

**RadioShack®**

# Service Manual

19-1110

**HTX-10  
10-METER TRANSCEIVER  
Catalog Number : 19-1110**

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# SPECIFICATIONS

## General

|                            |   |
|----------------------------|---|
| Frequency Resolution ..... | AM/FM/SSB 100KHz,10KHz,1KHz STEP  |
| Frequency Range .....      | 28.000 MHz to 29.699 MHz  |
| Semiconductors .....       | 69 Transistors, 75 Diodes, 9 ICs  |
| Crystals .....             | 3 Crystals  |
| Microphone .....           | Built-in Electric Condenser Type with FET Amplifier                     |
| Speaker .....              | 8 ohm 2W  |
| Antenna Connector .....    | M Type  |
| Dimensions(WHD) .....      | 6-1/16"x 2-3/64"x 8-85/100"Inches (154 x 52 x 225)mm                    |
| Accessories .....          | DC Power Cord With in-line fuse, Microphone Hanger,<br>Mounting Bracket |
| Weight .....               | 2 lbs 10 ozs (1.18kg)   |

## Measurement Conditions (90% Population)

|  |                       |
|--|-----------------------|
| Power Source .....                       | 13.8V (DC)            |
| Antenna Impedance .....                  | 50 ohm                |
| Test Temperature .....                   | 77°F (25°C)           |
| AM Modulation Frequency .....            | 1kHz                  |
| SSB Modulation Frequency, Transmit       |                       |
| Two Tones .....                          | 500 Hz & 2400 Hz      |
| Single Tone .....                        | 1 kHz                 |
| Min. Signal Input Level .....            | 1000uV                |
| Reference Audio Output Power .....       | 0.5W                  |
| Reference AM Modulation Percentage ..... | 1 kHz 30%             |
| Reference FM Modulation .....            | 1 KHz/1 KHz Deviation |
| Audio Frequency, SSB Receive .....       | 1 kHz                 |
| Audio Output Load .....                  | 8 ohm resistive       |

## Transmitter Section

| Items  |     | Unit  | Nominal | Limit     |
|--|-----|-------|---------|-----------|
| Frequency Tolerance at 77°F<br>(25°C) at (5 Minutes after switch)                                | AM  | %     | ±0.0005 | ±0.003    |
|  | FM  | %     | ±0.0005 | ±0.003    |
|  | SSB | %     | ±0.0005 | ±0.003    |
| Carrier Power at No Modulation   | AM  | W     | 7       | 6-8       |
|  | FM  | W     | 25      | 23-30     |
|  | SSB | W PEP | 25      | 23-30     |
| PEP Power, Single Tones,<br>Modulation Distortion at 1kHz,<br>50% Modulation<br>1.2kHz Deviation | AM  | %     | 3       | 6         |
|  | FM  | %     | 3       | 6         |
| Spurious Harmonic Suppression  | AM  | dB    | -70     | -60       |
|  | FM  | dB    | -70     | -60       |
|  | SSB | dB    | -70     | -60       |
| Carrier Suppression  | SSB | dB    | 40      | -38       |
| Current Drain at No Modulation   | AM  | mA    | 4000    | 4500      |
|  | FM  | mA    | 6000    | 6500      |
|  | SSB | mA    | 800     | 1000      |
| Current Drain  |     |       |         |           |
| AM: Max Mod  |     | mA    | 4000    | 4500      |
| FM: Max Mod  |     | mA    | 6000    | 6500      |
| SSB: Max Watt PEP, Single Tones  |     | mA    | 6000    | 6500      |
| Modulation Frequency Response<br>(1kHz, 0dB Reference)<br>Lower Frequency                        | AM  | Hz    | 450     | 250-650   |
|  | FM  | Hz    | 450     | 250-650   |
|  | SSB | Hz    | 450     | 250-650   |
| Upper Frequency  | AM  | Hz    | 2500    | 1500-4000 |
|  | FM  | Hz    | 2500    | 1500-4000 |
|  | SSB | Hz    | 3500    | 1500-5000 |
| Carrier Power Uniformity, CH to CH<br>at No Modulation   | AM  | W     | ±1      | ±2        |
|  | FM  | W     | ±3      | ±4        |
| Microphone Sensitivity   |     |       |         |           |
| AM: For 50% Mod.   |     | mV    | 1.5     | 6         |
| FM: For 1kHz DEV.  |     | mV    | 1.5     | 6         |
| SSB: For 10W PEP.  |     | mV    | 1.5     | 6         |
| AMC Range  |     |       |         |           |
| AM: 50-100% Mod.   |     | dB    | 40      | 30        |
| FM: 1.5-2.5kHz DEV.  |     | dB    | 40      | 30        |
| SSB: 10-30Watts PEP  |     | dB    | 40      | 30        |
| Modulation Capability  | AM  | %     | 95      | 80-100    |
| RPT Modulation Capability  | FM  | kHz   | 0.7     | 0.4-1.0   |
| RF Meter (S+3) Indication<br>1kHz Single Tone  | SSB | W     | 5       | 4-6       |

