

# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index

## NOTE

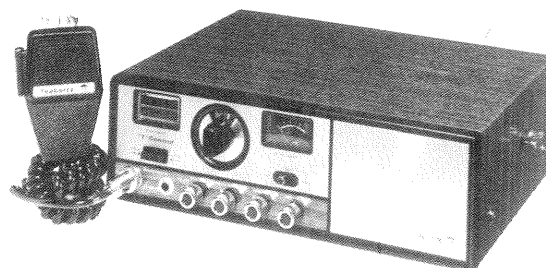
Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(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 "T" Control

## ALIGNMENT INSTRUCTIONS

|                                  |                 |
|----------------------------------|-----------------|
| Suggested Alignment Tools:       | GC ELECTRONICS: |
| L101, L102, L901 thru L909 ..... | 9440            |
| L914, L915 .....                 | 9300            |
| T301 thru T305 .....             | 5000, 8290      |

TEABERRY MODEL "T" CONTROL

## RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil.  
Adjustments made with 14-volt DC input.  
Adjust volume control to obtain suitable reading.

| SIGNAL GENERATOR                                          | GEN FREQ                                           | CHANNEL | ADJUST                                          | REMARKS                                                                                                                  |
|-----------------------------------------------------------|----------------------------------------------------|---------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| High side thru .01uF to antenna jack, low side to ground. | 455kHz,<br>1000Hz @ 30% modulation.                | Any     | T305, T304, T303                                | Disable ANL and squelch. Delta tune to "0". Set generator output low enough to prevent AGC limiting. Adjust for maximum. |
| High side thru .01uF to antenna jack, low side to ground. | 27.115MHz,<br>1000Hz @ 30% modulation, output 1uV. | 13      | L101, L102, L901, L902, L903, L904, T301, T302. | Adjust for maximum.                                                                                                      |

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

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## RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF Wattmeter across speaker voice coil.  
These adjustments made with 14-volt DC input.  
Adjust volume control to obtain a suitable reading.

| SIGNAL GENERATOR                                                                 | GEN FREQ                                                   | CHANNEL | ADJUST | REMARKS                                                                           |
|----------------------------------------------------------------------------------|------------------------------------------------------------|---------|--------|-----------------------------------------------------------------------------------|
| AGC<br>VTVM to TP1 and ground.                                                   | 27.115MHz,<br>1000Hz @ 30%<br>modulation,<br>output 0uV.   | 13      | VR301  | Adjust for 1.60V at TP1.                                                          |
| SQUELCH RANGE<br>High side thru .01uF<br>to antenna jack, low<br>side to ground. | 27.115MHz,<br>1000Hz @ 30%<br>modulation,<br>output 400uV. | 13      | VR501  | Set squelch control fully<br>clockwise.<br>Adjust so that squelch just<br>breaks. |
| S METER                                                                          | 27.115MHz,<br>1000Hz @ 30%<br>modulation,<br>0uV.          | 13      | VR503  | Adjust for zero reading on S<br>meter.                                            |
|                                                                                  | 200uV                                                      | 13      | VR504  | Adjust for S9 on S meter.                                                         |

## TRANSMITTER

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.  
Adjustments made with 14-volt DC input.

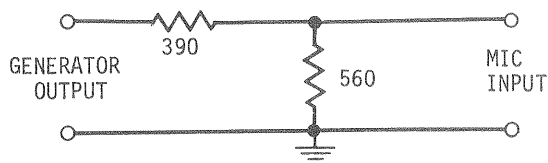
| INDICATOR                                                       | ADJUST                                          | REMARKS                                                                                  |
|-----------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------|
| MIXER, BUFFER, DRIVER, FINAL<br>RF Wattmeter                    | L905,L906,<br>L907,L908,<br>L909,C954,<br>L914. | Channel selector to Ch. 13. Key transmitter.<br>Adjust for maximum.                      |
| TVI TRAP<br>TV (Ch. 2)                                          | L915                                            | Key transmitter. Adjust for MINIMUM<br>interference on TV.                               |
| FINAL INPUT POWER<br>Insert a 0-2000 DC milliammeter<br>at TP4. | L914                                            | Adjust for 5 watts (Max.).                                                               |
| AC CHECK                                                        |                                                 | Switch set to 115V AC.<br>Make sure final input power does <u>not</u> exceed<br>5 watts. |

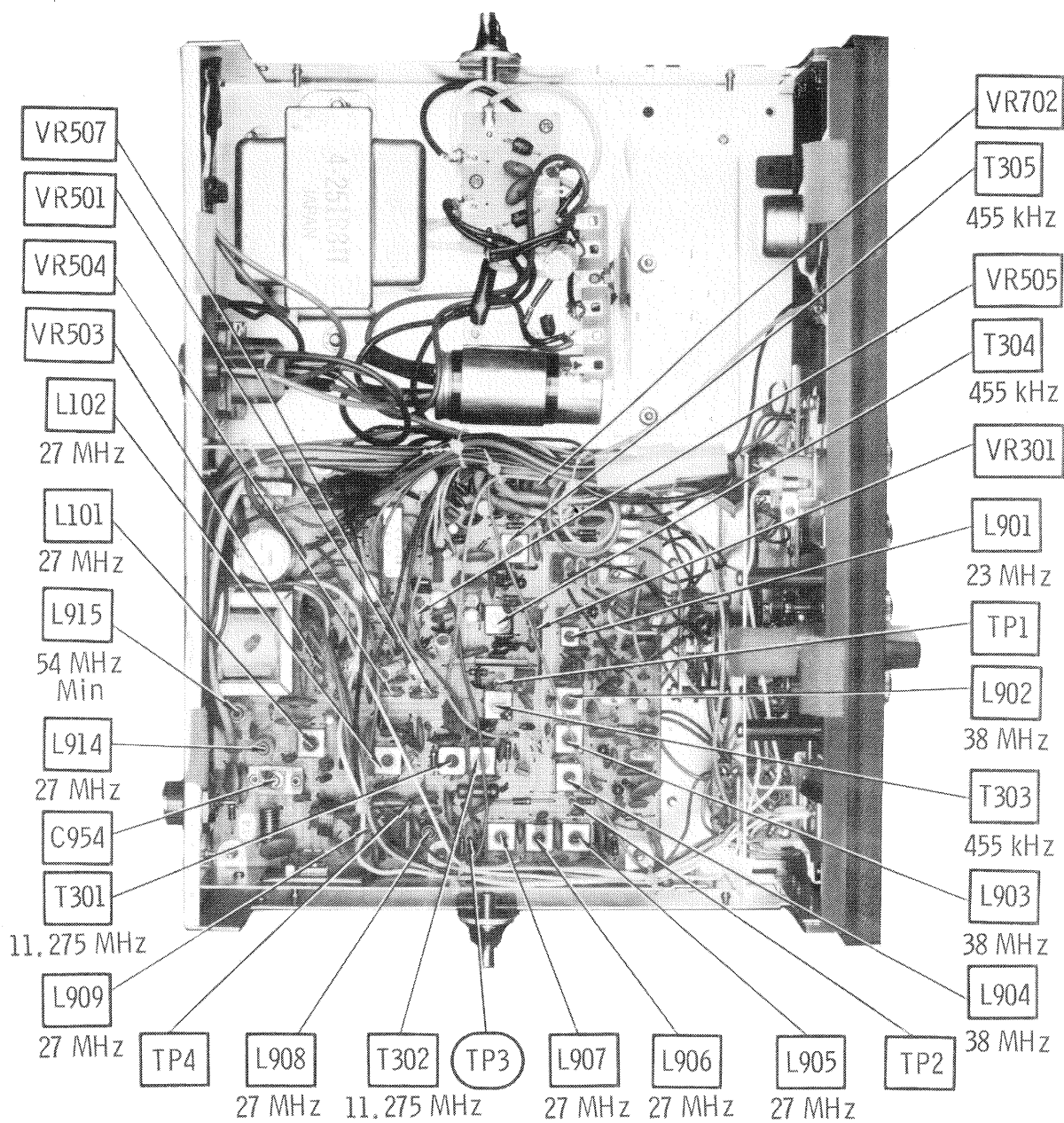
## TRANSMITTER ADJUSTMENTS

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.  
Adjustments made with 14-volt DC input.

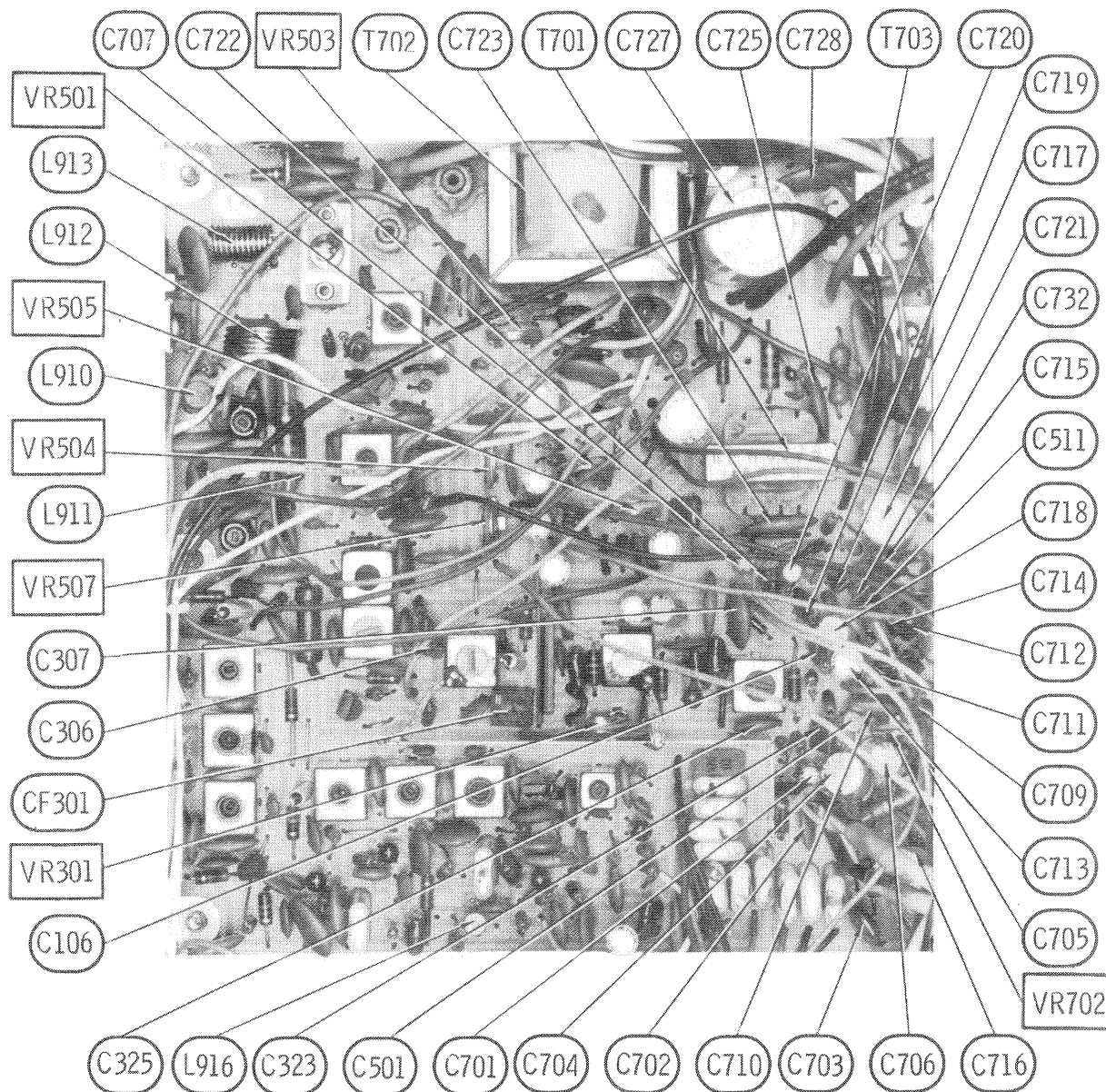
| INDICATOR                                                | ADJUST          | REMARKS                                                                                                                                                                                  |
|----------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AMC<br>Modulation meter<br>connected to antenna<br>jack. | VR702,<br>VR505 | Adjust VR702 to mechanical center. Inject a 1000Hz,<br>200mV audio signal at mic input using FIG. 1<br>Key transmitter. Adjust VR505 for 80% modulation maximum<br>(MINIMUM distortion). |
| RF PANEL METER<br>RF Wattmeter                           | VR507           | Key transmitter. Adjust so that panel RF meter agrees<br>with RF wattmeter.                                                                                                              |

