

# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index

## NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



MODEL LAND COMMAND LCM-5

## MANUFACTURER'S SPECIFICATIONS

### GENERAL

|                             |                                                     |
|-----------------------------|-----------------------------------------------------|
| Channels                    | : 40                                                |
| Frequency Range             | : 26.965 to 27.405 MHz                              |
| Frequency Control           | : Single Crystal, Digitally Synthesized             |
| Frequency Tolerance         | : $\pm 0.003\%$                                     |
| Operating Temperature Range | : $-30^{\circ}\text{C}$ to $+50^{\circ}\text{C}$    |
| Input Voltage               | : 11.7V DC to 15.9V DC, positive or negative ground |
| Microphone                  | : Dynamic                                           |
| Size                        | : 1-1/2"H(40mm), 5-1/2"W(140mm), 8-1/16"D(205mm)    |
| Weight                      | : 2.7 Pounds (1.23 Kg)                              |

### TRANSMITTER

|                     |                            |
|---------------------|----------------------------|
| Power Output        | : 4 watts (maximum)        |
| Modulation          | : 100% capability          |
| Modulation Response | : 300 Hertz to 2500 Hertz. |
| Output Impedance    | : 50 ohms, unbalanced.     |
| Output Indicator    | : RF Power Meter           |

### RECEIVER

|                        |                                                                                              |
|------------------------|----------------------------------------------------------------------------------------------|
| Sensitivity            | : 0.5 microvolt for 10 dB S+N/N ratio                                                        |
| Selectivity            | : 65 dB @ $\pm 10$ kHz                                                                       |
| IF Frequencies         | : 455 kHz and 10.695 MHz                                                                     |
| Automatic Gain Control | : Less than 10 dB change in audio output for signal inputs from 10 to 5000.000 $\mu\text{V}$ |
| Squelch Threshold      | : 0.5 $\mu\text{V}$                                                                          |
| Audio Power Output     | : Greater than 4 watts @ 10% T.H.D.                                                          |
| Built-in Speaker       | : 16 ohms, 3 inch round                                                                      |
| External Speaker       | : (Not supplied) 4 or 8 ohms. Disables internal speaker when connected.                      |
| Spurious Rejection     |                                                                                              |
| Image                  | : -65 dB or better                                                                           |
| IF                     | : -60 dB or better                                                                           |

Courtesy of the Manufacturer

**HOWARD W. SAMS & CO., INC.** Indianapolis, Indiana 46206

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SBE MODEL LAND COMMAND LCM-5

## ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment.  
 Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.  
 Adjustments made with 13.8-volt DC input.  
 Connect low sides of test equipment to ground unless specified otherwise.  
 Connect 50-ohm dummy load or antenna before keying transmitter.  
 Connect microphone.

Suggested Alignment Tools: GC ELECTRONICS:  
 L12, L15, L18 ..... 9091, 8728A, 8728  
 L4, L6, L7, L8 ..... 5009, 8728A, 8728  
 L1, L2, L3, L9, L10, L11 ..... 9440

## SYNTHESIZER ALIGNMENT

| TEST EQUIPMENT                                  | TRANSCIVER | ADJUST | REMARKS                                                                                                            |
|-------------------------------------------------|------------|--------|--------------------------------------------------------------------------------------------------------------------|
| Input of frequency counter to TP10 (IC3 Pin 2). | Ch. 19     |        | Check for 10.240MHz.                                                                                               |
| Input of DC meter to TP1.                       | Ch. 19     | L9     | Adjust for 3 volts.<br>Check for approximately 2.2 volts on Ch. 1.<br>Check for approximately 4.1 volts on Ch. 40. |
| Input of oscilloscope to TP3 (L3 Secondary).    | Ch. 19     | L3     | Adjust for maximum (320mV p-p typical).<br>(See Figure 2.)                                                         |
| Input of frequency counter to TP11 (IC2 Pin 3). | Ch. 1      |        | Check for 16.270MHz.<br>Check all channels.<br>(See Truth Chart for correct frequencies.)                          |
|                                                 | Ch. 1, XMT |        | Check for 13.4825MHz.<br>Check all channels.<br>(See Truth Chart for correct frequencies.)                         |

## RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.  
 Adjust volume control to obtain a suitable indication.  
 Set generator output low enough to prevent AGC limiting.  
 Squelch MINIMUM, ANL Off.

| TEST EQUIPMENT                                                                                | TRANSCIVER | ADJUST   | REMARKS                                               |
|-----------------------------------------------------------------------------------------------|------------|----------|-------------------------------------------------------|
| Output of signal generator thru .01uF to TP12 (D4 anode).<br>455kHz, 1000Hz @ 30% modulation. | Ch. 19     | L8,L7,L6 | Adjust for maximum output.                            |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation. | Ch. 19     | L4,L2,L1 | Adjust for maximum output.<br>Readjust L6, L7 and L8. |

## RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.  
Adjust volume control to obtain a suitable indication.  
Squelch MINIMUM, ANL Off.

| TEST EQUIPMENT                                                                                                 | TRANSCIVER                 | ADJUST | REMARKS                                                      |
|----------------------------------------------------------------------------------------------------------------|----------------------------|--------|--------------------------------------------------------------|
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output .3uV.  | Ch. 19,<br>Volume Maximum  | VR7    | RF GAIN<br>Adjust for 2 volts audio.                         |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output 700uV. | Ch. 19,<br>Squelch Maximum | VR3    | T. SQUELCH (SQUELCH RANGE)<br>Adjust so squelch just breaks. |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output 100uV. | Ch. 19                     | VR4    | SIG METER<br>Adjust for 9 on SIG scale of meter.             |

## TRANSMITTER ALIGNMENT

Connect a 50-ohm, 25-watt dummy load to antenna connector.  
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.  
See page 4 for channel frequencies.

| TEST EQUIPMENT                                                 | TRANSCIVER | ADJUST              | REMARKS                                     |
|----------------------------------------------------------------|------------|---------------------|---------------------------------------------|
| Input of RF wattmeter to antenna input.                        | Ch. 19     | L10,L11,<br>L12,L15 | Adjust for maximum.                         |
| Input of RF wattmeter to antenna input.                        | Ch. 19     | L15                 | Adjust for 4.0 watts.                       |
| Input of spectrum analyzer or harmonic meter to antenna input. | Ch. 19     | L18                 | Adjust for MINIMUM at 54MHz (2nd harmonic). |

## TRANSMITTER ADJUSTMENTS

Connect a 50-ohm, 25-watt dummy load to antenna connector.  
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.  
See page 4 for channel frequencies.

| TEST EQUIPMENT                                                                                            | TRANSCIVER | ADJUST | REMARKS                                                                |
|-----------------------------------------------------------------------------------------------------------|------------|--------|------------------------------------------------------------------------|
| Input of oscilloscope or modulation meter to antenna input.<br>Inject a 1000Hz, 30mV signal at MIC input. | Ch. 19     | VR6    | AMC<br>Adjust for 95% modulation.<br>(See Figure 1.)                   |
| Input of RF wattmeter to antenna input.                                                                   | Ch. 19     | VR5    | PWR (TX PWR METER)<br>Adjust so TX PWR meter agrees with RF wattmeter. |

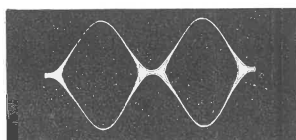


FIGURE 1

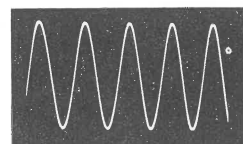
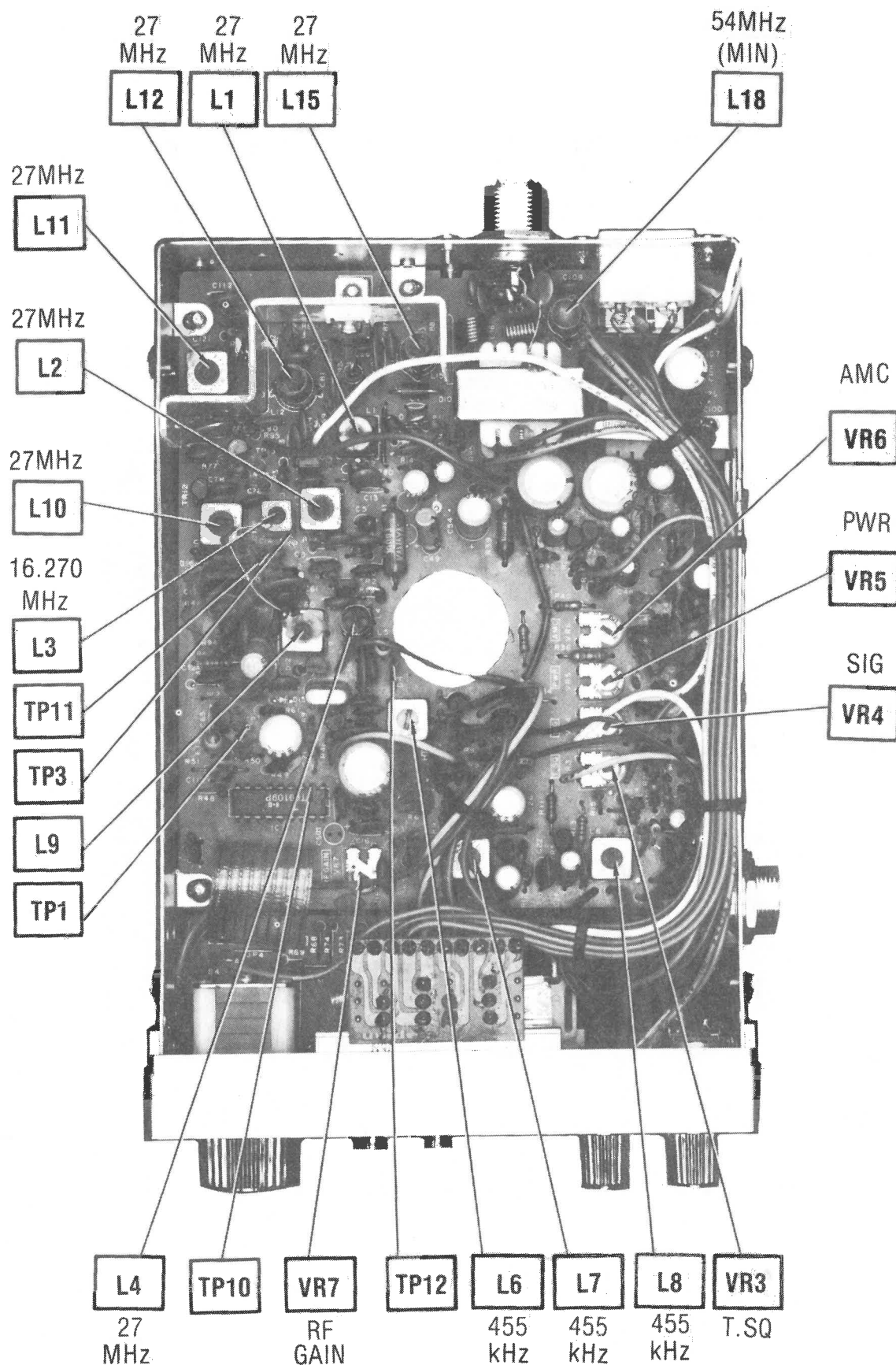


FIGURE 2

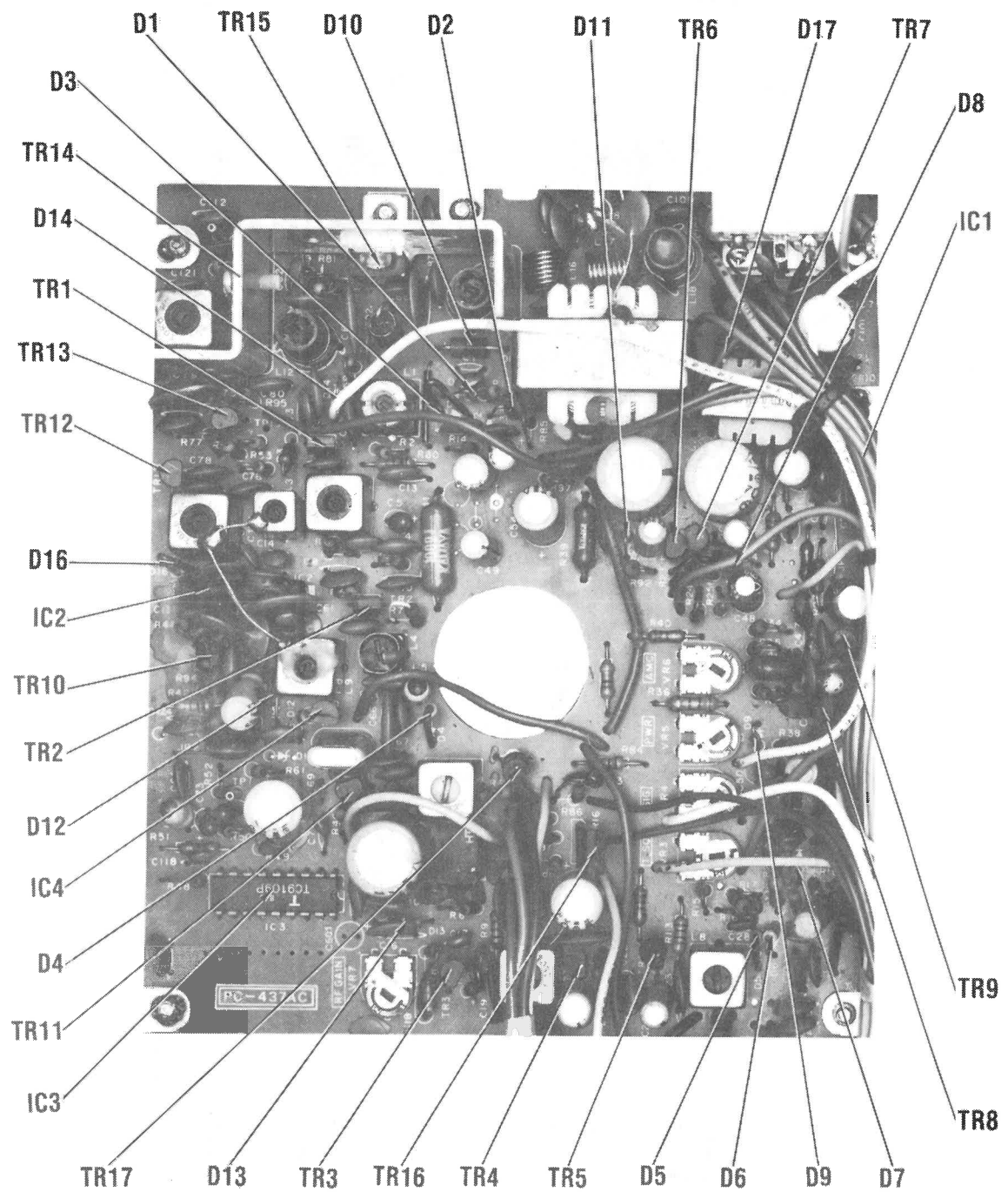
# TRUTH CHART

| 1 = 7.50 Volts      |   |   |   |   |   |   |    |    |    |    |    |    |    |    |  |  | 0 = 0 Volts |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | REC VCO<br>OUTPUT<br>IN MHz<br>AT TP11<br>(IC2 Pin 3) | XMT VCO<br>OUTPUT<br>IN MHz<br>AT TP11<br>(IC2 Pin 3) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| CHANNEL INPUT CODES |   |   |   |   |   |   |    |    |    |    |    |    |    |    |  |  | IC3 PINS    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                       |                                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| C                   | H | A | N | N | E | L | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                       |                                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

