLY 019001
CR1	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR2	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR3	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR4	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR5	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR6	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
CR7	Combination Parts, CR-004 HA-001/HA-002	C-0701	HHAY002001
M201	Speaker, SP-003/SP-037/SP-046	S-4605	ASPY 003001
	Meter, MT-018/MT-037	M-0311	ZMTY 018001
	Microphone, MK-020 with plug & Mic. plate/MK-054	M-2258	AMKY020001
J201	Antenna Connector, JK-035/JK-068	J-6421	JJKY 0350011
J202	Jack, JK-010, SJ-296, Ext. SP & PA/JK-001	J-0724	JJKY 010001
J203	Jack, JK-020, SJ-296, Ext. SP & PA/JK-001	J-0724	JJKY 010001
J204	Microphone Jack, JK-008 DIN 5P	J-0723	JJKY 008001
J205	DC Socket, JK-052		JJKY 052001
PL-201	Pilot Lamp, PL-005 Red 14V/50mA	L-0713	VPLY 005003
PL-202	Pilot Lamp, PL-005 White 14V/50mA	L-0712	VPLY 005011
	Fuse, 2 amp. for DC power cord/FS-001 2A	HF-1118	ZFSY 001005

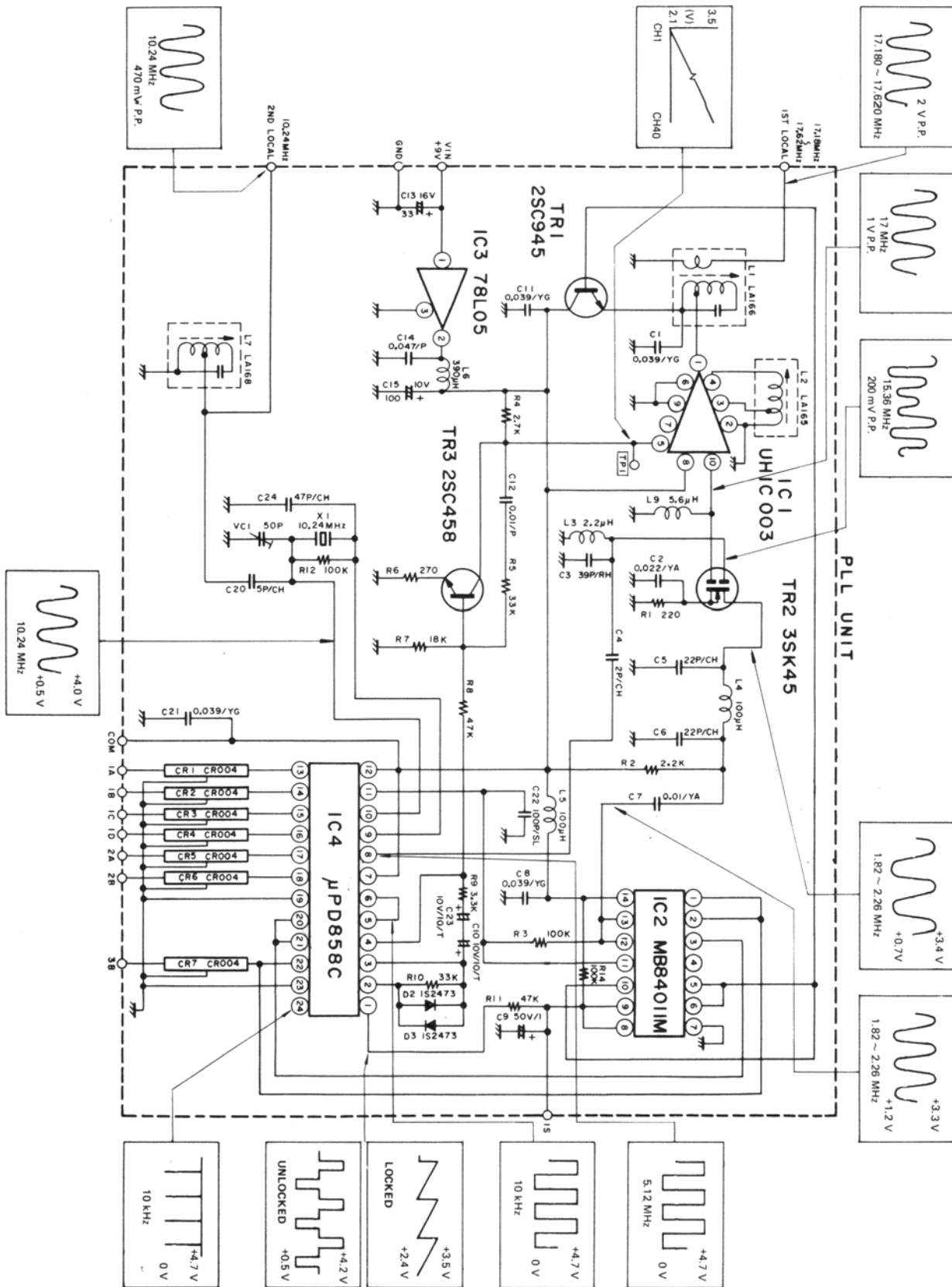
13. ELECTRICAL PARTS LIST (Continued)

