

# handic<sup>®</sup>



## SERVICE MANUAL

### FOR

## handic 305

### CITIZEN'S BAND TRANSCEIVER

### MOBILE TYPE

### 3 CHANNELS 5 WATT



# handic

bolagen



Telex 2558 Telephone 031-45 0180  
Box 156 S-42122 V. Frölunda, Sweden

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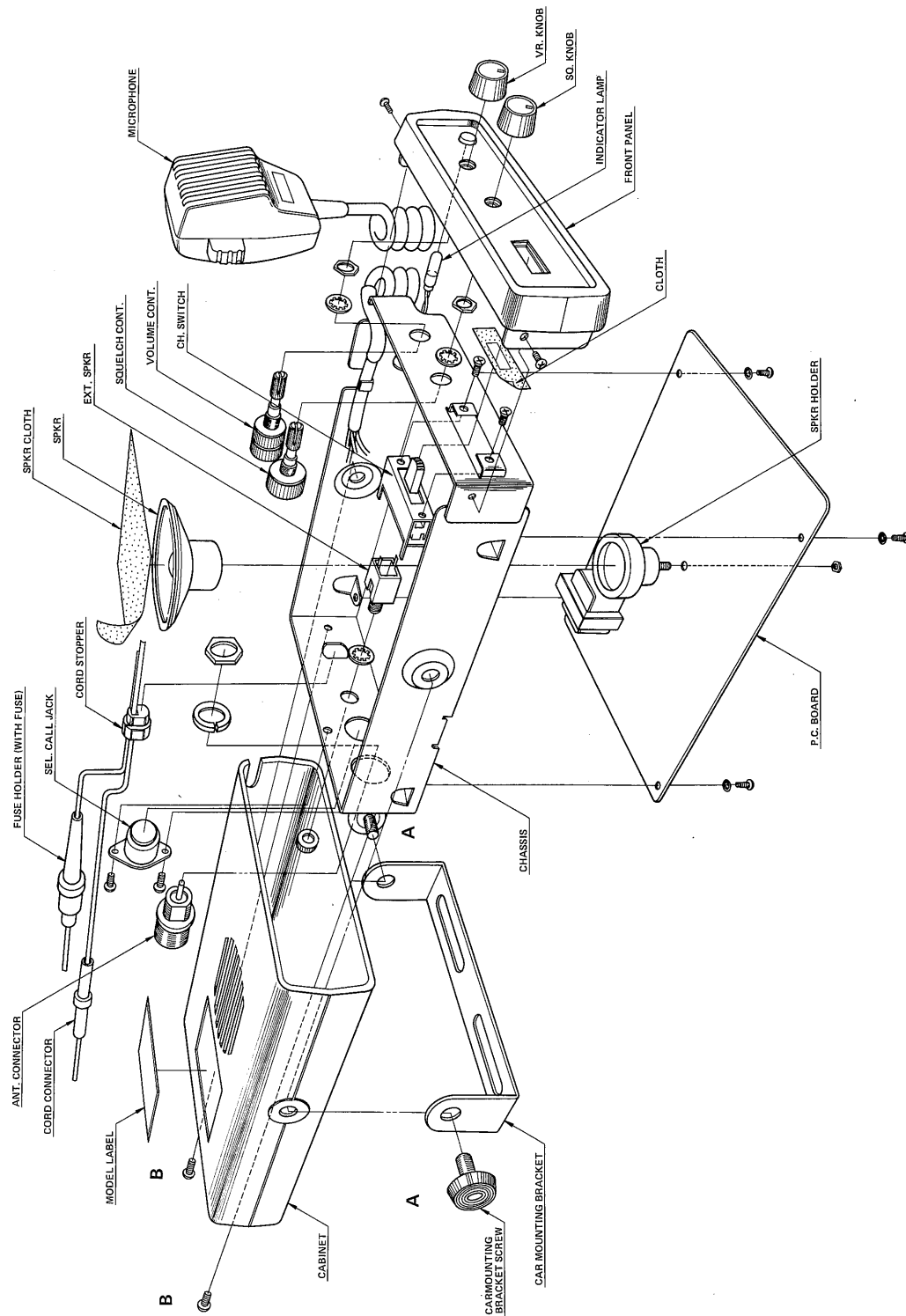
# SPECIFICATIONS

| Description                                       | Nominal spec.  | Limit spec.  |
|---|--|--|
| Frequency range                                   | 26.965 – 27.225 MHz                                    | Adjustable to 31 MHz                                 |
| Frequency tolerance                               | Less than $\pm 0.003\%$                                | Less than $\pm 0.005\%$                              |
| Operating voltage                                 | 13.8 V DC $\pm 15\%$                                   | 13.8 V DC $\pm 10\%$                                 |
| DC power input                                    | 5 watts  |  |
| RF output (at 13.8 V DC)                          | 3 watts  | 2.5 watts  |
| Modulation  | AM below 100 %   |  |
| Sensitivity                                       | 0.7 $\mu\text{V}$ at 10 dB(S+N)/N<br>@ 50 mW           | 1.5 $\mu\text{V}$ at 10 dB(S+N)/N<br>@ 50 mW         |
| Selectivity                                       | - 35 dB at $\pm 10$ kHz<br>@ 1 $\mu\text{V}$ input     | - 30 dB at $\pm 10$ kHz<br>@ 1 $\mu\text{V}$ input   |
| Intermediate frequency                            | 455 kHz with ceramic filter                            |  |
| Signal to noise ratio                             | 45 dB at 1mV input                                     | 40 dB at 1mV input                                   |
| Squelch sensitivity<br>Threshold<br>Tight         | 500 $\mu\text{V}$                                      | Less than 1 $\mu\text{V}$<br>50 $\mu\text{V}$ – 3 mV |
| Audio output<br>(10 % distortion)<br>(Max. power) | 0.8 W<br>1 W   | 0.65 W<br>0.8 W                                      |
| Semiconductors                                    | 15 transistors, 10 diodes and 2 thermistors            |  |
| Frequency control                                 | Crystal control  |  |
| Microphone  | Dynamic type with PTT switch (handic 44)               |  |
| Controls  | Volume with power switch, squelch and channel selector |  |
| Jacks   | External speaker, selective call and antenna(S0-239)   |  |
| DC power cable length                             | More than 3 feet with in-line fuse                     |  |
| Speaker   | 8 $\Omega$ , 57 mm, Dynamic type                       |  |
| Size  | 42(H) x 116(W) x 166(D) mm.                            |  |

# DISASSEMBLY INSTALLATION

Removal of the cabinet:

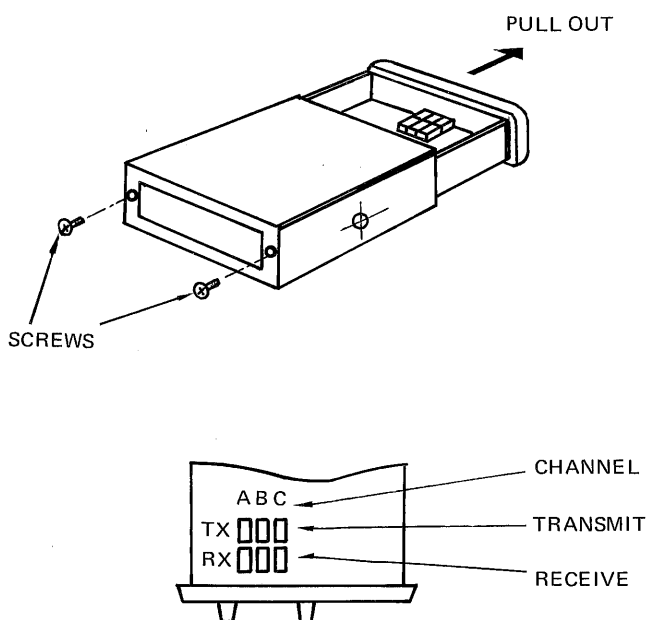
1. Remove the car mounting bracket screws A (one from each side of the unit) and remove the Mounting Bracket as shown.
2. Remove two screws B and pull out the chassis as shown.