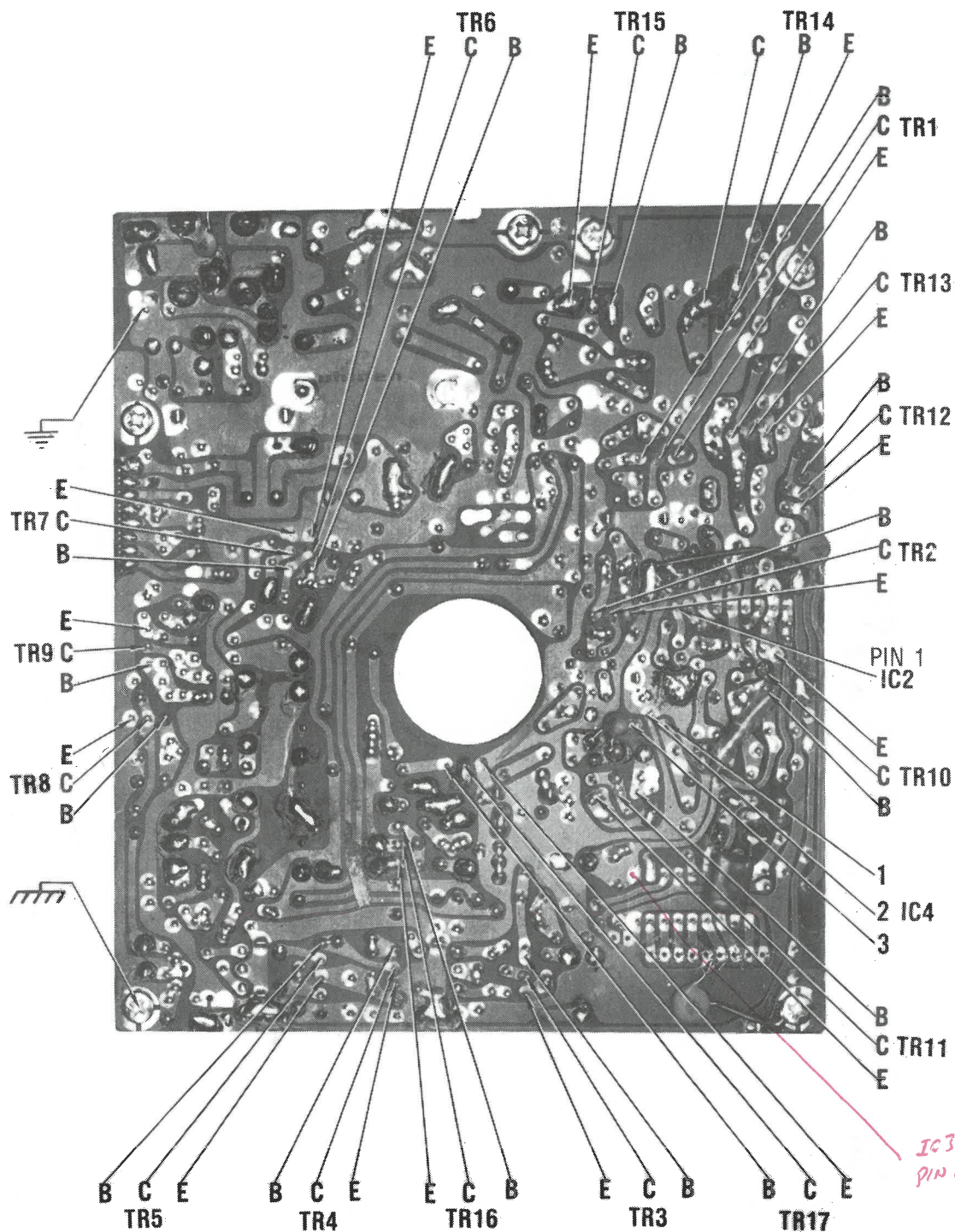
| C<br>H<br>A<br>N<br>N<br>E<br>L | 1 = 5.80 Volts         |  |  |  |  |  |  | 0 = 0 Volts |   |   |   |   |   |   | REC<br>SYNTHESIZER<br>OUTPUT<br>IN MHZ<br>AT TP2<br>(PLL,PIN 11) | XMT<br>SYNTHESIZER<br>OUTPUT<br>IN MHZ<br>AT TP3<br>(PLL,PIN 14) |
|---------------------------------|------------------------|--|--|--|--|--|--|-------------|---|---|---|---|---|---|------------------------------------------------------------------|------------------------------------------------------------------|
|                                 | PLL<br>PROGRAM DIVIDER |  |  |  |  |  |  |             |   |   |   |   |   |   |                                                                  |                                                                  |
|                                 | PINS                   |  |  |  |  |  |  |             |   |   |   |   |   |   |                                                                  |                                                                  |
|                                 |                        |  |  |  |  |  |  |             |   |   |   |   |   |   |                                                                  |                                                                  |
| 1                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 0 | 0 | 0 | 17.180                                                           | 26.965                                                           |
| 2                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 0 | 0 | 0 | 17.190                                                           | 26.975                                                           |
| 3                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 0 | 0 | 1 | 17.200                                                           | 26.985                                                           |
| 4                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 1 | 0 | 0 | 17.220                                                           | 27.005                                                           |
| 5                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 1 | 0 | 1 | 17.230                                                           | 27.015                                                           |
| 6                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 1 | 1 | 0 | 17.240                                                           | 27.025                                                           |
| 7                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 0 | 1 | 1 | 1 | 17.250                                                           | 27.035                                                           |
| 8                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 1 | 0 | 0 | 1 | 17.270                                                           | 27.055                                                           |
| 9                               |                        |  |  |  |  |  |  | 0           | 0 | 0 | 1 | 0 | 1 | 0 | 17.280                                                           | 27.065                                                           |
| 10                              |                        |  |  |  |  |  |  | 0           | 0 | 0 | 1 | 0 | 1 | 1 | 17.290                                                           | 27.075                                                           |
| 11                              |                        |  |  |  |  |  |  | 0           | 0 | 0 | 1 | 1 | 0 | 0 | 17.300                                                           | 27.085                                                           |
| 12                              |                        |  |  |  |  |  |  | 0           | 0 | 0 | 1 | 1 | 1 | 0 | 17.320                                                           | 27.105                                                           |
| 13                              |                        |  |  |  |  |  |  | 0           | 0 | 1 | 1 | 0 | 1 | 1 | 17.330                                                           | 27.115                                                           |
| 14                              |                        |  |  |  |  |  |  | 0           | 0 | 1 | 0 | 0 | 0 | 0 | 17.340                                                           | 27.125                                                           |
| 15                              |                        |  |  |  |  |  |  | 0           | 1 | 0 | 0 | 0 | 0 | 1 | 17.350                                                           | 27.135                                                           |
| 16                              |                        |  |  |  |  |  |  | 0           | 1 | 0 | 0 | 0 | 1 | 1 | 17.370                                                           | 27.155                                                           |
| 17                              |                        |  |  |  |  |  |  | 0           | 1 | 0 | 0 | 1 | 0 | 0 | 17.380                                                           | 27.165                                                           |
| 18                              |                        |  |  |  |  |  |  | 0           | 1 | 0 | 1 | 0 | 0 | 1 | 17.390                                                           | 27.175                                                           |
| 19                              |                        |  |  |  |  |  |  | 0           | 1 | 0 | 1 | 0 | 1 | 0 | 17.400                                                           | 27.185                                                           |
| 20                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 0 | 0 | 0 | 0 | 17.420                                                           | 27.205                                                           |
| 21                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 0 | 0 | 0 | 1 | 17.430                                                           | 27.215                                                           |
| 22                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 0 | 0 | 1 | 0 | 17.440                                                           | 27.225                                                           |
| 23                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 1 | 0 | 1 | 0 | 17.470                                                           | 27.255                                                           |
| 24                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 0 | 0 | 1 | 1 | 17.450                                                           | 27.235                                                           |
| 25                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 1 | 1 | 0 | 0 | 17.460                                                           | 27.245                                                           |
| 26                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 1 | 1 | 1 | 0 | 17.480                                                           | 27.265                                                           |
| 27                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 1 | 1 | 1 | 1 | 17.490                                                           | 27.275                                                           |
| 28                              |                        |  |  |  |  |  |  | 0           | 1 | 1 | 0 | 0 | 0 | 1 | 17.500                                                           | 27.285                                                           |
| 29                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 0 | 0 | 1 | 17.510                                                           | 27.295                                                           |
| 30                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 0 | 1 | 0 | 17.520                                                           | 27.305                                                           |
| 31                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 0 | 1 | 1 | 17.530                                                           | 27.315                                                           |
| 32                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 1 | 0 | 0 | 17.540                                                           | 27.325                                                           |
| 33                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 1 | 0 | 1 | 17.550                                                           | 27.335                                                           |
| 34                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 1 | 1 | 0 | 17.560                                                           | 27.345                                                           |
| 35                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 0 | 1 | 1 | 1 | 17.570                                                           | 27.355                                                           |
| 36                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 1 | 0 | 0 | 0 | 17.580                                                           | 27.365                                                           |
| 37                              |                        |  |  |  |  |  |  | 1           | 0 | 1 | 0 | 0 | 0 | 1 | 17.590                                                           | 27.375                                                           |
| 38                              |                        |  |  |  |  |  |  | 1           | 0 | 0 | 1 | 0 | 1 | 0 | 17.600                                                           | 27.385                                                           |
| 39                              |                        |  |  |  |  |  |  | 1           | 0 | 1 | 0 | 1 | 1 | 1 | 17.610                                                           | 27.395                                                           |
| 40                              |                        |  |  |  |  |  |  | 1           | 0 | 1 | 1 | 1 | 0 | 0 | 17.620                                                           | 27.405                                                           |