FIG. 1



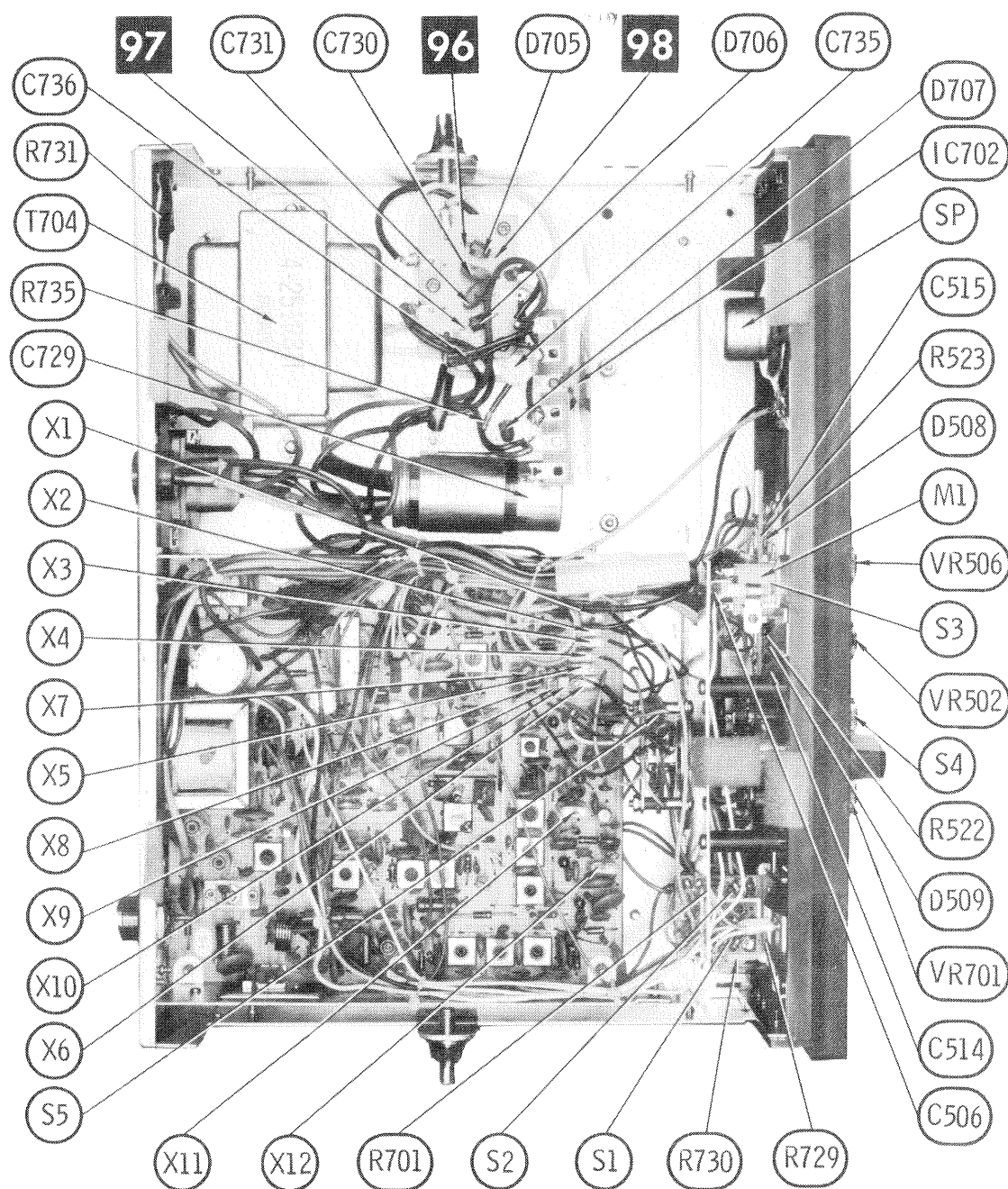


CHASSIS - TOP



MAIN BOARD

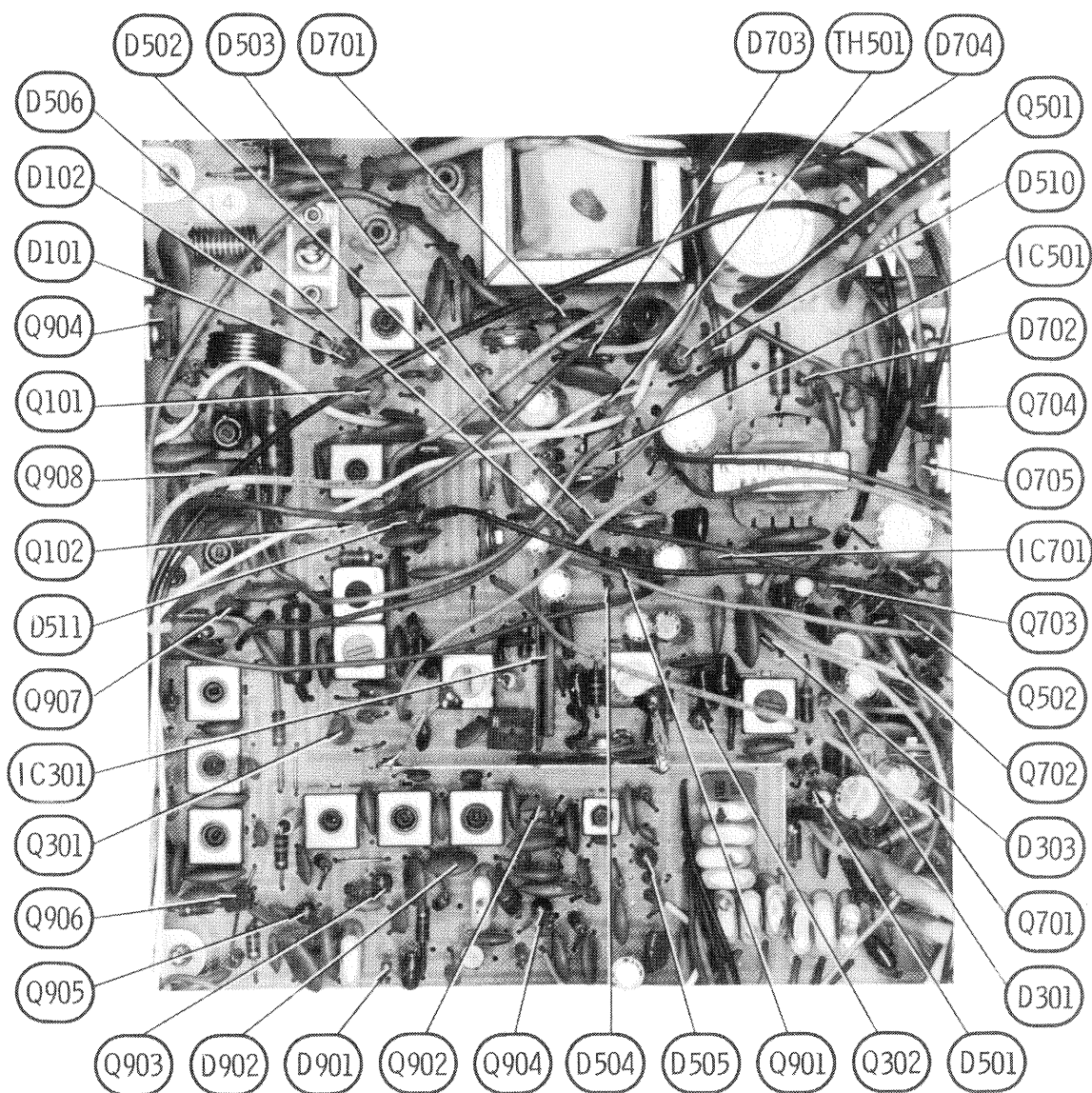




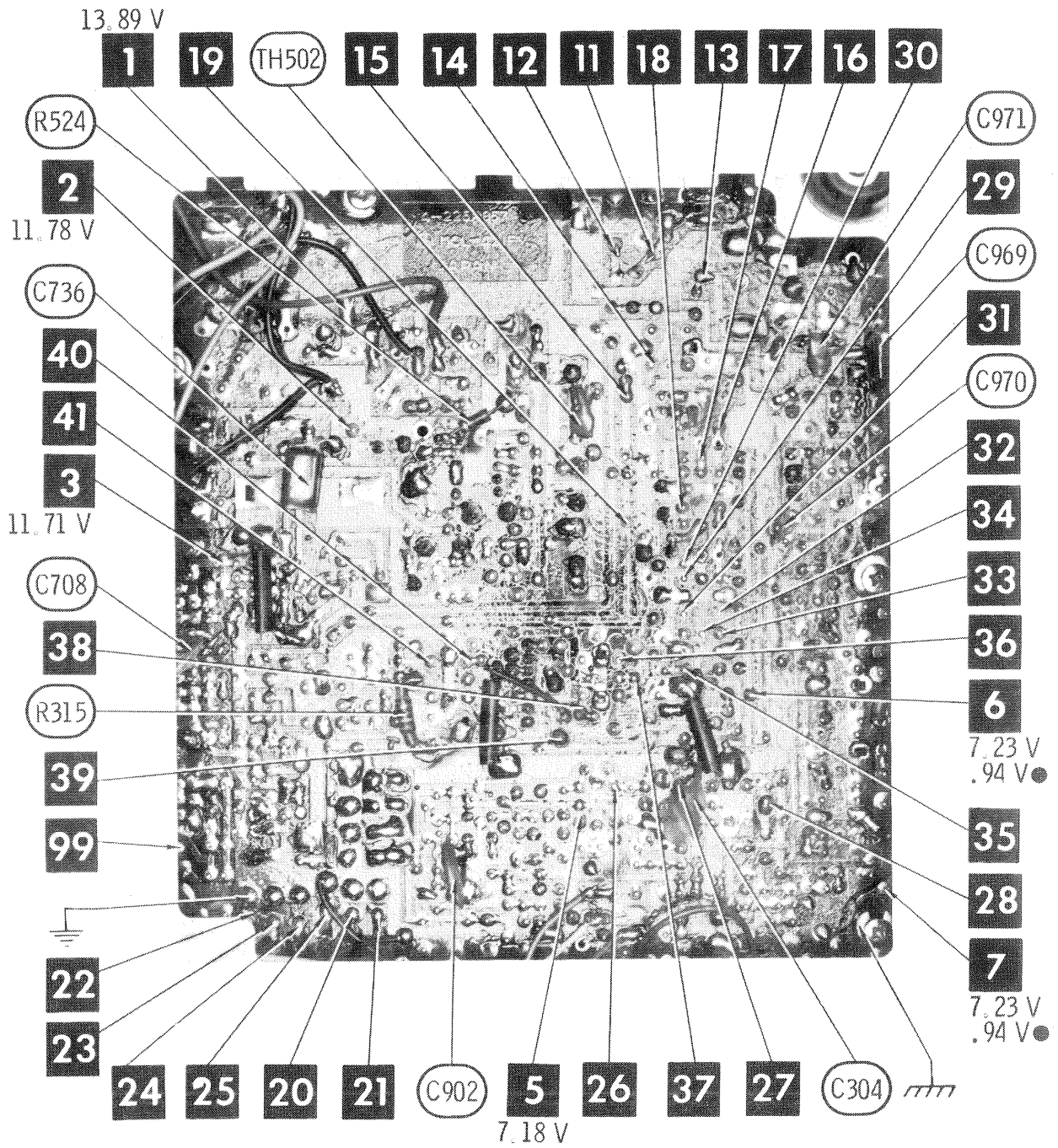
TEABERRY MODEL "T" CONTROL

CHASSIS - TOP





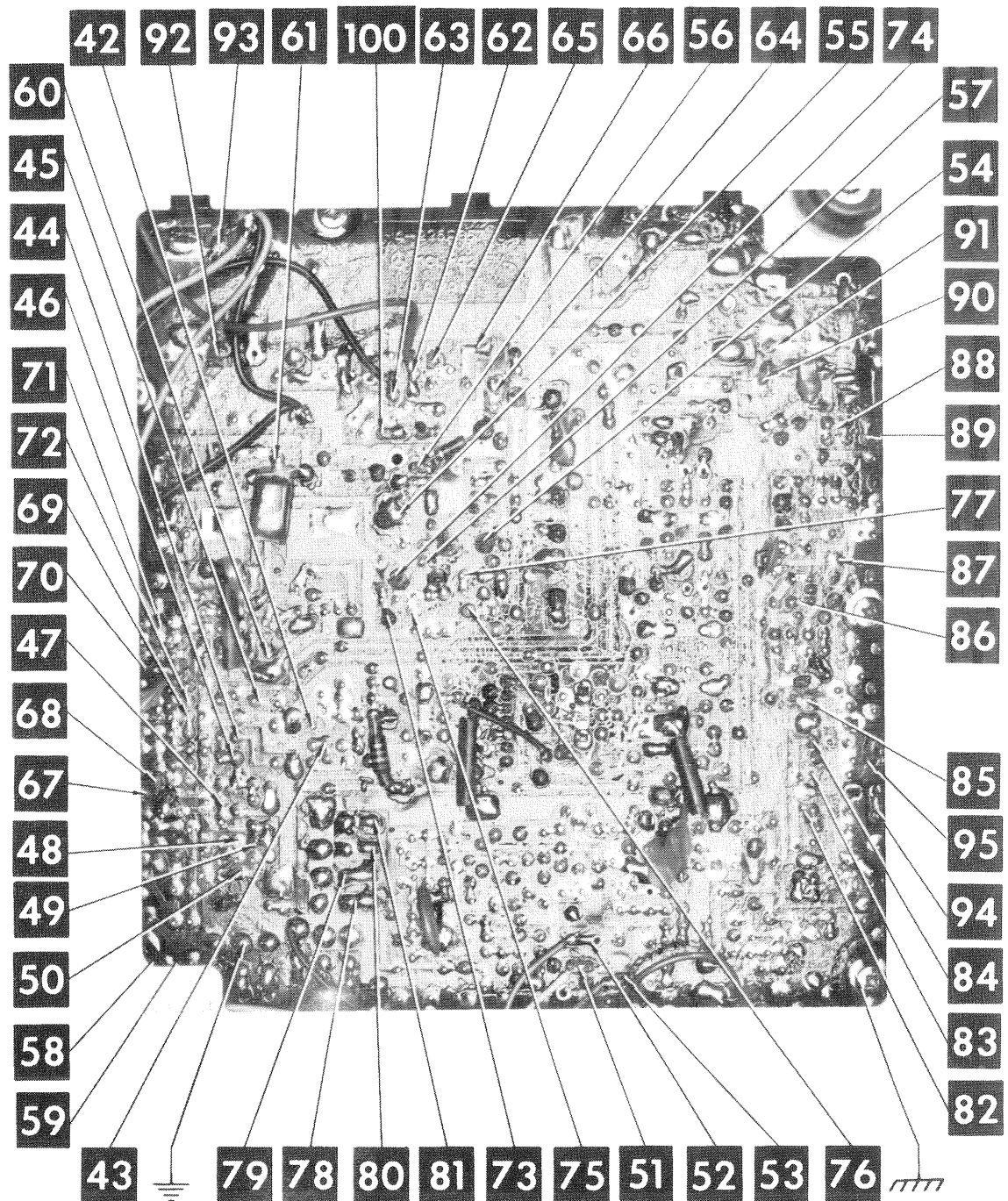
MAIN BOARD



●Transmit

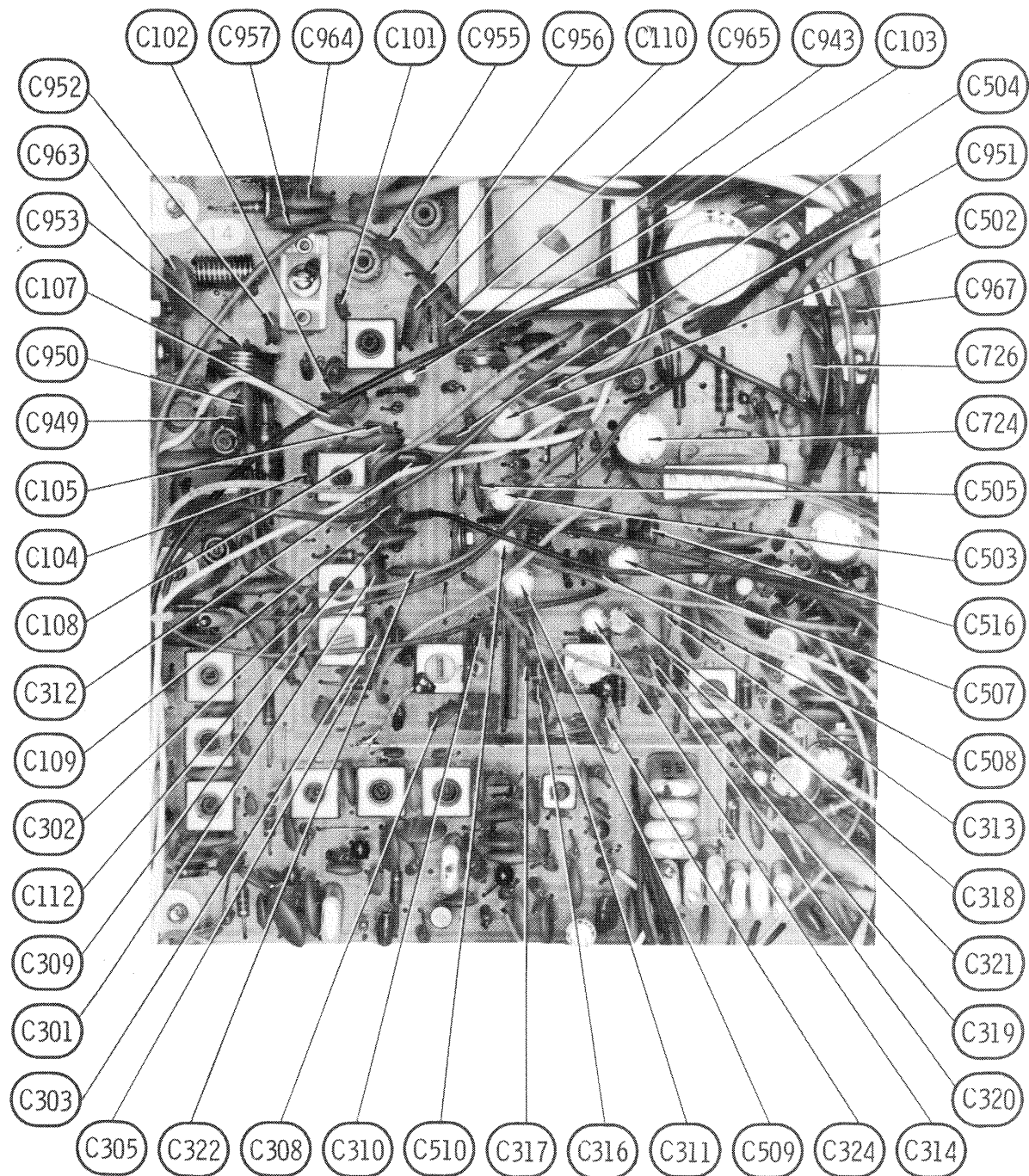
## MAIN BOARD





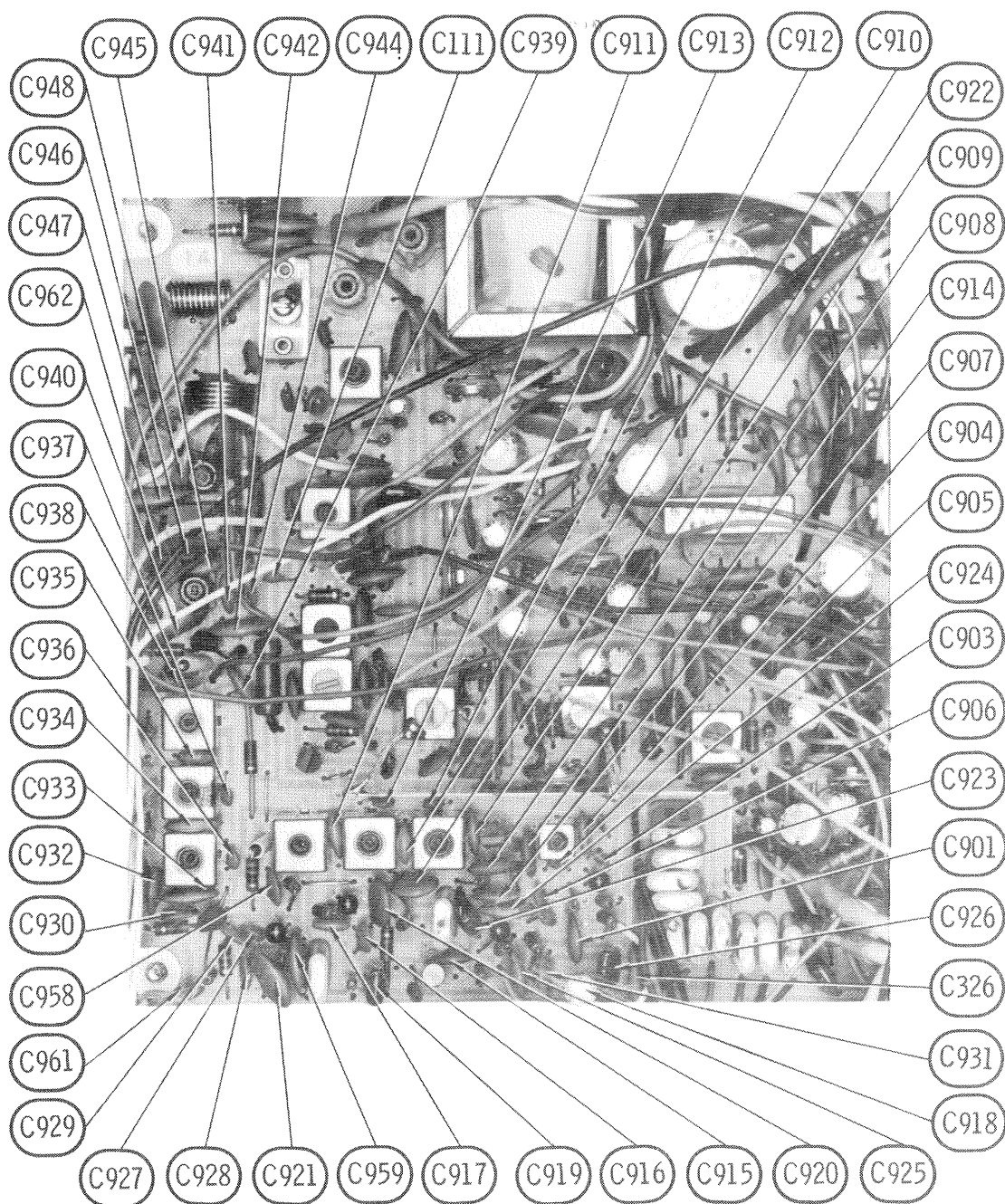
TEABERRY MODEL "T" CONTROL

MAIN BOARD

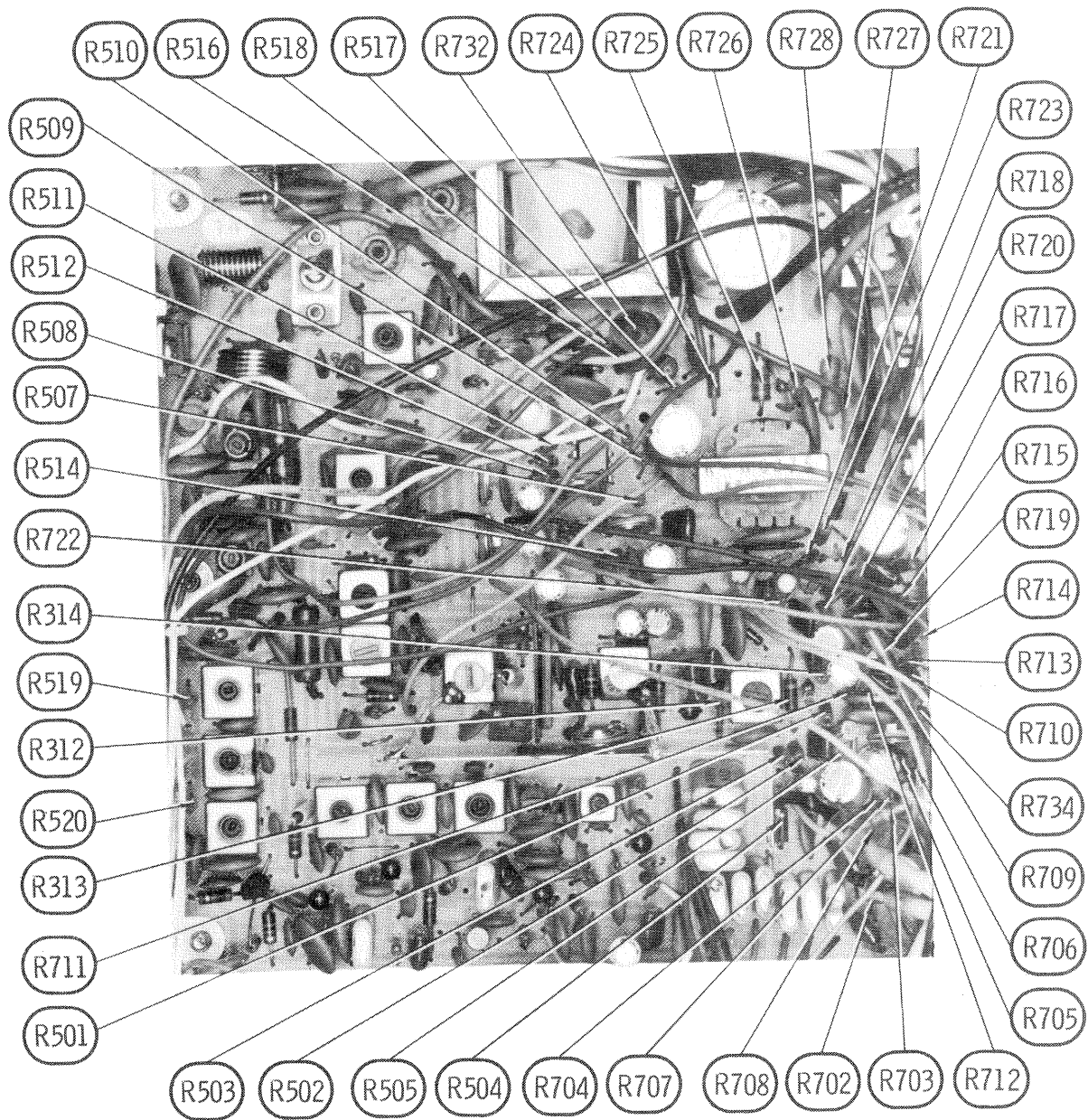


MAIN BOARD

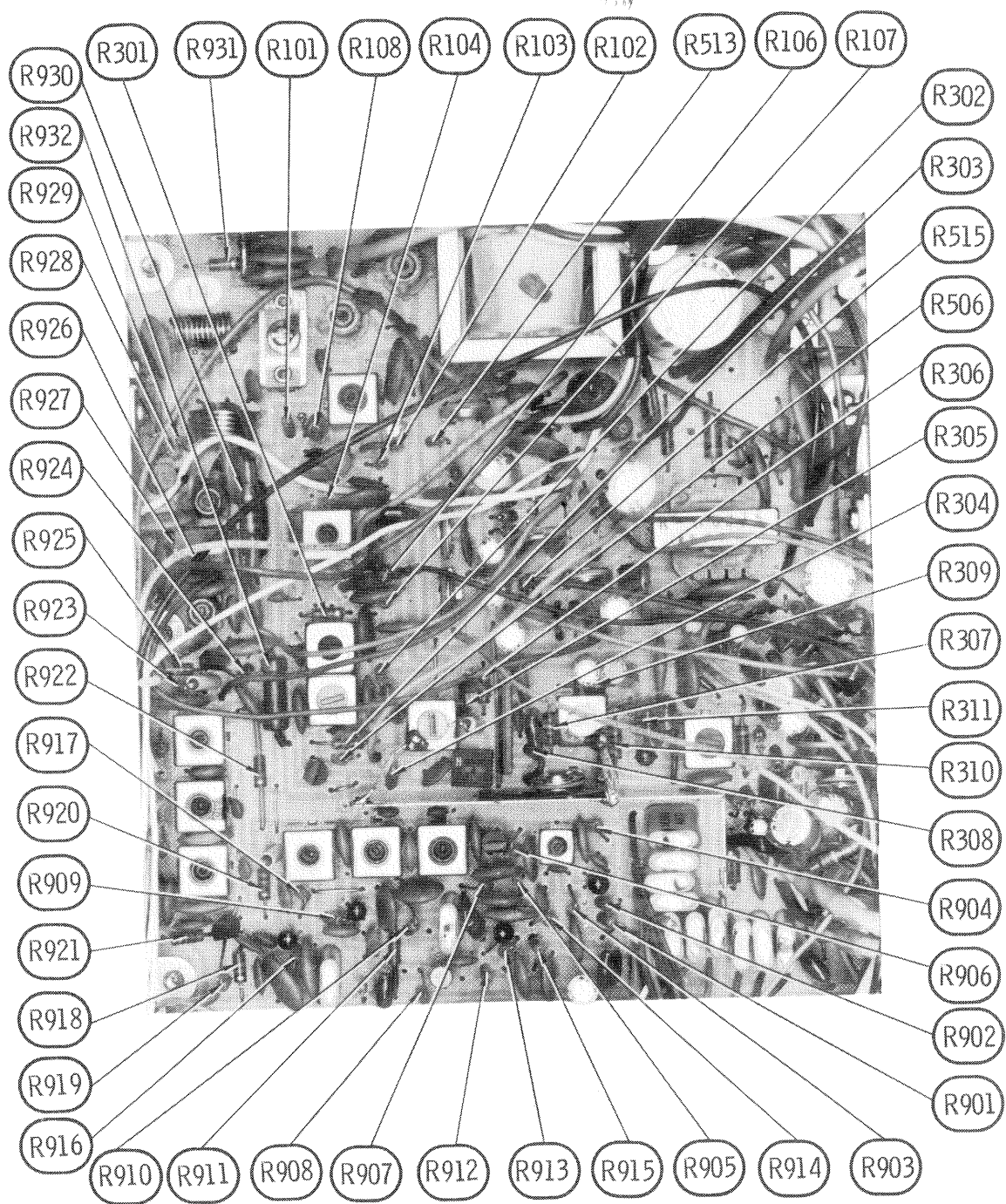




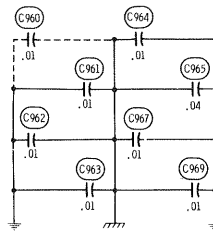
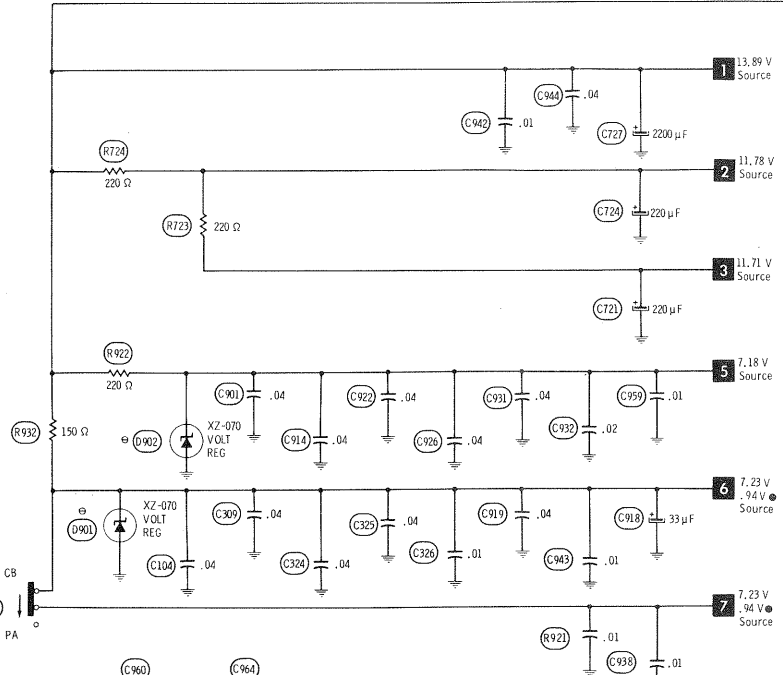
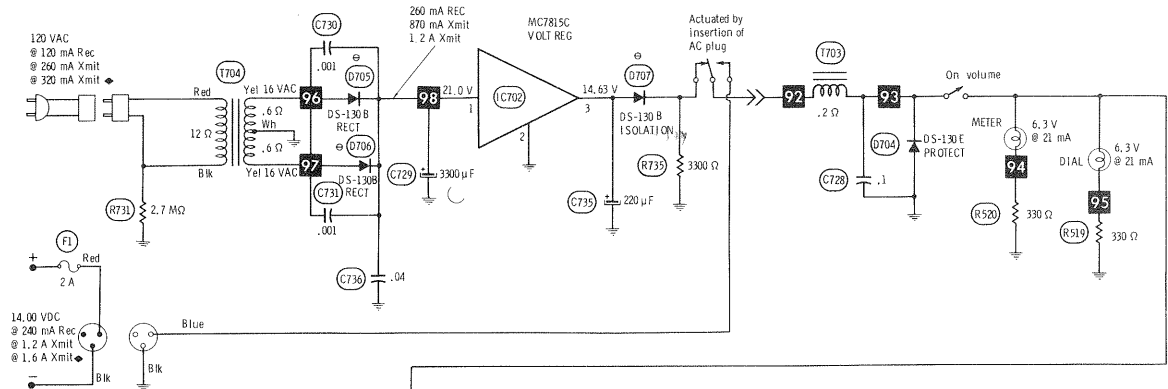