## CRYSTAL INSTALLATION

Channel 13 (27.115 MHz) is supplied with the unit. Other channels can be operated by installing suitable crystals in the internal crystal sockets. Crystal sockets are located inside the case, on the printed circuit board. Pull out the chassis as shown on the figure below. Plug crystals into the sockets on the printed circuit board. Plug Transmit(TX) crystals into TX sockets and Receiver(RX) crystals into RX sockets. Do NOT interchange or mix RX and TX crystals. Do always have a matched pair in the crystal sockets.

Order crystals from **h a n d i c**, stating channel number and frequency. **h a n d i c** is not responsible for poor operation when crystals of another manufacturer are used.



## SELECTIVE CALL

Selective call 6 P DIN jack is provided on the back of the cabinet.

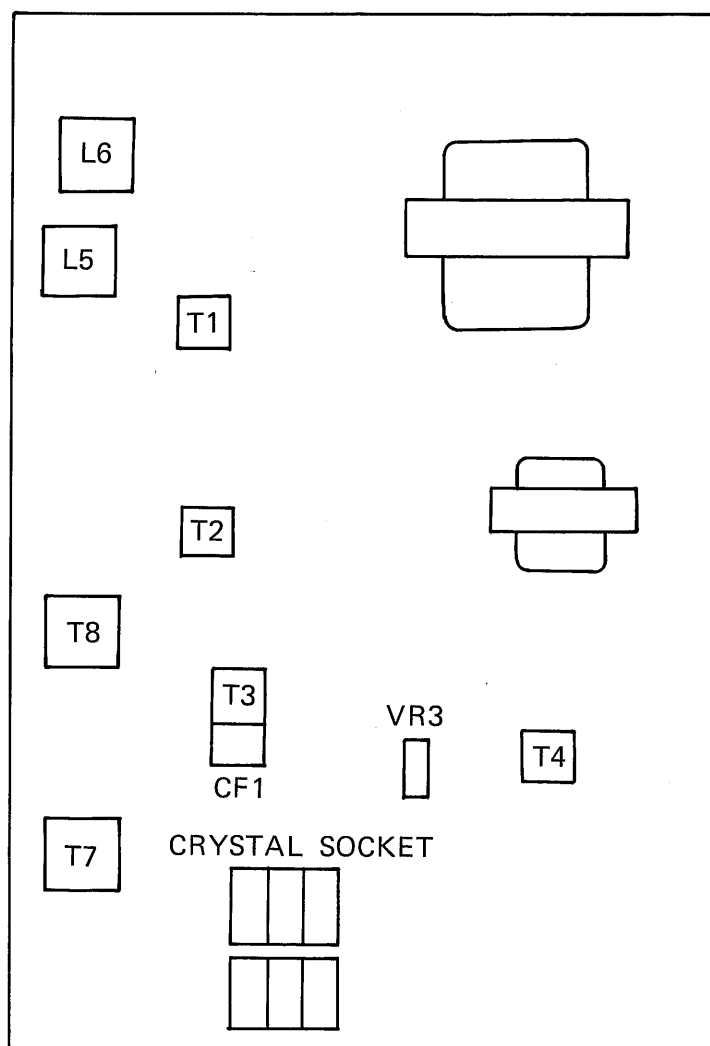
This jack is matched for **h a n d i c** S-10 and S-12 selective call units.

# GENERAL ALIGNMENT INSTRUCTIONS

## Test equipment required

- |  |                           |
|--|---------------------------|
| 1. RF standard signal generator (S.S.G.) | 6. Oscilloscope           |
| 2. AF signal generator                   | 7. Frequency counter      |
| 3. V.T.V.M. (AC)                         | 8. Monitor receiver       |
| 4. V.T.V.M. (DC)                         | 9. 1 A DC ammeter         |
| 5. RF power meter                        | 10. 8 $\Omega$ dummy load |

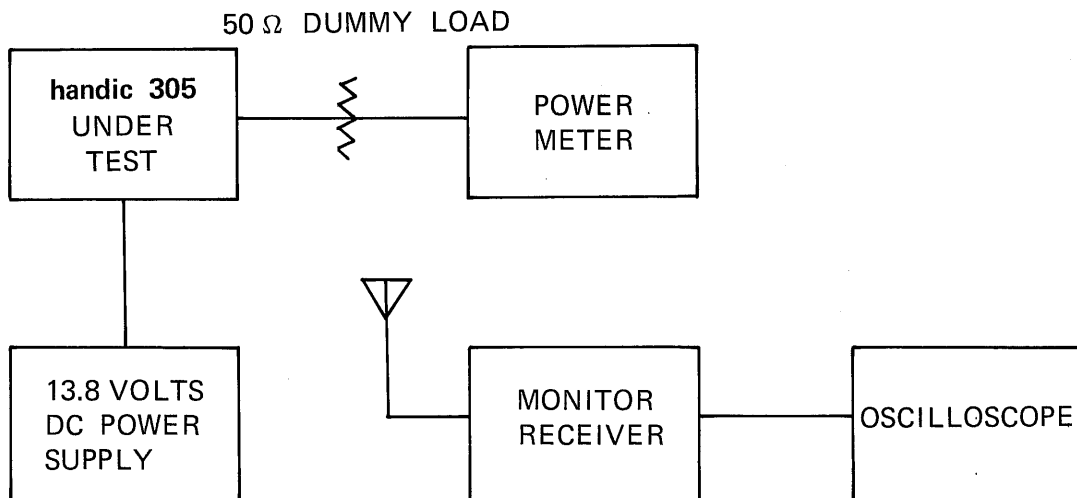
## ALIGNMENT POSITION



# TRANSMITTER SECTION ALIGNMENT CHART

| STEP | CONTROL SETTING                     | TEST EQUIPMENT CONNECTION   | POWER SUPPLY VOLTAGE                          | ADJUST | REMARKS   |
|------|-------------------------------------|---|---|--------|---|
| 1    | CH: A position<br>27.115 MHz        | Power meter ( 50 $\Omega$ ):<br>to ANT. Jack<br>1A ammeter:<br>in series with lead<br>between modulation<br>winding of T6 and<br>collector of Q15<br>Oscilloscope:<br>to monitor receiver | Supply voltage:<br>13.8 volts                 |        |   |
| 2    | Press the P.T.T.<br>SW              | "   | "   | T7, 8  | Max. power<br>output  |
| 3    | "                                   | "   | "   | L5, 6  | Peak on the<br>power meter<br>and dip on the<br>ammeter to get<br>max. output at<br>ANT. Jack |
| 4    | "                                   | Power meter (50 $\Omega$ ):<br>to ANT. Jack<br>1A ammeter:<br>in series with lead<br>between modulation<br>winding of T6 and<br>collector of Q15  | Vary supply<br>voltage from<br>15 to 12 volts | T7     | If no output,<br>adjust T7 to<br>assure output<br>at both voltage<br>extremes.                |
| 5    | "                                   | Audio frequency<br>generator:<br>to C28 (or talk into<br>Microphone)  | Reset the supply<br>voltage to 13.8<br>volts  |        | Check modula-<br>tion   |
| 6    | Repeat steps 2<br>to 4 if necessary |   |   |        |   |