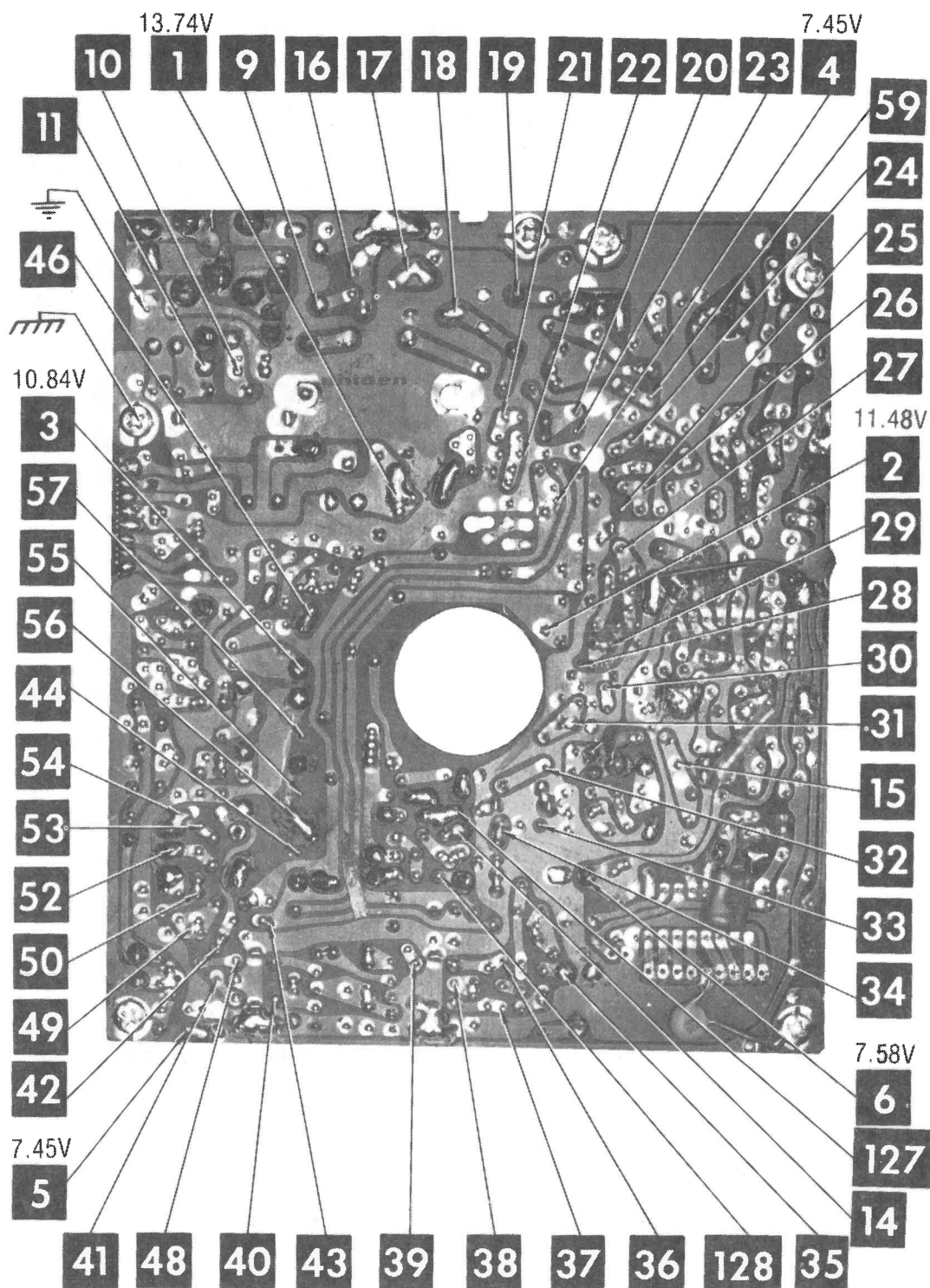
CHASSIS-BOTTOM

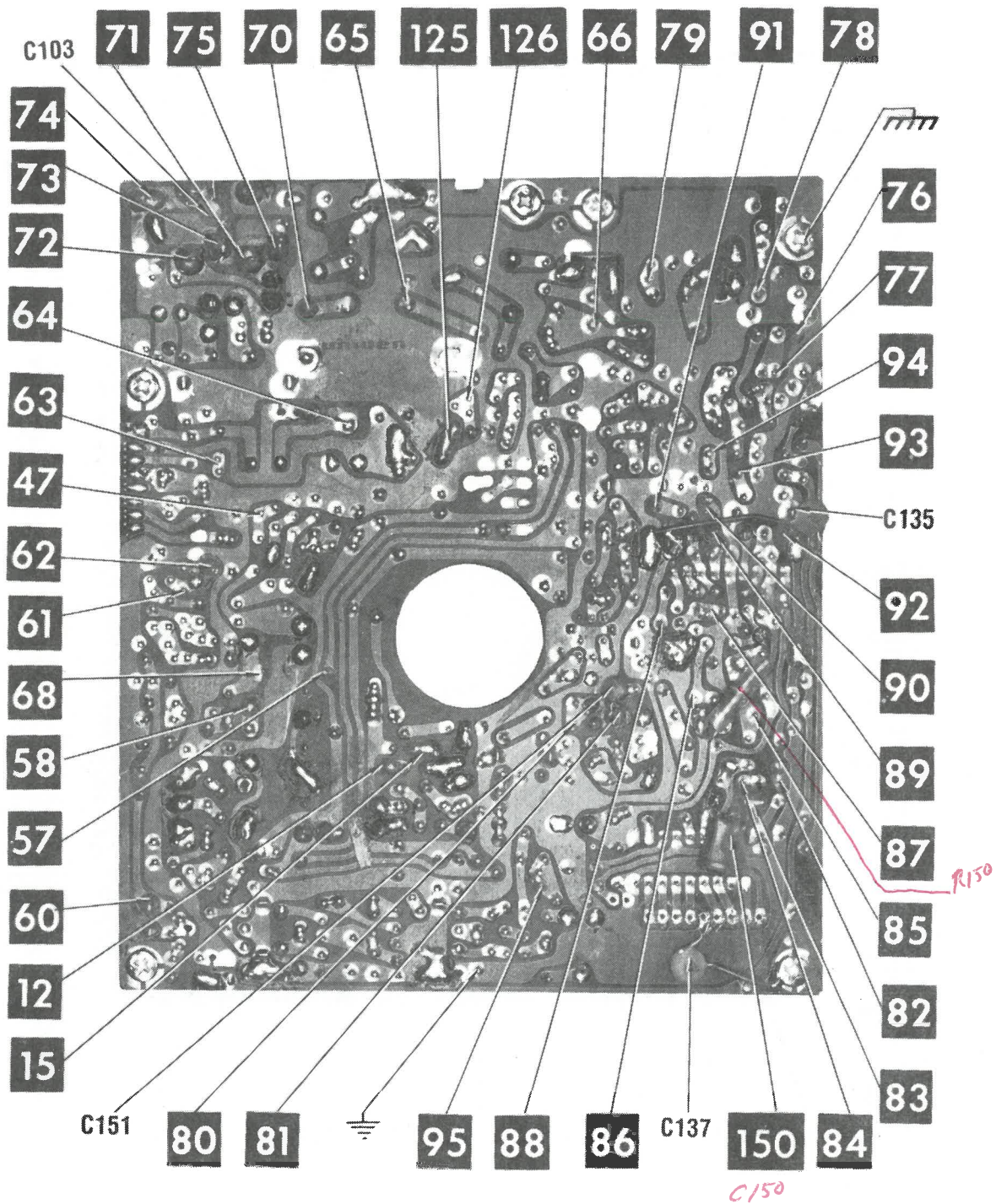


MAIN BOARD



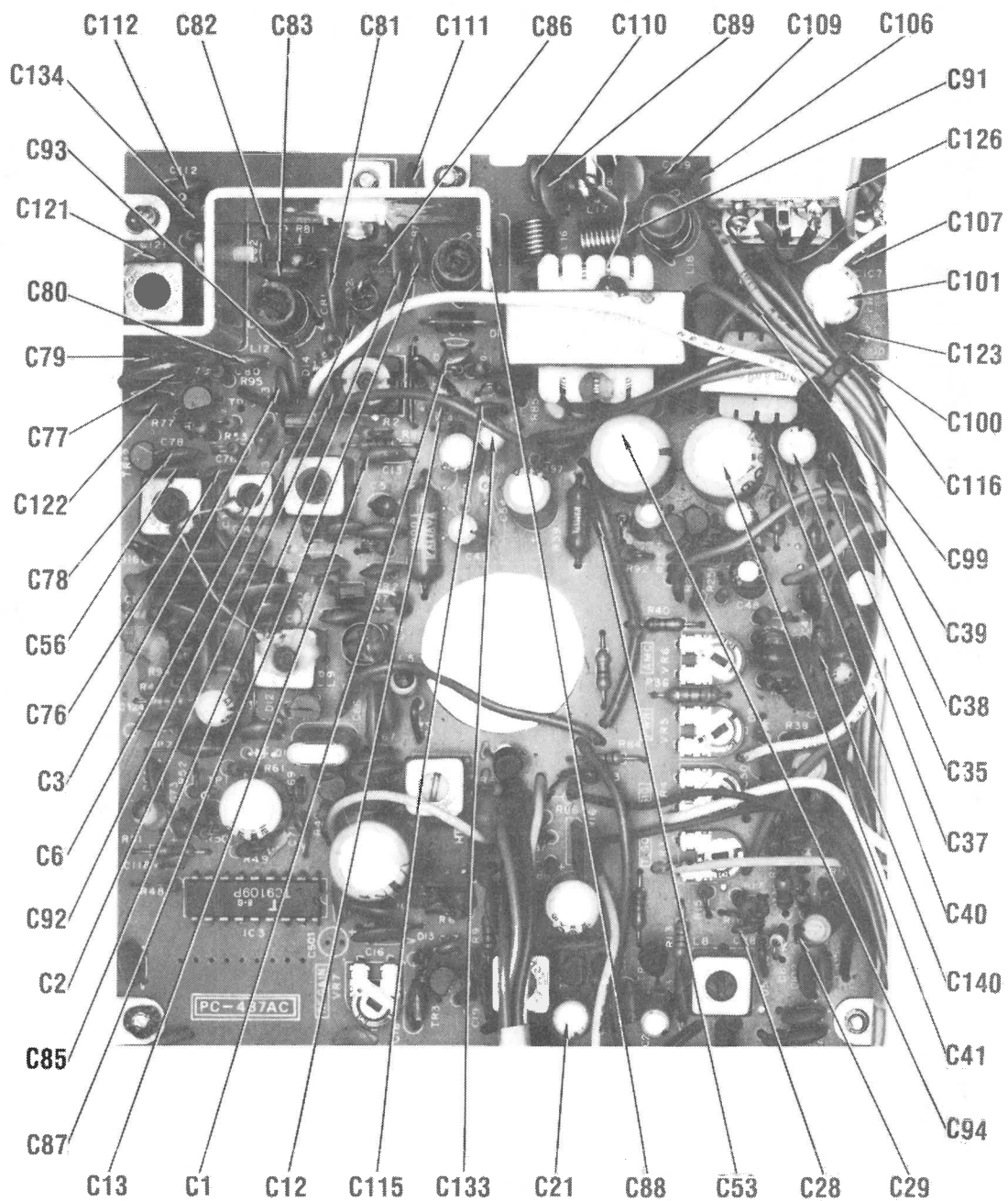
MAIN BOARD



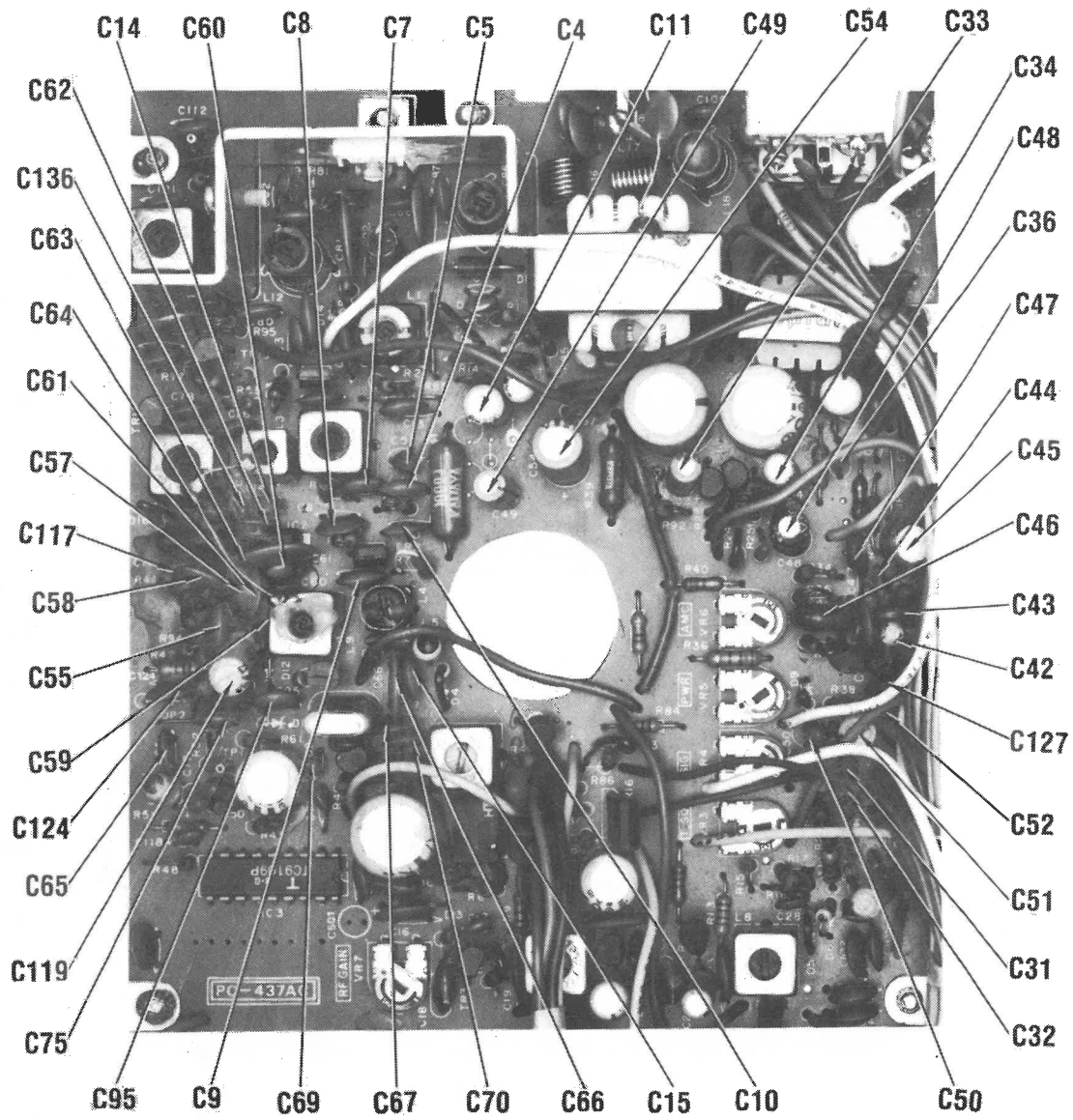


SBE MODEL LAND COMMAND LCM-5

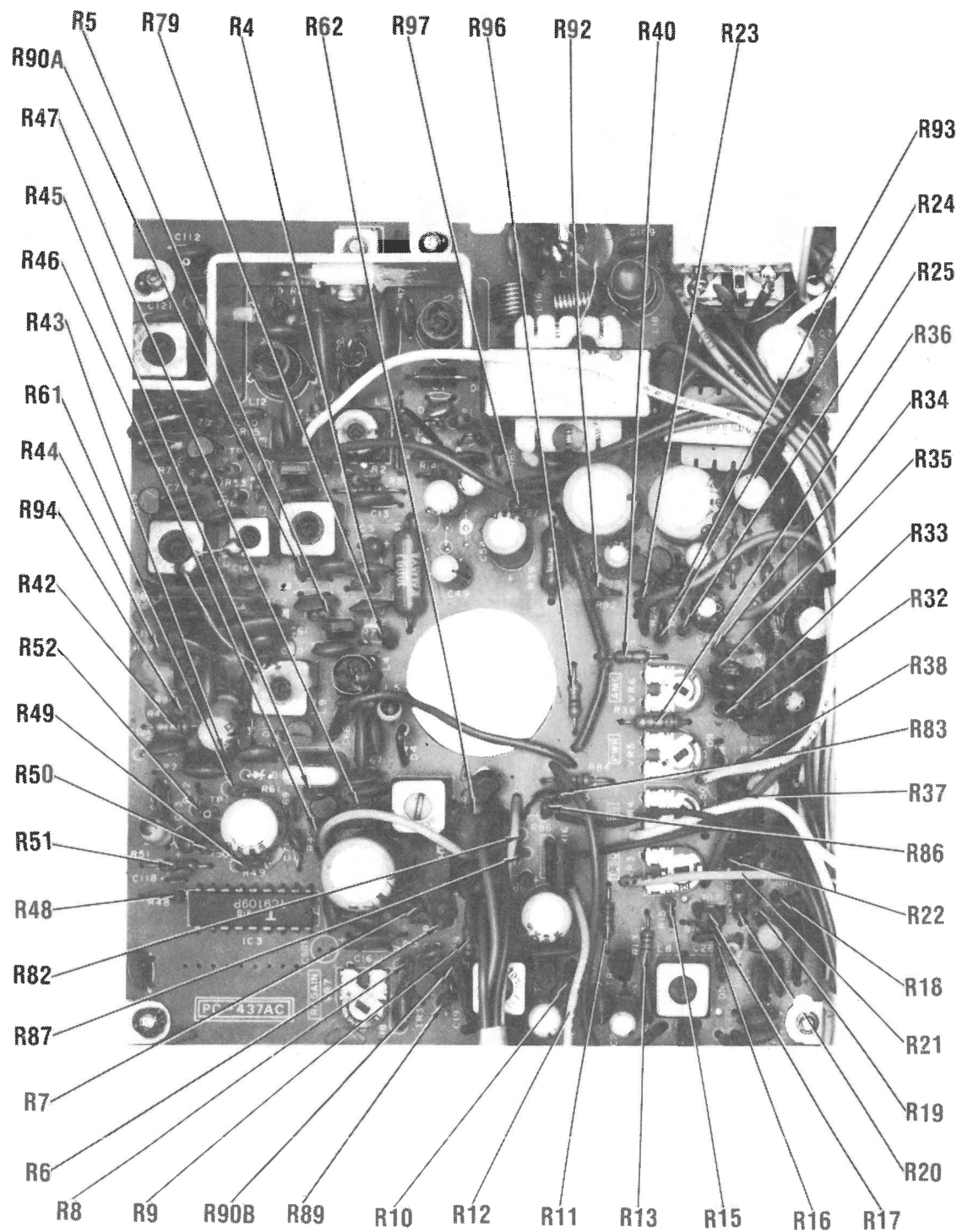
MAIN BOARD