MAIN BOARD



MAIN BOARD



MAIN BOARD



| Chan | Crystal Complement |
|------|--------------------|
| 1    | X1, X7             |
| 2    | X1, X8             |
| 3    | X1, X9             |
| 4    | X1, X10            |
| 5    | X2, X7             |
| 6    | X2, X8             |
| 7    | X2, X9             |
| 8    | X2, X10            |
| 9    | X3, X7             |
| 10   | X3, X8             |
| 11   | X3, X9             |
| 12   | X3, X10            |
| 13   | X4, X7             |
| 14   | X4, X8             |
| 15   | X4, X9             |
| 16   | X4, X10            |
| 17   | X5, X7             |
| 18   | X5, X8             |
| 19   | X5, X9             |
| 20   | X5, X10            |
| 21   | X6, X7             |
| 22   | X6, X8             |
| 23   | X6, X10            |

—\*— Circuitry not used in some versions

--- Circuitry used in some versions

⊙ See parts list

⊕ Ground

Chassis

Measurements with switching as shown unless noted:

■ Squelch fully clockwise ◆ 100% modulation

● Transmit

Supply voltage maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Arrow at control indicates direction of advance.

Terminal identification may not be found on unit.

Resistors are 1/2W or less, 10% unless noted.

Value in ( ) used in some versions.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH CIRCUITTRACE®

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#### Terminal Guides



Q101

Bottom view



Q102, Q103,  
Q701, Q702, Q703,  
Q902, Q902,  
Q906

Bottom view



Q302, Q901,  
Q903,  
Q904, Q905

Bottom view



Q907

Front view



Q501

Bottom view



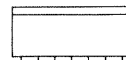
Q908, Q909

Front view



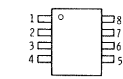
Q704, Q705

Front view



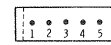
IC301

Front view



IC501

Top view



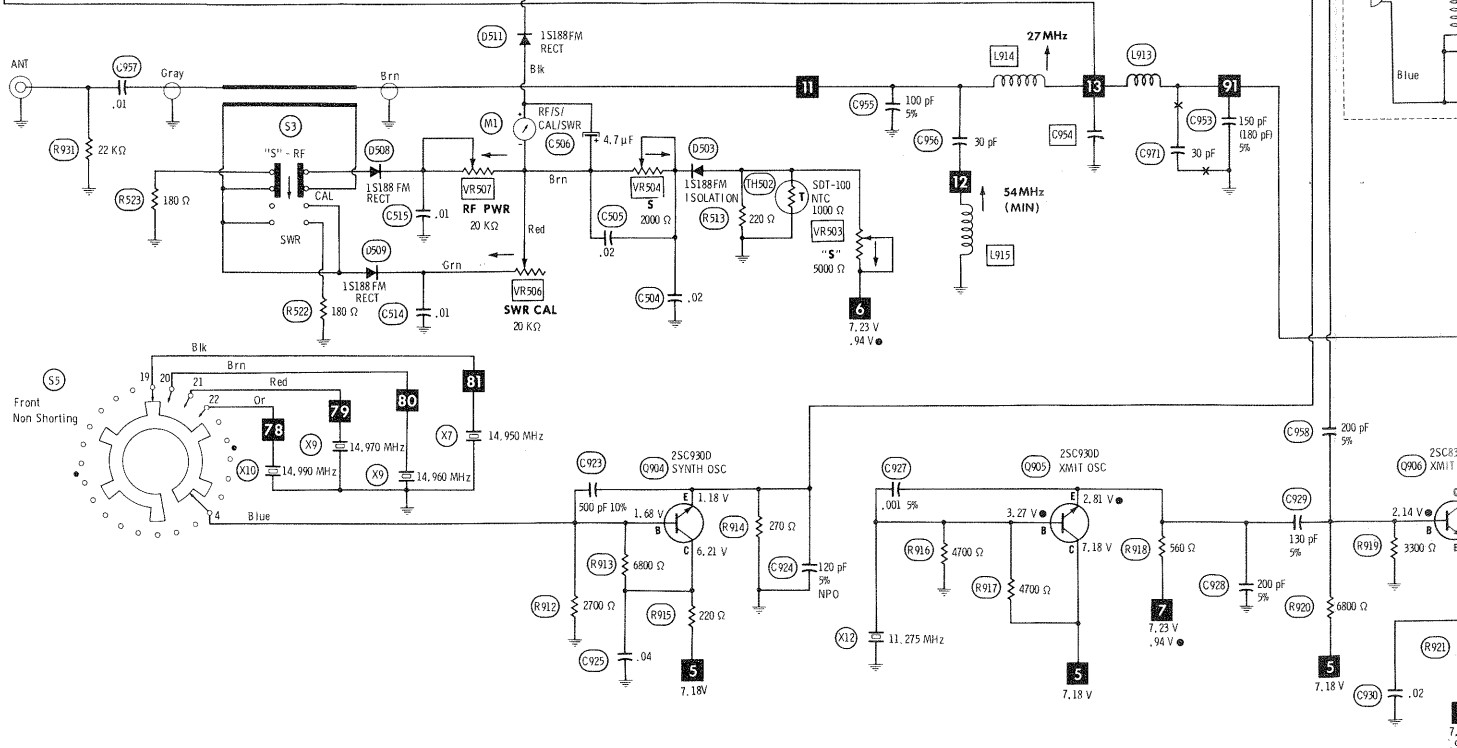
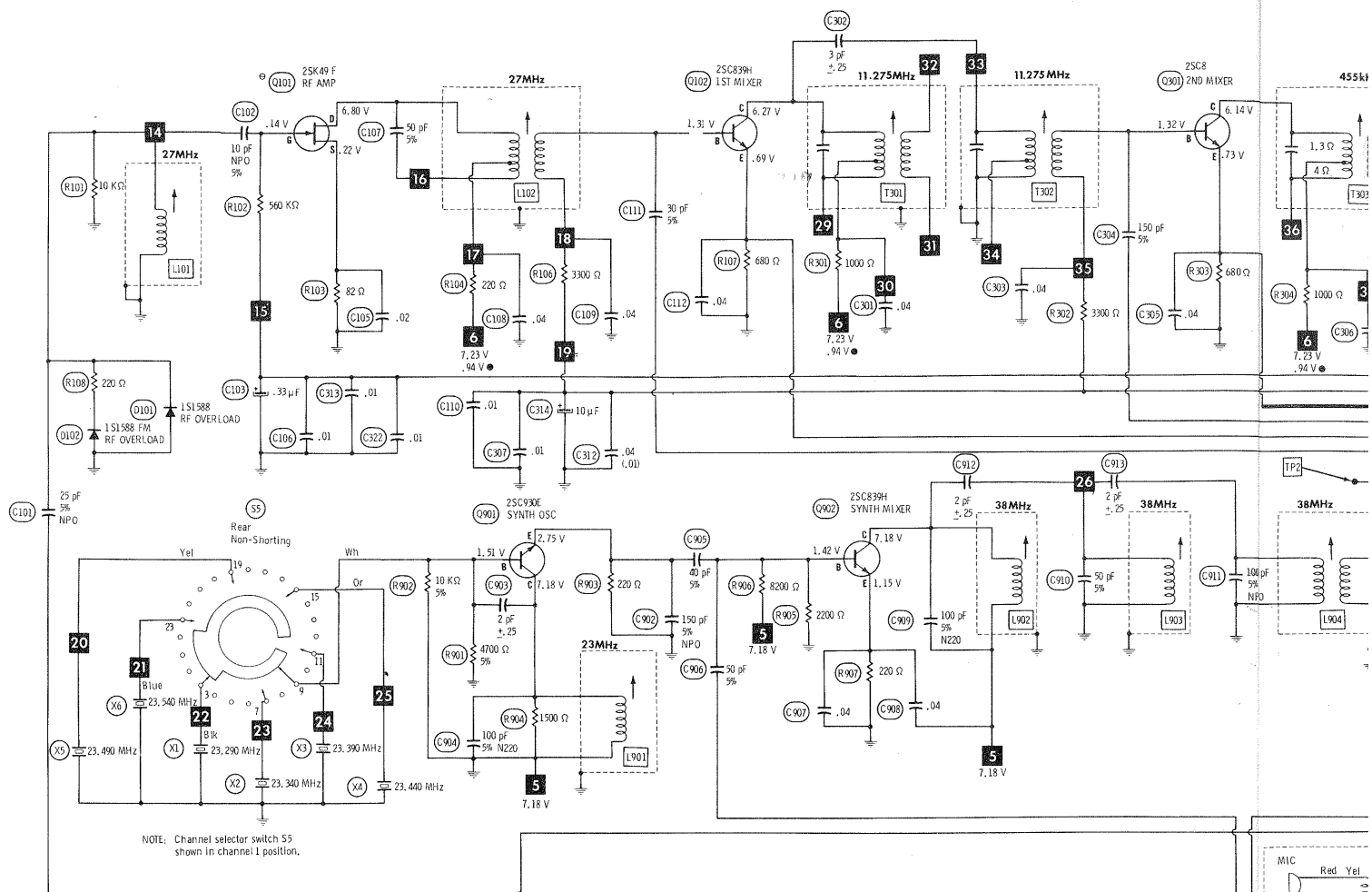
IC701