## Receiver Section

| Item  |                         | Unit | Nominal   | Limit               |
|---|-------------------------|------|-----------|---------------------|
| Exterior Maximum Audio Output Power             | AM                      | W    | 2.5       | 2                   |
|   | FM                      | W    | 2.5       | 2                   |
|   | SSB                     | W    | 2.5       | 2                   |
| Interior Maximum audio Output Power             | AM                      | W    | 1         | 2                   |
|   | FM                      | W    | 1         | 2                   |
|   | SSB                     | W    | 1         | 2                   |
| Exterior Audio Output Power at 10% THD          | AM                      | W    | 1.5       | 1                   |
|   | FM                      | W    | 1.5       | 1                   |
|   | SSB                     | W    | 1.5       | 1                   |
| Interior Audio Output Power at 10% THD          | AM                      | W    | 1         | 2                   |
|   | FM                      | W    | 1         | 2                   |
|   | SSB                     | W    | 1         | 2                   |
| THD at 500mW Audio Output                       | AM: 1mV Input, 30%      | %    | 3         | 10                  |
|   | 80%                     | %    | 5         | 10                  |
|   | FM: 1mV Input, 1kHz DEV | %    | 5         | 10                  |
|   | SSB: 1mV Input, 1kHz    | %    | 3         | 10                  |
|   | Single Tone RF Gain     | AM   | dB        | 60                  |
| Control Range at Max Sensitivity Level          | FM                      | dB   | 60        | 50-75               |
|   | SSB                     | dB   | 60        | 50-75               |
| S/N Ratio at Input 1mV                          | AM                      | dB   | 40        | 34                  |
|   | FM                      | dB   | 40        | 34                  |
|   | SSB                     | dB   | 40        | 34                  |
| Squelch Sensitivity at Threshold                | AM                      | uV   | 0.6       | 1                   |
|   | FM                      | uV   | 0.6       | 1                   |
|   | SSB                     | uV   | 0.6       | 1                   |
| Squelch Sensitivity at Tight                    | AM                      | uV   | 1000      | 320-3200            |
|   | FM                      | uV   | 1000      | 320-3200            |
|   | SSB                     | uV   | 1000      | 320-3200            |
| Skirt Rejection ( $\pm 20$ kHz)                 | AM                      | dB   | 70        | 60                  |
|   | FM                      | dB   | 70        | 60                  |
|   | SSB                     | dB   | 70        | 60                  |
| S Meter Sensitivity at "S-9" (No Modulation AM) | AM                      | uV   | 100       | 30-320              |
|   | FM                      | uV   | 100       | 30-320              |
|   | SSB                     | uV   | 100       | 30-320              |
| Image Rejection Ratio fo-(2 x 10.695)           | AM                      | dB   | 76        | 60                  |
|   | FM                      | dB   | 76        | 60                  |
|   | SSB                     | dB   | 76        | 60                  |
| 1/2 IF Rejection Ratio fo-(10.695 MHz/2)        | AM                      | dB   | 70        | 60                  |
|   | FM                      | dB   | 70        | 60                  |
|   | SSB                     | dB   | 70        | 60                  |
| Oscillator Dropout Voltage                      | AM                      | V    | 9         | 11                  |
|   | FM                      | V    | 9         | 11                  |
|   | SSB                     | V    | 9         | 11                  |
| Current Drain at No Signal                      | AM                      | mA   | 400       | 500                 |
|   | FM                      | mA   | 400       | 500                 |
|   | SSB                     | mA   | 400       | 500                 |
| Current Drain at Maximum Audio Output Power     | AM                      | mA   | 600       | 1000                |
|   | FM                      | mA   | 600       | 1000                |
|   | SSB                     | mA   | 600       | 1000                |
| FINE Range                                      | AM                      | kHz  | $\pm 1.5$ | $\pm 0.8 - \pm 3.0$ |
|   | FM                      | kHz  | $\pm 1.5$ | $\pm 0.8 - \pm 3.0$ |
|   | SSB                     | kHz  | $\pm 1.5$ | $\pm 0.8 - \pm 3.0$ |