TX

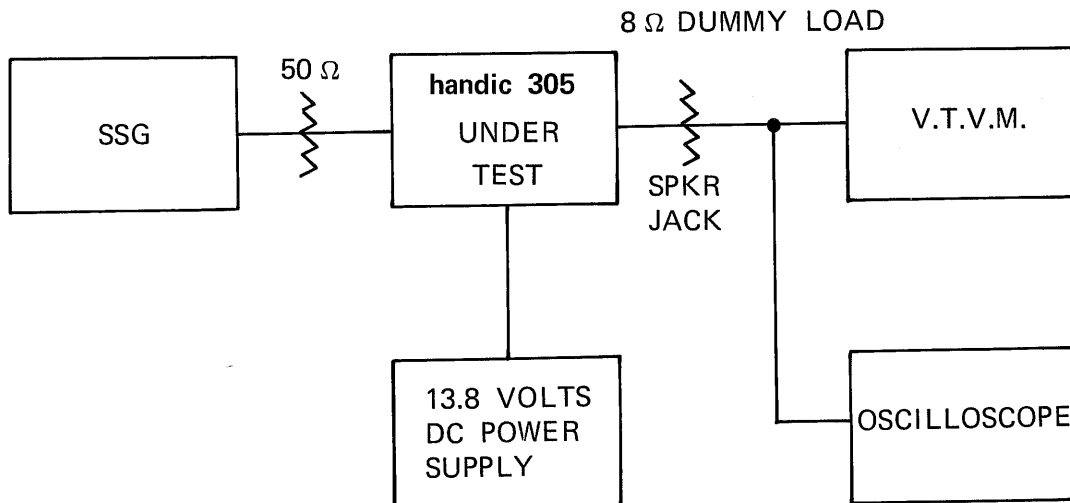


# RECEIVER SECTION ALIGNMENT CHART

| STEP | CONTROL SETTING   | TEST EQUIPMENT CONNECTION   | SIGNAL GENERATOR SETTING                                     | ADJUST   | REMARKS                                     |
|------|---|---|--|----------|---|
| 1    | Volume control:<br>Fully clockwise<br>SQ. control:<br>Max. counter-clockwise<br>CH.: A position<br>27.115 MHz | V.T.V.M.:<br>Parallel with 8 $\Omega$<br>dummy load<br>connected to EXT.<br>SPKR Jack<br>Signal generator:<br>through 100 pF to<br>the base of Q2<br>2SC371 | Freq.: 455 kHz<br>Mod.: 1 kHz 30 %                           | T3<br>T4 | Max. output<br>on voltmeter                 |
| 2    | "   | V.T.V.M.:<br>Parallel with 8 $\Omega$<br>dummy load<br>connected to EXT.<br>SPKR Jack<br>Signal generator:<br>to ANT. Jack                                  | Freq.: 27.115 MHz<br>Mod.: 1 kHz                             | T1, 2    | Max. S/N and<br>max. output on<br>voltmeter |
| 3    | Volume control:<br>Adjust for<br>desired audio<br>level<br>SQ. control:<br>Fully clockwise                    | V.T.V.M.:<br>Parallel with 8 $\Omega$<br>dummy load or<br>across speaker to<br>EXT. SPKR Jack<br>Signal generator:<br>to ANT. Jack                          | Freq.: 27.115 MHz<br>Mod.: 1 kHz 30 %<br>Output: 500 $\mu$ V | VR3      | Adjust so squelch<br>just opens             |

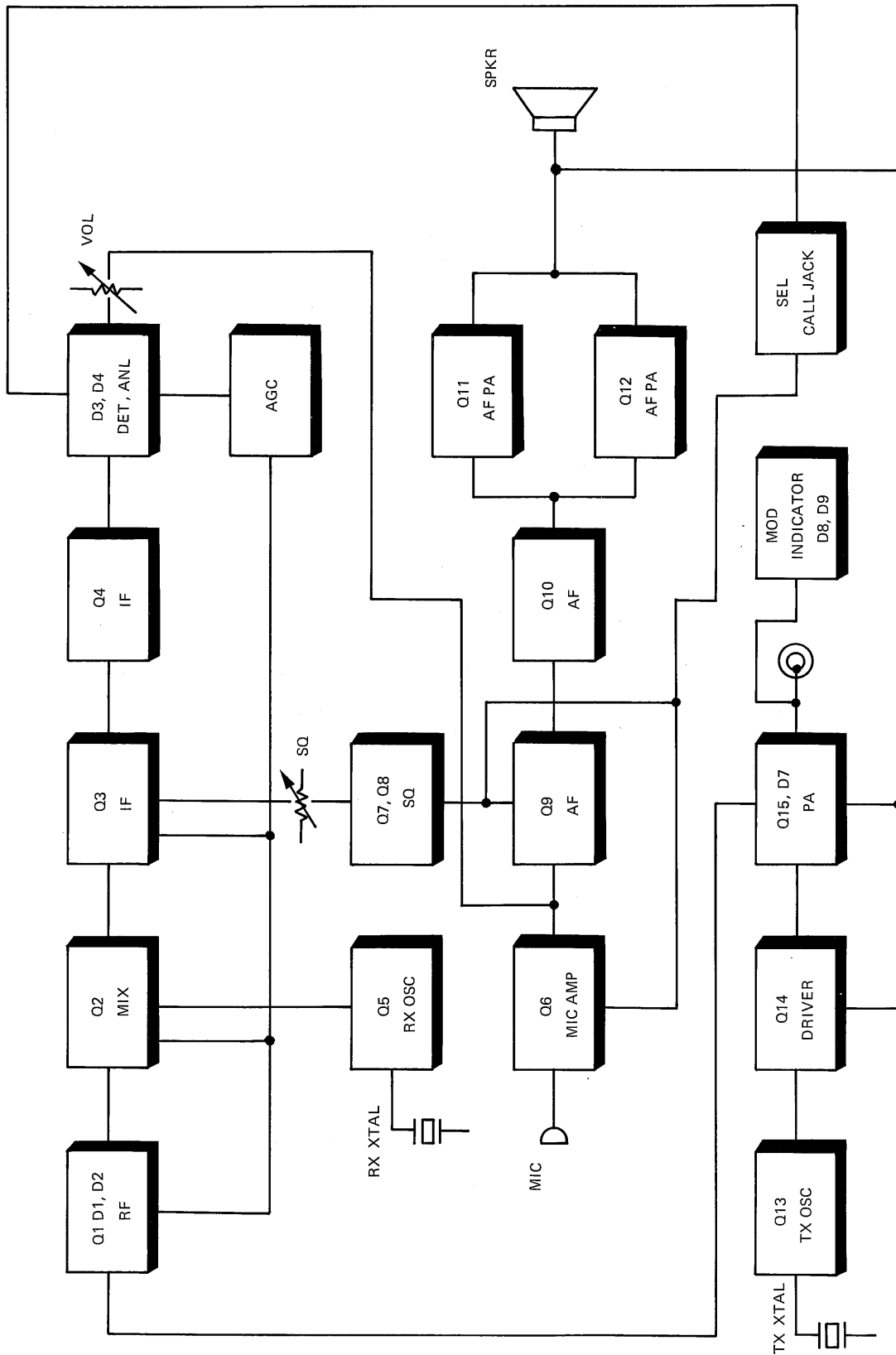
**Note:** Keep the input signal from S.S.G. as low as possible during all alignment.