Bottom view

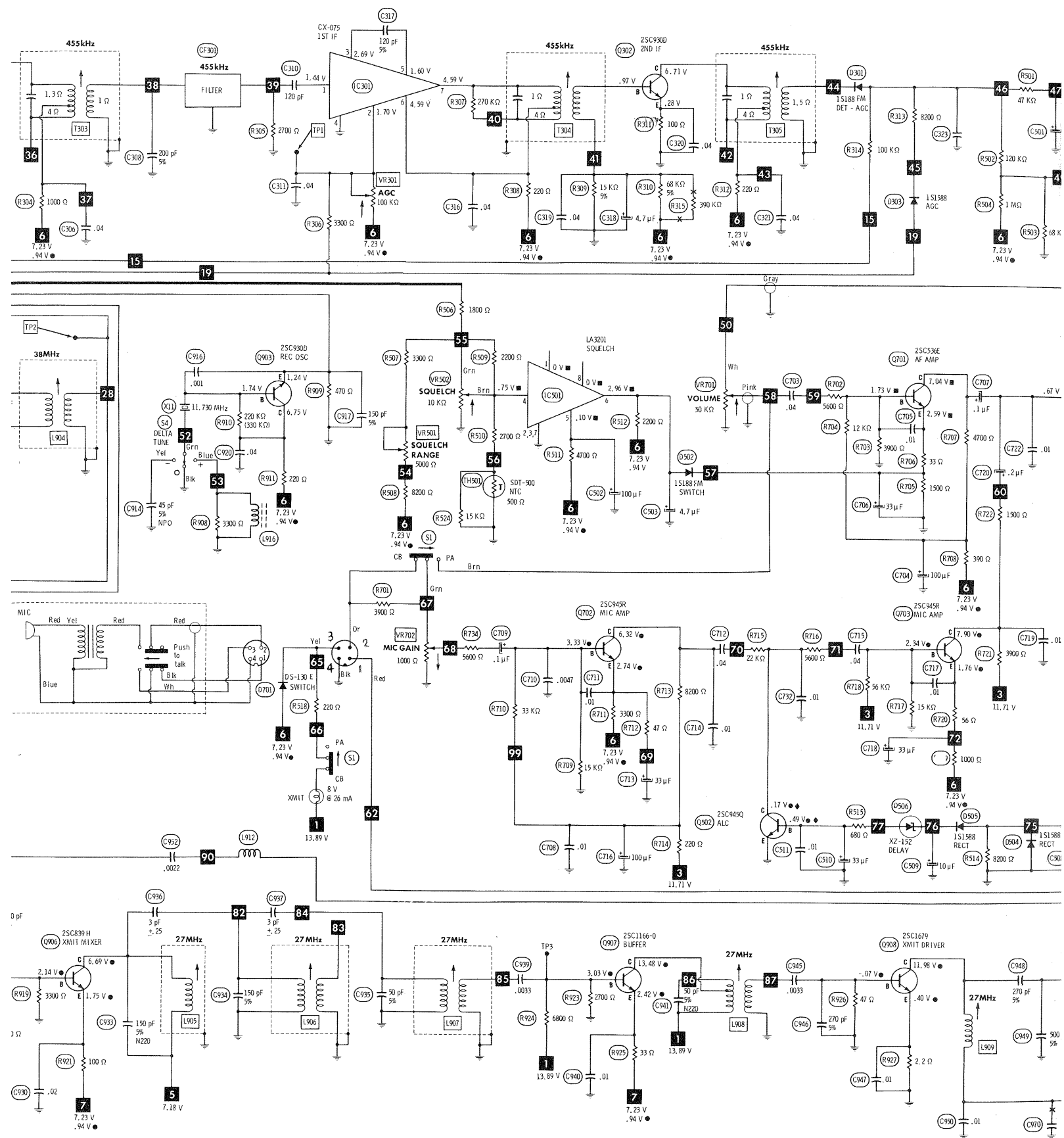


IC702

Front view









# PARTS LIST AND DESCRIPTION

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

## SEMICONDUCTORS (Select replacement transistor for best results)

| ITEM No. | TYPE No.      | MFR. PART No.     | REPLACEMENT DATA          |                                  |                  |                   |                   |              |                  |                   |
|----------|---------------|-------------------|---------------------------|----------------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|
|          |               |                   | GENERAL ELECTRIC PART No. | INTERNATIONAL RECTIFIER PART No. | MALLORY PART No. | MOTOROLA PART No. | RAYTHEON PART No. | RCA PART No. | SPRAGUE PART No. | SYLVANIA PART No. |
| D101     | 1S188FM       | (15.2 Volt Zener) | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D102     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D301     | 1S188FM       |                   | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D303     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D501     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D502     | 1S188FM       |                   | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D503     | 1S188FM       |                   | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D504     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D505     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D506     | XZ-152        |                   | GEZD-15                   | Z1214                            | PTC509           | HEPR0418          | RE 121            | SK3063       | RT-245           | ECG145            |
| D508     | 1S188FM       | (10)              | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D509     | 1S188FM       |                   | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D510     | 1S1588        |                   | GE-300                    | D200                             | PTC214           | HEPR0602          | RE 52             | SK3100       | RT-218           | ECG177            |
| D511     | 1S188FM       |                   | 1N60                      | 1N60                             | PTC206           | HEPR9135          | RE 47             | SK3088       | RT-263           | ECG109            |
| D701     | DS-130E       |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D702     | 1S1209        |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D703     | DS-130E       |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D704     | DS-130E       |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D705     | DS-130B,C     |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D706     | DS-130B,C     |                   | GE-504A                   | 8D4                              | PTC201           | HEPR0052          | RE 49             | SK3030       | RT-213           | ECG116            |
| D707     | DS-130B,C     | (7.0 Volt Zener)  | GEZD-6.8                  | Z1206                            | ZB6.8A           | HEPZ0409          | RE 110            |              | RT-238           | ECG5071           |
| D901     | XZ-070        |                   | GEZD-6.8                  | Z1206                            | ZB6.8A           | HEPZ0409          | RE 110            |              | RT-238           | ECG5071           |
| D902     | XZ-070        |                   | GEZD-6.8                  | Z1206                            | ZB6.8A           | HEPZ0409          | RE 110            |              | RT-238           | ECG5071           |
| IC301    | CX-075        |                   |                           |                                  |                  |                   |                   |              |                  |                   |
| IC501    | LA3201        |                   |                           |                                  |                  |                   |                   |              |                  |                   |
| IC701    | TA-7062P      |                   |                           |                                  |                  |                   |                   |              |                  |                   |
| IC702    | MC7815C       |                   |                           |                                  |                  |                   |                   |              |                  | ECG1102           |
| Q101     | 2SK49F,HI     |                   | GE-FET-2                  | FE-100                           | PTC152           | HEPC6114CP        | RE 45             | SK3116       | RT-175           | ECG132            |
| Q102     | 2SC839H       |                   | GE-20                     | TR-24                            | PTC121           | HEPS0015          | RE 13             | SK3018       | RT-107A          | ECG123A           |
| Q301     | 2SC839H       |                   | GE-20                     | TR-24                            | PTC121           | HEPS0015          | RE 13             | SK3018       | RT-107A          | ECG123A           |
| Q302     | 2SC930D       | (11)              | GE-60                     | TR-21                            | PTC132           | HEPS0016          | RE 9              | SK3018       | RT-107A          | ECG229            |
| Q501     | 2SA495-0      |                   | GE-21                     | TR-52                            | PTC103           | HEPS0013          | RE 26             | SK3118       | RT-106           | ECG159            |
| Q502     | 2SC945Q       |                   | GE-210                    | TR-21                            | PTC121           | HEPS0015          | RE 13             | SK3124       | RT-107A          | ECG199            |
| Q701     | 2SC536E       |                   | GE-20                     | TR-21                            | PTC101           | HEPS0016          | RE 64             | SK3124       | RT-107A          | ECG199            |
| Q702     | 2SC945R       |                   | GE-210                    | TR-21                            | PTC121           | HEPS0015          | RE 13             | SK3124       | RT-107A          | ECG199            |
| Q703     | 2SC945R       |                   | GE-210                    | TR-21                            | PTC121           | HEPS0015          | RE 13             | SK3124       | RT-107A          | ECG199            |
| Q704     | 2SC1096K, 471 |                   | GE-28                     | TR-55                            | PTC110           |                   | RE 42             | SK3054       | RT-197           | ECG186            |
| Q705     | 2SC1096K, 471 |                   | GE-28                     | TR-55                            | PTC110           |                   | RE 42             | SK3054       | RT-197           | ECG186            |
| Q901     | 2SC930E       |                   | GE-60                     | TR-21                            | PTC132           | HEPS0016          | RE 9              | SK3018       | RT-107A          | ECG229            |
| Q902     | 2SC839H       |                   | GE-20                     | TR-24                            | PTC121           | HEPS0015          | RE 13             | SK3018       | RT-107A          | ECG123A           |
| Q903     | 2SC930D       | (11)              | GE-60                     | TR-21                            | PTC132           | HEPS0016          | RE 9              | SK3018       | RT-107A          | ECG229            |
| Q904     | 2SC930D       |                   | GE-60                     | TR-21                            | PTC132           | HEPS0016          | RE 9              | SK3018       | RT-107A          | ECG229            |
| Q905     | 2SD930D       |                   | GE-60                     | TR-21                            | PTC132           | HEPS0016          | RE 9              | SK3018       | RT-107A          | ECG229            |
| Q906     | 2SC839H       |                   | GE-20                     | TR-24                            | PTC121           | HEPS0015          | RE 13             | SK3018       | RT-107A          | ECG123A           |
| Q907     | 2SC1166-0     |                   | GE-18                     | TR-63                            | PTC143           | HEPS0026          | RE 23             | SK3024       | RT-114           | ECG297            |
| Q908     | 2SC1679       |                   | GE-215                    |                                  | PTC186           |                   | RE 203            |              |                  | ECG235            |
| Q909     | 2SC1678       |                   | GE-215                    |                                  | PTC186           |                   | RE 203            |              |                  | ECG235            |