| Items   |     | Unit | Nominal | Limit     |
|---|-----|------|---------|-----------|
| Desensitization<br>(3dB Desensitivity) at 100uV                 | AM  | dB   | 50      | 40        |
|   | FM  | dB   | 50      | 40        |
|   | SSB | dB   | 50      | 40        |
| (ANC & Noise Blanker Switch<br>Off) Max sensitivity             | AM  | uV   | 0.5     | 1         |
|   | FM  | uV   | 0.25    | 0.5       |
|   | SSB | uV   | 0.25    | 0.5       |
| Sensitivity for 10dB S/N  | AM  | uV   | 0.5     | 1         |
|   | FM  | uV   | 0.16    | 0.25      |
|   | SSB | uV   | 0.16    | 0.25      |
| AGC Figure of Merit 100mV<br>for 10dB Change in<br>Audio Output | AM  | dB   | 90      | 80        |
|   | SSB | dB   | 90      | 80        |
|   | AM  | dB   | ±3      | ±6        |
| Overload AGC Characteristics<br>from 100mV to 1000mV            | SSB | dB   | ±3      | ±6        |
|   | AM  | dB   | ±3      | ±6        |
| Overall Audio Fidelity at 6dB<br>Down Upper Frequency           | AM  | Hz   | 2000    | 1500-3000 |
|   | FM  | Hz   | 2000    | 1500-3000 |
|   | SSB | Hz   | 3500    | 2500-5000 |
|   | AM  | Hz   | 400     | 300-600   |
|   | FM  | Hz   | 400     | 300-600   |
|   | SSB | Hz   | 450     | 250-650   |
| Cross Modulations,RS Standard                                   | AM  | dB   | 60      | 50        |
|   | FM  | dB   | 60      | 50        |
| Adjacent Channel Selectivity<br>±10kHz                          | AM  | dB   | 60      | 50        |
|   | FM  | dB   | 60      | 50        |
| IF Rejection Ratio  | AM  | dB   | 70      | 60        |
|   | FM  | dB   | 70      | 60        |
|   | SSB | dB   | 70      | 60        |

# DISASSEMBLY INSTRUCTIONS

- To remove the Top and Bottom cover (Figure 1).
  - Remove two mounting screws (A).
  - Remove four screws (B) from each side of the top and bottom covers.
- To remove the Front panel Assembly (Figures 2, 3 and 4).
  - Remove ring nut (C).
  - Remove six knobs (D).
  - Remove four screws (E) from each side. Pull the front panel.