RX

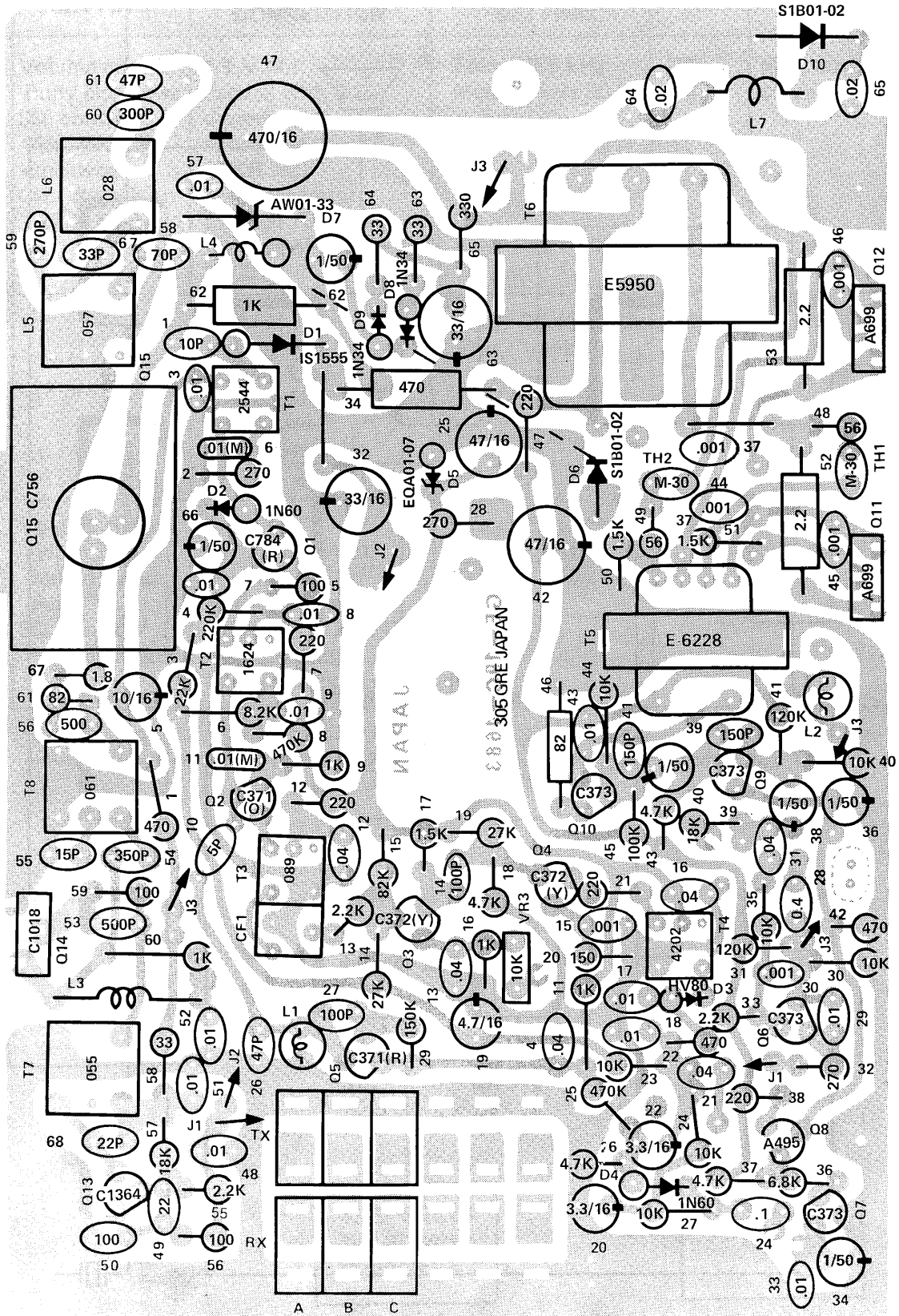




# BLOCK DIAGRAM

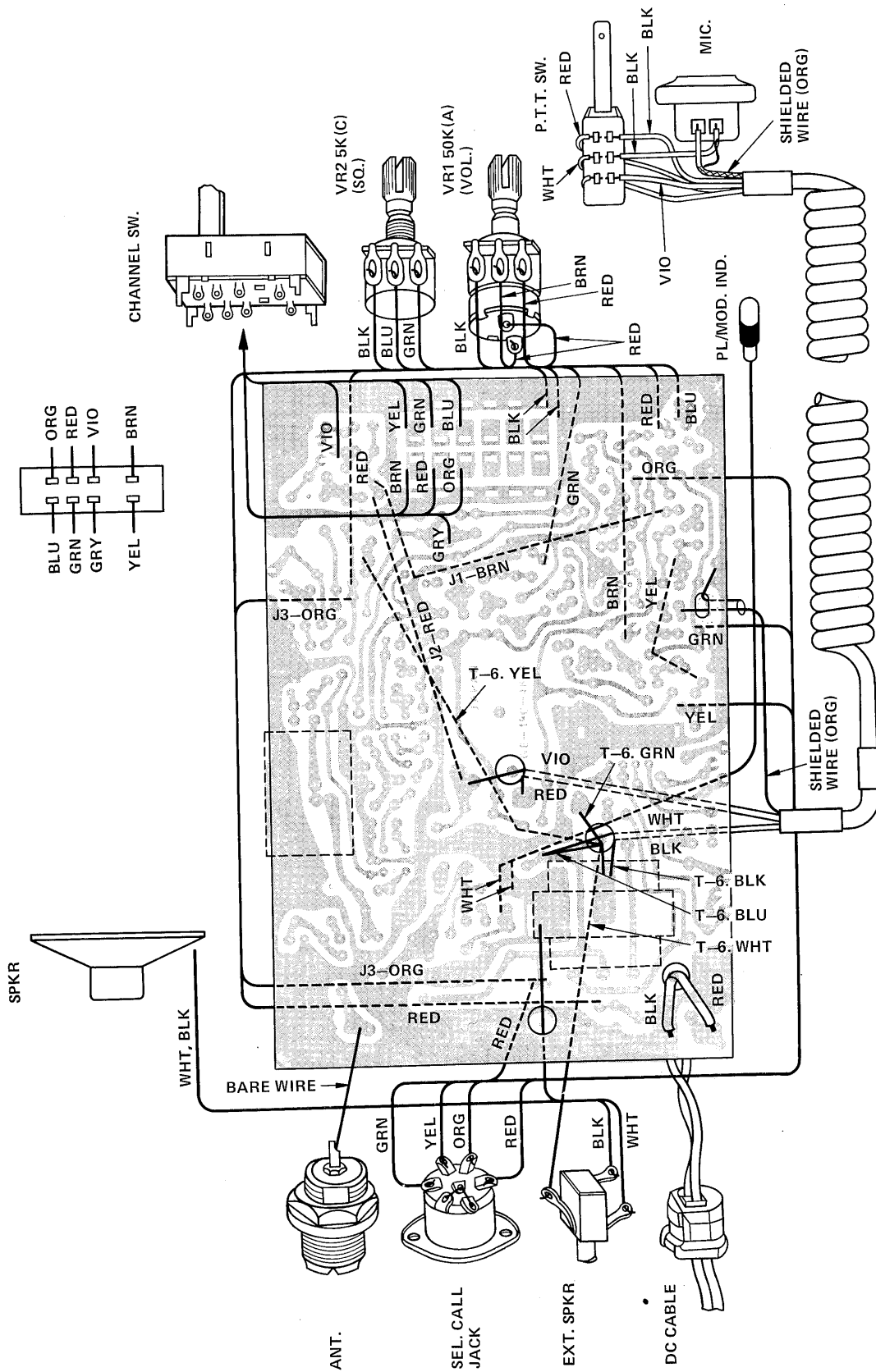


# PRINTED CIRCUIT BOARD TOP VIEW





# WIRING DIAGRAM



## TROUBLE SHOOTING

| Symptom   | Possible cause   |
|---|--|
| 1) Pilot lamp does not light and set does not operate when power is on. | A) Faulty power cord.<br>B) Defective power switch SW3.<br>C) Fuse blown.  |
| 2) Fuse blows when power switch is on.                                  | A) Defective electrolytic capacitor.<br>B) Defective audio power amplifier transistor Q11 or Q12.<br>C) Defective TX final transistor Q14 or Q15.<br>D) Defective zener diode D7.  |
| 3) Pilot lamp does not light.   | A) Defective pilot lamp or resistor R65.<br>B) Open circuit in the B+ Circuit.   |
| 4) Pilot lamp comes on but no sound on any channel.                     | A) Faulty EXT. speaker jack.<br>B) Poor crystal socket contact or crystal loose in socket.<br>C) Defective zener diode D5.<br>D) Weak crystal.   |
| 5) Transmitter does not operate or no modulation.                       | A) Faulty P.T.T. switch.<br>B) Defective microphone cartridge.<br>C) Faulty transistor Q13, 14 or Q15.<br>D) Faulty microphone cord.<br>E) Defective T6 transformer modulation winding.<br>F) Defective resistor R59, 61 or R67.<br>G) Faulty transistor Q6. |
| 6) Squelch control does not operate.                                    | A) Defective transistor Q7 or Q8.<br>B) Faulty VR2 or VR3.   |

# PARTS LIST

| Ref. No.          | Description  |          |       |               | h a n d i c<br>Stock Number | MFR'S<br>Parts Number |
|-------------------|--------------|----------|-------|---------------|-----------------------------|-----------------------|
| <b>CAPACITORS</b> |              |          |       |               |                             |                       |
| C1                | Ceramic      | 10 pF    | NPO   | ± 0.5 pF      | 990377                      | FCC-50                |
| C2                | Not used     |          |       |               |                             |                       |
| C3                | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C4                | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C5                | Electrolytic | 10 μF    | 16 WV | - 10 - + 50 % | 990036                      | CE04W1C100            |
| C6                | Mylar        | 0.01 μF  |       | ± 20 %        | 990099                      |                       |
| C7-9              | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C10               | Ceramic      | 5 pF     | NPO   | ± 0.25 pF     | 990372                      | FCC-50                |
| C11               | Mylar        | 0.01 μF  |       | ± 20 %        | 990099                      |                       |
| C12-13            | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C14               | Ceramic      | 100 pF   |       | ± 10 %        | 990295                      | FC-70                 |
| C15               | Ceramic      | 0.001 μF |       | ± 10 %        | 990519                      | SCP-60                |
| C16               | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C17-18            | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C19               | Electrolytic | 4.7 μF   | 16 WV | - 10 - + 50 % | 990561                      | CE04W1C4R7            |
| C20               | Electrolytic | 3.3 μF   | 16 WV | - 10 - + 75 % | 990554                      | CE04W1C3R3            |
| C21               | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C22               | Electrolytic | 3.3 μF   | 16 WV | - 10 - + 75 % | 990554                      | CE04W1C3R3            |
| C23               | Not used     |          |       |               |                             |                       |
| C24               | Ceramic      | 0.1 μF   |       | - 20 - + 80 % | 990498                      | MC-135                |
| C25               | Electrolytic | 47 μF    | 16 WV | - 10 - + 50 % | 990043                      | CE04W1C470            |
| C26               | Ceramic      | 47 pF    |       | ± 10 %        | 990274                      | FC-60                 |
| C27               | Ceramic      | 100 pF   |       | ± 10 %        | 990295                      | FC-70                 |
| C28               | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C29               | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990533                      | MC-70                 |