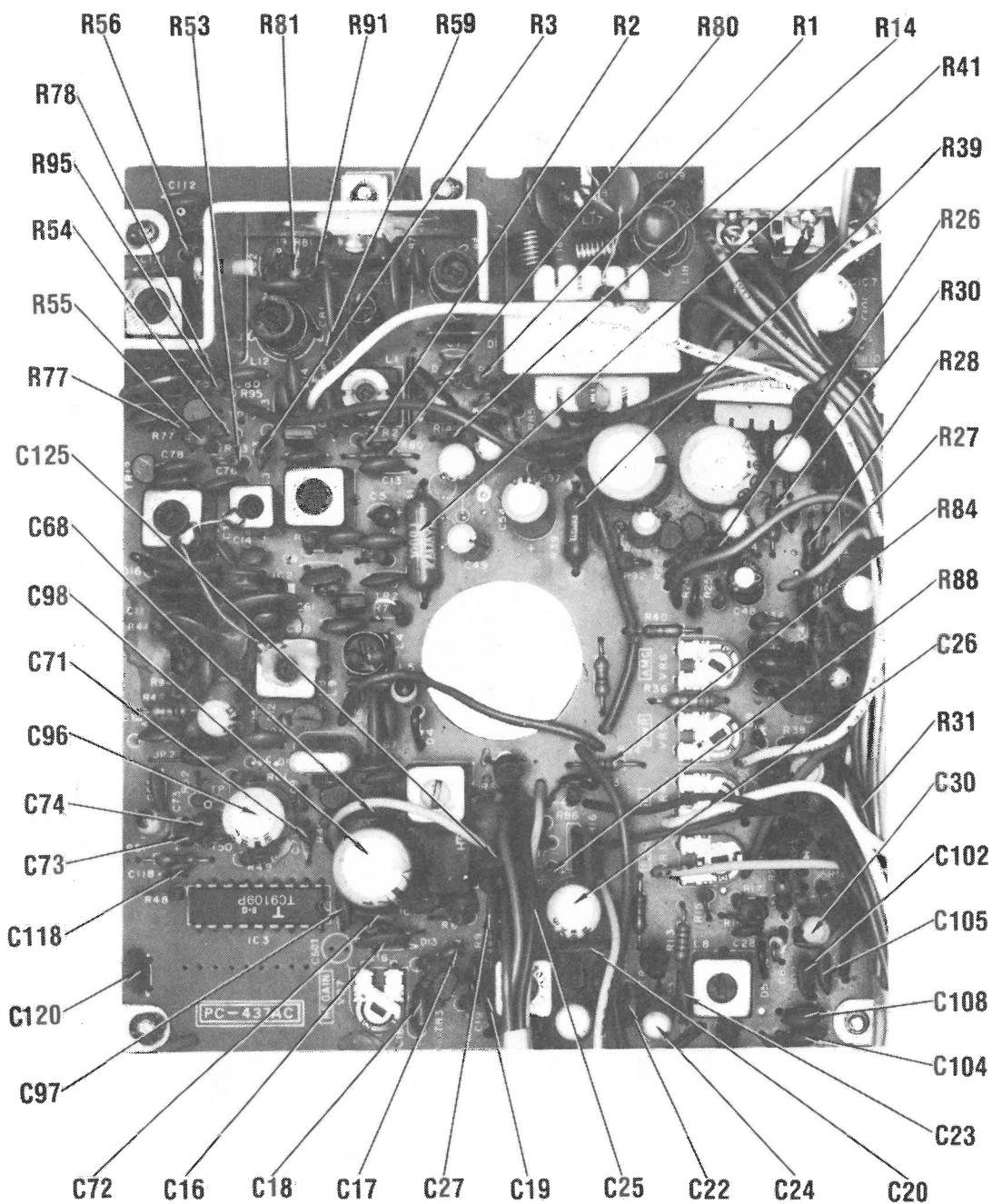
MAIN BOARD



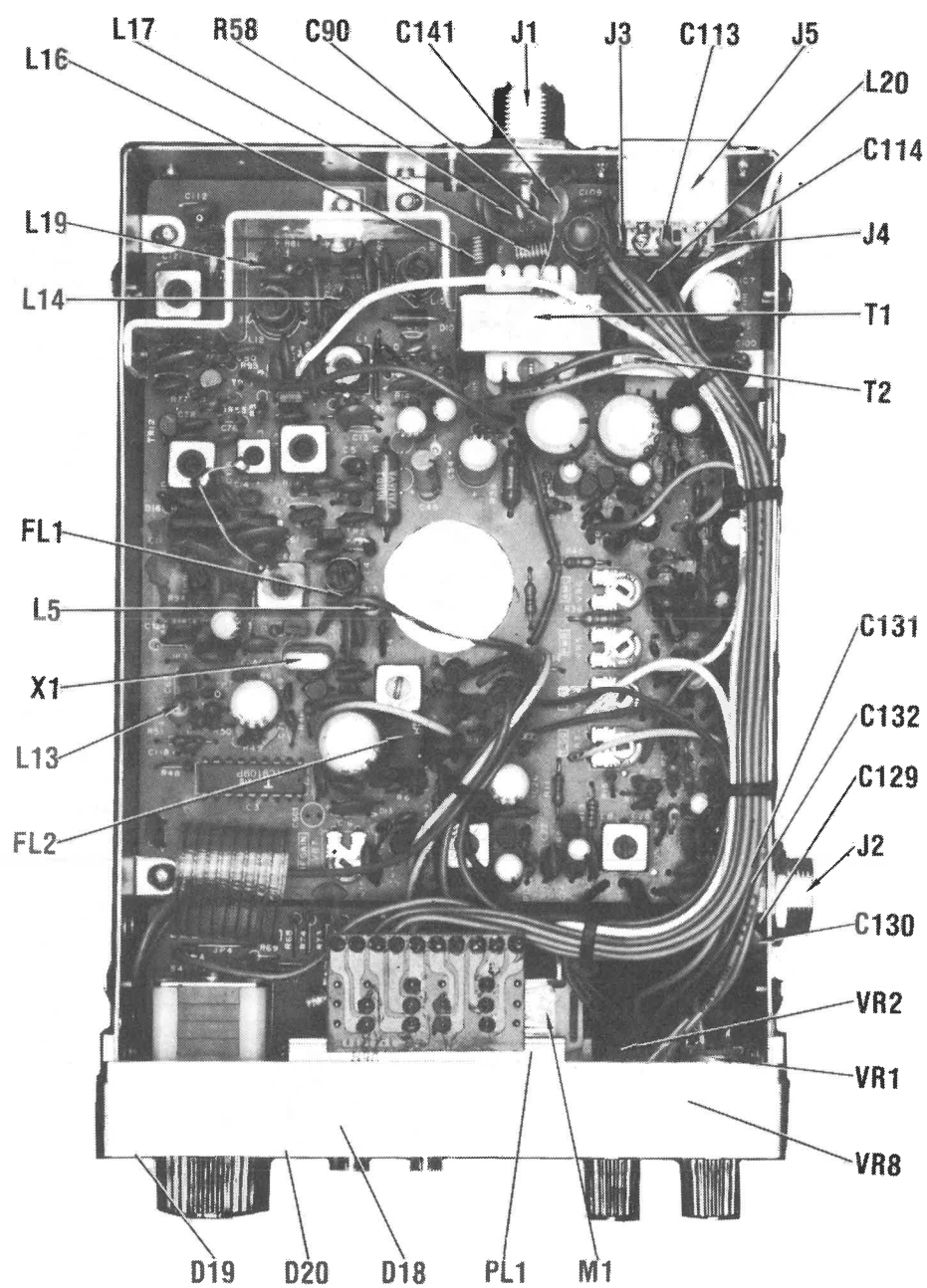
MAIN BOARD



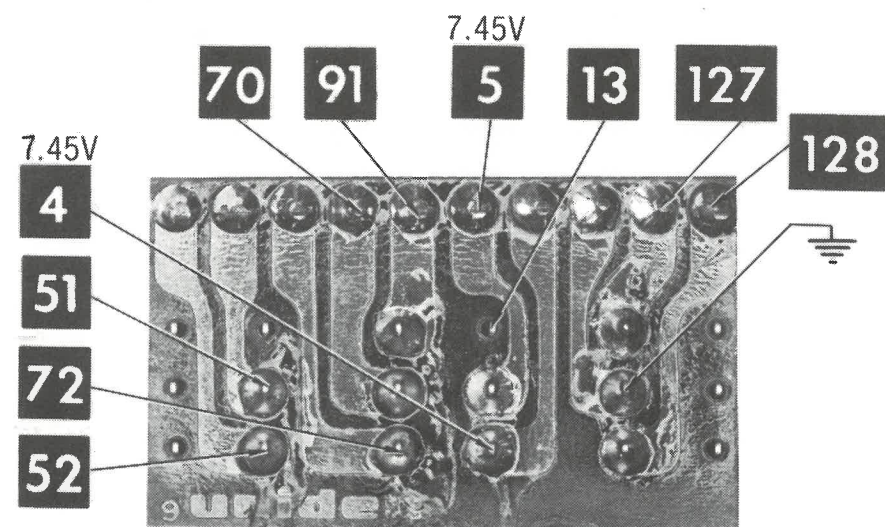
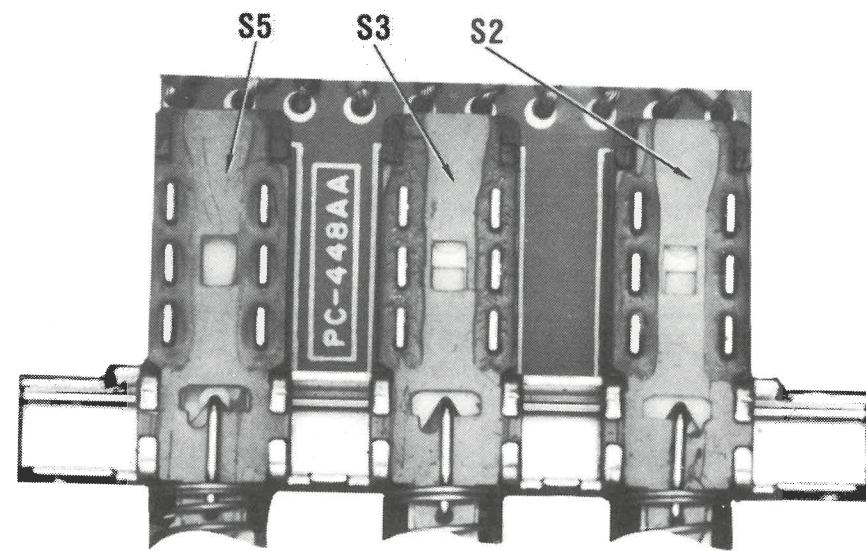
MAIN BOARD



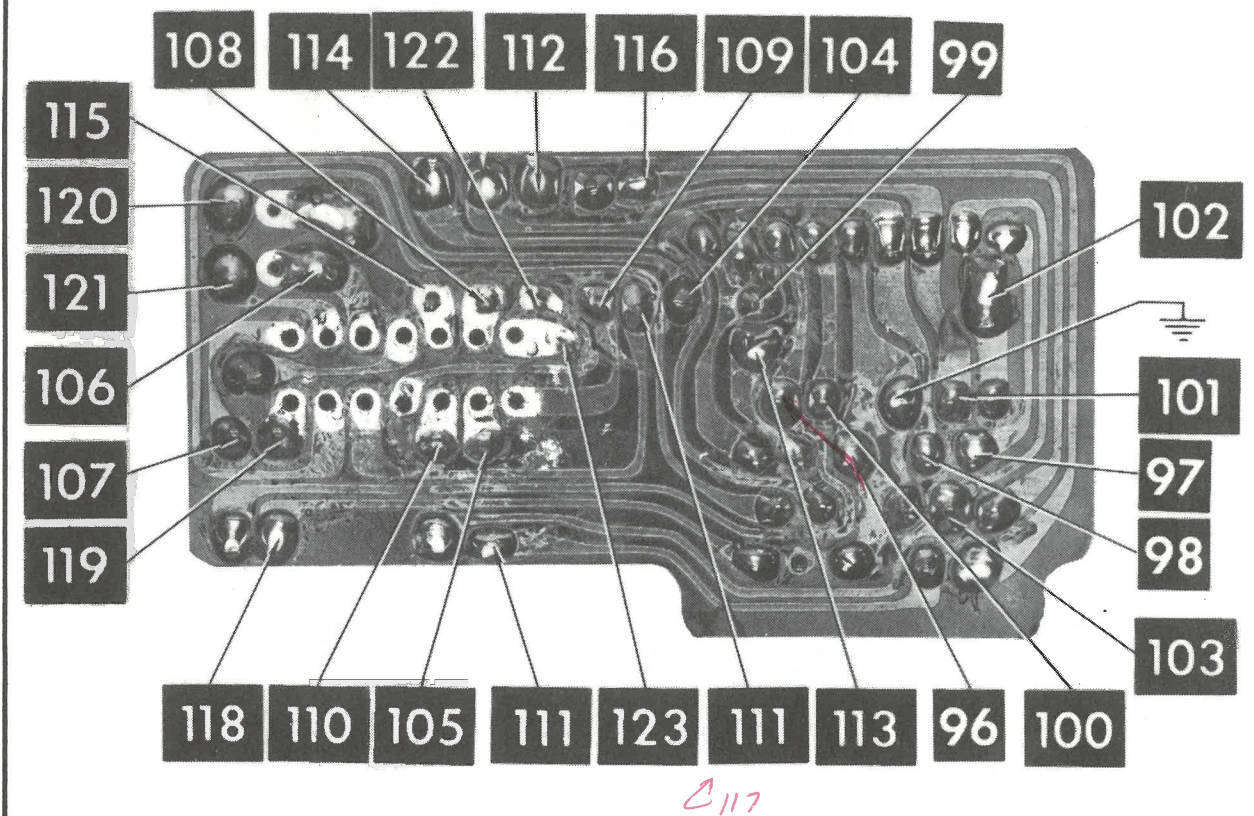
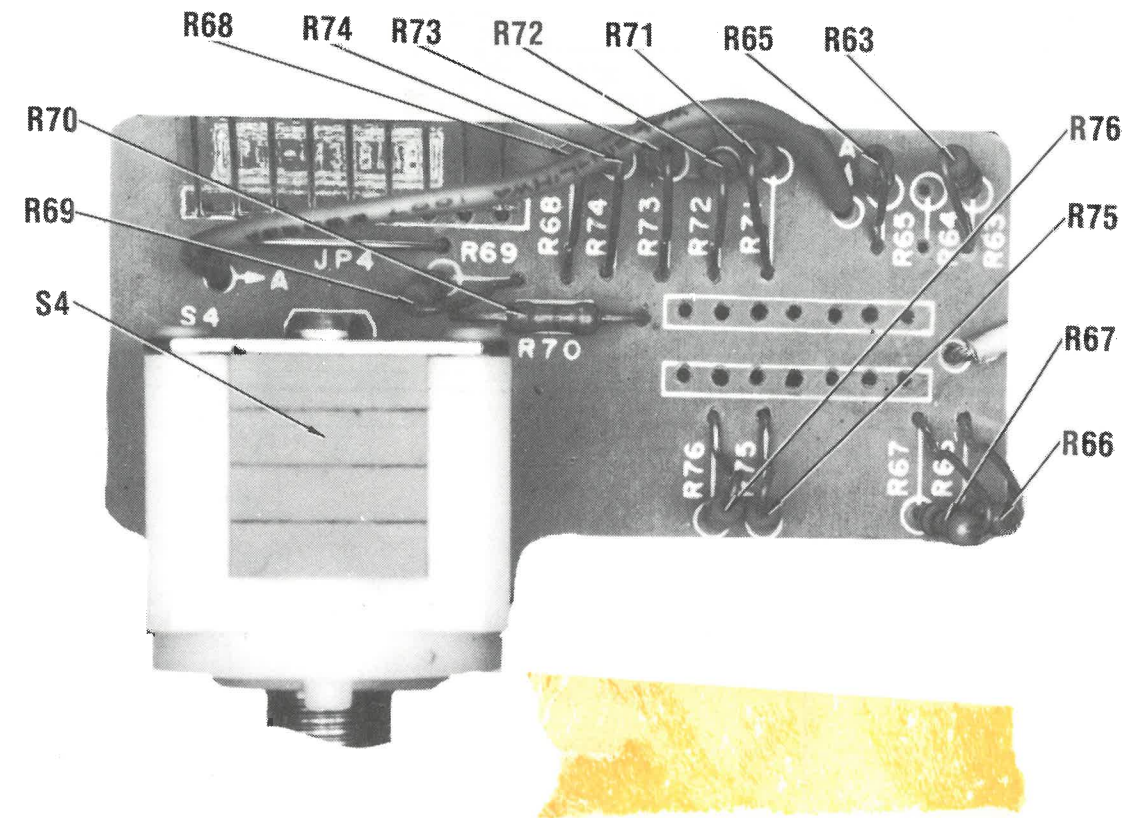
MAIN BOARD