REF. NO.	DESCRIPTION	PS PART NO.	MFRS PART NO.
	Microphone Hanger		MTBP402919
	Shield Case		MTBP403634
	Insulation Plate		MTZP404173
	LED Cap		MTMP403877
	Insulation Board		MTZP402768
	Cushion for Meter		MTZP400773
	Fiber		MTZP403644
	Cushion		MTZP403454
	Pan Head Screw, M3 x 6		MZSN123006
	Round Tapping, 3.5 x 8		MZSZ293508
	Round Tapping, 5 x 16		MZSZ235016
	Pan Tapping, 2 x 4		MZSZ252004
	Bind Tap Tight, 3 x 6		MZSN343006
	Flat Tap Tight, 3 x 6		MZSZ373006
	Flange Nut, M3		MZSZ480030
	Jagged Washer 3.5		MZSZ530035
	Jagged Washer 5		MZSZ540050
	Rubber Bush		MZTT030012
	CS Type Washer 10		MZSP570010

14. MECHANICAL PARTS LIST

SYMBOL NO.	DESCRIPTION	RS PART NO.	MFRS PART NO.
1	Chassis	z 2893	MTBP 203659
2	Case, Top	z 2894	MTBP 203642
3	Case, Bottom	z 2894	MTBP 203643
4	Mounting Bracket	MB 0153	MTBP 300837
5	Heat Sink	HH 0189	MTBP 403363
6	Front Panel	z 2896	MTMP 202761
7	Channel Knob	K 2142	MTMP 403880
8	Control Knob	K 2283	MTMP 401728
9	Channel Dial Disc	K 2284	MTMP 403890
10	FCC Plate	HB 8995	MTNP 403645
11	Screw of Mounting Bracket		MTHP 402770
12	Rubber Washer for Speaker		MTZP 401702
13	Rubber Washer for Mounting Bracket		MTZP 400638
14	Pan Head Screw, M3x6 for Audio Transistor		MZSS 123006
15	Speaker Net	HB 5002	MTZP 401961
16	Wool Paper for Case	HB 5003	MTZP 400361
17	Binding Screw, M3x8 for Speaker		MZSN 193008
18	Flat Head Screw, M2x5 for Mic Jack		MZSN 132005
19	Pan Head Tapping Screw, 5x16 for Bracket		MZSZ 235016
20	Pan Head Tapping Screw, 2x4 for Slide Switch		MZSZ 252004
21	Pan Head Tapping Screw, 3x6 for PCB & Heat Sink		MZSN 343006
22	Binding Screw, 3x6 for Case (Top & Bottom)		MZSN 343006
23	Flat Head Tapping Screw, 3x6 for Front Panel		MZSZ 373006
24	Nut M3 for Speaker		MZSZ 480030
25	DC Connector		
26	Rotary Switch, SR-154	S 1171	
27	Slide Switch, SW-057, PA-CB	S 2334	SSWY 057001
27	Slide Switch, SW-054, ANL-OUT	S 2335	SSWY 054001
28	Speaker, SP-003/SP-037, SP-046	S 4605	ASPY 003001
29	Meter, MT-018	M 0311	ZMTY 018001
30	Channel Illumination Board	HB 5000	MDAP 400840
31	Jagged Washer (B type) 5φ		MZSZ 540050
32	Clasp, Inner 10φ for Channel Switch		MZSP 570010
33	Rubber Bush (A type)	HB 2574	MZTT 030012
34	VOLUME Control (VR202), RV-117 10KAx2/RV-123	P 1693	PRVY 117001
35	Meter Illumination Board	HB 5001	MTAP 402767
36	RF Gain Control (VR208), RV-048 100KB	P163	RRVY 048001
37	SQUELCH Control (VR203), RV-071 50KB/RV-009,RV-036	P 1694	PRVY 071001
38	Pilot Lamp, PL-005 White 14V/50mA	L 0712	VPLY 005011
39	Pilot Lamp, PL-005 Red 14V/50mA	L0713	VPLY 005003
40	Antenna Connector, JK-035	S 6421	JJKY 035001
41	Jack, JK-010 SJ-296, Ext. SP & PA	J 0724	JJKY 010001
42	L.E.D. TLR-104		DDAY 007001
43	Spring for Knob		MZTT 200003
44	Insulator		MDZP 404173

15. PLL SUB-ASSEMBLY SCHEMATIC DIAGRAM



RADIO SHACK  A DIVISION OF TANDY CORPORATION

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