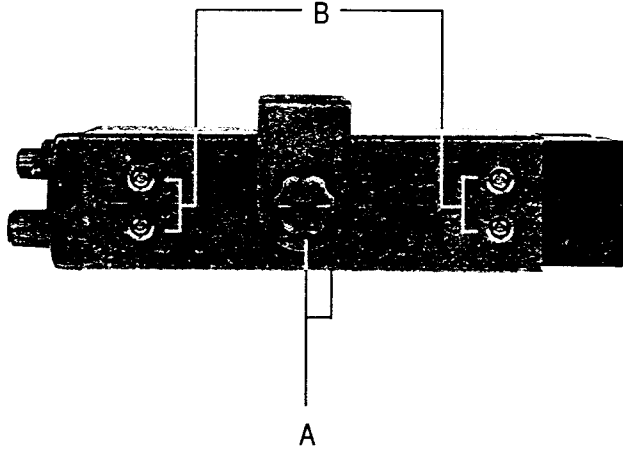


Figure 1

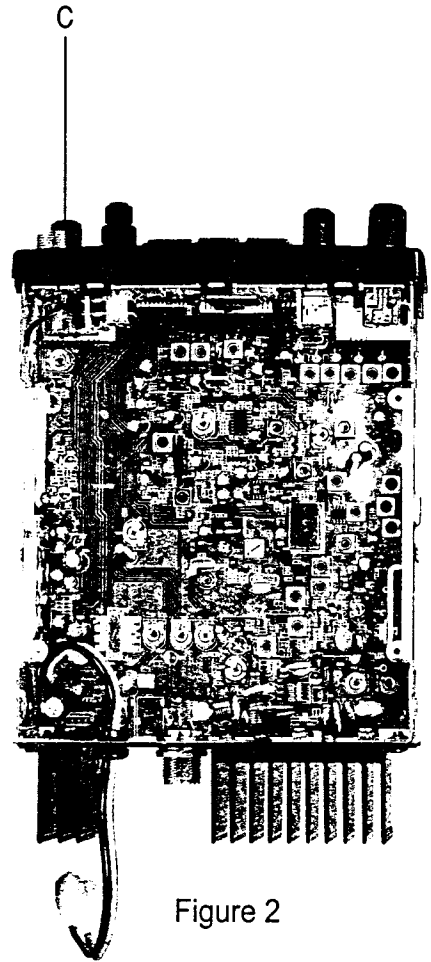


Figure 2

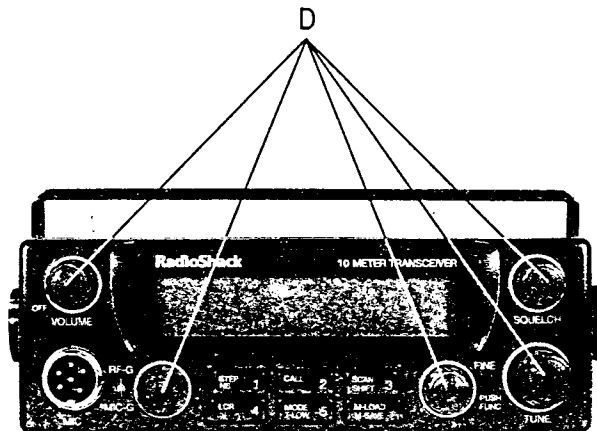