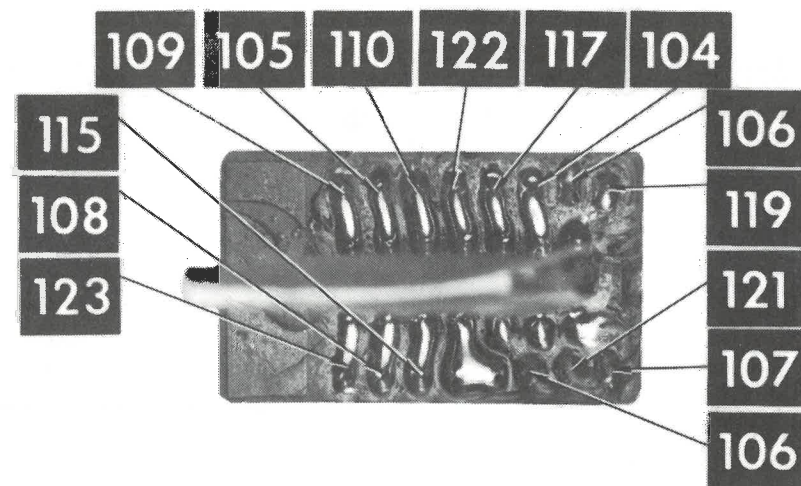
CHASSIS-BOTTOM



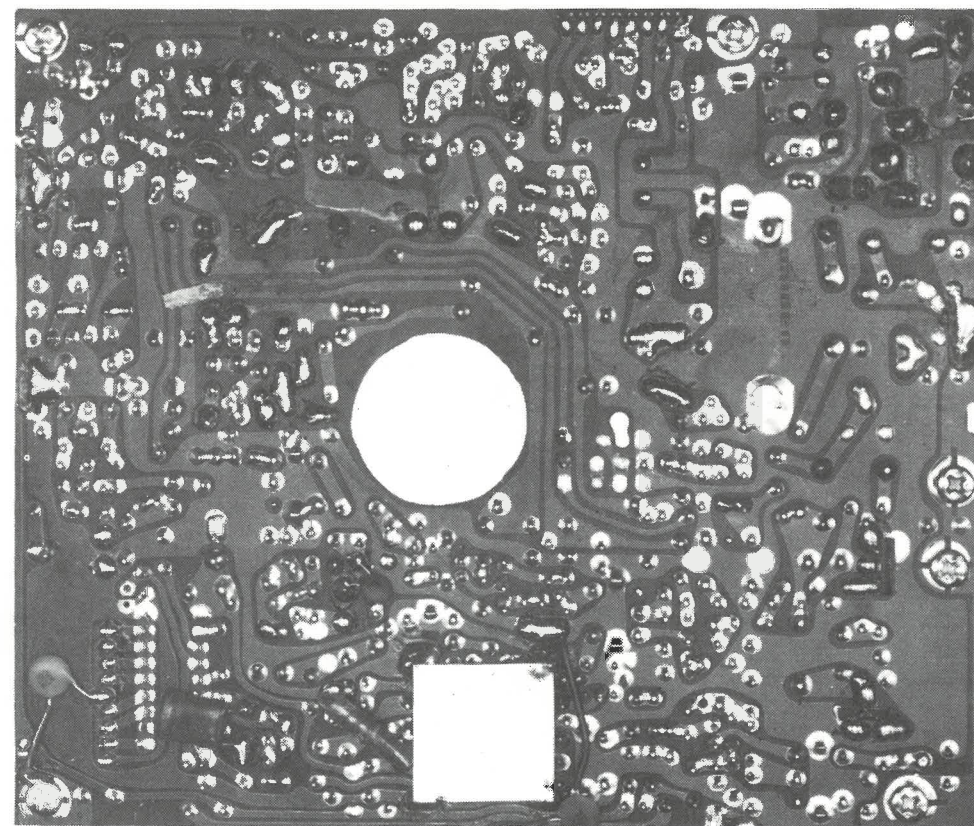
SWITCH BOARD



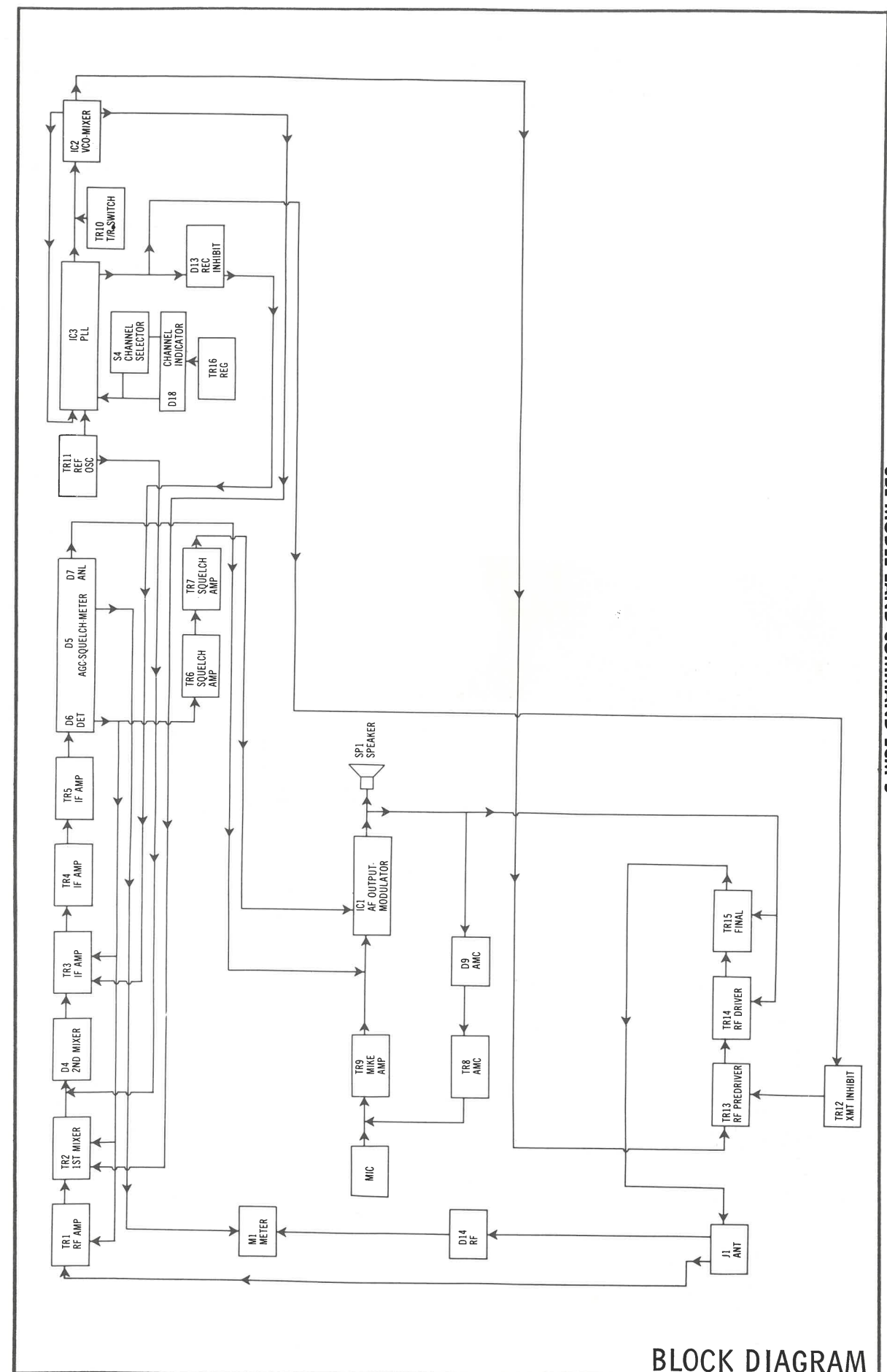
CHANNEL SELECTOR BOARD



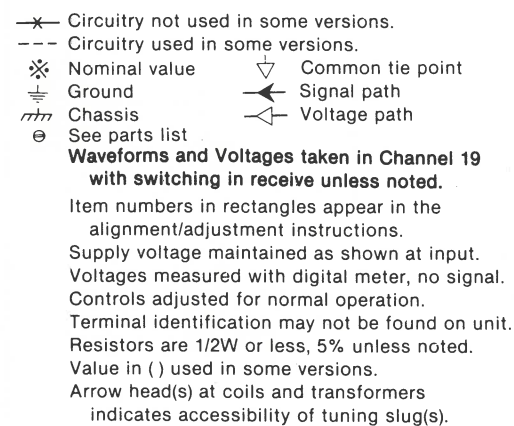
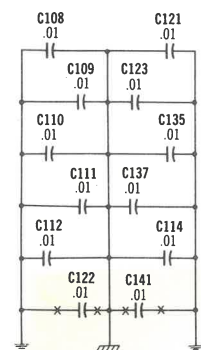
LED BOARD



