



# 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 25GTL

## MANUFACTURER'S SPECIFICATIONS

### TRANSMITTER

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Power Output:       | 4 watts.                                           |
| Modulation:         | High- and low-level, Class B amplitude modulation. |
| Frequency Response: | 300 — 3000 Hz.                                     |
| Output Impedance:   | 50 ohms, unbalanced.                               |

### RECEIVER

|                                     |                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------|
| Sensitivity:                        | Less than 1 $\mu$ V for 10dB(S+N)/N.                                           |
| Selectivity:                        | 6dB @7KHz, 60dB @10KHz.                                                        |
| Image Rejection:                    | 80dB.                                                                          |
| Adjacent-Channel Rejection:         | 60dB.                                                                          |
| I.F. Frequencies:                   | Double conversion, 1st: 10.695MHz.<br>2nd: 455KHz.                             |
| Automatic Gain Control:<br>(AGC):   | Less than 10dB change in audio output for inputs from 10 to 50,000 microvolts. |
| RF Gain Control:                    | Adjustable for optimum signal reception.                                       |
| Noise Blanker:                      | RF type.                                                                       |
| Squelch:                            | Adjustable; threshold less than 1 $\mu$ V.                                     |
| Audio Output Power:                 | 4 watts.                                                                       |
| Frequency Response:                 | 300 — 3000 Hz.                                                                 |
| Distortion:                         | Less than 7% @ 3 watts @ 1000 Hz.                                              |
| Built-in Speaker:                   | 16 ohms, round.                                                                |
| External Speaker:<br>(Not Supplied) | 8 ohms; disables internal speaker when connected.                              |

Courtesy of the Manufacturer

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

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COBRA MODELS 21GTL/25GTL

## 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:

L1 thru L4, L14 thru L19 ..... 9440

VC1 ..... 8276, 5000

L10 ..... 9091, 8728A, 8728

L5, L6, L7 ..... 5009, 8728A, 8728

## SYNTHESIZER ALIGNMENT

| TEST EQUIPMENT                                                   | TRANSCEIVER | ADJUST | REMARKS                                                                                   |
|------------------------------------------------------------------|-------------|--------|-------------------------------------------------------------------------------------------|
| Input of frequency counter to TP10 (Junction VC1, C110 and C111) | Ch. 19      | VC1    | Adjust for 10.240MHz.                                                                     |
| Input of DC meter to TP2.                                        | Ch. 40      | L15    | Adjust for 3.00 volts                                                                     |
|                                                                  | Ch. 40, XMT |        | Check for 5.00 volts.                                                                     |
| Input of oscilloscope to TP3.                                    | Ch. 19      | L16    | Adjust for maximum.                                                                       |
| Input of frequency counter to TP3.                               | Ch. 1       |        | Check for 16.270MHz.<br>Check all channels.<br>(See Truth Chart for correct frequencies.) |
|                                                                  | Ch. 1, XMT  |        | Check for 16.725MHz.<br>Check all channels.<br>(See Truth Chart for correct frequencies.) |
| Input of frequency counter to antenna jack.                      | Ch. 1, XMT  |        | Check for 26.965MHz.<br>If necessary readjust VC1 for 26.965MHz.                          |

## 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.

ANL Off, NB Off, RF Gain Maximum, Squelch MINIMUM.

| TEST EQUIPMENT                                                                                  | TRANSCEIVER     | ADJUST         | REMARKS                                |
|-------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------------------------|
| Output of signal generator thru .01uF to TP11 (FET2, Gate).<br>455kHz, 1000Hz @ 30% modulation. | Ch. 19          | L7, L6, L5     | Adjust for maximum output.             |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation    | Ch. 19          | L4, L3, L2, L1 | Adjust for maximum output.             |
| Inject a 100pps, 1uSec. pulse width, signal at antenna jack.<br>TP12 (TR21 Collector).          | Ch. 19<br>NB On | L19            | Adjust for maximum amplitude of pulse. |

## RECEIVER ADJUSTMENTS

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

| TEST EQUIPMENT                                                                                                 | TRANSCIVER                | ADJUST | REMARKS                                              |
|----------------------------------------------------------------------------------------------------------------|---------------------------|--------|------------------------------------------------------|
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output .4uV.  | Ch. 19<br>Volume Maximum  | VR2    | IF GAIN<br>Adjust for 2 volts audio.                 |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output 100uV. | Ch. 19<br>Squelch Maximum | VR4    | SQUELCH RANGE<br>Adjust so that squelch just breaks. |
| Output of signal generator thru .01uF to antenna jack.<br>27.185MHz, 1000Hz @ 30% modulation.<br>Output 100uV. | Ch. 19                    | VR1    | SIG METER<br>Adjust for 9 on SIG scale of meter.     |

## TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 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               |
|----------------|------------|--------------------|-----------------------|
|                | Ch. 19     | L18, L17, L14, L10 | Adjust for maximum.   |
|                | Ch. 19     | L10                | Adjust for 3.8 watts. |

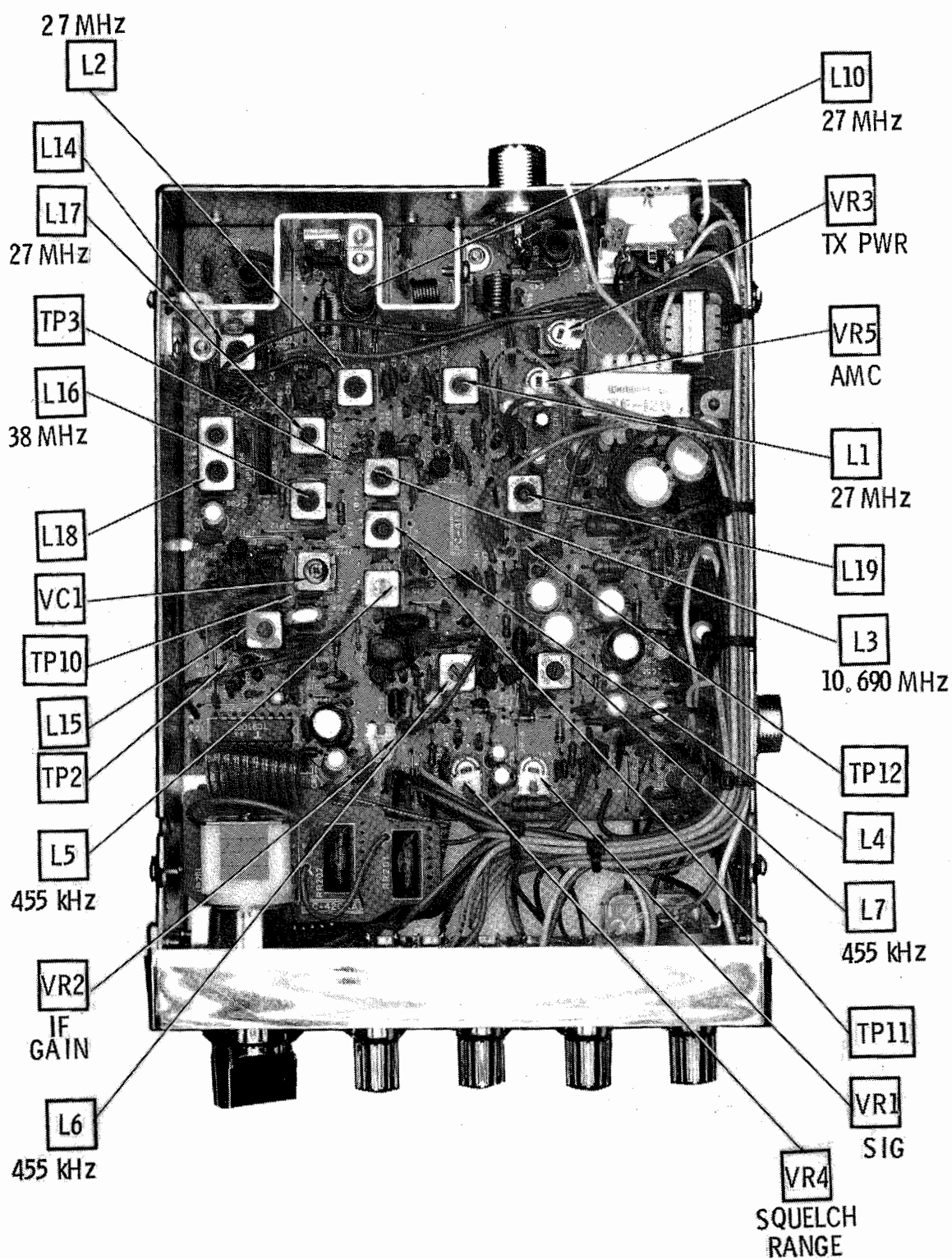
## TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 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.

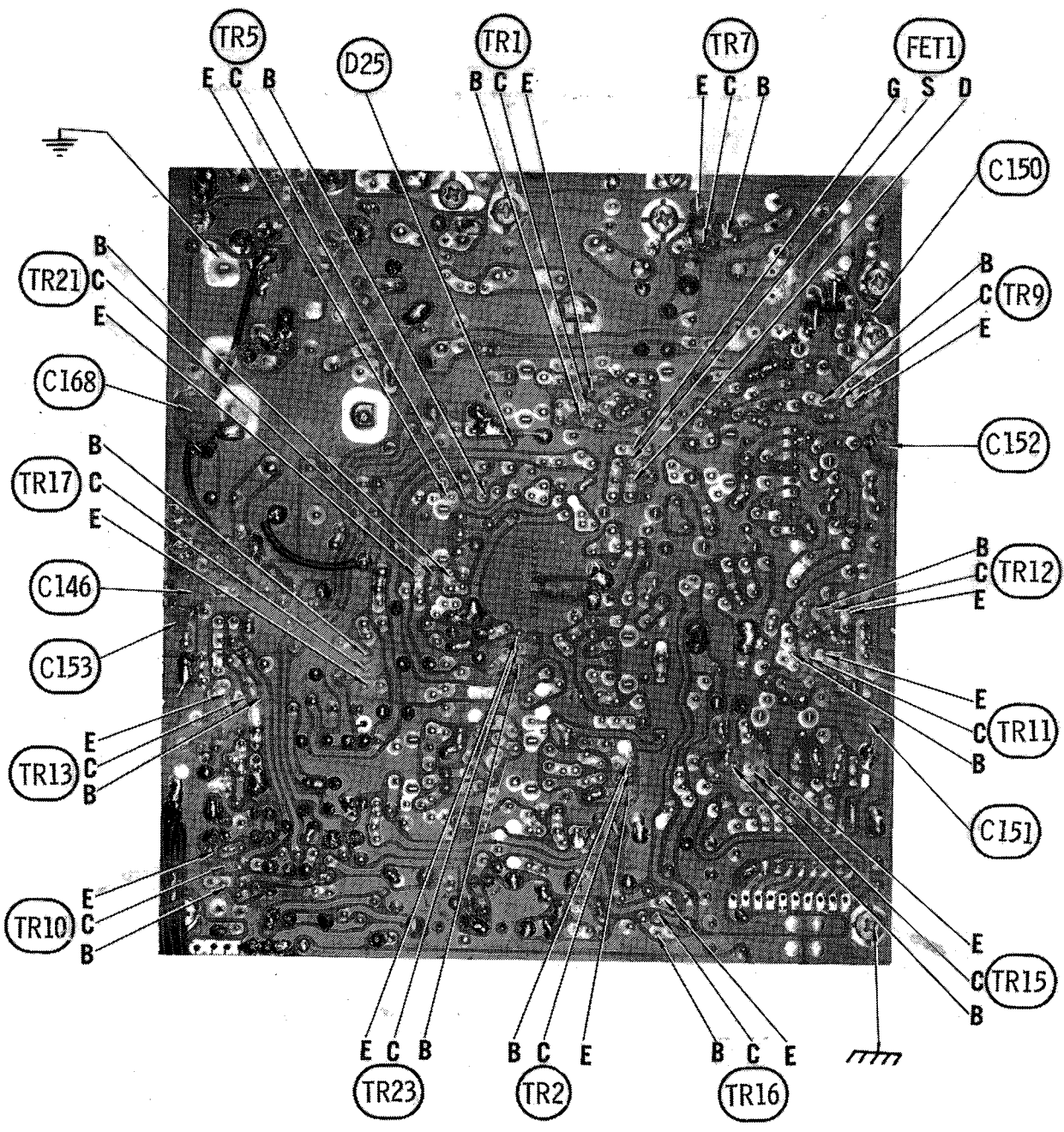
| TEST EQUIPMENT                                                                                          | TRANSCIVER | ADJUST | REMARKS                                                               |
|---------------------------------------------------------------------------------------------------------|------------|--------|-----------------------------------------------------------------------|
| Input of oscilloscope or harmonic meter to antenna jack.<br>Inject a 1000Hz, 100mV signal at Mic input. | Ch. 19     | VR5    | AMC<br>Adjust for 95% modulation.                                     |
| Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.                            | Ch. 19     | VR3    | TX PWR METER<br>Adjust so that TX PWR meter agrees with RF wattmeter. |