Figure 3

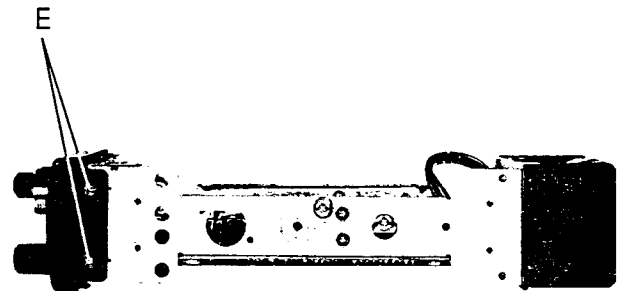
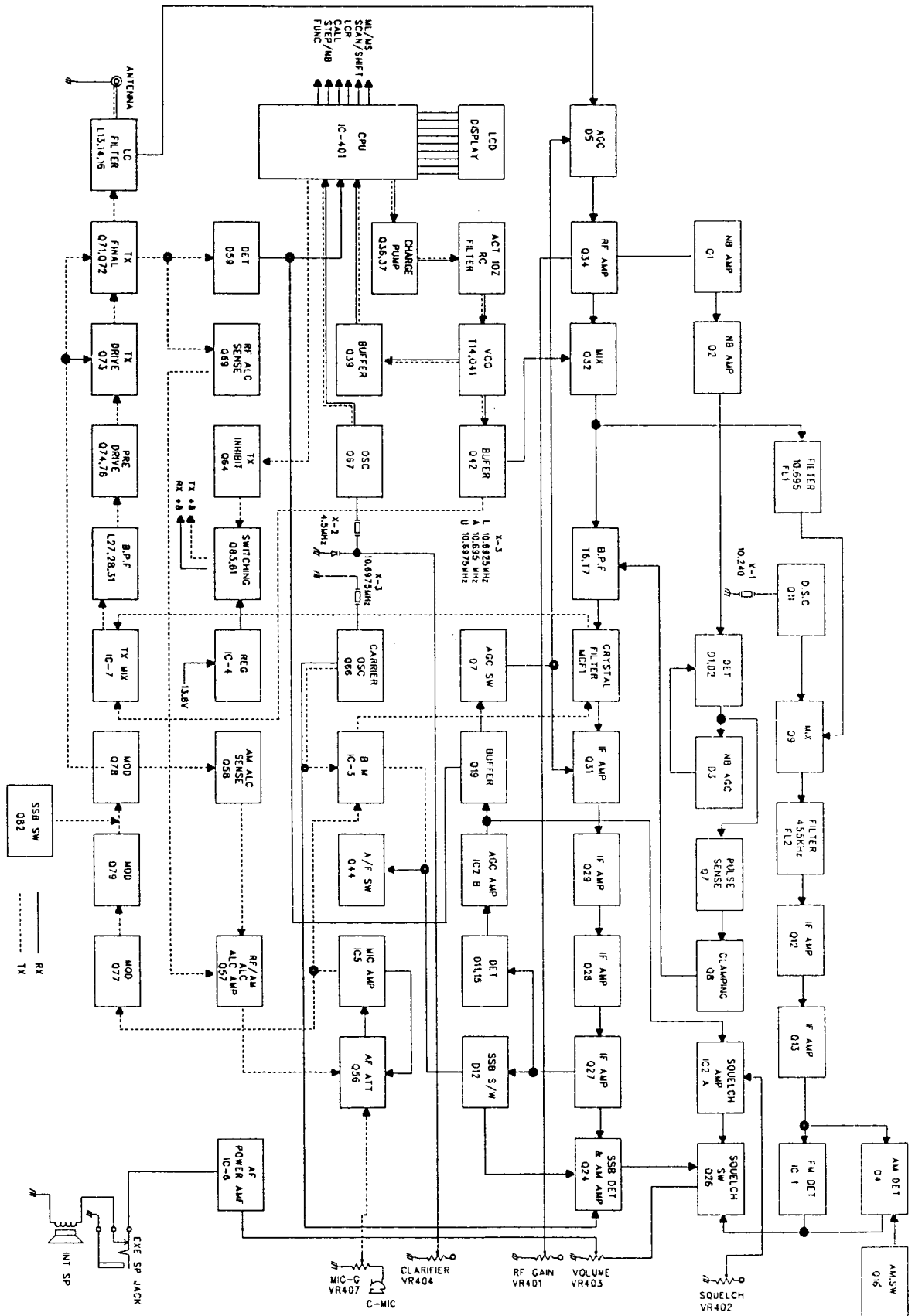
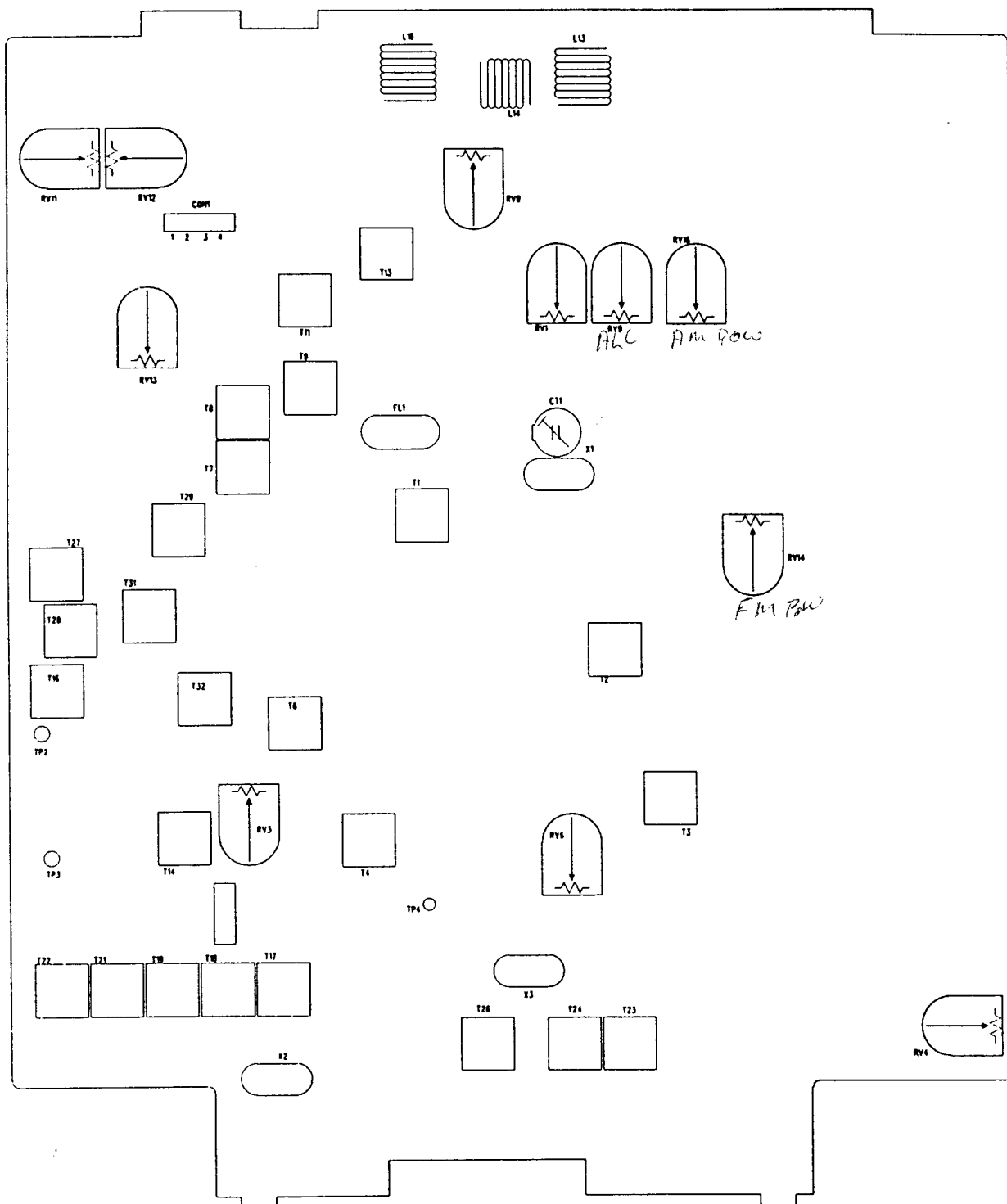