SHIELD LOCATION



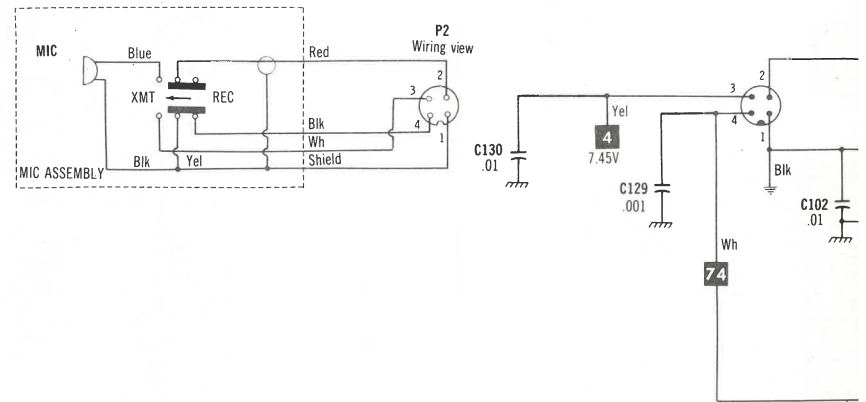
BLOCK DIAGRAM

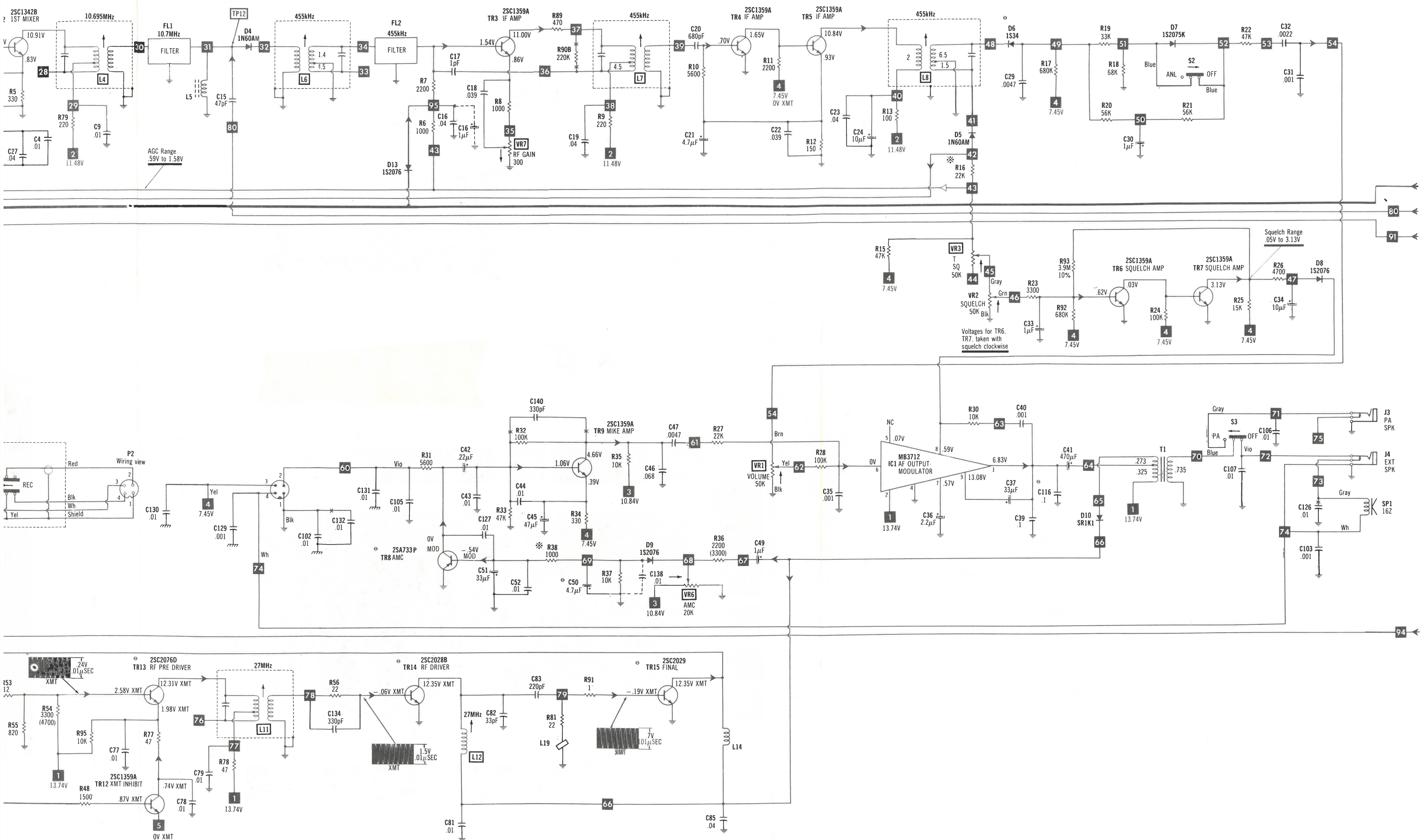


WITH **CIRCUITRACE®**

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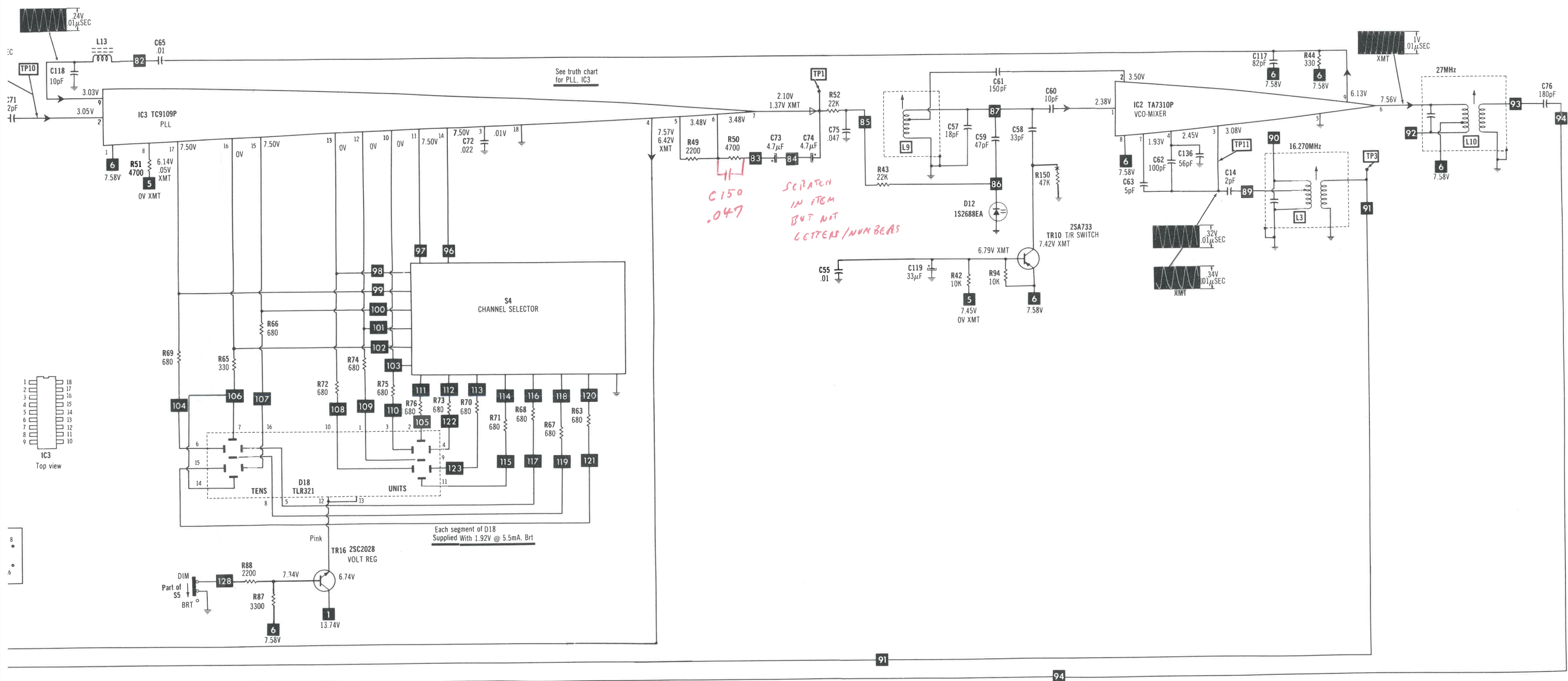
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MAIN CB SCHEMATIC





PLL & CHANNEL SELECTOR SCHEMATIC

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

WIRING DATA

|                                                  |                  |                                |                          |
|--------------------------------------------------|------------------|--------------------------------|--------------------------|
| General-use Hook-up Wire (available in 5 colors) | BELDEN No. 8523  | Coiled Microphone Cable        |                          |
| Shielded Hook-up Wire (spiral wrapped)           | BELDEN No. 8421  | 3-conductor (1 shielded) 23AWG | BELDEN No. 9471 (5')     |
| (braided)                                        | BELDEN No. 8401  |                                | BELDEN No. 8497 (6')     |
| Speaker Cable (available in 4 colors)            | BELDEN No. 8782  |                                | BELDEN No. 9472 (7-1/2') |
| Bonding Strap                                    | BELDEN No. 8672  | 28AWG                          | BELDEN No. 9466 (6')     |
| AC Power Cord                                    | BELDEN No. 17106 | 31AWG                          | BELDEN No. 9468 (10')    |
|                                                  | (6')             | 4-conductor (unshielded) 23AWG | BELDEN No. 8415 (6')     |
|                                                  | (9')             | 5-conductor (1 shielded) 28AWG | BELDEN No. 9467 (6')     |
|                                                  |                  |                                | BELDEN No. 9465 (7-1/2') |

SEMICONDUCTORS (Select replacement transistor for best results)

| ITEM No. | TYPE No.    | MFR. PART No. | REPLACEMENT DATA          |                  |                   |                   |              |                  |                   |                     |                  |                 |
|----------|-------------|---------------|---------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|---------------------|------------------|-----------------|
|          |             |               | GENERAL ELECTRIC PART No. | MALLORY PART No. | MOTOROLA PART No. | RAYTHEON PART No. | RCA PART No. | SPRAGUE PART No. | SYLVANIA PART No. | THORDARSON PART No. | WORKMAN PART No. | ZENITH PART No. |
| D1       | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D2       | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D3       | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D4       | 1N60AM      | 22-1-143      | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | TM109/**            | WEP134           | 103-29001       |
| D5       | 1N60AM      | 22-1-143      | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | TM109/**            | WEP134           | 103-29001       |
| D6       | 1S34        | 22-1-63       | 1N34AS                    | PTC207           | HEPR9134A         | REN 109           | SK3087       | RT-200           | ECG109            | TM109/**            | WEP134           | 103-29001       |
| D7       | 1S2075K     | 22-1-222      | GE-300                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG177            | TM519               | WEP925           | 103-287         |
| D8       | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D9       | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D10      | SR1K1       | 22-1-145      | GE-504A                   | PTC201           | HEPR0052          | REN 116           | SK3311       | RT-213           | ECG116            | TM116               | WEP156           | 212-76-02       |
| D11      | WZ-071      | 22-1-147      | GEZD-7.5                  | ZB7.58           |                   | REN 138           | SK3059       | RT-239           | ECG138A           | TM138/**            | WEP1107          | 103-29002       |
| D12      | 1S2688EA    | 22-1-151      |                           |                  |                   | REN 614           | SK3126       |                  | ECG613            |                     |                  | 103-281         |
| D13      | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D14      | 1S2076      | 22-1-123      | GE-514                    | PTC214           | HEPR9137          | REN 177           | SK3100       | RT-218           | ECG519            | TM519               | WEP925           | 103-287         |
| D16      | 05Z7_5UNI   | 22-1-152      | GEZD-7.5                  | ZB7.58           |                   | REN 138           | SK3059       | RT-239           | ECG138A           | TM138/**            | WEP1107          | 103-29002       |
| D17      | SR1K-1      | 22-1-145      | GE-504A                   | PTC201           | HEPR0052          | REN 116           | SK3311       | RT-213           | ECG116            | TM116               | WEP156           | 212-76-02       |
| IC1      | MB3712      | 11-115        |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| IC2      | TA7310P     | 11-113        |                           |                  |                   | REN 1192          | SK3487       |                  | ECG1192           |                     | WEP2120          |                 |
| IC3      | TC9109P     | 11-116        |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| IC4      | 78L09A      |               |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
|          | NM378L09A   | 11-117        |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| TR1      | 2SC1342B    |               | GE-46*                    | PTC176*          |                   | REN 237*          | SK3299       | RT-174*          | ECG237*           | TM237*              | WEP1239          | 121-Z9041*      |
| TR2      | 2SC1342B    |               | GE-46*                    | PTC176*          |                   | REN 237*          | SK3299       | RT-174*          | ECG237*           | TM237*              | WEP1239          | 121-Z9041*      |
| TR3      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR4      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR5      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR6      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR7      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR8      | 2SA733P     |               | GE-48                     | PTC127           | HEPS0019*         | REN 294           | SK3138       | RT-303           | ECG294            | TM294/**            | WEP911           | 121-Z9021       |
| TR9      | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR10     | 2SA733P     |               | GE-48                     | PTC127           | HEPS0019*         | REN 294           | SK3138       | RT-303           | ECG294            | TM294/**            | WEP911           | 121-Z9021       |
| TR11     | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR12     | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR13     | 2SC2076C    |               | GE-210                    | PTC121*          | HEPS0015*         | REN 295           | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |
| TR14     | 2SC2028B    |               | GE-270                    | PTC180           | HEPS3044          | REN 295           | SK3253       | RT-308           | ECG295            | TM295               | WEP755*          | 121-880         |
|          | 2SC2028B/20 |               | GE-270                    | PTC180           | HEPS3044          | REN 295           | SK3253       |                  | ECG295            | TM295               | WEP755*          | 121-880         |
| TR15     | 2SC2029     |               | GE-333                    | PTC186           |                   | REN 235           | SK3197       | RT-146           | ECG235            | TM235               | WEP785           | 121-Z9039       |
|          | 2SC2029B/10 |               | GE-333                    | PTC186           |                   | REN 235           | SK3197       | RT-146           | ECG235            | TM235               | WEP785           | 121-Z9039       |
| TR16     | 2SC2028     |               | GE-270                    | PTC180           | HEPS3044          | REN 295           | SK3253       |                  | ECG295            | TM295               | WEP755*          | 121-880         |
|          | 2SC2028B/20 |               | GE-270                    | PTC180           | HEPS3044          | REN 295           | SK3253       |                  | ECG295            | TM295               | WEP755*          | 121-880         |
| TR17     | 2SC1359A    |               | GE-212                    | PTC121*          | HEPS0014*         | REN 229*          | SK3122       | RT-308           | ECG229*           | TM229*              | WEP829           | 121-Z9021       |

\* Lead configuration may vary from original.  
/\*\* Also available as exact type replacement.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

ELECTROLYTIC CAPACITORS

| ITEM<br>No. | RATING  | REPLACEMENT DATA  |                                  |                     |                  |              |
|-------------|---------|-------------------|----------------------------------|---------------------|------------------|--------------|
|             |         | MFRG.<br>PART No. | CORNELL-<br>DUBILIER<br>PART No. | MALLORY<br>PART No. | SPRAGUE PART No. |              |
|             |         |                   |                                  |                     | Q-LINE           | GENERAL LINE |
| C5          | 10 10V  | 5-10M10           |                                  | TDC106M025FL        | QDT1-64          | SD25-109     |
| C11         | 33 16V  | 4-33M16           | PC30-25                          | VTT33D25            | QV1-63           | EV-1325      |
| C16         | 1 50V   | 4-1M50            | PC1-50                           | VTT1A50             | QV1-11           | EV-1615      |
| C21         | 4.7 35V | 4-4.7H35          | PC5-50                           | VTT4R7B50           | QV1-31           | EV-1619.1    |
| C24         | 10 16V  | 4-10M16           | PC10-25                          | VTT10B25            | QV1-41           | EV-1222      |
| C26         | 100 16V | 4-100M16          | PC100-16                         | VTT100F16           | QV1-95           | EV-1231      |
| C30         | 1 50V   | 4-1M50            | PC1-50                           | VTT1A50             | QV1-11           | EV-1615      |
| C33         | 1 50V   | 4-1M50            | PC1-50                           | VTT1A50             | QV1-11           | EV-1615      |
| C34         | 10 16V  | 4-10M16           | PC10-25                          | VTT10B25            | QV1-41           | EV-1222      |
| C36         | 2.2 25V | 5-2.2M25          |                                  | TDC225M035FL        |                  | SD35-2R29    |
| C37         | 33 16V  | 4-33M16           | PC30-25                          | VTT33D25            | QV1-63           | EV-1325      |
| C41         | 470 16V | 4-470M16          | PC500-16                         | VTT470K16           | QV1-151          | EV-1251      |
| C42         | .22 16V | 5-.22M16-AL       |                                  | TDC224M050EL        | QDT1-10          | SD50-R229    |
| C45         | 47 10V  | 4-47M10           | PC50-16                          | VTT47D16            | QV1-73           | EV-1226      |
| C48         | 33 16V  | 4-33M16           | PC30-25                          | VTT33D25            | QV1-63           | EV-1325      |
|             | 10 16V  | 4-10M16           | PC10-25                          | VTT10B25            | QV1-41           | EV-1222      |
| C49         | 1 50V   | 4-1M50            | PC1-50                           | VTT1A50             | QV1-11           | EV-1615      |
| C50         | 4.7 10V | 5-4.7M10          |                                  | TDC475M010EL        | QDT1-48          | SD10-4R79    |
| C51         | 33 10V  | 4-33M16           | PC30-25                          | VTT33B10            |                  | EV-1225      |
| C54         | 100 10V | 4-100M10          | PC100-10                         | VTT100E10           | QV1-93           | EV-1131      |
| C73         | 4.7 10V | 5-4.7M10          |                                  | TDC475M010EL        | QDT1-48          | SD10-4R79    |
| C74         | 4.7 10V | 5-4.7M10          |                                  | TDC475M010EL        | QDT1-48          | SD10-4R79    |
| C94         | 470 16V | 4-470M16          | PC500-16                         | VTT470K16           | QV1-151          | EV-1251      |
| C96         | 220 10V | 4-220M10          | PC250-10                         | VTT220F10           | QV1-115          | EV-1140      |
| C98         | 470 10V | 4-470M10          | PC500-16                         | VTT470K16           | QV1-151          | EV-1251      |
| C101        | 100 25V | 4-100M25          | PC100-25                         | VTT100G25           | QV1-97           | EV-1331      |
| C119        | 33 10V  | 4-33M10           | PC30-25                          | VTT33B10            |                  | EV-1225      |
| C133        | 10 16V  | 4-10M16           | PC10-25                          | VTT10B25            | QV1-41           | EV-1222      |