# TRUTH CHART

| CHANNEL | 1 = 7.00 Volts                      0 = 0 Volts |    |    |    |    |    |    |    | REC<br>SYNTHESIZER<br>OUTPUT<br>IN MHz AT<br>TP3 | XMT<br>SYNTHESIZER<br>OUTPUT<br>IN MHz AT<br>TP3 |  |
|---------|-------------------------------------------------|----|----|----|----|----|----|----|--------------------------------------------------|--------------------------------------------------|--|
|         | IC3<br>PROGRAM DIVIDER                          |    |    |    |    |    |    |    |                                                  |                                                  |  |
|         | PINS                                            |    |    |    |    |    |    |    |                                                  |                                                  |  |
|         | 17                                              | 16 | 15 | 14 | 13 | 12 | 11 | 10 |                                                  |                                                  |  |
| 1       | 1                                               | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 16.270                                           | 16.725                                           |  |
| 2       | 1                                               | 1  | 1  | 0  | 0  | 0  | 0  | 1  | 16.280                                           | 16.735                                           |  |
| 3       | 1                                               | 1  | 1  | 0  | 1  | 0  | 0  | 1  | 16.290                                           | 16.745                                           |  |
| 4       | 1                                               | 1  | 1  | 1  | 1  | 0  | 1  | 0  | 16.310                                           | 16.765                                           |  |
| 5       | 1                                               | 1  | 1  | 0  | 1  | 0  | 0  | 0  | 16.320                                           | 16.775                                           |  |
| 6       | 1                                               | 1  | 1  | 0  | 0  | 0  | 1  | 0  | 16.330                                           | 16.785                                           |  |
| 7       | 1                                               | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 16.340                                           | 16.795                                           |  |
| 8       | 1                                               | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 16.360                                           | 16.815                                           |  |
| 9       | 1                                               | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 16.370                                           | 16.825                                           |  |
| 10      | 1                                               | 1  | 0  | 0  | 0  | 1  | 0  | 0  | 16.380                                           | 16.835                                           |  |
| 11      | 1                                               | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 16.390                                           | 16.845                                           |  |
| 12      | 1                                               | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 16.410                                           | 16.865                                           |  |
| 13      | 1                                               | 1  | 0  | 0  | 1  | 0  | 0  | 1  | 16.420                                           | 16.875                                           |  |
| 14      | 1                                               | 1  | 0  | 1  | 1  | 0  | 1  | 0  | 16.430                                           | 16.885                                           |  |
| 15      | 1                                               | 1  | 0  | 0  | 1  | 0  | 0  | 0  | 16.440                                           | 16.895                                           |  |
| 16      | 1                                               | 1  | 0  | 0  | 0  | 0  | 1  | 0  | 16.460                                           | 16.915                                           |  |
| 17      | 1                                               | 1  | 0  | 1  | 1  | 1  | 0  | 1  | 16.470                                           | 16.925                                           |  |
| 18      | 1                                               | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 16.480                                           | 16.935                                           |  |
| 19      | 1                                               | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 16.490                                           | 16.945                                           |  |
| 20      | 1                                               | 0  | 1  | 0  | 0  | 1  | 0  | 0  | 16.510                                           | 16.965                                           |  |
| 21      | 1                                               | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 16.520                                           | 16.975                                           |  |
| 22      | 1                                               | 0  | 1  | 0  | 0  | 0  | 0  | 1  | 16.530                                           | 16.985                                           |  |
| 23      | 1                                               | 0  | 1  | 0  | 1  | 0  | 0  | 1  | 16.560                                           | 17.015                                           |  |
| 24      | 1                                               | 0  | 1  | 1  | 1  | 0  | 1  | 0  | 16.540                                           | 16.995                                           |  |
| 25      | 1                                               | 0  | 1  | 0  | 1  | 0  | 0  | 0  | 16.550                                           | 17.005                                           |  |
| 26      | 1                                               | 0  | 1  | 0  | 0  | 0  | 1  | 0  | 16.570                                           | 17.025                                           |  |
| 27      | 1                                               | 0  | 1  | 1  | 1  | 1  | 0  | 1  | 16.580                                           | 17.035                                           |  |
| 28      | 1                                               | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 16.590                                           | 17.045                                           |  |
| 29      | 1                                               | 0  | 1  | 1  | 1  | 0  | 0  | 0  | 16.600                                           | 17.055                                           |  |
| 30      | 1                                               | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 16.610                                           | 17.065                                           |  |
| 31      | 1                                               | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 16.620                                           | 17.075                                           |  |
| 32      | 1                                               | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 16.630                                           | 17.085                                           |  |
| 33      | 1                                               | 0  | 0  | 0  | 1  | 0  | 0  | 1  | 16.640                                           | 17.095                                           |  |
| 34      | 1                                               | 0  | 0  | 1  | 1  | 0  | 1  | 0  | 16.650                                           | 17.105                                           |  |
| 35      | 1                                               | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 16.660                                           | 17.115                                           |  |
| 36      | 1                                               | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 16.670                                           | 17.125                                           |  |
| 37      | 1                                               | 0  | 0  | 1  | 1  | 1  | 0  | 1  | 16.680                                           | 17.135                                           |  |
| 38      | 1                                               | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 16.690                                           | 17.145                                           |  |
| 39      | 1                                               | 0  | 0  | 1  | 1  | 0  | 0  | 0  | 16.700                                           | 17.155                                           |  |
| 40      | 0                                               | 1  | 0  | 0  | 0  | 1  | 0  | 0  | 16.710                                           | 17.165                                           |  |