Figure 4

# BLOCK DIAGRAM



# ALIGNMENT AND ADJUSTMENT



Alignment Parts Locations



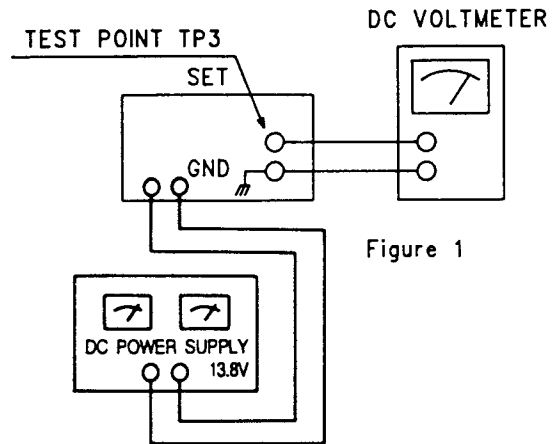
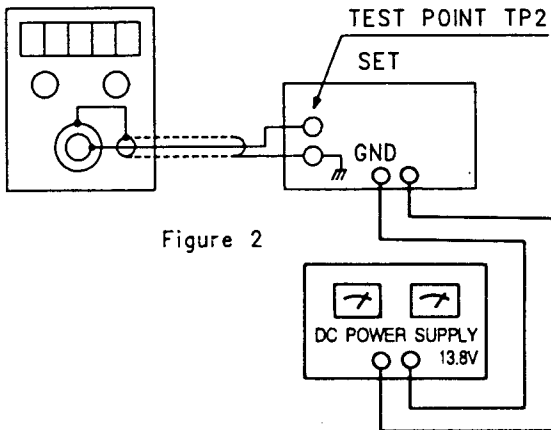
## PLL Selection

### ■ Test Equipment Required:

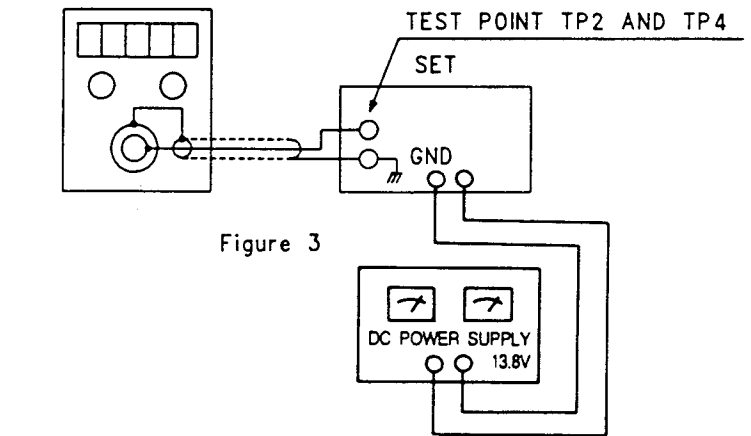
- Oscilloscope (DC-50 MHz)
- Frequency Counter (0-30 MHz)
- DC Power Supply
- DC Voltmeter