SBE MODEL LAND COMMAND LCM-5

CAPACITORS

| ITEM No. | RATING          | MFR. PART No. | REPLACEMENT DATA   |                           |                  |                  |              |
|----------|-----------------|---------------|--------------------|---------------------------|------------------|------------------|--------------|
|          |                 |               | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |                 |               |                    |                           |                  | Q-LINE           | GENERAL LINE |
| C1       | 27 N220 50V 5%  | 1-27P50-KRH   |                    |                           | *                |                  | 10TCR-Q27    |
| C2       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C3       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C4       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C6       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C7       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C8       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C9       | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C10      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C12      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C13      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C14      | 2 50V +.25      | 1-2P50-CSL    |                    |                           | MAG5011          |                  |              |
| C15      | 47 NPO 50V 5%   |               | DTZ-47             | NP047                     | CN0522           |                  | 10TCC-Q47    |
| C16      | .04 50V         |               |                    |                           | CN0447           |                  | 5GA-S40      |
| C17      | 1 50V +.25      | 1-1P50-CSL    |                    |                           | GP140            |                  |              |
| C18      | .039 50V 10%    |               |                    | DPMS6S39                  | M192P3939R8      | QFT2-159         | 1FT-S39      |
| C19      | .04 50V         |               |                    |                           | GP140            |                  | 5GA-S40      |
| C20      | 680 50V 10%     |               | DD-681             | GP680                     | GP368            |                  | 5GA-S40      |
| C22      | .039 50V        |               |                    | DPMS6S39                  | M192P3939R8      | QFT2-159         | 1FT-S39      |
| C23      | .04 50V         |               |                    |                           | GP140            |                  | 5GA-S40      |
| C25      | .04 50V         |               |                    |                           | GP140            |                  | 5GA-S40      |
| C27      | .04 50V         |               |                    |                           | GP140            |                  | 5GA-S40      |
| C28      | .0047 50V       |               | DD-472             | GP4700                    | GP247            |                  | 5GA-D47      |
| C29      | .0047 50V       |               |                    | WMF1D47                   | M192P4729R8      | QFT2-63          | 1FT-D47      |
| C31      | .001 50V        |               |                    | DPMS6D1                   | M192P10292       | QFT2-1           | 1FT-D10      |
| C32      | .0022 50V       |               |                    | DPMS6D22                  | M192P2229R8      | QFT2-27          | 1FT-D22      |
| C35      | .001 50V        |               | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C38      | .022 50V        |               |                    | DPMS2S22                  | M192P2239R8      | QFT2-127         | 1FT-S22      |
| C39      | .1 25V          |               | UK25-104           |                           | MAG2501          |                  | HY-750       |
| C40      | .001 50V        |               |                    | DPMS6D1                   | M192P10292       | QFT2-1           | 1FT-D10      |
| C43      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C44      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C46      | .068 50V        |               |                    | WMF1S68                   | EWFI1A168        | QF1-195          | 1PB-S68      |
| C47      | .0047 50V       |               |                    | WMF1D47                   | M192P4729R8      | QFT2-63          | 1FT-D47      |
| C52      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C53      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C55      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C56      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C57      | 33 N220 50V 5%  |               |                    |                           | MAG5011          |                  |              |
| C58      | 18 50V 5%       |               |                    |                           | *                |                  | 10TCR-Q33    |
|          | 47 N220 50V 5%  |               |                    |                           | CN0418           |                  | 10TCC-Q18    |
| C59      | 33 50V 5%       |               | DTZ-33             | NP033                     | *                |                  | 10TCR-Q47    |
|          | 47 N750 5%      |               | DTN-47             | N47                       | CN0433           |                  | 10TCC-Q33    |
| C60      | 10 N220 50V 5%  | 1-10P50-DRH   |                    |                           | CN7447           |                  | 10TCU-Q47    |
| C61      | 150 N220 50V 5% | 1-150P50-KRH  |                    |                           | *                |                  | 10TCR-Q10    |
| C62      | 100 50V 5%      |               | DTZ-100            | NP0100                    | *                |                  | 10TCR-T15    |
| C63      | 5 50V +.25      | 1-5P50-CSL    |                    |                           | CN0310           |                  | 10TCC-T10    |
| C64      | .01 50V         |               | UK50-103           |                           | GP550            |                  |              |
| C65      | .01 50V         |               | UK50-103           |                           | MAG5011          |                  |              |
| C66      | 150 N220 50V 5% | 1-150P50-KRH  |                    |                           | MAG5011          |                  |              |
| C67      | 47 N220 50V 5%  | 1-47P50-KRH   |                    |                           | *                |                  | 10TCR-T15    |
| C68      | 220 N220 50V 5% | 1-220P50-KRH  |                    |                           | *                |                  | 10TCR-Q47    |
| C69      | 560 50V 5%      |               | DD-561             |                           | *                |                  | 10TCR-T22    |
| C70      | .01 50V         |               | UK50-103           |                           | GP356            |                  | 10TS-T56     |
| C71      | 22 50V 5%       |               | DTZ-22             | NP022                     | MAG5011          |                  |              |
| C72      | .047 50V        |               |                    | DPMS2S47                  | CN0422           |                  | 10TCC-Q22    |
| C75      | .022 50V        |               |                    | DPMS2S22                  | M192P4739R8      | QFT2-171         | 1FT-S47      |
|          | .047 50V        |               |                    | DPMS2S22                  | M192P2239R8      | QFT2-127         | 1FT-S22      |
| C76      | 180 50V 5%      |               | DTZ-180            | DPMS2S47                  | M192P4739R8      | QFT2-171         | 1FT-S47      |
| C77      | .01 50V         | UK50-103      | UK50-103           |                           |                  |                  | 10TCC-T18    |
|          |                 |               |                    |                           | MAG5011          |                  |              |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

ELECTROLYTIC CAPACITORS

| ITEM No. | RATING  | REPLACEMENT DATA |                           |                  |                  |              |
|----------|---------|------------------|---------------------------|------------------|------------------|--------------|
|          |         | MFRG. PART No.   | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |         |                  |                           |                  | Q-LINE           | GENERAL LINE |
| C5       | 10 10V  | 5-10M10          |                           | TDC106M025FL     | QDT1-64          | SD25-109     |
| C11      | 33 16V  | 4-33M16          | PC30-25                   | VTT33D25         | QV1-63           | EV-1325      |
| C16      | 1 50V   | 4-1M50           | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |
| C21      | 4.7 35V | 4-4.7M35         | PC5-50                    | VTT47R850        | QV1-31           | EV-1619.1    |
| C24      | 10 16V  | 4-10M16          | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C26      | 100 16V | 4-100M16         | PC100-16                  | VTT100F16        | QV1-95           | EV-1231      |
| C30      | 1 50V   | 4-1M50           | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |
| C33      | 1 50V   | 4-1M50           | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |
| C34      | 10 16V  | 4-10M16          | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C36      | 2.2 25V | 5-2.2M25         |                           | TDC225M035FL     |                  | SD35-2R29    |
| C37      | 33 16V  | 4-33M16          | PC30-25                   | VTT33D25         | QV1-63           | EV-1325      |
| C41      | 470 16V | 4-470M16         | PC500-16                  | VTT470K16        | QV1-151          | EV-1251      |
| C42      | .22 16V | 5-.22M16-AL      |                           | TDC224M050EL     | QDT1-10          | SD50-R229    |
| C45      | 47 10V  | 4-47M10          | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C48      | 33 16V  | 4-33M16          | PC30-25                   | VTT33D25         | QV1-63           | EV-1325      |
|          | 10 16V  | 4-10M16          | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
|          |         | 4-1M50           | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |
| C49      | 1 50V   | 5-4.7M10         |                           | TDC475M010EL     | QDT1-48          | SD10-4R79    |
| C50      | 4.7 10V | 4-33M16          | PC30-25                   | VTT33B10         |                  | EV-1225      |
| C51      | 33 10V  | 4-100M10         | PC100-10                  | VTT100E10        | QV1-93           | EV-1131      |
| C54      | 100 10V | 5-4.7M10         |                           | TDC475M010EL     | QDT1-48          | SD10-4R79    |
| C73      | 4.7 10V | 5-4.7M10         |                           | TDC475M010EL     | QDT1-48          | SD10-4R79    |
| C74      | 4.7 10V | 5-4.7M10         |                           | VTT470K16        | QV1-151          | EV-1251      |
| C94      | 470 16V | 4-470M16         | PC500-16                  | VTT220F10        | QV1-115          | EV-1140      |
| C96      | 220 10V | 4-220M10         | PC250-10                  | VTT470K16        | QV1-151          | EV-1251      |
| C98      | 470 10V | 4-470M10         | PC500-16                  | VTT100G25        | QV1-97           | EV-1331      |
| C101     | 100 25V | 4-100M25         | PC100-25                  | VTT33B10         |                  | EV-1225      |
| C119     | 33 10V  | 4-33M10          | PC30-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C133     | 10 16V  | 4-10M16          | PC10-25                   |                  |                  |              |

CAPACITORS

| ITEM No. | RATING          | MFRG. PART No. | REPLACEMENT DATA   |                           |                  |                  |              |
|----------|-----------------|----------------|--------------------|---------------------------|------------------|------------------|--------------|
|          |                 |                | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |                 |                |                    |                           |                  | Q-LINE           | GENERAL LINE |
| C1       | 27 N220 50V 5%  | 1-27P50-KRH    |                    |                           | *                |                  | 10TCR-Q27    |
| C2       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C3       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C4       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C6       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C7       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C8       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C9       | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C10      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C12      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C13      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C14      | 2 50V +.25      |                | UK50-103           |                           | MAG5011          |                  |              |
| C15      | 47 NP0 50V 5%   | 1-2P50-CSL     | DTZ-47             | NP047                     | CN0522           |                  | 10TCC-Q47    |
| C16      | .04 50V         |                |                    |                           | CN0447           |                  | 5GA-S40      |
| C17      | 1 50V +.25      |                |                    |                           | GP140            |                  |              |
| C18      | .039 50V 10%    | 1-1P50-CSL     |                    | DPMS6S39                  | CN0510           | QFT2-159         |              |
| C19      | .04 50V         |                |                    |                           | M192P3939R8      |                  | 1FT-S39      |
| C20      | 680 50V 10%     |                | DD-681             | GP680                     | GP140            |                  | 5GA-S40      |
| C22      | .039 50V        |                |                    | DPMS6S39                  | GP368            | QFT2-159         | 10TS-T68     |
| C23      | .04 50V         |                |                    |                           | M192P3939R8      |                  | 1FT-S39      |
| C25      | .04 50V         |                |                    |                           | GP140            |                  | 5GA-S40      |
| C27      | .04 50V         |                |                    |                           | GP140            |                  | 5GA-S40      |
| C28      | .0047 50V       |                | DD-472             | GP4700                    | GP247            |                  | 5GA-S40      |
| C29      | .0047 50V       |                |                    | WMF1D47                   | M192P4729R8      | QFT2-63          | 1FT-D47      |
| C31      | .001 50V        |                |                    | DPMS6D1                   | M192P10292       | QFT2-1           | 1FT-D10      |
| C32      | .0022 50V       |                |                    | DPMS6D22                  | M192P2229R8      | QFT2-27          | 1FT-D22      |
| C35      | .001 50V        |                | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C38      | .022 50V        |                |                    |                           | M192P2239R8      | QFT2-127         | 1FT-S22      |
| C39      | .1 25V          |                | UK25-104           | DPMS2S22                  | MAG2501          |                  | HY-750       |
| C40      | .001 50V        |                |                    |                           | M192P10292       | QFT2-1           | 1FT-D10      |
| C43      | .01 50V         |                | UK50-103           | DPMS6D1                   | MAG5011          |                  |              |
| C44      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C46      | .068 50V        |                |                    | WMF1S68                   | MAG5011          | QF1-195          | 1PB-S68      |
| C47      | .0047 50V       |                |                    | WMF1D47                   | EWFI1A168        | QFT2-63          | 1FT-D47      |
| C52      | .01 50V         |                | UK50-103           |                           | M192P4729R8      |                  |              |
| C53      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C55      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C56      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C57      | 33 N220 50V 5%  |                |                    |                           | MAG5011          |                  |              |
| C58      | 18 50V 5%       |                |                    |                           | *                |                  | 10TCR-Q33    |
|          | 47 N220 50V 5%  |                |                    |                           | CN0418           |                  | 10TCC-Q18    |
|          | 33 50V 5%       |                | DTZ-33             | NP033                     | *                |                  | 10TCR-Q47    |
|          | 47 N750 5%      |                | DTN-47             | N47                       | CN0433           |                  | 10TCC-Q33    |
| C59      | 10 N220 50V 5%  | 1-10P50-DRH    |                    |                           | CN7447           |                  | 10TCU-Q47    |
| C61      | 150 N220 50V 5% | 1-150P50-KRH   |                    |                           | *                |                  | 10TCR-Q10    |
| C62      | 100 50V 5%      |                |                    |                           | *                |                  | 10TCR-T15    |
| C63      | 5 50V +.25      | 1-5P50-CSL     | DTZ-100            | NP0100                    | CN0310           |                  | 10TCC-T10    |
| C64      | .01 50V         |                | UK50-103           |                           | GP550            |                  |              |
| C65      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  |              |
| C66      | 150 N220 50V 5% | 1-150P50-KRH   |                    |                           | MAG5011          |                  |              |
| C67      | 47 N220 50V 5%  | 1-47P50-KRH    |                    |                           | *                | 10TCR-T15        |              |
| C68      | 220 N220 50V 5% | 1-220P50-KRH   |                    |                           | *                | 10TCR-Q47        |              |
| C69      | 560 50V 5%      |                |                    |                           | *                | 10TCR-T22        |              |
| C70      | .01 50V         |                | DD-561             |                           | GP356            |                  | 10TS-T56     |
| C71      | 22 50V 5%       |                | UK50-103           |                           | MAG5011          |                  |              |
| C72      | .047 50V        |                | DTZ-22             | NP022                     | CN0422           | QFT2-171         | 10TCC-Q22    |
| C75      | .022 50V        |                |                    | DPMS2S47                  | M192P4739R8      | 1FT-S47          |              |
|          | .047 50V        |                |                    | DPMS2S22                  | M192P2239R8      | QFT2-127         |              |
|          |                 |                |                    | DPMS2S47                  | M192P4739R8      | QFT2-171         |              |
| C76      | 180 50V 5%      |                | DTZ-180            |                           |                  |                  | 1FT-S47      |
| C77      | .01 50V         |                | UK50-103           |                           | MAG5011          |                  | 10TCC-T18    |