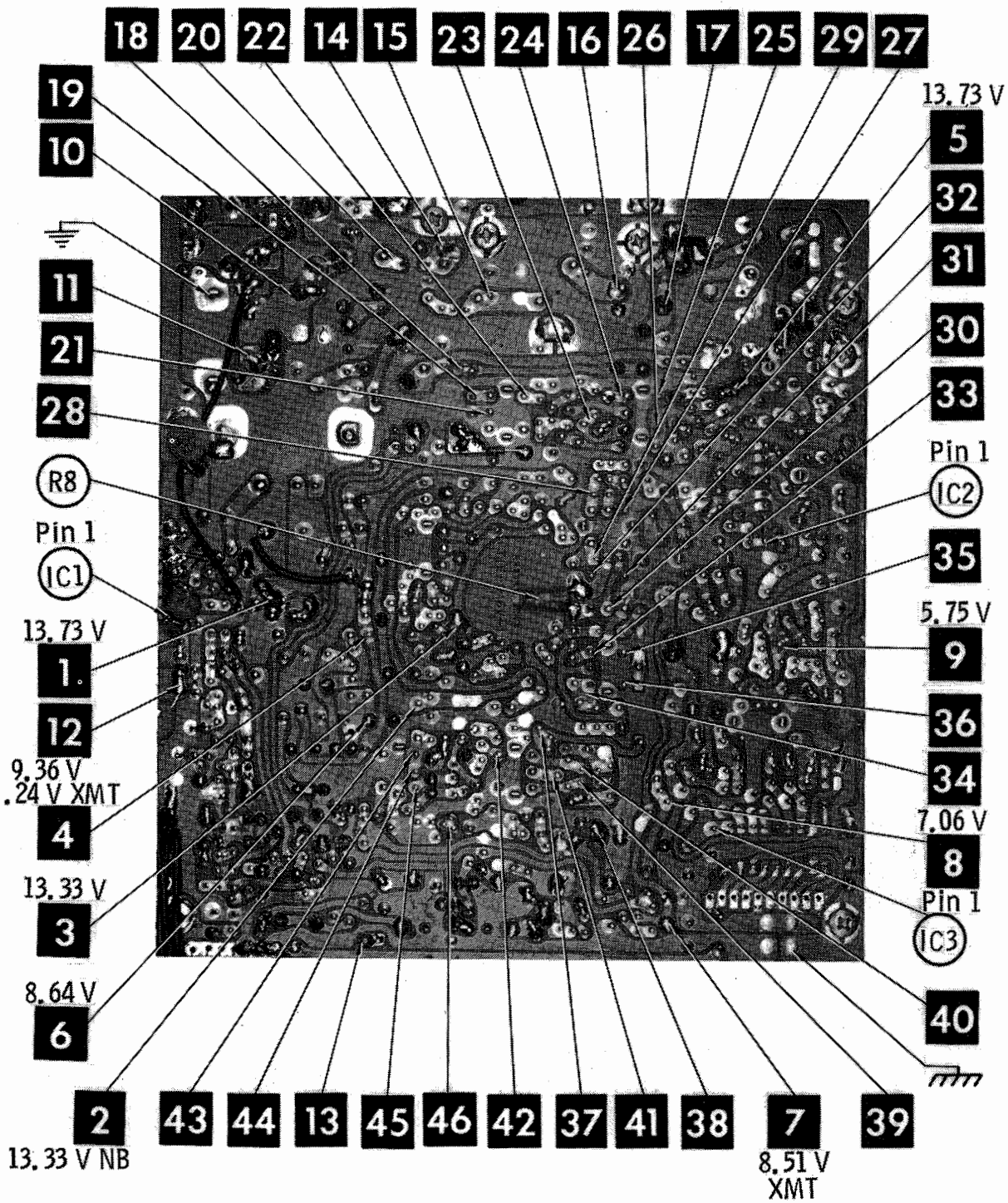
CHASSIS - BOTTOM



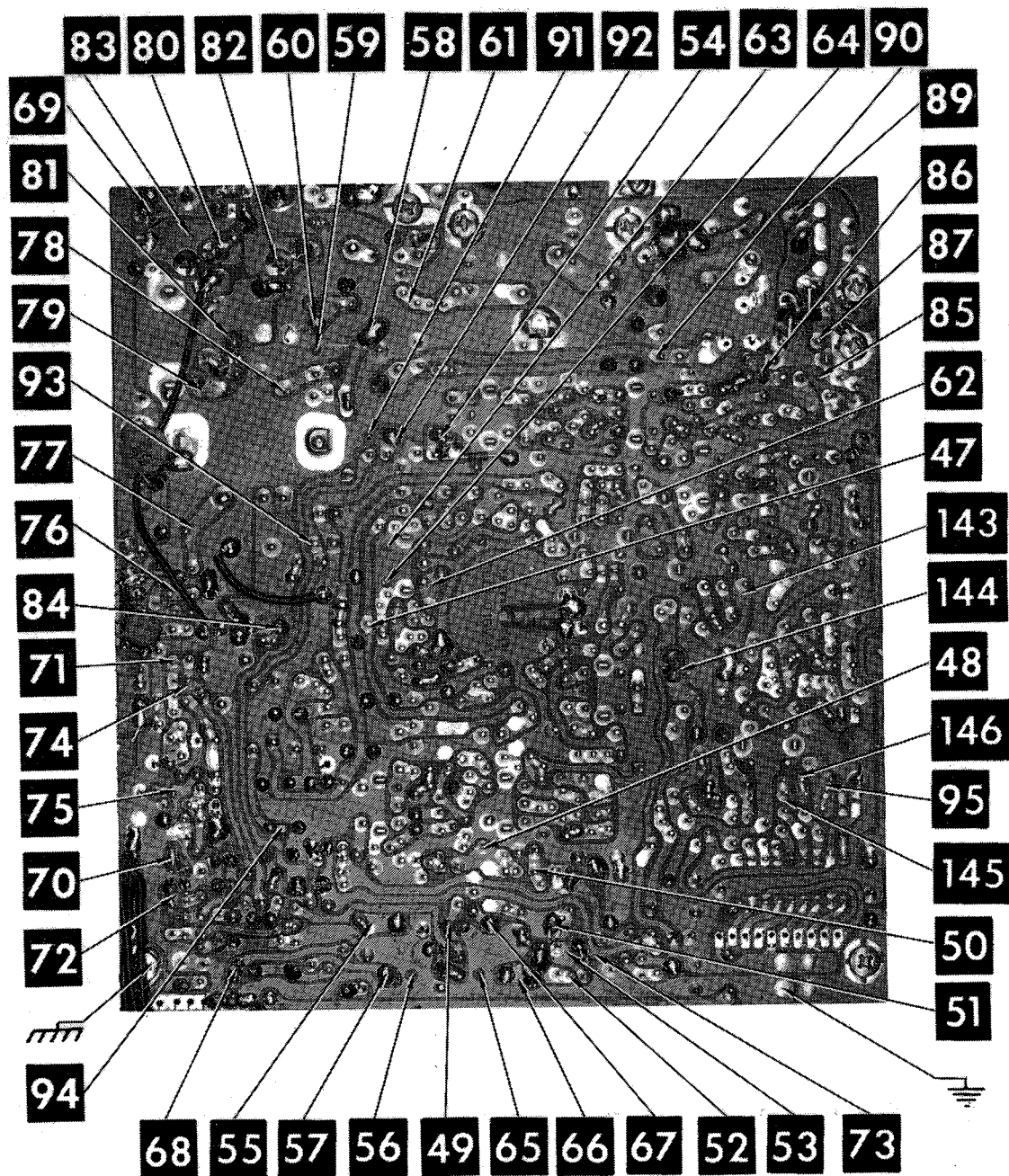
MAIN BOARD



COBRA MODELS 21GTL/25GTL

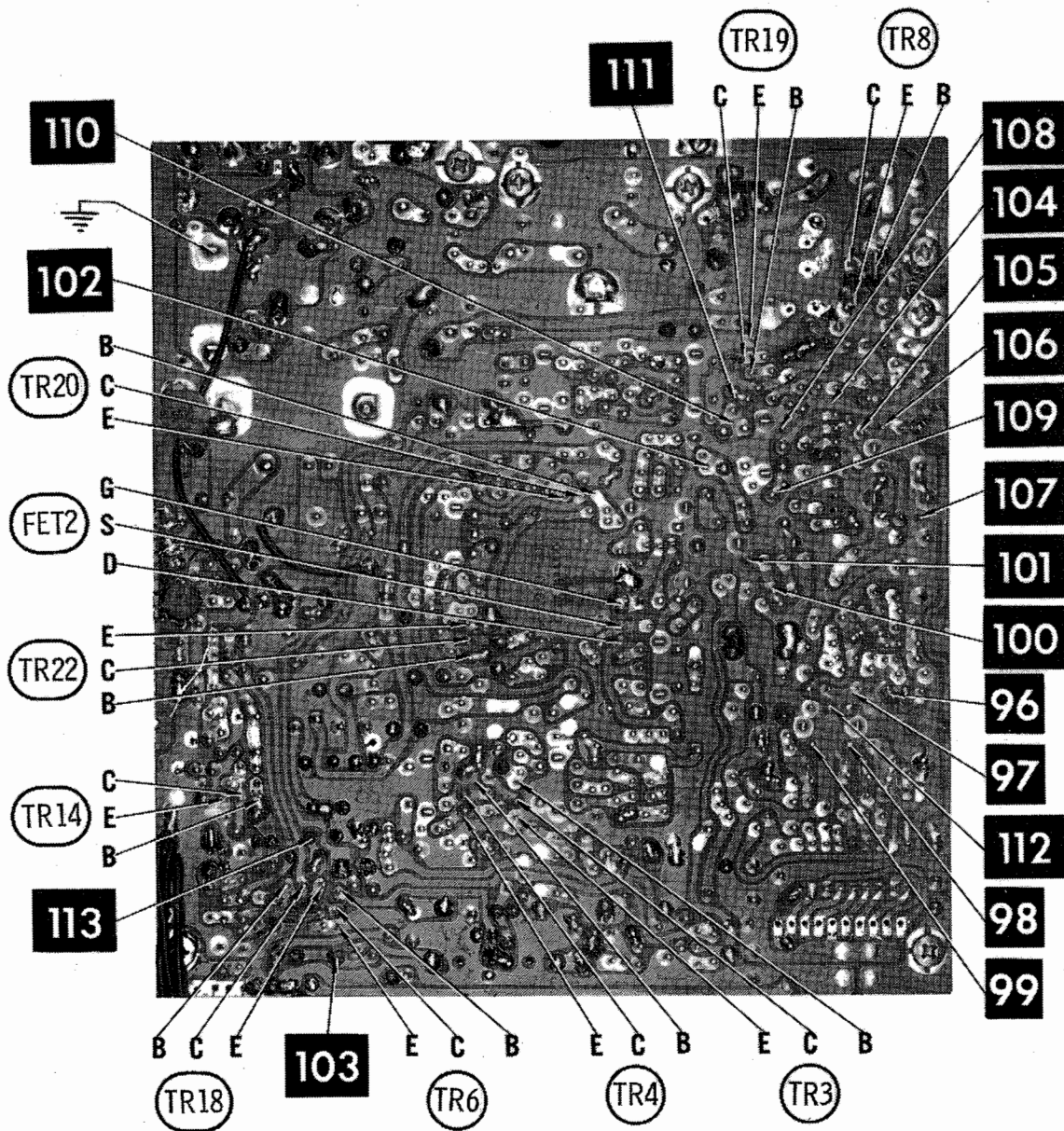


MAIN BOARD



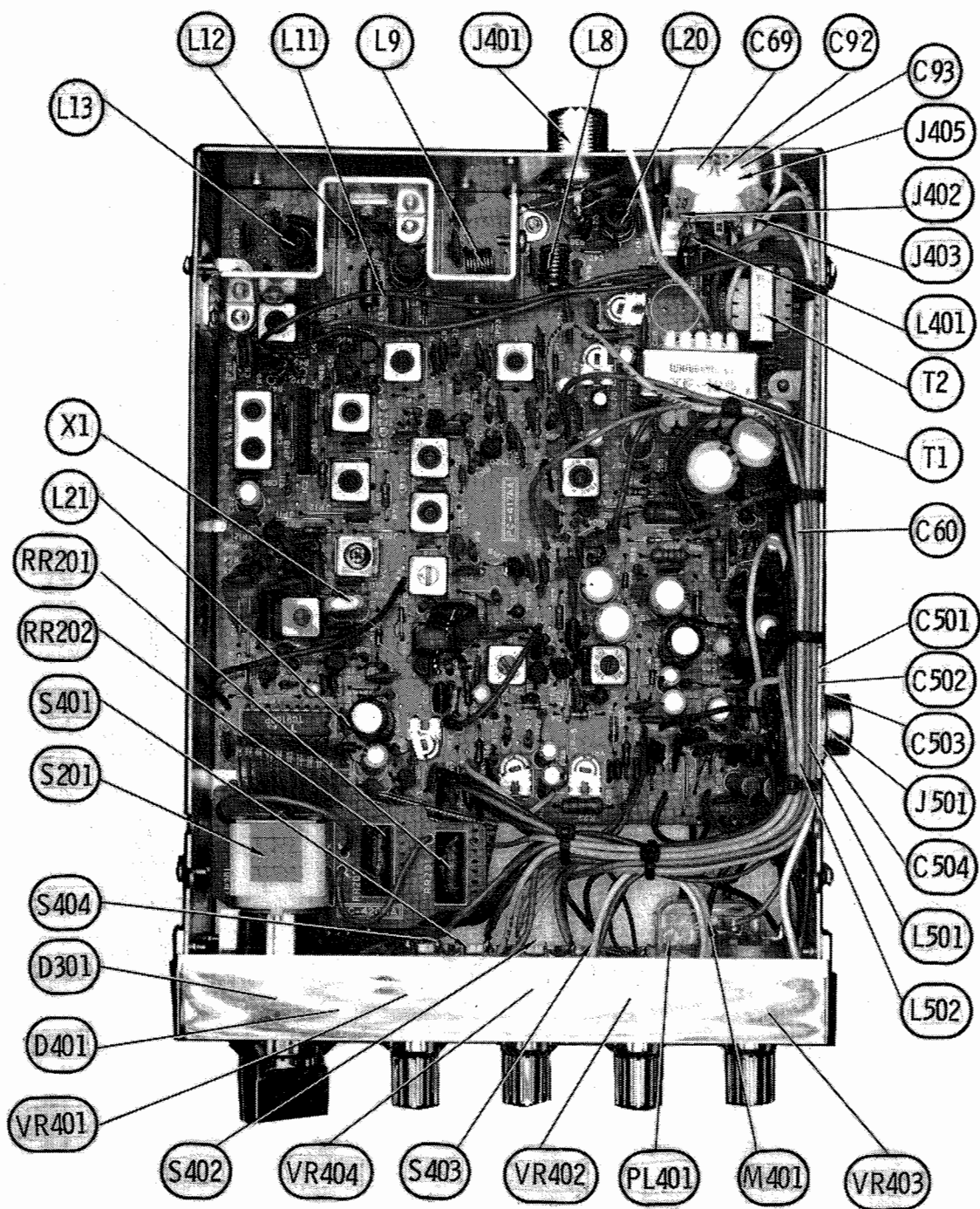
MAIN BOARD



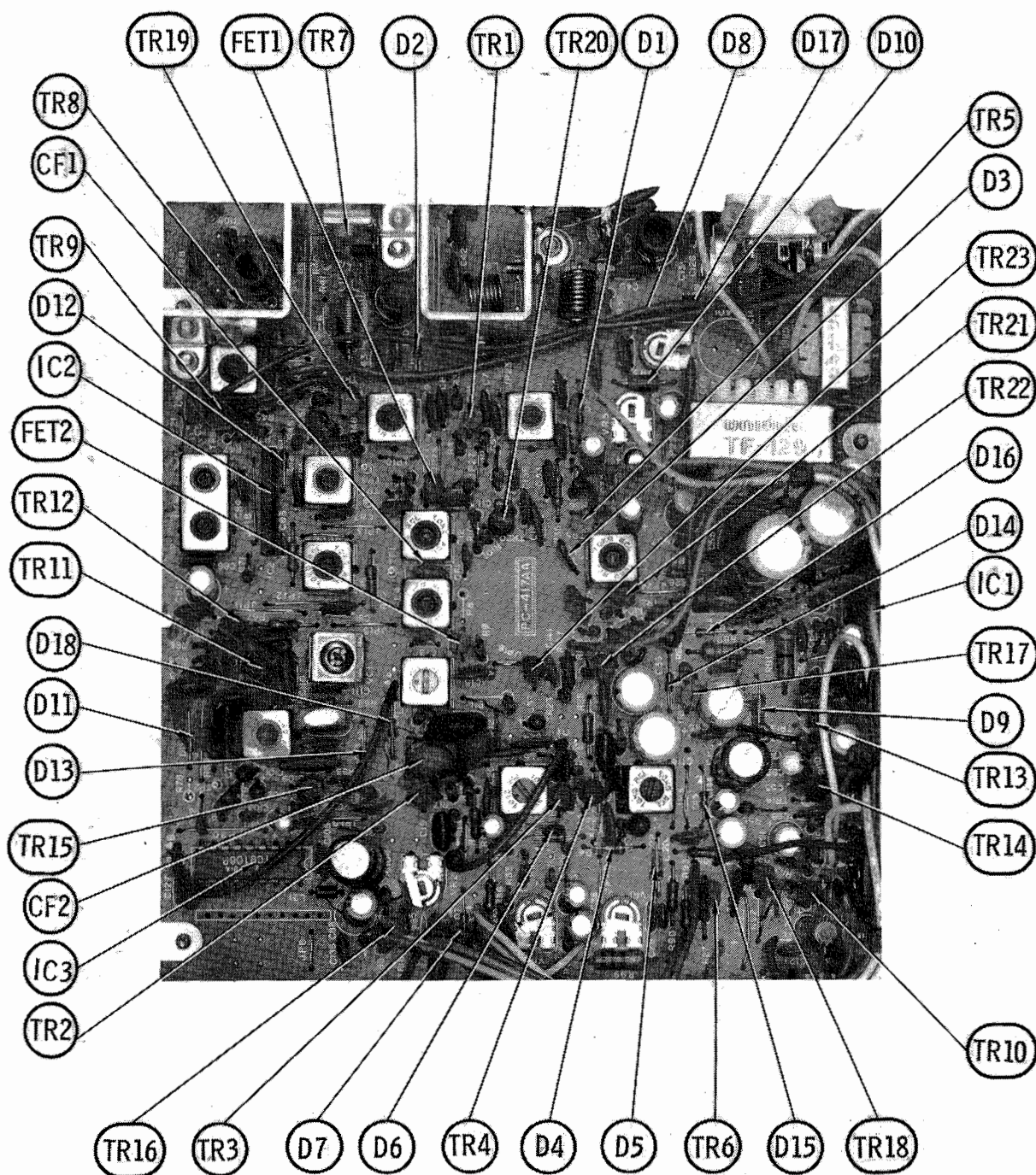


COBRA MODELS 21GT/25GT

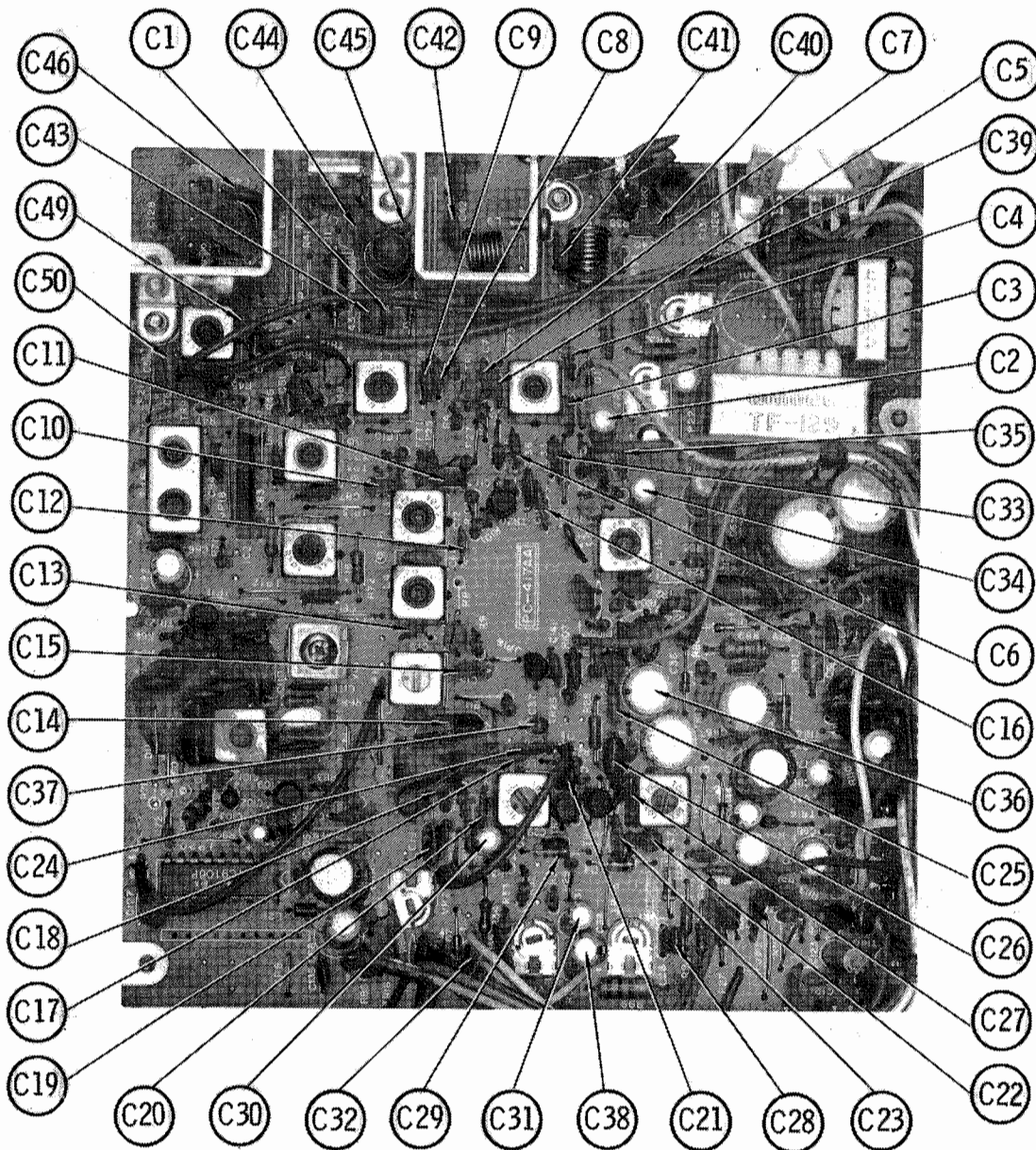
MAIN BOARD



CHASSIS - BOTTOM

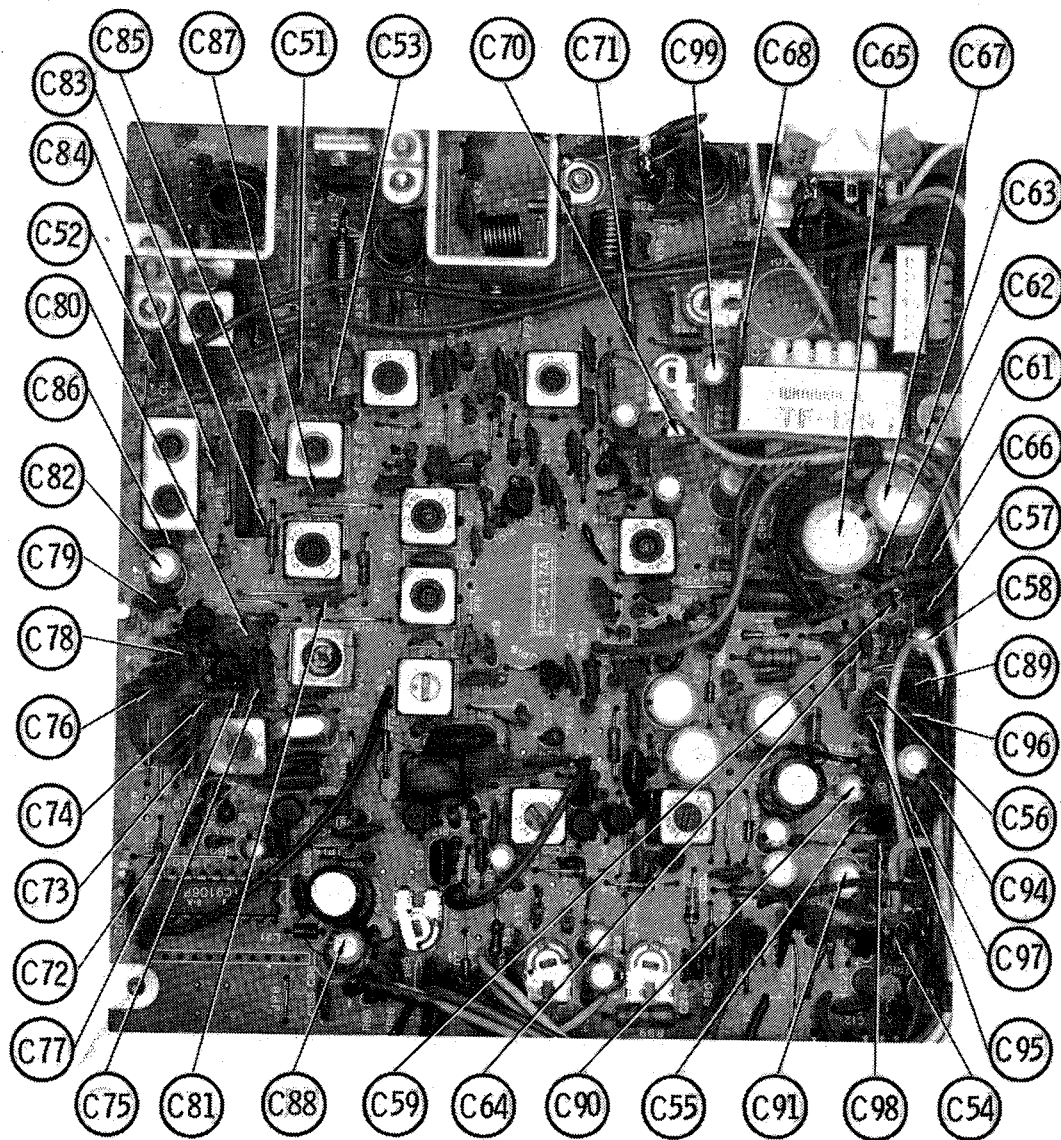


MAIN BOARD

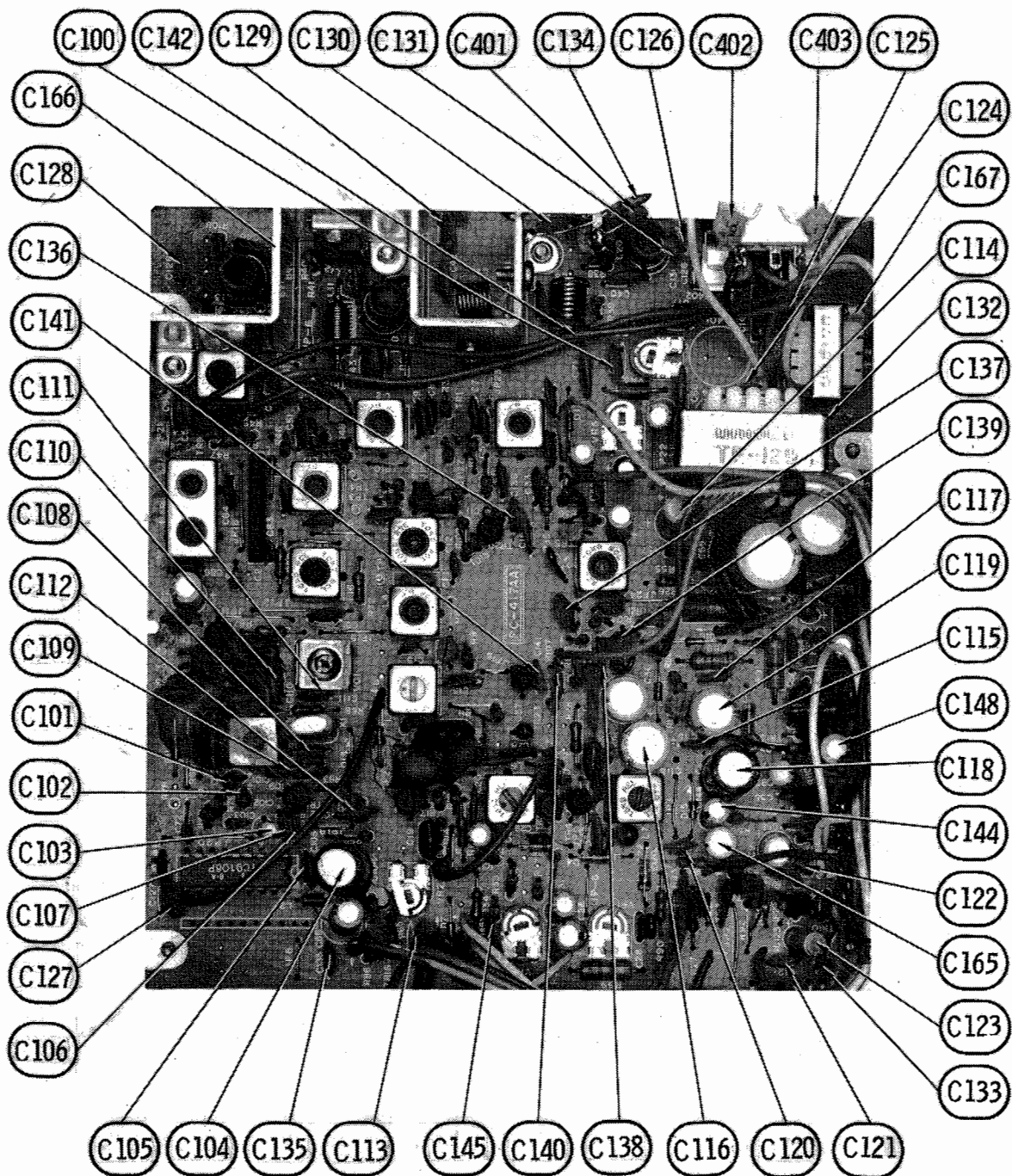


MAIN BOARD



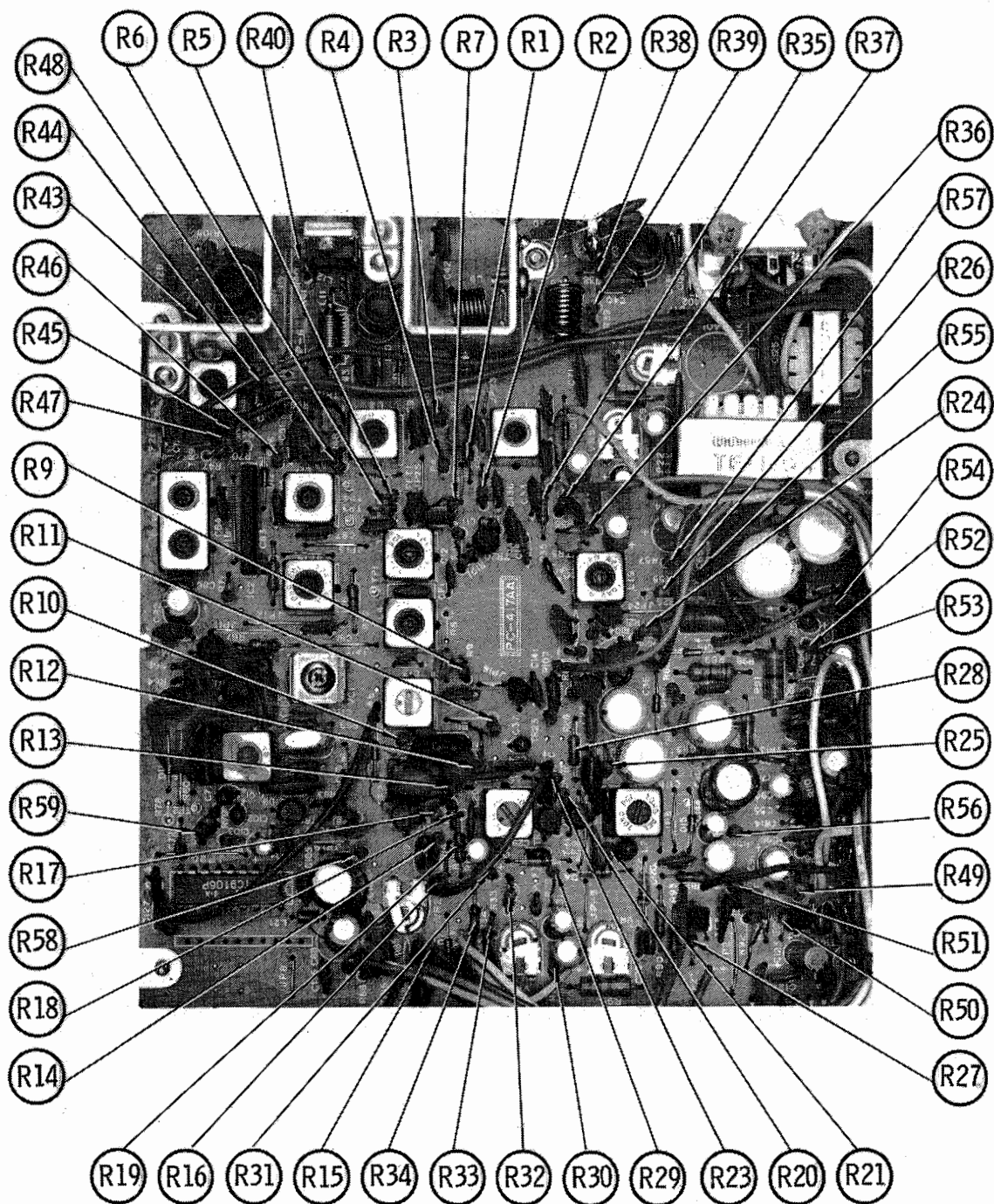


MAIN BOARD

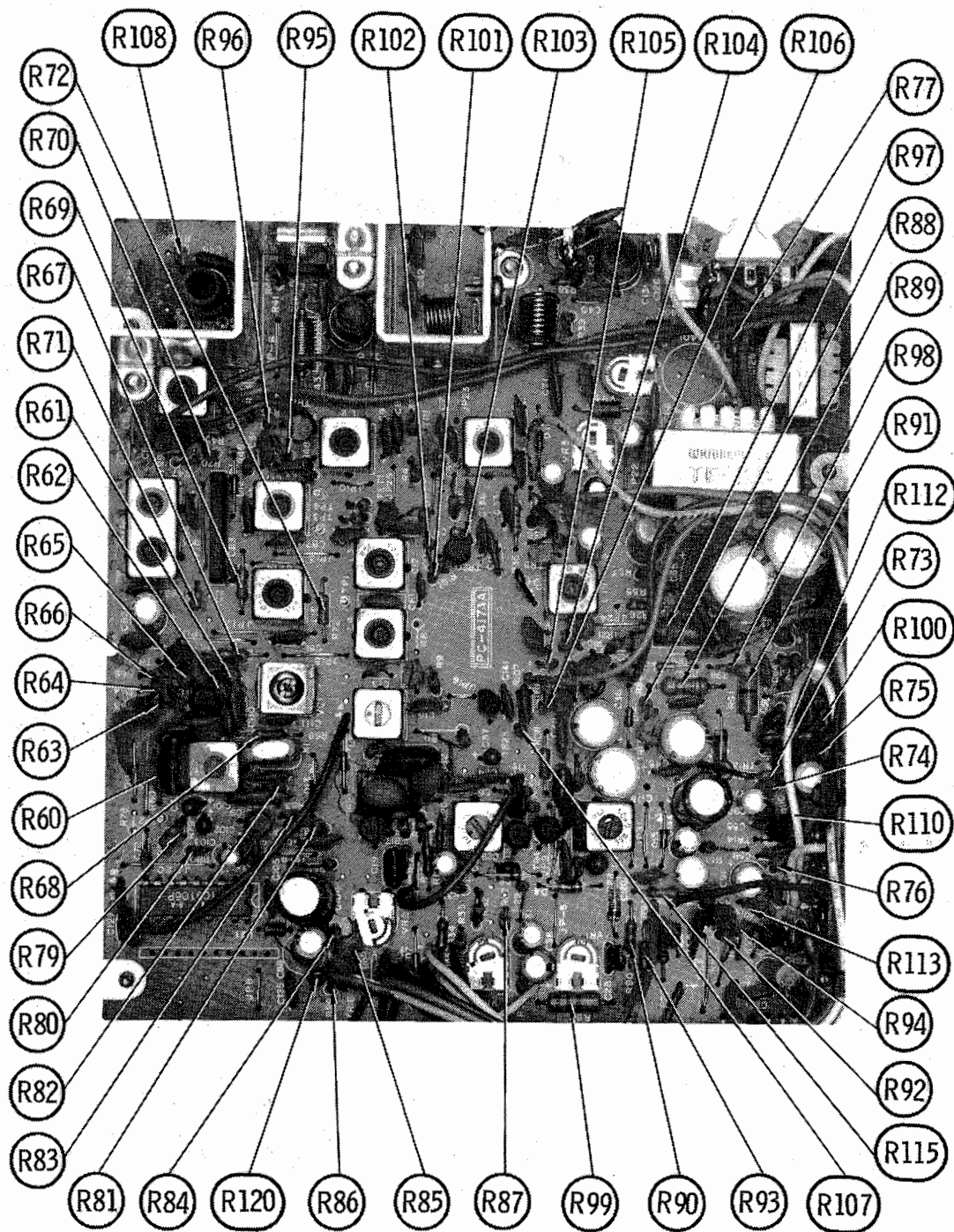


MAIN BOARD

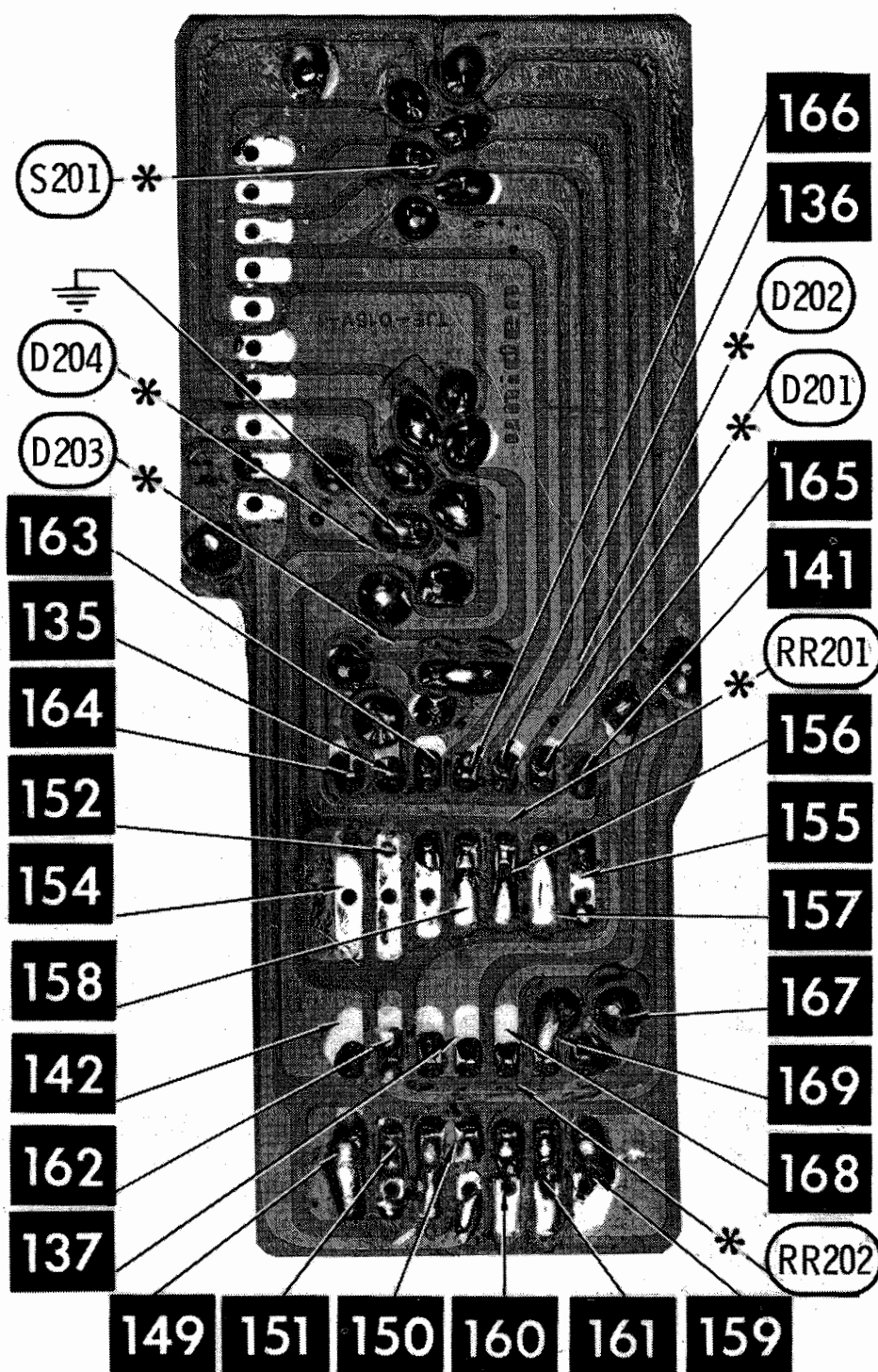




MAIN BOARD



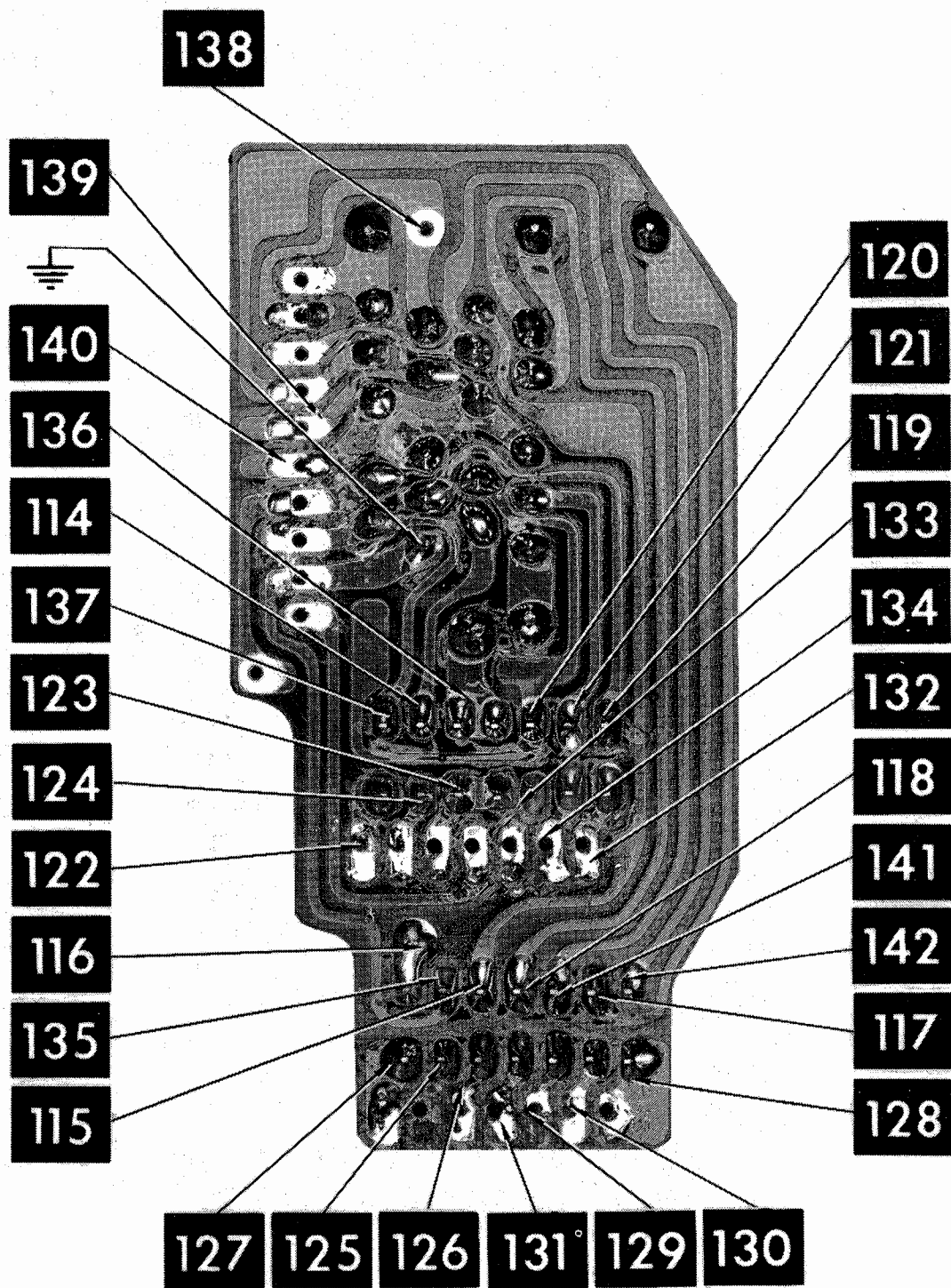
MAIN BOARD



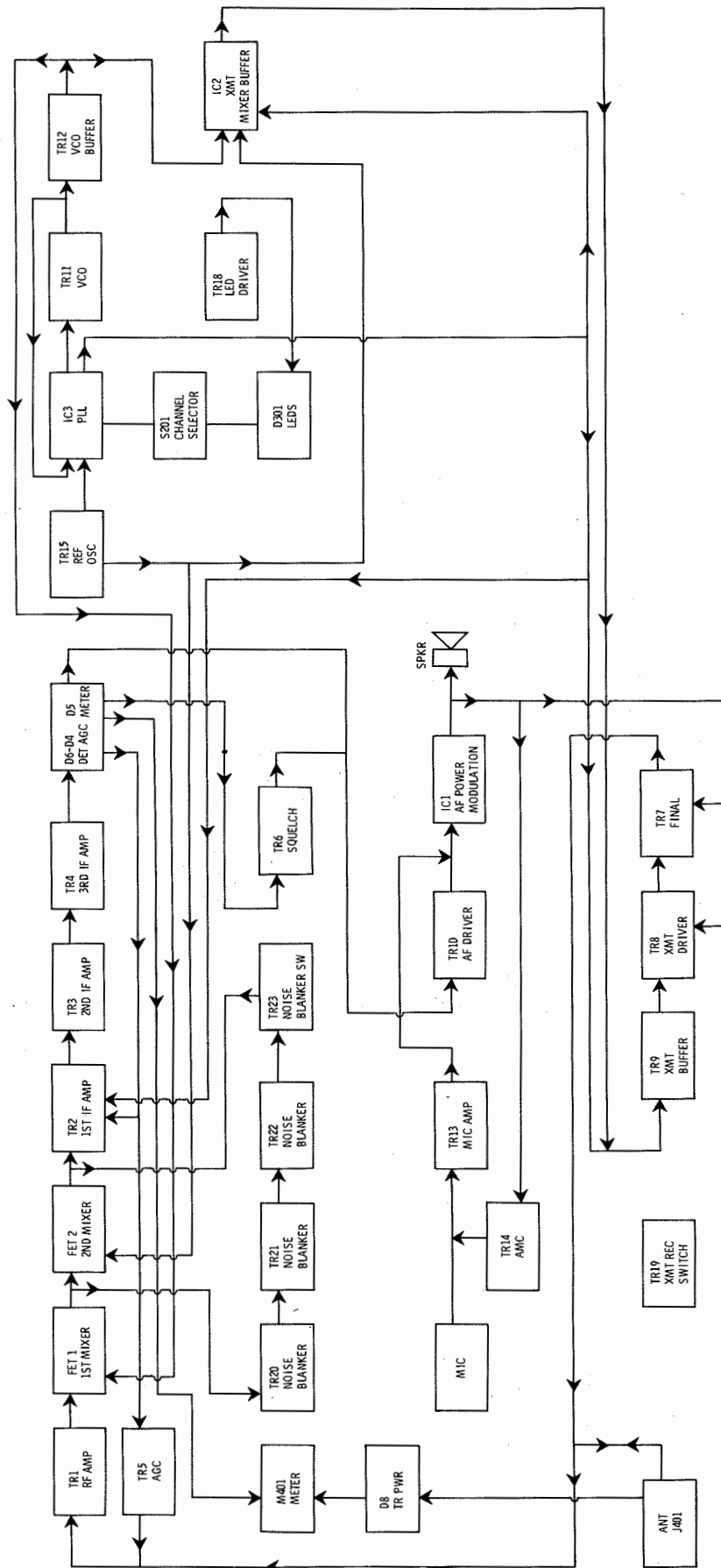
COBRA MODELS 21GTL/25GTL

\* Component located on top side

SWITCH BOARD (MODEL 21GTL)



SWITCH BOARD (MODEL 25GTL)



BLOCK DIAGRAM







# PARTS LIST AND DESCRIPTION

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

## SEMICONDUCTORS (Select replacement transistor for best results)

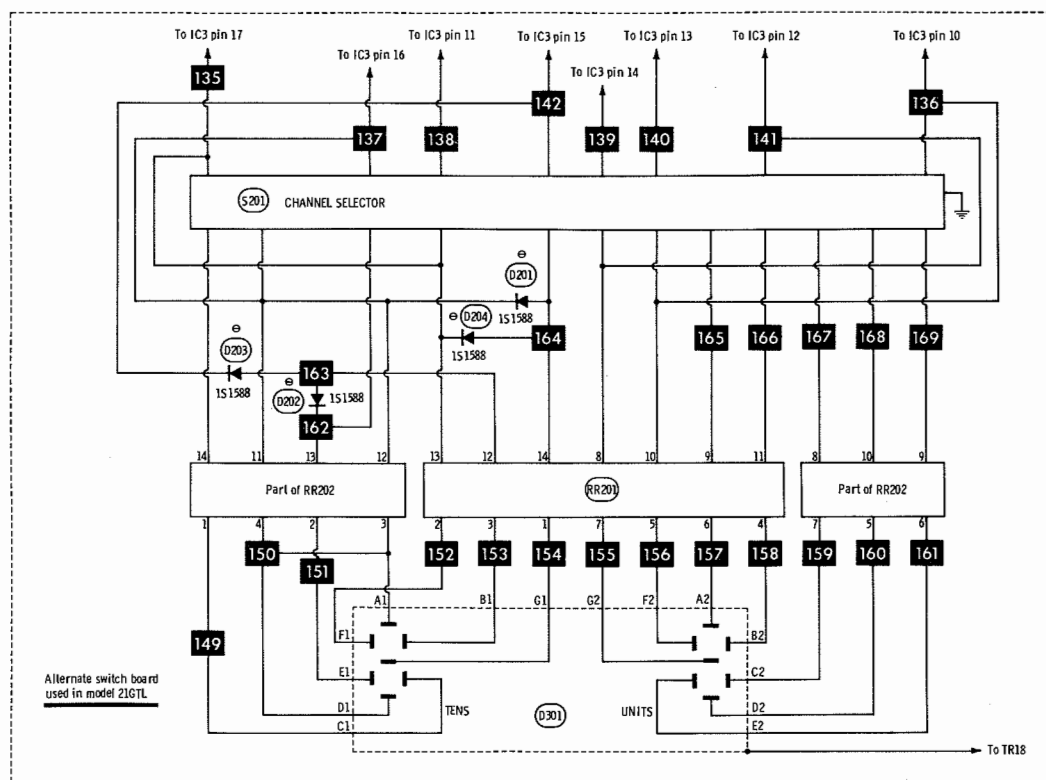
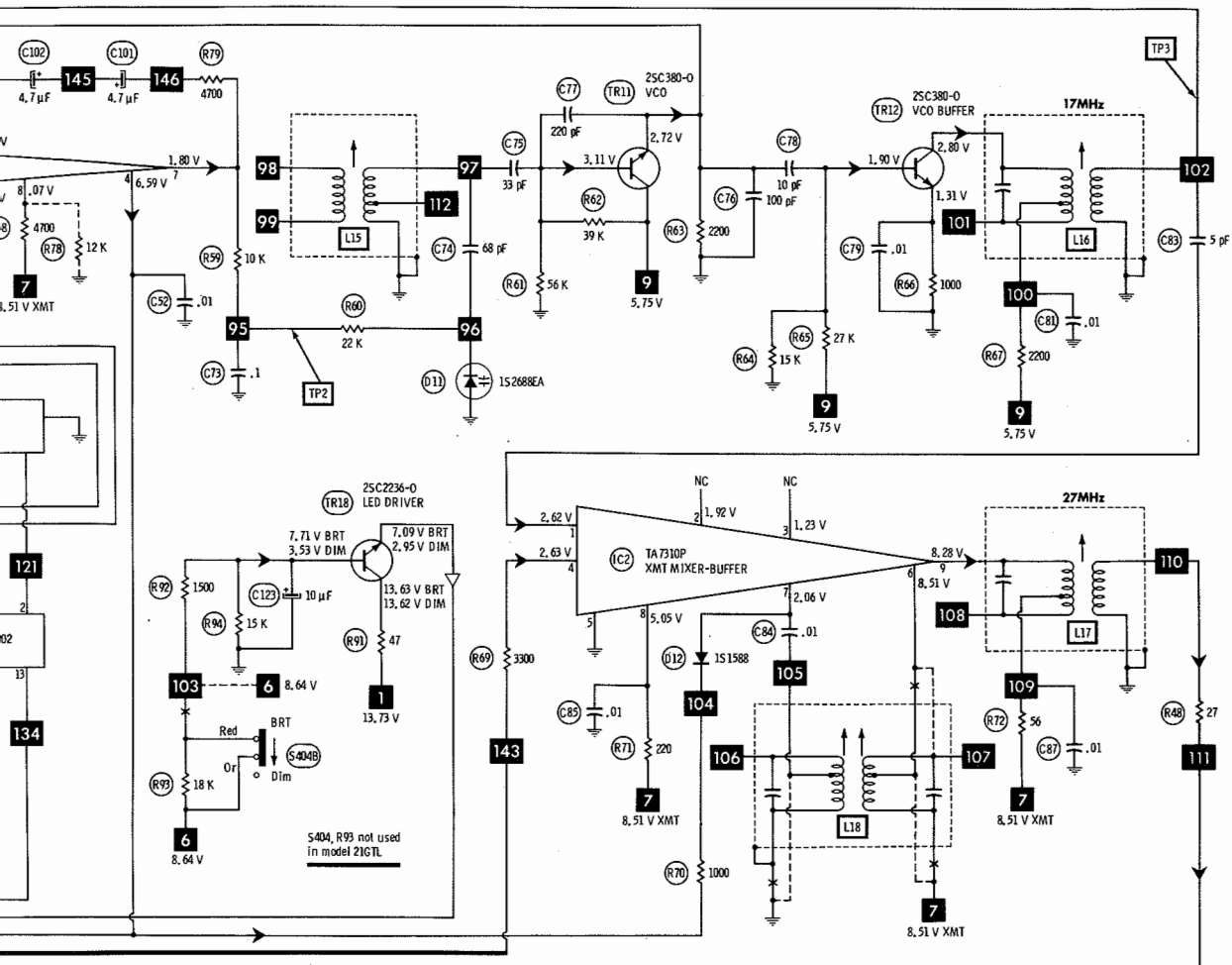
| ITEM No. | TYPE No.   | MFR. PART No. | REPLACEMENT DATA          |                  |                   |                   |              |                  |                   |                     |                  |                 |
|----------|------------|---------------|---------------------------|------------------|-------------------|-------------------|--------------|------------------|-------------------|---------------------|------------------|-----------------|
|          |            |               | GENERAL ELECTRIC PART No. | 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       | 1S1588     |               | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D2       | 1S1588     |               | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D3       | 1S1588     |               | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D4       | 1N60AM     | 150-014-9-001 | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
|          | 1N60       |               | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
| D5       | 1N60AM     | 150-014-9-001 | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
|          | 1N60       |               | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
| D6       | 1N60AM     | 150-014-9-001 | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
|          | 1N60       |               | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
| D7       | 1S2075K    | 151-028-9-001 | GE-300                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG177            |                     | WEP1062          |                 |