### ■ Test Equipment Connection

FREQUENCY COUNTER



FREQUENCY COUNTER



## Alignment Procedure

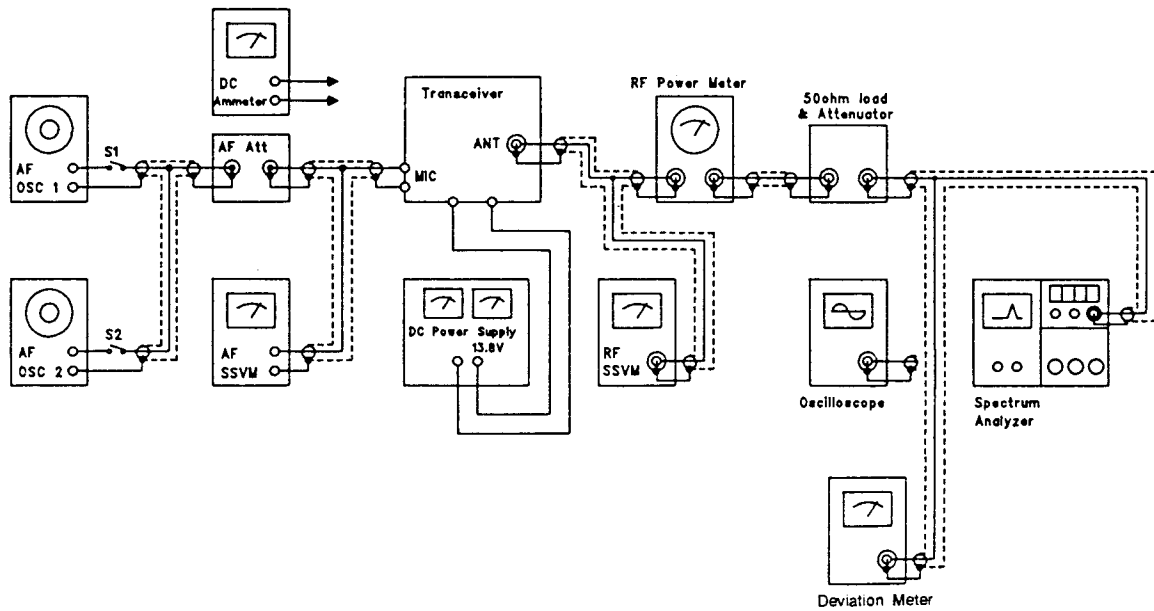
| Step | Preset to  | Connection     | Adjustment   |
|------|--|----------------|--|
| 1    | Frequency: 28.000MHz<br>AM, RX<br>Clarifier in Center  | TP3<br>Figure1 | Adjust T14 for 4V DC reading on DC Voltmeter.  |
| 2    | Same as step 1.<br>Frequency: 29.699MHz  | TP3<br>Figure1 | Check that the voltage is more than 6.5V DC on DC Voltmeter.   |
| 3    | Same as step 1.<br>Frequency: 28.000 MHz<br>28.001 MHz<br>28.002 MHz<br>28.003 MHz<br>28.004 MHz   | TP2<br>Figure2 | Adjust T17 for 38.695 MHz $\pm 20$ Hz.<br>Adjust T18 for 38.696 MHz $\pm 20$ Hz.<br>Adjust T19 for 38.697 MHz $\pm 20$ Hz.<br>Adjust T21 for 38.698 MHz $\pm 20$ Hz.<br>Adjust T22 for 38.699 MHz $\pm 20$ Hz. |
| 4    | Same as step 1.<br>Frequency: 28.000 MHz<br>LSB, RX  | TP4<br>Figure3 | Adjust T24 for 10.6925 MHz $\pm 20$ Hz.  |
| 5    | Same as step 1.<br>Frequency: 28.000 MHz<br>USB, RX  | TP4<br>Figure3 | Adjust T26 for 10.6975 MHz $\pm 20$ Hz.  |
| 6    | Same as step 1.<br>Frequency: 28.000 MHz<br>TX, AM<br>Disconnect MINI JUMPER<br>1,2 and 3,4 (CON1) | TP4<br>Figure3 | Adjust T23 for 10.6950 MHz $\pm 5$ Hz.   |

# Transmitter Section

## ■ Equipment Required

- AF Oscillator (two required)
- AF SSVM (Full scale: 1V DC with RF probe)
- DC Ampere meter
- RF Power Meter
- 50 ohm load and Attenuator
- Oscilloscope
- RF SSVM
- Monitor Receiver or Spectrum Analyzer
- DC Power Supply (13.8V / 10Amp.)
- Deviation meter