| C30               | Ceramic      | 0.001 μF |       | ± 10 %        | 990519                      | SCP-60                |
| C31               | Ceramic      | 0.04 μF  |       | - 20 - + 80 % | 990491                      | MC-100                |
| C32               | Electrolytic | 33 μF    | 16 WV | - 10 - + 50 % | 990568                      | CE04W1C330            |
| C33               | Ceramic      | 0.01 μF  |       | - 10 - + 80 % | 990477                      | MC-70                 |
| C34               | Electrolytic | 1 μF     | 50 WV | - 10 - + 75 % | 990008                      | CE04W1H010            |
| C35               | Not used     |          |       |               |                             |                       |
| C36               | Electrolytic | 1 μF     | 50 WV | - 10 - + 75 % | 990008                      | CE04W1H010            |
| C37               | Ceramic      | 0.001 μF |       | ± 10 %        | 990519                      | SCP-60                |
| C38               | Electrolytic | 1 μF     | 50 WV | - 20 - + 75 % | 990008                      | CE04W1H010            |
| C39               | Ceramic      | 150 pF   |       | ± 20 %        | 990309                      | FC- 80                |
| C40               | Electrolytic | 1 μF     | 50 WV | - 10 - + 75 % | 990008                      | CE04W1H010            |
| C41               | Ceramic      | 150 pF   |       | ± 20 %        | 990309                      | FC-80                 |
| C42               | Electrolytic | 47 μF    | 16 WV | - 10 - + 50 % | 990043                      | CE04W1C470            |
| C43               | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C44-46            | Ceramic      | 0.001 μF |       | ± 10 %        | 990519                      | SCP-60                |
| C47               | Electrolytic | 470 μF   | 16 WV | - 10 - + 50 % | 990064                      | CE04W1C471            |
| C48               | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C49               | Ceramic      | 22 pF    |       | ± 5 %         | 990253                      | FC-50                 |
| C50               | Ceramic      | 100 pF   |       | ± 10 %        | 990295                      | FC-70                 |
| C51-52            | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |
| C53               | Ceramic      | 500 pF   |       | ± 10 %        | 990365                      | FC-100                |
| C54               | Ceramic      | 350 pF   |       | ± 20 %        | 990358                      | FC-90                 |
| C55               | Ceramic      | 15 pF    | NPO   | ± 5 %         | 990386                      | FCC-60                |
| C56               | Ceramic      | 500 pF   |       | ± 10 %        | 990365                      | FC-100                |
| C57               | Ceramic      | 0.01 μF  |       | - 20 - + 80 % | 990477                      | MC-70                 |

| Ref. No. | Description  |         |                     | handic<br>Stock Number | MFR'S<br>Parts Number |
|----------|--------------|---------|---------------------|------------------------|-----------------------|
| C58      | Ceramic      | 70 pF   | ± 10 %              | 990288                 | FC-70                 |
| C59      | Ceramic      | 270 pF  | ± 20 %              | 990337                 | FC-90                 |
| C60      | Ceramic      | 300 pF  | ± 20 %              | 990344                 | FC-90                 |
| C61      | Ceramic      | 47 pF   | ± 10 %              | 990274                 | FC-60                 |
| C62      | Electrolytic | 1 μF    | 50 WV - 10 - + 75 % | 990008                 | CE04W1H010            |
| C63      | Electrolytic | 33 μF   | 16 WV - 10 - + 50 % | 990568                 | CE04W1C330            |
| C64      | Ceramic      | 0.02 μF | - 20 - + 80 %       | 990484                 | MC-75                 |
| C65      | Ceramic      | 0.02 μF | - 20 - + 80 %       | 990484                 | MC-75                 |
| C66      | Electrolytic | 1 μF    | 50 WV - 10 - + 75 % | 990008                 | CE04W1H010            |
| C67      | Ceramic      | 33 pF   | ± 10 %              | 990267                 | FC-50                 |
| C68      | Ceramic      | 22 pF   | ± 5 %               | 990253                 | FC-50                 |