| D8       | 1S1588     | 151-075-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D9       | 1N60AM     | 150-014-9-001 | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
|          | 1N60       |               | 1N60                      | PTC206           | HEPR9135          | REN 109           | SK3088       | RT-263           | ECG109            | 1N60                | WEP134           | ZEN-430         |
| D10      | SR1K-1     | 151-040-9-003 | GE-504A                   | PTC201           | HEPR0052          | REN 116           | SK3030       | RT-213           | ECG116            | 1N4004              | WEP156           | 212-76-02       |
| D11      | 1S2688EA   | 154-004-9-001 |                           |                  |                   | REN 614           | SK3126       |                  | ECG613            |                     |                  | 103-281         |
| D12      | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D13      | WZ-071     | 151-075-9-001 | GEZD-7.5                  | ZM7.58           |                   | REN 138           | SK3059       | RT-239           | ECG5015           | 1N4737A             | WEP1416          |                 |
| D14      | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D15      | 05Z9.1L    | 152-089-9-001 |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| D16      | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D17      | S5Z77B     | 151-076-9-001 | GE-504A                   | PTC201           | HEPR0052          | REN 116           | SK3030       | RT-213           | ECG116            | 1N4004              | WEP156           | 212-76-02       |
| D18      |            |               | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D201     |            |               | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D202     | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D203     | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| D204     | 1S1588     | 151-051-9-001 | GE-514                    | PTC214           | HEPR0602          | REN 177           | SK3100       | RT-218           | ECG519            | 1N4148              | WEP925           |                 |
| FET1     | 2SK104H    | 182-055-9-001 | GE-FET-2                  | PTC161           | HEPF0021          | REN 132           | SK3448       | RT-175           | ECG312            |                     |                  | ZEN-123         |
| FET2     | 2SK104H    | 182-055-9-001 | GE-FET-2                  | PTC161           | HEPF0021          | REN 132           | SK3448       | RT-175           | ECG312            |                     |                  | ZEN-123         |