(10) Varistor

(11) Rating, 10 watts @ 3.0 amps.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING   | REPLACEMENT DATA |                           |                  |                  |
|----------|----------|------------------|---------------------------|------------------|------------------|
|          |          | MFR. PART No.    | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C103     | .33 10V  | R-C9244          | PC10-25                   | TDC334M050EL     | SD35-R339        |
| C314     | 10 10V   |                  | PC5-50                    | VTT10A25         | EV-1222          |
| C318     | 4.7 6.3V |                  |                           | VTT4R7A50        | EV-1319          |
| C501     | .22 10V  |                  |                           | TDC224M050EL     | SD35-R229        |
| C502     | 100 10V  |                  | PC100-10                  | VTT100E10        | EV-1130          |
| C503     | 4.7 16V  |                  | PC5-50                    | VTT4R7A50        | EV-1319          |
| C506     | 4.7 6.3V |                  | PC5-50                    | VTT4R7A50        | EV-1319          |
| C507     | 3.3 50V  |                  | PC5-50                    | VTT3R3A50        | EV-1618          |
| C509     | 10 25V   |                  | PC10-25                   | VTT10A25         | EV-1322          |
| C510     | 33 10V   |                  | PC30-25                   | VTT33A10         | EV-1125          |
| C701     | .22 10V  | R-C9934          |                           | TDC224M050EL     | SD35-R229        |
| C704     | 100 10V  |                  | PC100-10                  | VTT100E10        | EV-1130          |
| C706     | 33 6.3V  |                  | PC30-25                   | VTT33A10         | EV-1125          |
| C707     | .1 10V   |                  |                           | TDC104M050EL     | SD35-R109        |
| C709     | .1 10V   |                  |                           | TDC104M050EL     | SD35-R109        |
| C713     | 33 6.3V  |                  | PC30-25                   | VTT33A10         | EV-1125          |
| C716     | 100 16V  |                  | PC100-16                  | VTT100F16        | EV-1230          |
| C718     | 33 6.3V  |                  | PC30-25                   | VTT33A10         | EV-1125          |
| C720     | .2 10V   |                  |                           | TDC224M050EL     | SD35-R229        |
| C721     | 220 16V  |                  | PC250-25                  | VTT220G16        | EV-1240          |
| C724     | 220 16V  | R-C9877          | PC250-25                  | VTT220G16        | EV-1240          |
| C727     | 2200 16V |                  | WBR000-16                 | TC1520C          | TVA-1175.3       |
| C729     | 3300 25V |                  | DDR0003D                  | TC2530           | TVA-1213.5       |
| C735     | 220 16V  |                  | PC250-25                  | VTT220G16        | EV-1240          |
|          | 470 50V  |                  | WBR500-50                 | VTT470N50        | EV-1550          |
| C918     | 33 10V   |                  | PC30-25                   | VTT33A10         | EV-1125          |

# PARTS LIST AND DESCRIPTION (CONTINUED)

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

## CAPACITORS

| ITEM No. | RATING      | MFR. PART No. | REPLACEMENT DATA   |                           |                  |                  |
|----------|-------------|---------------|--------------------|---------------------------|------------------|------------------|
|          |             |               | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C101     | 25 5% NPO   |               | DTZ-25             | NP025                     | CN0425           | 10TCC-Q25        |
| C102     | 10 5% NPO   |               | DTZ-10             | NP010                     | CN0410           | 10TCC-Q10        |
| C104     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C105     | .02         |               |                    |                           | GP120            | 5GA-S20          |
| C106     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C107     | 50 5%       |               | DTZ-50             | NP050                     | CN0450           | 10TCC-Q50        |
| C108     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C109     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C110     | .01         |               |                    |                           |                  | 10TS-S10         |
| C111     | 30 5%       |               |                    |                           |                  | 10TCC-Q30        |
| C112     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C301     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C302     | 3 +.25      |               | DTZ-3R3            | NP03P3                    | CN0533           | 10TCC-V33        |
| C303     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C304     | 150 5%      |               | DTZ-150            |                           | CN0315           | 10TCC-T15        |
| C305     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C306     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C307     | .01         |               |                    |                           |                  | 10TS-S10         |
| C308     | 200 5%      |               | DTZ-200            |                           |                  | 10TCC-T20        |
| C309     | .04         |               |                    |                           |                  | 5GA-S40          |
| C310     | 120 5%      |               | DTZ-120            |                           | GP140            | 10TCC-T12        |
| C311     | .04         |               |                    |                           | CN0312           | 5GA-S40          |
| C312     | .04         |               |                    | DPMS6S39                  | GP140            | 6PS-S39          |
| C313     | .01         |               |                    |                           | PVC6139          | 10TS-S10         |
| C315     | 120 5%      |               | DTZ-120            |                           | CN0312           | 10TCC-T12        |
| C316     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C317     | 120 5%      |               | DTZ-120            |                           | CN0312           | 10TCC-T12        |
| C319     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C320     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C321     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C322     | .01         |               |                    |                           |                  | 10TS-S10         |
| C323     | .02         |               |                    | DPMS2S2                   | PVC212           | 2PS-S20          |
| C324     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C325     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C326     | .01         |               |                    |                           |                  | 10TS-S10         |
| C504     | .02         |               |                    |                           | GP120            | 5GA-S20          |
| C505     | .02         |               |                    |                           | GP120            | 5GA-S20          |
| C508     | 270 5%      |               | DTZ-270            |                           |                  | 10TCC-T27        |
| C511     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C514     | .01         |               |                    |                           |                  | 10TS-S10         |
| C515     | .01         |               |                    |                           |                  | 10TS-S10         |
| C516     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C702     | .0047       |               |                    |                           |                  | 10TS-D47         |
| C703     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C705     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C708     | .01         |               |                    |                           |                  | 10TS-S10         |
| C710     | .0047       |               |                    |                           |                  | 10TS-D47         |
| C711     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C712     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C714     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C715     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C717     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C719     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C722     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C723     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C725     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C726     | .1          |               | DC-104             | MGP1                      | MAG5001          | TG-P10           |
| C728     | .1          |               | DC-104             | MGP1                      | MAG5001          | TG-P10           |
| C730     | .001 150VAC |               | CI-102             | AC-1000                   | UAC210           | 125L-D10         |
| C731     | .001 150VAC |               | CI-102             | AC-1000                   | UAC210           | 125L-D10         |
| C732     | .01         |               |                    | DPMS4S1                   | EWFA1110         | 1PB-S10          |
| C736     | .002        |               |                    | DPMS6D2                   | PVC622           | 6PS-D20          |
| C901     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C902     | 150 5% NPO  |               | DTZ-150            |                           | CN0315           | 10TCC-T15        |
| C903     | 2 +.25      |               | DTZ-2R2            | NP02P2                    | CN0522           | 10TCC-V22        |
| C904     | 100 5% N220 |               |                    |                           | *                | 10TCR-T10        |
| C905     | 40 5%       |               | DTZ-47             | NP047                     | CN0447           | 10TCC-Q47        |
| C906     | 50 5%       |               | DTZ-50             | NP050                     | CN0450           | 10TCC-Q50        |
| C907     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C908     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C909     | 100 5% N220 |               |                    |                           | *                | 10TCR-T10        |
| C910     | 50 5%       |               | DTZ-50             | NP050                     | CN0450           | 10TCC-Q50        |
| C911     | 100 5% NPO  |               | DTZ-100            | NP0100                    | CN0310           | 10TCC-T10        |
| C912     | 2 +.25      |               | DTZ-2R2            | NP02P2                    | CN0522           | 10TCC-V22        |
| C913     | 2 +.25      |               | DTZ-2R2            | NP02P2                    | CN0522           | 10TCC-V22        |
| C914     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C915     | 45 5% NPO   |               | DTZ-47             | NP047                     | CN0447           | 10TCC-Q47        |
| C916     | .001        |               | DD-102             |                           | GP210            | 10TS-D10         |
| C917     | 150 5%      |               | DTZ-150            |                           | CN0315           | 10TCC-T15        |
| C919     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C920     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C921     | .01         |               |                    |                           |                  | 10TS-S10         |
| C922     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C923     | 500 10%     |               |                    | CD15FD501J03              |                  |                  |
| C924     | 120 5% NPO  |               | DTZ-120            |                           | CN0312           | 10TCC-T12        |
| C925     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C926     | .04         |               |                    | DPMS6S39                  | PVC6139          | 6PS-S39          |
| C927     | .001 5%     |               |                    |                           | GP210            |                  |
| C928     | 200 5%      |               | DTZ-200            |                           |                  | 10TCC-T20        |
| C929     | 130 5%      |               | DTZ-120            |                           | CN0312           | 10TCC-T12        |
| C930     | .02         |               |                    |                           | GP120            | 5GA-S20          |
| C931     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C932     | .02         |               |                    |                           | GP120            | 5GA-S20          |

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

### CAPACITORS(cont)

| ITEM No. | RATING      | MFR. PART No. | REPLACEMENT DATA   |                           |                  |                  |
|----------|-------------|---------------|--------------------|---------------------------|------------------|------------------|
|          |             |               | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C933     | 150 5% N220 | 4-224R154     | DTZ-150            | NP050                     | *                | 10TCR-T15        |
| C934     | 150 5%      |               | DTZ-50             |                           | CN0315           | 10TCC-T15        |
| C935     | 50 5%       |               | DTZ-3R3            |                           | CN0450           | 10TCC-Q50        |
| C936     | 3 +.25      |               | DTZ-3R3            |                           | CN0533           | 10TCC-V33        |
| C937     | 3 +.25      |               | DTZ-3R3            |                           | CN0533           | 10TCC-V33        |
| C938     | .01         |               |                    |                           |                  | 10TS-S10         |
| C939     | .0033 10%   |               |                    |                           |                  |                  |
| C940     | .01         |               |                    |                           |                  | 10TS-S10         |
| C941     | 50 5%       |               | DTZ-50             | NP050                     | CN0450           | 10TCC-Q50        |
| C942     | .01         |               |                    |                           |                  | 10TS-S10         |
| C943     | .01         |               |                    |                           |                  | 10TS-S10         |
| C941     | 50 5%       |               | DTZ-50             | NP050                     | CN0450           | 10TCC-Q50        |
| C942     | .01         |               |                    |                           |                  | 10TS-S10         |
| C943     | .01         |               |                    |                           |                  | 10TS-S10         |
| C944     | .04         |               |                    |                           | GP140            | 5GA-S40          |
| C945     | .0033 10%   |               |                    |                           |                  |                  |
| C946     | 270 5%      |               | DTZ-270            |                           |                  | 10TCC-T27        |
| C947     | .01         |               |                    |                           |                  | 10TS-S10         |
| C948     | 270 5%      |               |                    | CD15FD271J03              | SX327            | 424ME2700J501    |
| C949     | 500 5%      |               |                    | CD15FD501J03              |                  |                  |
| C950     | .01         |               |                    |                           |                  | 10TS-S10         |
| C951     | .01         |               |                    |                           |                  | 10TS-S10         |
| C952     | .0022 10%   |               |                    |                           | GP222            | 10TS-D22         |
| C953     | 150 5%      |               | DTZ-150            |                           | CN0315           | 10TCC-T15        |
| C954     |             |               |                    |                           |                  |                  |
| C955     | 100 5%      |               | DTZ-100            | NP0100                    | CN0310           | 10TCC-T10        |
| C956     | 30          |               |                    |                           |                  | 10TCC-Q30        |
| C957     | .01         |               |                    |                           |                  | 10TS-S10         |
| C958     | 200 5%      |               | DTZ-200            |                           |                  | 10TCC-T20        |
| C959     | .01         |               |                    |                           |                  | 10TS-S10         |
| C960     | .01         |               |                    |                           |                  | 10TS-S10         |
| C961     | .01         |               |                    |                           |                  | 10TS-S10         |
| C962     | .01         |               |                    |                           |                  | 10TS-S10         |
| C963     | .01         |               |                    |                           |                  | 10TS-S10         |
| C964     | .01         |               |                    |                           |                  | 10TS-S10         |
| C965     | .04         |               |                    |                           |                  | 10TS-S10         |
| C967     | .01         |               |                    |                           |                  | 10TS-S10         |
| C969     | .01         |               |                    |                           |                  | 10TS-S10         |
| C970     | .01         |               |                    |                           |                  | 10TS-S10         |
| C971     | 30          |               |                    |                           |                  | 10TCC-Q30        |