### RESISTORS

|        |             |       |              |        |             |
|--------|-------------|-------|--------------|--------|-------------|
| R1     | Carbon film | 470   | 1/2 W ± 10 % | 954123 | ELR-25K-471 |
| R2     | Carbon film | 270   | 1/4 W ± 5 %  | 951435 | ELR-25J-271 |
| R3     | Carbon film | 22 K  | 1/4 W ± 5 %  | 951757 | ELR-25J-223 |
| R4     | Carbon film | 220 K | 1/4 W ± 5 %  | 951925 | ELR-25J-224 |
| R5     | Carbon film | 100   | 1/4 W ± 5 %  | 951365 | ELR-25J-101 |
| R6     | Carbon film | 8.2 K | 1/4 W ± 5 %  | 951687 | ELR-25J-822 |
| R7     | Carbon film | 220   | 1/4 W ± 5 %  | 951421 | ELR-25J-221 |
| R8     | Carbon film | 470 K | 1/4 W ± 5 %  | 951981 | ELR-25J-474 |
| R9     | Carbon film | 1 K   | 1/4 W ± 5 %  | 951533 | ELR-25J-102 |
| R10    | Not used    |       |              |        |             |
| R11    | Carbon film | 1 K   | 1/4 W ± 5 %  | 951533 | ELR-25J-102 |
| R12    | Carbon film | 220   | 1/4 W ± 5 %  | 951421 | ELR-25J-221 |
| R13    | Carbon film | 2.2 K | 1/4 W ± 5 %  | 951589 | ELR-25J-222 |
| R14    | Carbon film | 27 K  | 1/4 W ± 5 %  | 951771 | ELR-25J-273 |
| R15    | Carbon film | 82 K  | 1/4 W ± 5 %  | 951855 | ELR-25J-823 |
| R16    | Carbon film | 1 K   | 1/4 W ± 5 %  | 951533 | ELR-25J-102 |
| R17    | Carbon film | 1.5 K | 1/4 W ± 5 %  | 951561 | ELR-25J-152 |
| R18    | Carbon film | 4.7 K | 1/4 W ± 5 %  | 951645 | ELR-25J-472 |
| R19    | Carbon film | 27 K  | 1/4 W ± 5 %  | 951771 | ELR-25J-273 |
| R20    | Carbon film | 150   | 1/4 W ± 5 %  | 951393 | ELR-25J-151 |
| R21    | Carbon film | 220   | 1/4 W ± 5 %  | 951421 | ELR-25J-221 |
| R22    | Carbon film | 470   | 1/4 W ± 5 %  | 951477 | ELR-25J-471 |
| R23-24 | Carbon film | 10 K  | 1/4 W ± 5 %  | 951701 | ELR-25J-103 |
| R25    | Carbon film | 470 K | 1/4 W ± 5 %  | 951981 | ELR-25J-474 |
| R26    | Carbon film | 4.7 K | 1/4 W ± 5 %  | 951645 | ELR-25J-472 |
| R27    | Carbon film | 10 K  | 1/4 W ± 5 %  | 951701 | ELR-25J-103 |
| R28    | Carbon film | 270   | 1/4 W ± 5 %  | 951435 | ELR-25J-271 |
| R29    | Carbon film | 150 K | 1/4 W ± 5 %  | 951897 | ELR-25J-154 |
| R30    | Carbon film | 10 K  | 1/4 W ± 5 %  | 951701 | ELR-25J-103 |
| R31    | Carbon film | 120 K | 1/4 W ± 5 %  | 951883 | ELR-25J-124 |
| R32    | Carbon film | 270   | 1/4 W ± 5 %  | 951435 | ELR-25J-271 |
| R33    | Carbon film | 2.2 K | 1/4 W ± 5 %  | 951589 | ELR-25J-222 |
| R34    | Carbon film | 470   | 1/2 W ± 10 % | 951477 | ELR-25K-471 |
| R35    | Carbon film | 10 K  | 1/4 W ± 5 %  | 951701 | ELR-25J-103 |
| R36    | Carbon film | 6.8 K | 1/4 W ± 5 %  | 951673 | ELR-26J-682 |
| R37    | Carbon film | 4.7 K | 1/4 W ± 5 %  | 951645 | ELR-25J-472 |
| R38    | Carbon film | 220   | 1/4 W ± 5 %  | 951652 | ELR-25J-221 |