| IC1      | TA7222P    | 307-143-9-003 |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| IC2      | TA7310P    | 307-133-9-004 |                           |                  |                   | REN 1192          | SK3487       |                  | ECG1192           |                     |                  |                 |
| IC3      | TC9106D    | 307-144-9-001 |                           |                  |                   |                   | SK3445       |                  |                   |                     |                  |                 |
| TR1      | 2SC1923BN  | 176-089-9-001 | GE-61                     | PTC132           | HEPS0016          | REN 107           | SK3018       | RT-107           | ECG229            | 2SC535              | WEP956           |                 |
| TR2      | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR3      | 2SC180-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR4      | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR5      | 2SC1815-0  | 176-085-9-002 | GE-62                     | PTC136*          | HEPS0015*         | REN 236           | SK3245       | RT-304           | ECG199            |                     | WEP66            | 121-Z9000       |
| TR6      | 2SC1815-0  | 176-085-9-002 | GE-62                     | PTC136*          | HEPS0015*         | REN 236           | SK3245       | RT-304           | ECG199            |                     | WEP66            | 121-Z9000       |
| TR7      | 2SC2075    | 176-089-9-007 | GE-215                    | PTC186           |                   | REN 235           | SK3197       | RT-146           | ECG235            |                     | WEP785           |                 |
| TR8      | 2SC2091    | 176-074-9-002 | GE-215                    | PTC186           |                   | REN 235           | SK3197       | RT-146           | ECG235            | 2SC1366             | WEP785           |                 |
|          |            | (13)          |                           |                  |                   |                   |              |                  |                   |                     |                  |                 |
| TR9      | 2SC941-0   | 176-089-9-004 | GE-210*                   | PTC132*          | HEPS0016*         | REN 123A*         | SK3122       | RT-107A          | ECG123A*          | 2SC460              | WEP66            | 121-Z9000*      |
|          | 2SC941TM-0 | 176-089-9-004 | GE-210*                   | PTC132*          | HEPS0016*         | REN 123A*         | SK3122       | RT-107A          | ECG123A*          | 2SC460              | WEP66            | 121-Z9000*      |