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS (cont)

| ITEM No. | RATING      | MFRG. PART No. | REPLACEMENT DATA   |                           |                  |                  |              |
|----------|-------------|----------------|--------------------|---------------------------|------------------|------------------|--------------|
|          |             |                | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |             |                |                    |                           |                  | Q-LINE           | GENERAL LINE |
| C78      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C79      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C80      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C81      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C82      | 33 50V 5%   |                | DTZ-33             | NP033                     | CN0433           |                  | 10TCC-Q33    |
| C83      | 220 50V 5%  |                | DTZ-220            |                           |                  |                  | 10TCC-T22    |
| C85      | .04 50V     |                |                    |                           |                  |                  | 5GA-S40      |
| C86      | 56 50V 5%   |                |                    |                           | GP140            |                  | 10TCC-Q56    |
| C87      | .01 50V     |                |                    |                           | CN0456           |                  |              |
| C88      | 330 50V 10% |                | UK50-103           | GP330                     | MAG5011          |                  |              |
| C89      | 330 50V 10% |                | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C90      | 56 50V 5%   |                |                    |                           | GP333            |                  | 10TS-133     |
| C91      | 56 50V 10%  |                |                    |                           | CN0456           |                  | 10TCC-Q56    |
| C92      | 3 50V +.25  |                |                    |                           | CN0456           |                  | 10TCC-Q56    |
| C93      | .04 50V     |                |                    |                           | CN0533           |                  |              |
| C95      | .01 50V     |                | UK50-103           |                           | GP140            |                  | 5GA-S40      |
| C97      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C99      | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C100     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C102     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C103     | .001 50V    |                | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C104     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C105     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C106     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C107     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C108     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C109     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C110     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C111     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C112     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C113     | .001 50V    |                | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C114     | .001 50V    |                | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C115     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C116     | .1 50V      |                |                    |                           | EWFO5010         |                  |              |
| C117     | 82 50V 5%   |                | DTZ-82             | WMFO5P1                   |                  |                  | 431P1049R5   |
| C118     | 10 50V 10%  |                | DTZ-10             | NP082                     | CN0482           |                  | 10TCC-Q82    |
| C120     | .01 50V     |                | UK50-103           | NP010                     | CN0410           |                  | 10TCC-Q10    |
| C121     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C122     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C123     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C124     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C125     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C126     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C127     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C129     | .001 50V    |                | DD-102             |                           | GP210            |                  | 10TS-D10     |
| C130     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C131     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C132     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C134     | 330 50V 10% |                | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C135     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C136     | 56 50V 5%   |                |                    |                           | CN0456           |                  | 10TCC-Q56    |
| C137     | .01 50V     |                | UK50-103           | GP330                     | MAG5011          |                  |              |
| C140     | 330 50V 10% |                | DD-331             |                           | GP333            |                  | 10TS-T33     |
| C141     | .01 50V     |                | UK50-103           |                           | MAG5011          |                  |              |
| C151     | 3 50V +.25  | 1-3P50-CSL     |                    |                           | CN0533           |                  |              |

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

| ITEM No. | FUNCTION            | RESIST-ANCE | REPLACEMENT DATA |                    |                  |              |
|----------|---------------------|-------------|------------------|--------------------|------------------|--------------|
|          |                     |             | MFRG. PART No.   | CENTRALAB PART No. | MALLORY PART No. | TRW PART No. |
| VR1      | Volume/Power Switch | 50K         | 61-50K-11        |                    |                  |              |
| VR2      | Squelch             | 50K         | 60-50K-10        |                    |                  |              |
| VR3      | T. Squelch          | 50K         | 64-50K-5         |                    |                  | U260R5038    |
| VR4      | Sig                 | 20K         | 65-20K-5         |                    |                  | U260R2538    |
| VR5      | Power               | 50K         | 64-50K-5         |                    |                  | U260R5038    |
| VR6      | AMC                 | 20K         | 65-20K-5         |                    |                  | U260R2538    |
| VR7      | RF Gain             | 300         | 65-300-1         |                    |                  | U260R5018    |
| VR8      | RF Gain             | 10K         | 60-10K-23        |                    |                  |              |

## PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

### COILS (RF-IF)

| ITEM No. | FUNCTION              | REPLACEMENT DATA |                      |                 | REMARKS |
|----------|-----------------------|------------------|----------------------|-----------------|---------|
|          |                       | PART No.         | OTHER IDENTIFICATION | MILLER PART No. |         |
| L1       | Rec RF (27MHz)        | 44-571           | LLAY279001           |                 |         |
| L2       | Rec Amp (27MHz)       | 44-572           | LLAY280001           |                 |         |
| L3       | VCO (16.270MHz)       | 44-576           | LLBY118001           |                 |         |
| L4       | Mixer (10.695MHz)     | 44-577           | LLBY119001           |                 |         |
| L5       | RF Choke (10uH)       | 33-10B           | LLZY002013           |                 |         |
| L6       | IF Filter (455kHz)    | 44-573           | LLAY281001           |                 |         |
| L7       | IF Amp (455kHz)       | 44-568           | LLAY204001           |                 |         |
| L8       | IF Amp (455kHz)       | 44-569           | LLAY207001           |                 |         |
| L9       | PLL                   | 44-574           | LLAY282001           |                 |         |
| L10      | XMT Mixer (27MHz)     | 44-575           | LLAY283001           |                 |         |
| L11      | Predriver (27MHz)     | 44-570           | LLAY208001           |                 |         |
| L12      | Driver (27MHz)        | 44-578           | LLCY018001           | CB304           |         |
| L13      | RF Choke (4.7uH)      | 33-4, 7B         | LLZY002009           |                 |         |
| L14      | RF Choke              | 44-579           | LLDY012001           | 4588            |         |
| L15      | Loading Final (27MHz) | 44-578           | LLCY018001           | CB304           |         |
| L16      | Pi Filter             | 44-560           | LLEY088001           |                 |         |
| L17      | Antenna Matching      | 44-561           | LLEY089001           |                 |         |
| L18      | 54MHz Trap            | 44-578           | LLCY018001           | CB304           |         |

### FILTER CHOKE

| ITEM No. | RATINGS            |         |                              | REPLACEMENT DATA              |                     |                | NOTES               |
|----------|--------------------|---------|------------------------------|-------------------------------|---------------------|----------------|---------------------|
|          | CURRENT (Measured) | DC RES. | INDUCTANCE (0 CURRENT 1000~) | MFGR. PART No.                | THORDARSON PART No. | TRIAD PART No. |                     |
| T2       | 1.05A              | .14     | .85mH                        | 44-567<br>TF-017<br>TF-083(1) | TR507               |                | (1) Number on unit. |

### TRANSFORMER (Audio Output)

| ITEM No. | IMPEDANCE |               | REPLACEMENT DATA              |                     |                | NOTES               |
|----------|-----------|---------------|-------------------------------|---------------------|----------------|---------------------|
|          | PRI.      | SEC.          | MFGR. PART No.                | THORDARSON PART No. | TRIAD PART No. |                     |
| T1       | 20.5      | 1 8<br>2 10.5 | 44-566<br>TF-120<br>TF-129(1) |                     |                | (1) Number on unit. |

### SPEAKER

| ITEM No. | TYPE           | REPLACEMENT DATA |               | NOTES |
|----------|----------------|------------------|---------------|-------|
|          |                | MFGR. PART No.   | QUAM PART No. |       |
| SP1      | 3" PM, 16 Ohms | 8-65-001         | 30A05Z16      |       |

### FUSE DEVICES

| ITEM No. | DESCRIPTION     | REPLACEMENT DATA |        |               |        |                     |        |                  |
|----------|-----------------|------------------|--------|---------------|--------|---------------------|--------|------------------|
|          |                 | PART No.         |        | BUSS PART No. |        | LITTELFUSE PART No. |        | WORKMAN PART No. |
|          |                 | DEVICE           | HOLDER | DEVICE        | HOLDER | DEVICE              | HOLDER | DEVICE           |
| F1       | 2A Quick Acting | 99-2             |        | AGC2          | HDJ    | 312002              | 150145 | FG2-2            |

SBE MODEL LAND COMMAND LCM-5

## PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

### MICROPHONE

| ITEM No. | REPLACEMENT DATA |             |                 |          | CONNECTION DATA |        |           |           |         |          |          |
|----------|------------------|-------------|-----------------|----------|-----------------|--------|-----------|-----------|---------|----------|----------|
|          | MFGR. PART No.   | GC PART No. | GC NOISE CANCEL | GC POWER | GC CONNECTOR    | GC Red | GC Shield | GC Yellow | GC Blue | GC White | GC Black |
| MIC      | 8-65-002         | 18-032      | 18-034          | 18-010   | 18-092          | 2      | 1         | 3         | 4       | NC       | 1        |

### MISCELLANEOUS

| ITEM No. | PART NAME    | PART No. | NOTES                                        |
|----------|--------------|----------|----------------------------------------------|
| D18      | LED          | 22-2-18  | Channel Readout (1.92V @ 5.5mA Each Segment) |
| D19      | LED          | 22-2-21  | TX Indicator (1.93V @ 5.6mA)                 |
| D20      | LED          | 22-2-20  | Rec Indicator (1.93V @ 5.6mA)                |
| FL1      | Filter       | 55-1-26  | Mixer (10.7MHz)                              |
| FL2      | Filter       | 55-1-27  | IF (455kHz)                                  |
| J1       | Jack         | 8-66-003 | Antenna                                      |
| J2       | Jack         | 8-4-070  | Microphone                                   |
| J3       | Jack         | 8-63-006 | PA Speaker                                   |
| J4       | Jack         | 8-63-006 | External Speaker                             |
| J5       | Jack         | 8-63-005 | DC Power                                     |
| L19      | Ferrite Bead | 44-562   |                                              |
| L20      | Ferrite Bead | 44-563   |                                              |
| M1       | Meter        | 8-63-002 | SIG/TX POWER                                 |
| P2       | Plug         |          | Microphone                                   |
| P5       | Plug         |          | DC Power                                     |
| PL1      | Lamp         |          | Meter (12.01V @ 36mA)                        |
| S1       | Switch       |          | Power, On/Off (Part of Volume Control)       |
| S2       | Switch       | 88-4-30  | ANL, On/Off                                  |
| S3       | Switch       | 88-4-30  | PA, On/Off                                   |
| S4       | Switch       | 88-1-43  | Channel Selector                             |
| S5       | Switch       | 88-4-30  | BRT/DIM                                      |
| X-1      | Crystal      | 50-2-62  | 10.24MHz                                     |
|          | Cord         | 8-65-003 | DC Power                                     |
|          | P.C. Board   | 8-65-021 | Main                                         |
|          | P.C. Board   | 8-65-022 | Channel Switch                               |
|          | P.C. Board   | 8-65-023 | LED                                          |
|          | P.C. Board   | 8-65-024 | Microphone Jack                              |
|          | P.C. Board   | 8-65-025 | Switch                                       |

### CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

| ITEM                  | PART No. | ITEM                           | PART No. |
|-----------------------|----------|--------------------------------|----------|
| Cover, Bottom         | 8-65-005 | Knob, Channel Selector         | 8-63-019 |
| Cover, Top            | 8-65-004 | Knob, Control                  | 8-65-009 |
| Lens, Channel Display | 8-65-013 | Knob, Push-button (3 Required) | 8-64-037 |
| Panel, Front          | 8-65-008 |                                |          |

| CHANNEL | CENTER<br>FREQUENCY | LOWER<br>FREQUENCY LIMIT | UPPER<br>FREQUENCY LIMIT |
|---------|---------------------|--------------------------|--------------------------|
| 1       | 26.965000           | 26.963651 to 26.966348   |                          |
| 2       | 26.975000           | 26.973651 to 26.976348   |                          |
| 3       | 26.985000           | 26.983650 to 26.986349   |                          |
| 4       | 27.005000           | 27.003649 to 27.006350   |                          |
| 5       | 27.015000           | 27.013649 to 27.016350   |                          |
| 6       | 27.025000           | 27.023648 to 27.026351   |                          |
| 7       | 27.035000           | 27.033648 to 27.036351   |                          |
| 8       | 27.055000           | 27.053647 to 27.056352   |                          |
| 9       | 27.065000           | 27.063646 to 27.066353   |                          |
| 10      | 27.075000           | 27.073646 to 27.076353   |                          |
| 11      | 27.085000           | 27.083645 to 27.086354   |                          |
| 12      | 27.105000           | 27.103644 to 27.106355   |                          |
| 13      | 27.115000           | 27.113644 to 27.116355   |                          |
| 14      | 27.125000           | 27.123643 to 27.126356   |                          |
| 15      | 27.135000           | 27.133643 to 27.136356   |                          |
| 16      | 27.155000           | 27.153642 to 27.156357   |                          |
| 17      | 27.165000           | 27.163641 to 27.166358   |                          |
| 18      | 27.175000           | 27.173641 to 27.176358   |                          |
| 19      | 27.185000           | 27.183640 to 27.186359   |                          |
| 20      | 27.205000           | 27.203639 to 27.206360   |                          |
| 21      | 27.215000           | 27.213639 to 27.216360   |                          |
| 22      | 27.225000           | 27.223638 to 27.226361   |                          |
| 23      | 27.255000           | 27.253637 to 27.256362   |                          |
| 24      | 27.235000           | 27.233638 to 27.236361   |                          |
| 25      | 27.245000           | 27.243637 to 27.246362   |                          |
| 26      | 27.265000           | 27.263636 to 27.266363   |                          |
| 27      | 27.275000           | 27.273636 to 27.276363   |                          |
| 28      | 27.285000           | 27.283635 to 27.286364   |                          |
| 29      | 27.295000           | 27.293635 to 27.296364   |                          |
| 30      | 27.305000           | 27.303634 to 27.306365   |                          |
| 31      | 27.315000           | 27.313634 to 27.316365   |                          |
| 32      | 27.325000           | 27.323633 to 27.326366   |                          |
| 33      | 27.335000           | 27.333633 to 27.336366   |                          |
| 34      | 27.345000           | 27.343632 to 27.346367   |                          |
| 35      | 27.355000           | 27.353632 to 27.356367   |                          |
| 36      | 27.365000           | 27.363631 to 27.366368   |                          |
| 37      | 27.375000           | 27.373631 to 27.376368   |                          |
| 38      | 27.385000           | 27.383630 to 27.386369   |                          |
| 39      | 27.395000           | 27.393630 to 27.396369   |                          |
| 40      | 27.405000           | 27.403629 to 27.406370   |                          |