| Ref. No.              | Description |           |              | h a n d i c<br>Stock Number | MFR'S<br>Parts Number |
|-----------------------|-------------|-----------|--------------|-----------------------------|-----------------------|
| R39                   | Carbon film | 18 K      | 1/4 W ± 5 %  | 951743                      | ELR-25J-183           |
| R40                   | Carbon film | 10 K      | 1/4 W ± 5 %  | 951701                      | ELR-25J-103           |
| R41                   | Carbon film | 120 K     | 1/4 W ± 5 %  | 951883                      | ELR-25J-124           |
| R42                   | Carbon film | 470       | 1/4 W ± 5 %  | 951477                      | ELR-25J-471           |
| R43                   | Carbon film | 4.7 K     | 1/4 W ± 5 %  | 951645                      | ELR-25J-472           |
| R44                   | Carbon film | 10 K      | 1/4 W ± 5 %  | 951701                      | ELR-25J-103           |
| R45                   | Carbon film | 100 K     | 1/4 W ± 5 %  | 951869                      | ELR-25J-104           |
| R46                   | Carbon film | 82        | 1/4 W ± 5 %  | 951351                      | ELR-25J-820           |
| R47                   | Carbon film | 220       | 1/4 W ± 5 %  | 951421                      | ELR-25J-221           |
| R48-49                | Carbon film | 56        | 1/4 W ± 5 %  | 951323                      | ELR-25J-560           |
| R50-51                | Carbon film | 1.5 K     | 1/4 W ± 5 %  | 951561                      | ELR-25J-152           |
| R52-53                | Carbon film | 2.2       | 1/2 W ± 10 % | 954102                      | ELR-25K-2R2           |
| R54                   | Carbon film | 8         | 1/2 W ± 10 % | 954172                      | ELR-25K-080           |
| R55                   | Carbon film | 2.2 K     | 1/4 W ± 5 %  | 951589                      | ELR-25J-222           |
| R56                   | Carbon film | 100       | 1/4 W ± 5 %  | 951365                      | ELR-25J-101           |
| R57                   | Carbon film | 18 K      | 1/4 W ± 5 %  | 951743                      | ELR-25J-183           |
| R58                   | Carbon film | 33        | 1/4 W ± 5 %  | 951281                      | ELR-25J-330           |
| R59                   | Carbon film | 100       | 1/4 W ± 5 %  | 951365                      | ELR-25J-101           |
| R60                   | Carbon film | 1 K       | 1/2 W ± 10 % | 951533                      | ELR-25K-102           |
| R61                   | Carbon film | 82        | 1/4 W ± 5 %  | 951351                      | ELR-25J-820           |
| R62                   | Carbon film | 1 K       | 1/2 W ± 10 % | 951533                      | ELR-25K-102           |
| R63-64                | Carbon film | 33        | 1/4 W ± 5 %  | 951281                      | ELR-25J-330           |
| R65                   | Carbon film | 330       | 1/4 W ± 5 %  | 951449                      | ELR-25J-331           |
| R66                   | Not used    |           |              |                             |                       |
| R67                   | Carbon film | 1.8       | 1/4 W ± 5 %  | 951071                      | ELR-25J-1R8           |
| R68-69                | Carbon film | 33        | 1/4 W ± 5 %  | 951281                      | ELR-25J-330           |
| <b>SEMICONDUCTORS</b> |             |           |              |                             |                       |
| Q1                    | Transistor  | silicon   |              | 992108                      | 2SC784(R)             |
| Q2                    | Transistor  | silicon   |              | 992045                      | 2SC371(R)             |
| Q3-4                  | Transistor  | silicon   |              | 992059                      | 2SC372(Y)             |
| Q5                    | Transistor  | silicon   |              | 992045                      | 2SC371(R)             |
| Q6-7                  | Transistor  | silicon   |              | 992066                      | 2SC373                |
| Q8                    | Transistor  | silicon   |              | 992010                      | 2SA495(O)             |
| Q9-10                 | Transistor  | silicon   |              | 992066                      | 2SC373                |
| Q11-12                | Transistor  | silicon   |              | 992017                      | 2SA699(A)             |
| Q13                   | Transistor  | silicon   |              | 992129                      | 2SC1364               |
| Q14                   | Transistor  | silicon   |              | 992122                      | 2SC1018               |
| Q15                   | Transistor  | silicon   |              | 992094                      | 2SC756                |
| D1                    | Diode       | silicon   |              | 992150                      | 1S1555                |
| D2                    | Diode       | germanium |              | 992143                      | 1N60                  |
| D3                    | Diode       | silicon   |              | 992164                      | HV-80                 |
| D4                    | Diode       | germanium |              | 992143                      | 1N60                  |
| D5                    | Diode       | zener     |              | 992199                      | EQA01-07(S)           |
| D6                    | Diode       | silicon   |              | 992171                      | SIB01-02              |
| D7                    | Diode       | zener     |              | 992185                      | AW01-33               |
| D8-9                  | Diode       | silicon   |              | 992136                      | 1N34A                 |
| D10                   | Diode       | silicon   |              | 992171                      | SIB01-02              |
| TH1-2                 | Thermistor  |           |              | 992262                      | M-30                  |

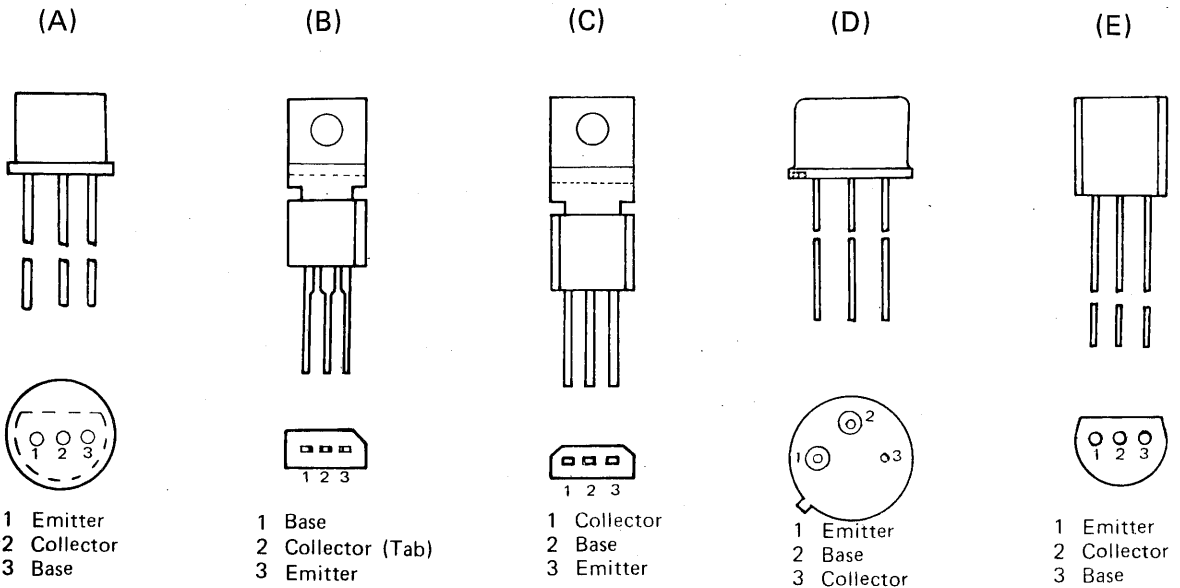


| Ref. No.                              | Description                    | h a n d i c<br>Stock Number | MFR'S<br>Parts Number |
|---------------------------------------|--------------------------------|-----------------------------|-----------------------|
| <b>COILS / TRANSFORMERS / FILTERS</b> |                                |                             |                       |
| T1                                    | ANT. coil                      | 995101                      | 113CN2544             |
| T2                                    | RF coil                        | 995045                      | 1624                  |
| T3                                    | IF coil                        | 995052                      | 7SSI-089              |
| T4                                    | IF coil                        | 995059                      | 4202                  |
| T5                                    | Input transformer              | 995381                      | E6228                 |
| T6                                    | Output transformer             | 995395                      | E5950                 |
| T7                                    | OSC coil                       | 995122                      | 8SNC-055              |
| T8                                    | Drive coil                     | 995115                      | 8SND-061              |
| L1                                    | RF choke coil      2.2 $\mu$ H | 995129                      | LF1-2R2K              |
| L2                                    | RF choke coil      470 $\mu$ H | 995136                      | LF1-471K              |
| L3                                    | RF choke coil      10 $\mu$ H  | 995073                      | 4LNC-029              |
| L4                                    | RF choke coil      2.2 $\mu$ H | 995220                      | 4LNC-054              |
| L5                                    | T NET coil                     | 995080                      | 8SNF-057              |
| L6                                    | $\pi$ NET coil                 | 995031                      | 10PNP-028             |
| L7                                    | Choke coil                     | 995143                      | 6LNC-053              |
| CF1                                   | Ceramic filter                 | 995318                      | LF-A6                 |
| CF2                                   | Ceramic filter                 |                             | EF-A8                 |
| <b>VOLUMES</b>                        |                                |                             |                       |
| VR1                                   | Volume              50 K (A)   | 984046                      | VM11A-5M1111          |
| VR2                                   | Squelch              5 K (C)   | 984025                      | 50KA                  |
| VR3                                   | Potentiometer      10 K        | 984018                      | VM10A-5KC<br>P6S2A    |
| <b>SWITCHES</b>                       |                                |                             |                       |
| SW1-a-b                               | CH. switch                     | 994018                      | SL-223B4              |
| SW2                                   | P.T.T. switch                  | 994025                      | 2P-012                |
| SW3                                   | Power switch (on the VR1)      |                             |                       |
| <b>CRYSTAL</b>                        |                                |                             |                       |
| RX                                    | Crystal 26.660 MHz             | 452284                      |                       |
| TX                                    | Crystal 27.115 MHz             | 452291                      |                       |
| <b>MISCELLANEOUS</b>                  |                                |                             |                       |
|                                       | Panel                          | 599505                      | GE-19D-4651           |
|                                       | Escutcheon assembly            | 599512                      |                       |
|                                       | Cabinet                        | 599519                      | GE-19B-4649           |
|                                       | Chassis                        | 599526                      | GE-19B-4647           |
|                                       | Heat sink                      | 599533                      | GE-17D-3405           |
|                                       | Mounting bracket               | 599540                      | GE-19D-4653           |
|                                       | Mounting bracket screw         | 599547                      | GE-16D-3166           |
|                                       | Knob                           | 599554                      | GE-19D-4652           |
|                                       | CH. switch spacer              | 599561                      | GE-19D-4490           |
|                                       | Cabinet saran net              | 599568                      | GE-19D-4662           |