| TR10     | 2SC458C    | 176-048-9-002 | GE-210*                   | PTC121*          | HEPS0009*         | REN 123A*         | SK3122       | RT-187           | ECG289            | 2SC458              | WEP458           | 121-Z9000*      |
| TR11     | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR12     | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR13     | 2SC380-0   | 176-089-9-002 | GE-210*                   | PTC121*          | HEPS0009*         | REN 123A*         | SK3122       | RT-187           | ECG289            | 2SC458              | WEP458           | 121-Z9000*      |
| TR14     | 2SC495-0   | 176-048-9-002 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
|          | 2SC495TM-0 | 177-037-9-001 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
| TR15     | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR16     | 2SC495-0   | 176-089-9-002 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
|          | 2SC495TM-0 | 177-037-9-001 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
| TR17     | 2SC2236Y   | 176-089-9-006 | GE-276                    | PTC180           |                   | REN 306           | SK3197       | RT-310           | ECG306            |                     | WEP771           |                 |
| TR18     | 2SC2236-0  | 176-089-9-005 | GE-276                    | PTC180           |                   | REN 306           | SK3197       | RT-310           | ECG306            |                     | WEP771           |                 |
| TR19     | 2SC1815-0  | 176-085-9-002 | GE-62                     | PTC136*          | HEPS0015*         | REN 236           | SK3245       | RT-304           | ECG199            |                     | WEP66            | 121-Z9000       |
| TR20     | 2SC380-0   | 176-089-9-002 | GE-61*                    | PTC136*          | HEPS0016*         | REN 107           | SK3018*      | RT-107A          | ECG107            | 2SC380              | WEP380           | ZEN-127         |
| TR21     | 2SC1815Y   | 176-089-9-003 | GE-62                     | PTC136*          | HEPS0015*         | REN 236           | SK3245       | RT-304           | ECG199            |                     | WEP66            | 121-Z9000       |
| TR22     | 2SC1815Y   | 176-089-9-003 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
|          | 2SC495TM-0 | 177-037-9-001 | GE-221*                   | PTC103*          | HEPS0013*         | REN 159*          | SK3466       | RT-303           | ECG159*           | 2SC495              | WEP495           | ZEN-106         |
| TR23     | 2SC1815Y   | 176-089-9-003 | GE-62                     | PTC136*          | HEPS0015*         | REN 236           | SK3245       | RT-304           | ECG199            |                     | WEP66            | 121-Z9000       |