\* 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      | RESISTANCE | REPLACEMENT DATA |                            |                    |                                                           |                        |
|----------|---------------|------------|------------------|----------------------------|--------------------|-----------------------------------------------------------|------------------------|
|          |               |            | MFR. PART No.    | CENTRALAB PART No.         | CLAROSTAT PART No. | MALLORY PART No.                                          | TRW PART No.           |
| VR301    | AGC           | 100K       | 4-222R006        | TSV-100K (2) or T-100K (2) | C-104 (2)          | MTC15L1 (2)                                               | X201R104B (2)          |
| VR501    | Squelch Range | 10K        | 4-222R002        | TSV-10K (2) or T-10K (2)   | C-103 (2)          | MTC14L1 (2)                                               | X201R103B (2)          |
| VR502    | Squelch       | 10K        | 4-222R512        |                            |                    |                                                           |                        |
| VR503    | S Meter       | 5000       | 4-222R611        | TSV-5K (2) or T-5000 (2)   | C-502 (2)          | MTC53L1 (2)                                               | X201R502B (2)          |
| VR504    | S Meter       | 10K        | 4-222R002        | TSV-10K (2) or T-10K (2)   | C-103 (2)          | MTC14L1 (2)                                               | X201R103B (2)          |
| VR505    | AMC           | 2000       | R-R110809        | TSV-2.5K (2) or T-2500 (2) | C-252 (2)          | MTC23L1 (2)                                               | X201R252B (2)          |
| VR506    | SWR Cal       | 20K        | 4-222R522        |                            |                    |                                                           |                        |
| VR507    | RF            | 20K        | 4-222R005        | T-20K (2) or TSV-25K (2)   | C-253 (2)          | MTC24L1 (2)                                               | X201R253B (2)          |
| VR701    | Volume/Switch | 50K        | 4-222R521        | F2-50K (1), SPU304, KR8FR  |                    | RUP54A, SL35 (1), SL250 or [P54A, 3014 (1), FPP-1, SL250] | BU1 (1), CF63, SS10, K |
| VR702    | Mic Gain      | 1000       | 4-222R711        | TSV-1K (2) or T-1000 (2)   | C-102 (2)          | MTC13L1 (2)                                               | X201R102B (2)          |

(1) Enlarge mounting hole.

(2) Cut off one of the end terminals and bend to fit PC board.

### RESISTORS (Power and Special)

| ITEM No. | RATING         | REPLACEMENT DATA |               | ITEM No. | RATING | REPLACEMENT DATA |               |
|----------|----------------|------------------|---------------|----------|--------|------------------|---------------|
|          |                | WORKMAN PART No. | MFR. PART No. |          |        | WORKMAN PART No. | MFR. PART No. |
| TH501    | 1000 Cold, NTC |                  | SDT500        |          |        |                  |               |



## 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. |         |
| L101     | Rec. Ant. (27MHz)      | 4-257R814        | 7R814                |                 |         |
| L102     | Rec. RF (27MHz)        | 4-259R838        | 8R838                |                 |         |
| L901     | Synth. Osc. (23MHz)    | 4-258R813A       | 8R813                |                 |         |
| L902     | Synth. Mixer (38MHz)   | 4-259R825        | 9R285                |                 |         |
| L903     | Synth. Mixer (38MHz)   | 4-259R826        |                      |                 |         |
| L904     | Synth. Mixer (38MHz)   | 4-259R827        |                      |                 |         |
| L905     | Xmit. Mixer (27MHz)    | 4-259R801        | 8R801                |                 |         |
| L906     | Harmonic Sup. (27MHz)  | 4-259R801        | 8R801                |                 |         |
| L907     | Harmonic Sup. (27MHz)  | 4-259R802        | 8R802                |                 |         |
| L908     | Xmit. Buffer (27MHz)   | 4-259R839        |                      |                 |         |
| L909     | Xmit. Driver (27MHz)   | 4-259R842        |                      |                 |         |
| L910     | RF Choke               | 4-253R1160A      | 1R0                  |                 |         |
| L911     | RF Choke               | 4-255R103        |                      |                 |         |
| L912     | RF Choke               | 4-259R840        |                      |                 |         |
| L913     | Pi Filter              | 4-259R841        |                      |                 |         |
| L914     | Pi Filter (27MHz)      | 4-259R807        |                      |                 |         |
| L915     | TVI Trap (54MHz)       | 4-259R807        |                      |                 |         |
| L916     | RF Choke               | 4-253R705        | 020                  |                 |         |
| T301     | Rec. Mixer (11.275MHz) | 4-256R701        |                      |                 |         |
| T302     | Rec. Mixer (11.275MHz) | 4-256R714        | 17143040             |                 |         |
| T303     | IF (455kHz)            | 4-256R726        | T7264N               |                 |         |
| T304     | IF (455kHz)            | 4-256R727        | T7274N               |                 |         |
| T305     | IF (455kHz)            | 4-256R728        | T7284N               |                 |         |

### 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. |                     |
| T703     | 1200mA             | .2      | 1.6mH                        | 4-255R808<br>R808 (1) |                     |                | (1) Number on unit. |

### TRANSFORMER (Driver)

| ITEM No. | TURNS RATIO |        |        | REPLACEMENT DATA         |                     |                | NOTES               |
|----------|-------------|--------|--------|--------------------------|---------------------|----------------|---------------------|
|          | PRI.        | SEC. 1 | SEC. 2 | MFGR. PART No.           | THORDARSON PART No. | TRIAD PART No. |                     |
| T701     | 2           | 1      |        | 4-254R118<br>R-W6375 (1) |                     |                | (1) Number on unit. |

### TRANSFORMER (Audio Output)

| ITEM No. | IMPEDANCE |      | REPLACEMENT DATA           |                     |                | NOTES               |
|----------|-----------|------|----------------------------|---------------------|----------------|---------------------|
|          | PRI.      | SEC. | MFGR. PART No.             | THORDARSON PART No. | TRIAD PART No. |                     |
| T702     | 32        | 8    | 4-254R53272<br>4R53272 (1) |                     |                | (1) Number on unit. |

### TRANSFORMER (Power)

| ITEM No. | RATING                |                          | REPLACEMENT DATA           |                     |                | NOTES               |
|----------|-----------------------|--------------------------|----------------------------|---------------------|----------------|---------------------|
|          | PRI.                  | SEC. 1                   | MFGR. PART No.             | THORDARSON PART No. | TRIAD PART No. |                     |
| T704     | 120V AC @<br>330mA AC | 32V CT AC @<br>1800mA AC | 4-251R807<br>4-251R811 (1) |                     |                | (1) Number on unit. |

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

### SPEAKER

| ITEM No. | TYPE          | REPLACEMENT DATA |               | NOTES |
|----------|---------------|------------------|---------------|-------|
|          |               | MFGR. PART No.   | QUAM PART No. |       |
| SP       | 3" PM, 8 Ohms | 4-151R807        | 30A05Z8       |       |

### 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, Fast-acting | 176-2383R104     | 4-234R809 | AGC2          | HDJ    | 312002              | 150145 | F62-2            |

### CRYSTALS

| ITEM No. | CRYSTAL FREQUENCY IN MHz | MFGR. PART No. | CTS KNIGHTS PART No. | CHANNEL     | ITEM No. | CRYSTAL FREQUENCY IN MHz | MFGR. PART No. | CTS KNIGHTS PART No. | CHANNEL         |
|----------|--------------------------|----------------|----------------------|-------------|----------|--------------------------|----------------|----------------------|-----------------|
| X1       | 23.290                   | 4-225R809      | MA20W23.290          | 1,2,3,4     | X7       | 14.950                   | 4-225R805      | MB100W14.950         | 1,5,9,13,17,21  |
| X2       | 23.340                   | 4-225R810      | MA20W23.340          | 5,6,7,8     | X8       | 14.960                   | 4-225R806      | MB100W14.960         | 2,6,10,14,18,22 |
| X3       | 23.390                   | 4-225R811      | MA20W23.390          | 9,10,11,12  | X9       | 14.970                   | 4-225R807      | MB100W14.970         | 3,7,11,15,19    |
| X4       | 23.440                   | 4-225R812      | MA20W23.440          | 13,14,15,16 | X10      | 14.990                   | 4-225R808      | MB100W14.990         | 4,8,12,16,20,23 |
| X5       | 23.490                   | 4-225R813      | MA20W23.490          | 17,18,19,20 | X11      | 11.730                   | 4-225R803      | MC200W11.730         | Rec Osc.        |
| X6       | 23.540                   | 4-225R814      | MA20W23.540          | 21,22,23    | X12      | 11.275                   | 4-225R804      | MC200W11.275         | Xmit Osc.       |

### MISCELLANEOUS

| ITEM No. | PART NAME | PART No.    | NOTES            |
|----------|-----------|-------------|------------------|
| CF301    | Filter    | 4-253R909   | 455kHz           |
| M1       | Meter     | 4-511R80371 | "S"/RF           |
| S1       | Switch    | 4-231R815   | PA-CB            |
| S2       | Switch    | 4-231R815   | ANL              |
| S3       | Switch    | 4-231T417A  | S -RF/SWR        |
| S4       | Switch    | 4-231R508   | Delta-Tune       |
| S5       | Switch    | 4-231R504   | Channel Selector |

### ACCESSORIES

| ITEM                | MFGR. PART No. | REMARKS |
|---------------------|----------------|---------|
| Microphone          | 4-153R10676A   |         |
| Power Cord Assembly | 4-234T745      |         |

### WIRING DATA

|                                |                                                                     |
|--------------------------------|---------------------------------------------------------------------|
| General-use Hook-up Wire ..... | Use BELDEN No. 8530 (Solid) Available in 12 Colors                  |
|                                | 8524 (Stranded) Available in 12 Colors                              |
| Power Cord, 2-Wire .....       | Use BELDEN No. 17106 (Plastic) or 17126 (Rubber) -6 feet            |
|                                | 17109 (Plastic) or 17129 (Rubber) -9 feet                           |
| Shielded Antenna Lead .....    | Use BELDEN No. 8214 Lowest-loss (RG-8/U Type)                       |
|                                | 8237 Low-loss (RG-8/U)                                              |
|                                | 8240 (Solid) Miniature (RG-58/U)                                    |
|                                | 8259 (Stranded) Miniature (RG-58A/U)                                |
| Coiled Microphone Cable .....  | Use BELDEN No. 8491 4-Conductor (2 shielded, 2 unshielded) Neoprene |