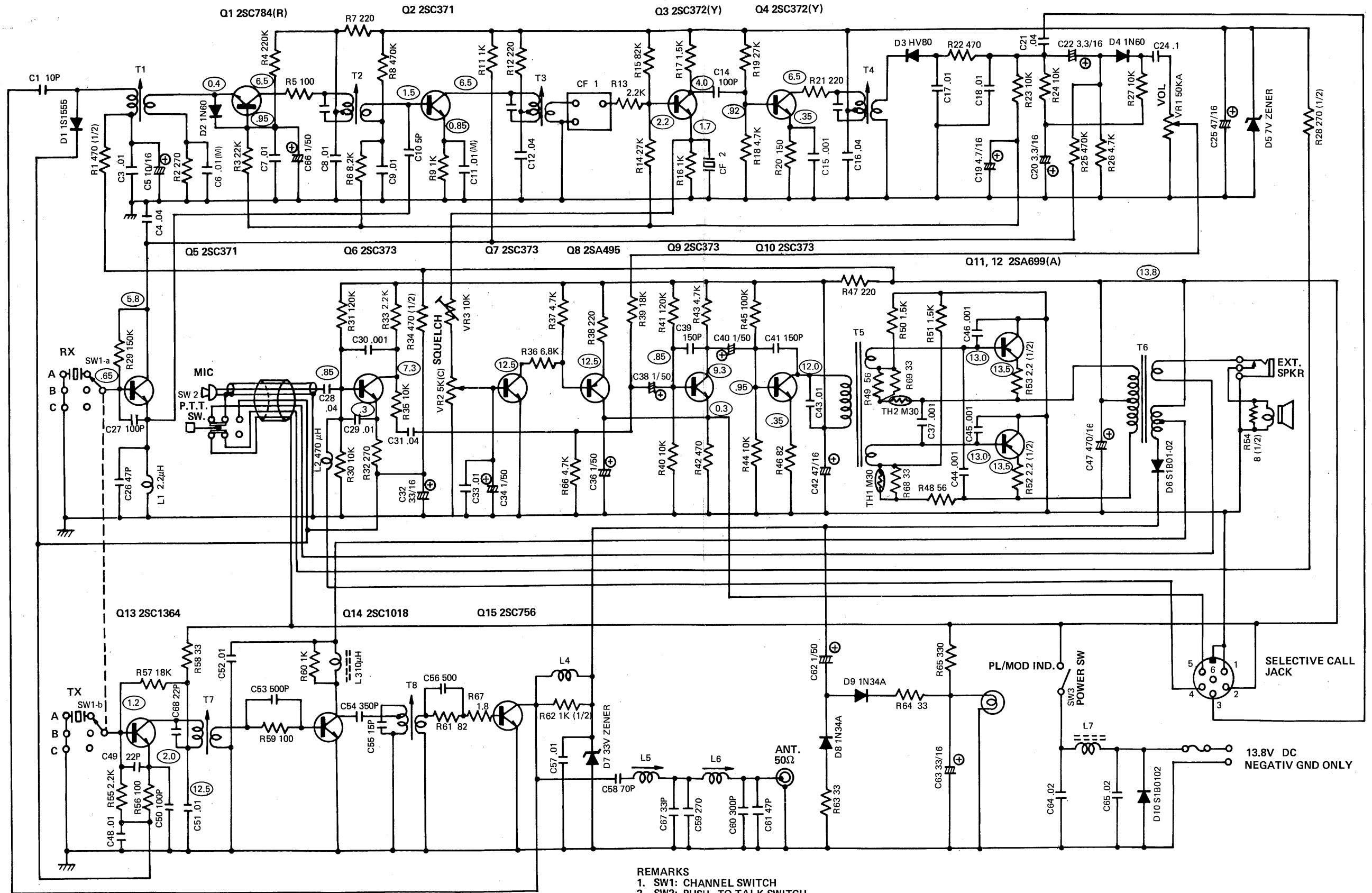
| Ref. No. | Description                     | h a n d i c<br>Stock Number | MFR'S<br>Parts Number |
|----------|---------------------------------|-----------------------------|-----------------------|
|          | MIC. case                       | 599575                      | GE-19C-4655           |
|          | MIC. holder                     | 599582                      | GE-18D-4453           |
|          | MIC. element                    | 599589                      | UD-11                 |
|          | MIC. cord                       | 599596                      | GE-17D-3521           |
|          | MIC. knob                       | 599603                      | GE-19D-4657           |
|          | MIC. label A                    | 599610                      | GE-19D-4785(A)        |
|          | MIC. label B                    | 599617                      | GE-19D-4785(B)        |
|          | MIC. switch holder              | 599624                      | GE-19D-4661           |
|          | Rear label                      | 599631                      | GE-19D-4784           |
|          | PCB spacer                      | 599638                      | GE-19D-4789           |
|          | Crystal socket                  | 599099                      | S2-101P               |
|          | ANT. connector                  | 599428                      | SO239                 |
|          | DIN. Jack                       | 599645                      | CS-260                |
|          | Speaker jack                    | 599652                      | SJ-296-1-15           |
|          | Cord stopper                    | 599659                      | SR-3P-4               |
|          | Speaker                         | 599169                      | EAS-6P01S             |
|          | DC cord (w/Fuse) holder         | 599666                      |                       |
|          | Pilot lamp 7V/50 mA L = 190 mm. | 599673                      |                       |
|          | Fuse 2A                         | 599680                      |                       |
|          | P.C. Board                      | 599687                      | GE-19C-4683           |
|          | Screw 1 kits                    | 599694                      |                       |
|          | Wires 1 kits                    | 599701                      |                       |

# SEMICONDUCTORS LEAD IDENTIFICATIONS

- (A): 2SA495(O), 2SC371(O), 2SC371(R), 2SC372(Y), 2SC373, 2SC784(R)
- (B): 2SA699
- (C): 2SC1018
- (D): 2SC756
- (E): 2SC1364



# SCHEMATIC DIAGRAM



- REMARKS**
1. SW1: CHANNEL SWITCH
  2. SW2: PUSH-TO TALK SWITCH
  3. SW3: POWER SWITCH
  4. VR1: VOLUME CONTROL
  5. VR2: SQUELCH CONTROL
  6. RESISTANCE VALUES IN OHMS, K = 1,000
  7. CAPACITANCE VALUES IN MF, P = MMF
  8. ○ MARKS DC VOLTAGE MEASURED BY V.T.V.M.

(E)