\* Lead configuration may vary from original.  
(13) 5 WATTS @ 1 AMP.

## ELECTROLYTIC CAPACITORS

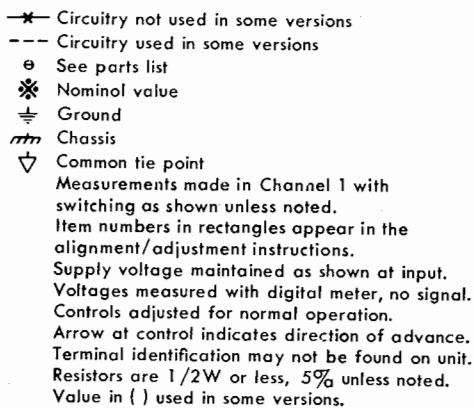
| ITEM No. | RATING   | MFR. PART No. | REPLACEMENT DATA          |                  |                  |              |
|----------|----------|---------------|---------------------------|------------------|------------------|--------------|
|          |          |               | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |          |               |                           |                  | Q-LINE           | GENERAL LINE |
| C2       | 4.7 25V  | 022-157-9-003 | PC5-50                    | VTT4R7B50        | QV1-27           | EV-1319      |
| C22      | 10 16V   | 027-033-9-003 | PC1-50                    | TDC106M025FL     | QDT1-64          | SD25-109     |
| C30      | 1 50V    | 022-157-9-002 | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |
| C31      | 10 16V   | 022-157-9-004 | PC10-25                   | VTT10825         | QV1-27           | EV-1222      |
| C34      | 4.7 25V  | 022-157-9-003 | PC5-50                    | VTT4R7B50        | QV1-27           | EV-1319      |
| C36      | 100 16V  | 022-157-9-009 | PC100-16                  | VTT100F16        | QV1-95           | EV-1230      |
| C37      | 4.7 16V  | 027-026-9-004 |                           | TDC475M035FL     | QDT1-49          | SD35-4R79    |
| C38      | 22 16V   | 022-163-9-001 | PC25-25                   | VTT22B16         | QV1-55           | EV-1224      |
| C58      | 10 16V   | 022-157-9-004 | PC10-25                   | VTT10825         | QV1-41           | EV-1222      |
| C59      | 4.7 16V  | 027-026-9-004 |                           | TDC475M035FL     | QDT1-49          | SD35-4R79    |
| C63      | 47 16V   | 022-164-9-002 | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C65      | 1000 16V | 022-158-9-004 | PC1000-16                 | VTT1000L16       | QV1-183          | EV-1260      |
| C67      | 470 16V  | 022-157-9-011 | PC500-16                  | VTT470K16        | QV1-151          | EV-1250      |
| C70      | 3.3 25V  | 022-172-9-001 | PC5-50                    | VTT3R3A50        | QV1-23           | EV-1318      |
| C82      | 47 10V   | 022-160-9-002 | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C88      | 47 10V   | 022-160-9-002 | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C90      | 1 50V    | 022-157-9-002 | PC1-50                    | VTT1A50          | QV1-11           | EV-1615      |











# PARTS LIST AND DESCRIPTION (CONTINUED)

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

## ELECTROLYTIC CAPACITORS (cont)

| ITEM No. | RATING  | REPLACEMENT DATA |                           |                  |                  |              |
|----------|---------|------------------|---------------------------|------------------|------------------|--------------|
|          |         | MFR. PART No.    | CORNELL-DUBILIER PART No. | MALLORY PART No. | SPRAGUE PART No. |              |
|          |         |                  |                           |                  | Q-LINE           | GENERAL LINE |
| C91      | 33 16V  | 022-157-9-006    | PC30-25                   | VTT33025         | QV1-63           | EV-1325      |
| C94      | 10 16V  | 022-157-9-004    | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C99      | 4.7 25V | 022-157-9-003    | PC5-50                    | VTT4R7B50        | QV1-27           | EV-1319      |
| C101     | 4.7 16V | 027-026-9-004    |                           | TDC475M035FL     | QDT1-49          | SD35-4R79    |
| C102     | 4.7 16V | 027-026-9-004    |                           | TDC475M035FL     | QDT1-49          | SD35-4R79    |
| C103     | .22 16V | 022-172-9-003    |                           | TDC224M050EL     | QDT1-10          | SD50-R229    |
| C104     | 470 10V | 022-160-9-001    | PC500-16                  | VTT470K16        | QV1-149          | EV-1150      |
| C114     | 47 10V  | 022-160-9-002    | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C116     | 220 10V |                  | PC250-10                  | VTT220F10        | QV1-115          | EV-1140      |
| C118     | 470 10V | 022-160-9-001    | PC500-16                  | VTT470K16        | QV1-149          | EV-1150      |
| C119     | 220 16V | 022-163-9-001    | PC250-25                  | VTT220H16        | QV1-117          | EV-1240      |
| C123     | 10 16V  | 022-157-9-004    | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C143     | 220 16V | 022-163-9-001    | PC250-25                  | VTT220H16        | QV1-117          | EV-1240      |
| C144     | 10 16V  | 022-157-9-004    | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |
| C148     | 47 10V  | 022-160-9-002    | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C165     | 47 10V  | 022-160-9-002    | PC50-16                   | VTT47D16         | QV1-73           | EV-1226      |
| C167     | 10 16V  | 022-157-9-004    | PC10-25                   | VTT10B25         | QV1-41           | EV-1222      |

COBRA MODELS 21GTL/25GTL

## 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       | 22 N220 10%   | 020-205-9-002 | UK50-103           |                           | *                |                  | 10TCR-Q22    |
| C3       | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C4       | .01 50V       |               | DD-221             |                           | MAG5011          |                  |              |
| C5       | 220 10% 50V   |               | UK50-103           |                           | GP322            |                  | 10TS-T22     |
| 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          |                  |              |
| C11      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C12      | 47 10% 50V    | (1)           | DTZ-47             | NP047                     | CN0447           |                  | 10TCC-Q47    |
| C13      | .001 50V      |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C14      | .068 10% 25V  |               |                    | WMF1S68                   | EWFA1A68         | QF1-195          | 1PB-S68      |
| C15      | .01 50V       | (1)           | UK50-103           |                           | MAG5011          |                  |              |
| C16      | .047 25V      | (1)           | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C17      | .047 25V      |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C18      | 1 +.25 50V    | 020-190-9-001 |                    |                           |                  |                  |              |
| C19      | .047 10% 25V  |               | UK25-503           | DPMS2S47                  | EWFA1A47         | QFT2-171         | 1FT-S47      |
| C20      | .047 25V      |               | UK25-503           | DPMS6D1                   | MAG2515          | QFT2-1           | HY-735       |
| C21      | .001 10% 25V  |               | UK25-503           |                           | EWFA1A210        |                  | 1FT-D10      |
| C23      | .047 25V      |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C24      | .047 25V      |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C25      | .047 25V      |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C26      | .047 10% 25V  |               |                    | DPMS2S47                  | EWFA1A47         | QFT2-171         | 1FT-S47      |
| C27      | .0047 10% 25V |               |                    | WMF1D47                   | EWFA1A247        | QFT2-63          | 1FT-D47      |
| C28      | .01 10% 25V   |               |                    | WMF1S1                    | EWFA1A110        | QFT2-91          | 1FT-S10      |
| C29      | .0022 10% 25V |               |                    |                           | M192P2229R8      | QFT2-27          | 1FT-D22      |
| C32      | .022 10% 25V  |               |                    | DPMS2S22                  | EWFA1A22         | QFT2-127         | 1FT-S22      |
| C33      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C35      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C39      | .047 25V      |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C40      | 68 N220 10%   | 020-196-9-001 |                    |                           | *                |                  | 10TCR-Q68    |
| C41      | 330 10% 50V   |               | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C42      | 330 10% 50V   |               | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C43      | .04 25V       |               |                    |                           | GP140            |                  | 5GA-S40      |
| C44      | .0047 50V     |               | DD-472             | GP4700                    | GP247            |                  | 5GA-D47      |
| C45      | 56 10% 50V    |               | DD-560             |                           | GP456            |                  | 10TS-Q56     |
| C46      | 250 10% 50V   |               | DD-251             |                           | GP325            | QC2-55           | 5GAT25       |
| C47      | .039 25V      |               |                    |                           | GP140            |                  | 5GA-S40      |
| C48      | .039 25V      |               |                    |                           | GP140            |                  | 5GA-S40      |
| C49      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C50      | .0047 50V     |               | DD-472             | GP4700                    | GP247            |                  | 5GA-D47      |
| C51      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C52      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C53      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C54      | .022 10% 25V  |               |                    | DPMS2S22                  | EWFA1A22         | QFT2-127         | 1FT-S22      |
| C55      | .001 50V      |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C56      | .0068 25V     |               |                    | WMF1D68                   | EWFA1A268        | QFT2-73          | 1FT-D68      |
| C57      | .001 25V      |               |                    | DPMS6D1                   | EWFA1A210        | QFT2-1           | 1FT-D10      |
| C60      | .01 50V       |               | UK50-103           |                           | MAG5011          |                  |              |
| C61      | .001 50V      |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C62      | .001 10% 25V  |               |                    | DPMS6D1                   | EWFA1A210        | QFT2-1           | 1FT-D10      |

# 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. |              |
|          |                  |               |                    |                           |                  | Q-LINE           | GENERAL LINE |
| C64      | .01 50V          | 020-205-9-003 | UK50-103           |                           | MAG5011          |                  |              |
| C66      | .1 10% 25V       |               |                    |                           |                  |                  |              |
| C68      | .04 25V          |               | DD-102G            | GP1000                    | GP140            | QC2-81           | 5GA-S40      |
| C69      | .001 50V         |               |                    |                           | GP210            |                  | 5GA-010      |
| C71      | .04 25V          |               | DD-330             | GP33                      | GP140            | QFT2-215         | 5GA-S40      |
| C72      | 33 10% 50V       |               |                    | WMF05P1                   | GP433            |                  | 10TS-Q33     |
| C73      | .1 10% 25V       |               | DTN-68             | N68                       | EWFO5010         |                  | 1FT-P10      |
| C74      | 68 N750 10% 50V  |               |                    |                           | CN7468           |                  | 10TCU-Q68    |
| C75      | 33 N220 10% 50V  |               | DTN-100            | N100                      | *                |                  | 10TCR-Q33    |
| C76      | 100 N750 10% 50V |               | DTN-220            | N220                      | CN7310           |                  | 10TCU-T10    |
| C77      | 220 N750 10% 50V |               | DTZ-10             | NP010                     | CN7322           |                  | 10TCU-T22    |
| C78      | 10 10% 50V       |               | UK50-103           |                           | CN0410           |                  | 10TCC-Q10    |
| C79      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C80      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C81      | .01 50V          | (2)           | DTZ-4R7            | NP04P7                    | MAG5011          |                  | 10TCC-V47    |
| C83      | 5 10% 50V        |               | UK50-103           |                           | CN0547           |                  |              |
| C84      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C85      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C86      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C87      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C89      | .001 10% 25V     |               |                    | DPMS601                   | EWFA210          | QFT2-1           | 1FT-010      |
|          | .033 25V         |               |                    |                           | M192P3339R8      | QFT2-149         | 1FT-S33      |
| C90      | 270 10% 50V      |               | DD-271             | GP270                     | GP327            |                  | 10TS-T27     |
| C92      | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-010      |
| C93      | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-010      |
| C95      | .001 10% 25V     | 020-205-9-004 |                    |                           |                  |                  |              |
| C96      | .022 10% 25V     |               |                    |                           |                  |                  |              |
| C97      | .0022 50V        |               | DD-222             |                           | GP222            | QC2-97           | 5GA-022      |
| C98      | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C100     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C105     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C106     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C107     | 47 10% 50V       |               | DTZ-47             | NP047                     | CN0447           |                  | 10TCC-Q47    |
| C108     | 100 N220 10% 50V |               |                    |                           | *                |                  | 10TCR-T10    |
| C109     | 220 N220 10% 50V |               |                    |                           | *                |                  | 10TCR-T22    |
| C110     | 470 10% 50V      | 020-205-9-005 | DD-471             | GP470                     | GP347            |                  | 10TS-T47     |
| C111     | 33 NPO 10% 50V   |               | DTZ-33             | NP033                     | CN0433           |                  | 10TCC-Q33    |
| C112     | .047 25V         |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C113     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C115     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C117     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C120     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C121     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C122     | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-010      |
| C124     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C125     | .01 50V          | (1)           | UK50-103           |                           | MAG5011          | QC2-81           | 5GA-D10      |
| C126     | .001 50V         |               | DD-102G            | GP1000                    | GP210            |                  |              |
| C127     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C128     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C129     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C130     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C131     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C132     | .047 25V         |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C133     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C134     | .047 25V         |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C135     | .01 50V          | (1)           | UK50-103           |                           | MAG5011          |                  |              |
| C136     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C137     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C138     | 100 10% 50V      |               | DD-101             | GP100                     | GP310            |                  | 10TS-T10     |
| C139     | 150 10% 50V      |               | DD-151             |                           | GP315            |                  | 10TS-T15     |
| C140     | 330 10% 50V      |               | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C141     | 150 10% 50V      |               | DD-151             |                           | GP315            |                  | 10TS-T15     |
| C142     | 2 NPO 10% 50V    |               | DTZ-2R2            | NP02P2                    | CN0522           |                  | 10TCC-V22    |
| C145     | .04 25V          |               |                    |                           | GP140            |                  | 5GA-S40      |
| C146     | .01 50V          |               | UK50-103           |                           | MAG5011          | QC2-81           | 5GA-D10      |
| C150     | .001 50V         | 028-052-9-001 | DD-102G            | GP1000                    | GP210            |                  |              |
| C151     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C152     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C153     | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C166     | 330 10% 50V      |               | DD-331             | GP330                     | GP333            |                  | 10TS-T33     |
| C168     | .047 25V         |               | UK25-503           |                           | MAG2515          |                  | HY-735       |
| C401     | 33 10% 50V       |               | DD-330             | GP33                      | GP433            |                  | 10TS-Q33     |
| C402     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C403     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C501     | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C502     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| C503     | .001 50V         |               | DD-102G            | GP1000                    | GP210            | QC2-81           | 5GA-D10      |
| C504     | .01 50V          |               | UK50-103           |                           | MAG5011          |                  |              |
| VC1      | 50               |               |                    |                           |                  |                  |              |

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

(1) Model 25GTL only.

(2) See alternate Mic Amp circuit.

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

| ITEM No. | FUNCTION      | RESIST-ANCE | REPLACEMENT DATA   |                    |                  |              |
|----------|---------------|-------------|--------------------|--------------------|------------------|--------------|
|          |               |             | MFGR. PART No.     | CENTRALAB PART No. | MALLORY PART No. | TRW PART No. |
| VR1      | STG           | 20K         | 008-316-9-003      |                    |                  | U260R253B    |
| VR2      | IF Gain       | 200         | 008-344-9-001      |                    |                  |              |
| VR3      | TX Power      | 20K         | 008-316-9-003      |                    |                  | U260R253B    |
| VR4      | Squelch Range | 50K         | 008-316-9-002      |                    |                  | U260R503B    |
| VR5      | AMC           | 5000        | 008-316-9-004      |                    |                  | U260R502B    |
| VR401    | RF Gain       | 1000        | 008-344-9-004 (18) |                    |                  |              |
| VR402    | Squelch       | 50K         | 008-344-9-003      |                    |                  |              |
| VR403    | Volume/Switch | 50K         | 008-344-9-002      |                    |                  |              |
| VR404    | Dynamike      | 5000        | 008-344-9-005      |                    |                  |              |

(18) Used in Model 256TL.

### RESISTORS (Power and Special)

| ITEM No. | RATING           | REPLACEMENT DATA |                  | ITEM No. | RATING           | REPLACEMENT DATA |                  |
|----------|------------------|------------------|------------------|----------|------------------|------------------|------------------|
|          |                  | WORKMAN PART No. | MFGR. PART No.   |          |                  | WORKMAN PART No. | MFGR. PART No.   |
| RR201    | Resistor Network |                  | 527-076-9-002(1) | RR202    | Resistor Network |                  | 527-076-9-002(1) |

(1) Consists of seven 680 ohm resistors.

### COILS (RF-IF)

| ITEM No. | FUNCTION              | REPLACEMENT DATA |                      |                 | REMARKS                       |
|----------|-----------------------|------------------|----------------------|-----------------|-------------------------------|
|          |                       | PART No.         | OTHER IDENTIFICATION | MILLER PART No. |                               |
| L1       | Rec Antenna (27MHz)   | 660-023-9-001    | LA-029               | CBS740-7        | (1) Used in Model 256TL only. |
| L2       | Rec RF (27MHz)        | 046-024-9-001    | LA-138               |                 |                               |
| L3       | Rec Mixer (10.695MHz) | 060-024-9-002    | LA-181               |                 |                               |
| L4       | IF (10.695MHz)        | 060-024-9-002    | LA-181               |                 |                               |
| L5       | IF (455kHz)           | 060-019-9-002    | LA-106               | 8517            |                               |
| L6       | IF (455kHz)           | 046-024-9-003    | LA-204               |                 |                               |
| L7       | IF (455kHz)           | 046-024-9-004    | LA-276               |                 |                               |
| L8       | Antenna Matching      | 041-104-9-002    | LE-089               |                 |                               |
| L9       | PI Filter             | 041-104-9-001    | LE-088               |                 |                               |
| L10      | Final Amp (27MHz)     | 041-088-9-001    | LC-019               | CB305           |                               |
| L11      | RF Choke              | 041-069-9-004    | LD-012               | 4588            |                               |
| L12      | RF Choke              | 044-068-9-003    | LD-087               |                 |                               |
| L13      | RF Choke              | 041-056-9-003    | LC-018               | CB304           |                               |
| L14      | XMT Buffer (27MHz)    | 060-029-9-004    | LA-208               |                 |                               |
| L15      | VCO                   | 044-046-9-001    | LA-165               |                 |                               |
| L16      | VCO Buffer (17MHz)    | 046-024-9-002    | LA-201               |                 |                               |
| L17      | XMT Buffer (27MHz)    | 066-019-9-002    | LA-088               | CBS717-TC       |                               |
| L18      | XMT Mixer             | 060-029-9-001    | LA-198               |                 |                               |
| L19      | Noise Blanker         | 060-024-9-001(1) | LA-180               | CBS715-TC       |                               |
| L20      | TVI Trap              | 041-056-9-003    | LC-018               | CB304           |                               |
| L21      | RF Choke              |                  |                      |                 |                               |
| L401     | RF Choke              | 044-051-9-001    |                      |                 |                               |
| L501     | RF Choke              |                  |                      |                 |                               |
| L502     | RF Choke              |                  |                      |                 |                               |

COBRA MODELS 216TL/256TL

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

### 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       | 950mA              | .8      | .86mH                        | 042-021-9-001<br>TF-083(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. |                     |
| T1       | 8         | 18   | 061-039-9-001<br>TF-129(1) |                     |                | (1) Number on unit. |

### SPEAKER

| ITEM No. | TYPE  |         | REPLACEMENT DATA           |               | NOTES               |
|----------|-------|---------|----------------------------|---------------|---------------------|
|          |       |         | MFGR. PART No.             | QUAM PART No. |                     |
| SP401    | 4" PM | 16 Ohms | 580-028-9-001<br>10P03G(1) | 4A1Z16        | (1) Number on unit. |

### 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           |
| F401     | 2A Quick Acting | 191-251-3-002    |        | AGC-2         | HDJ    | 312002              | 150145 | FG2-2            |



## 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      | 562-025-9-001    | 18-032      | 18-034          | 18-010   | 18-092          | 2      | 1         | 3         | 4       | NC       | 1        |

### MISCELLANEOUS

| ITEM No. | PART NAME             | PART No.      | NOTES                        |
|----------|-----------------------|---------------|------------------------------|
| CF1      | Filter                | 140-020-9-001 | 10.695MHz                    |
| CF2      | Filter                | 140-022-9-001 | 455kHz                       |
| D301     | LED Display           | 158-014-9-001 | Channel Readout              |
| D401     | LED                   | 158-020-9-001 | RX/TX Indicator Model 25GTL  |
| J401     | Jack                  | 772-027-9-001 | Antenna                      |
| J402     | Jack                  | 773-086-9-001 | PA Sp.                       |
| J403     | Jack                  | 773-086-9-001 | External Speaker             |
| J405     | Jack                  | 762-020-9-001 | Power                        |
| J501     | Jack                  | 772-038-9-001 | Mic                          |
| M401     | Meter                 | 320-095-9-001 | SIG/TX PWR                   |
| P401     | Cord Assembly         | 426-021-9-001 | DC Power                     |
| PL401    | Lamp                  | 400-054-9-001 | Meter Illumination           |
| S201     | Switch                | 083-237-9-001 | Channel Selector Model 25GTL |
| S201     | Switch                | 083-238-9-001 | Channel Selector Model 21GTL |
| S401     | Switch                | 084-051-9-001 | NB Model 25GTL               |
| S402     | Switch                | 084-051-9-001 | ANL                          |
| S403     | Switch                | 084-051-9-001 | PA/CB                        |
| S404     | Switch                | 084-051-9-001 | BRT/DIM Model 25GTL          |
| X1       | Crystal               |               | 10.240MHz                    |
|          | Printed Circuit Board | 302-315-9-001 | Channel Selector Model 25GTL |
|          | Printed Circuit Board | 302-317-9-001 | Channel Selector Model 21GTL |
|          | Printed Circuit Board | 302-316-9-001 | LED Display                  |
|          | Printed Circuit Board | 302-314-9-001 | Main                         |
|          | Printed Circuit Board | 302-239-9-001 | Mic Connector                |

COBRA MODELS 21GTL/25GTL

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

| ITEM                     | PART No.      | ITEM                    | PART No.      |
|--------------------------|---------------|-------------------------|---------------|
| Case, Bottom Model 25GTL | 272-129-9-001 | Front Plate Model 25GTL | 260-153-9-001 |
| Case, Bottom Model 21GTL | 272-131-9-001 | Front Plate Model 21GTL | 260-154-9-002 |
| Case, Top Model 25GTL    | 272-128-9-001 | Knob, Control           | 751-095-9-002 |
| Case, Top Model 21GTL    | 272-130-9-001 | Knob, Channel Switch    | 751-151-9-001 |
| Front Panel Model 25GTL  | 255-168-9-001 | Main Chassis            | 257-103-9-001 |
| Front Panel Model 21GTL  | 255-169-9-001 |                         |               |

### 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                                    | (6') BELDEN No. 17106 |                                | 31AWG BELDEN No. 9468 (10') |
|                                                  | (9') BELDEN No. 17109 | 4-conductor (unshielded) 23AWG | BELDEN No. 8415 (6')        |
|                                                  |                       | 5-conductor (1 shielded) 28AWG | BELDEN No. 9467 (6')        |
|                                                  |                       |                                | BELDEN No. 9465 (7-1/2')    |