## ■ Test Equipment Connection



## Alignment Procedure

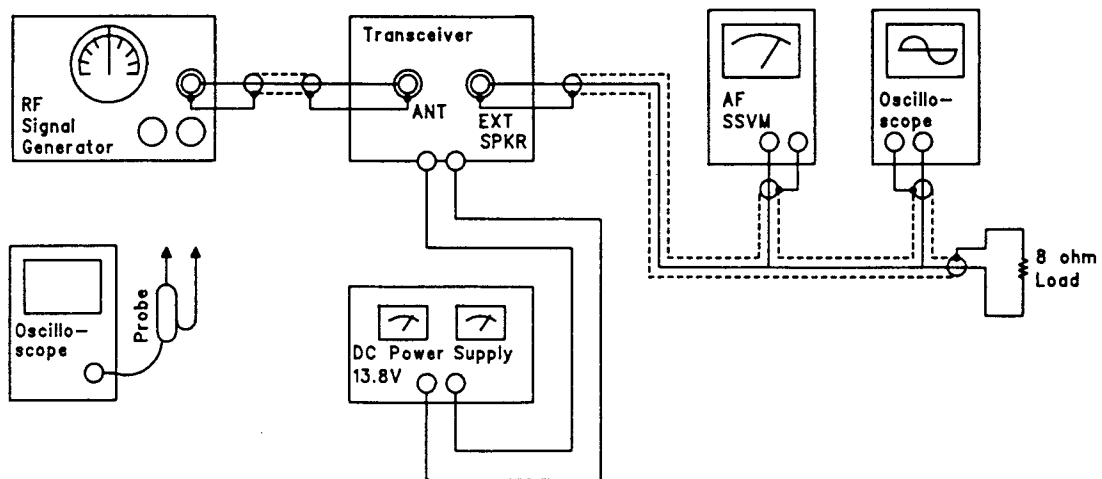
| Step   | Preset to   | Adjustment                    | Procedure  |
|--|---|-------------------------------|--|
| 1  | Frequency : 28.000 MHz<br>MODE : TX, USB<br>MOD. : NO MOD.<br>S1 and S2 : OFF     | RV13                          | Break circuit at two mini jumpers. Place DC mA meter in series at (CON1) pin No.2(+LEAD) and pin No.1(-LEAD) and Adjust for 70mA with RV13. (See page 8 alignment parts locations to find mini jumper location ; con1)   |
| 2  | Same as Step 1.   | RV11<br>RV12                  | Place DC mA meter in series at (CON1) No.4(+LEAD) and pin No.3 (-LEAD). Set RV12 to counter clock wise maximum position. Adjust for 60 mA.with RV11 and 120mA with RV12.   |
| After steps 1 and 2, restore two mini jumpers. |   |                               |  |
| 3  | Same as step 1.<br>OSC1 : 500 Hz<br>OSC2 : 2400 Hz<br>S1,S2 : ON<br>MODE : TX,LSB | T27,28,16,<br>29,31and<br>T32 | Set RV9 to full clockwise rotation (ALC"off"condition). Keep the AF ATT for approx. 28V reading on RF SSVM. Then adjust coils for max reading. Repeat this adjustment several times and reducing the AF input level to the microphone circuit for each adjustment. |
| 4  | Same as step 3  | T27,28<br>and T16             | Adjust Coils for max. reading on RF SSVM. Check the power difference between 28.000 and 29.699 MHz. If it is over 2V on RF SSVM,readjust coils to obtain within 2V.  |
| 5  | Same as step 3<br>OSC1 : 1 KHz<br>S1: ON, S2: OFF                                 | RV9                           | Adjust oscillator 1 for 5mV reading on AF SSVM, then adjust RV9 for 35V reading on RF SSVM.  |
| 6  | AM mode<br>S1, S2 : OFF   | RV16                          | Adjust for 7.0W reading on RF Power meter.   |
| 7  | MODE : FM, TX<br>S1, S2 : OFF   | RV14                          | Adjust for 25 watts reading on RF power meter  |
| 8  | Same as step<br>AM MODE<br>S1, S2: OFF  | RV8                           | Adjust RV8 so that 5 full bar light on the Transceiver meter.  |
| 9  | Same as step 5  | RV4                           | Adjust output of oscillator 1 for 200mV reading on AF SSVM, then adjust RV4 for 90 to 95% modulation on Scope.   |
| 10   | MODE : FM   | RV3                           | Adjust output of oscillator 1 for 200mV reading on AF SSVM, then adjust RV3 for 2KHz deviation on deviation meter  |

## Receiver Section

### ■ Equipment Required:

- RF Signal Generator (27 MHz Band, 50 ohm output impedance)
- AF SSVM
- Oscilloscope
- DC Power Supply
- 8 ohm load

### ■ Test Equipment Connection



# Alignment Procedure

Note: SG = Signal Generator

| Step | Preset to   | Adjustment         | Procedure   |
|------|---|--------------------|---|
| 1    | Frequency : 29.300 MHz<br>Clarifier : center<br>Volume : fully clockwise<br>RF GAIN : fully clockwise<br>Squelch : fully counter-clockwise<br>NB : off<br>Mode : AM |                    | Set the SG on channel 28.8000 MHz with 1 kHz, 30% modulation.   |
| 2    | Same as Step 1.<br>MODE: USB, LSB<br>MOD: OFF (SSG)   | T13,11,9,6,<br>7,4 | Adjust T13, T11, T9, T7, T6, T4 for max. reading on AF SSVM. Check the sensitivity difference between 28.800MHz and 29.699MHz. If it is over 1 dB, re-adjust T13, T11, T9, T7, T6, T4 to obtain within 1dB. |
| 3    | Same as step 1.<br>MODE: AM<br>MOD: 30% (SSG)   | T1, 2<br>CT1       | Adjust the level of SG to obtain 2V reading on AF SSVM. Then adjust coils for maximum reading on AF SSVM. Repeat this step reducing the SG output.  |
| 4    | Same as step 1<br>MODE: FM<br>MOD: 1K (SSG)   | T3                 | Adjust T3 maximum reading on AF SSVM.   |
| 5    | Same as step 1 except squelch<br>Squelch : fully clockwise.   | RV402              | Set the level of SG to 1000uV. Then adjust RV402 so that the AF signal just appear on Oscilloscope  |
| 6    | Same as step 1.   | RV1                | Set the level of SG to 100uV. Then adjust RV1 for "S-9" reading on Transceiver meter.   |

# TROUBLESHOOTING

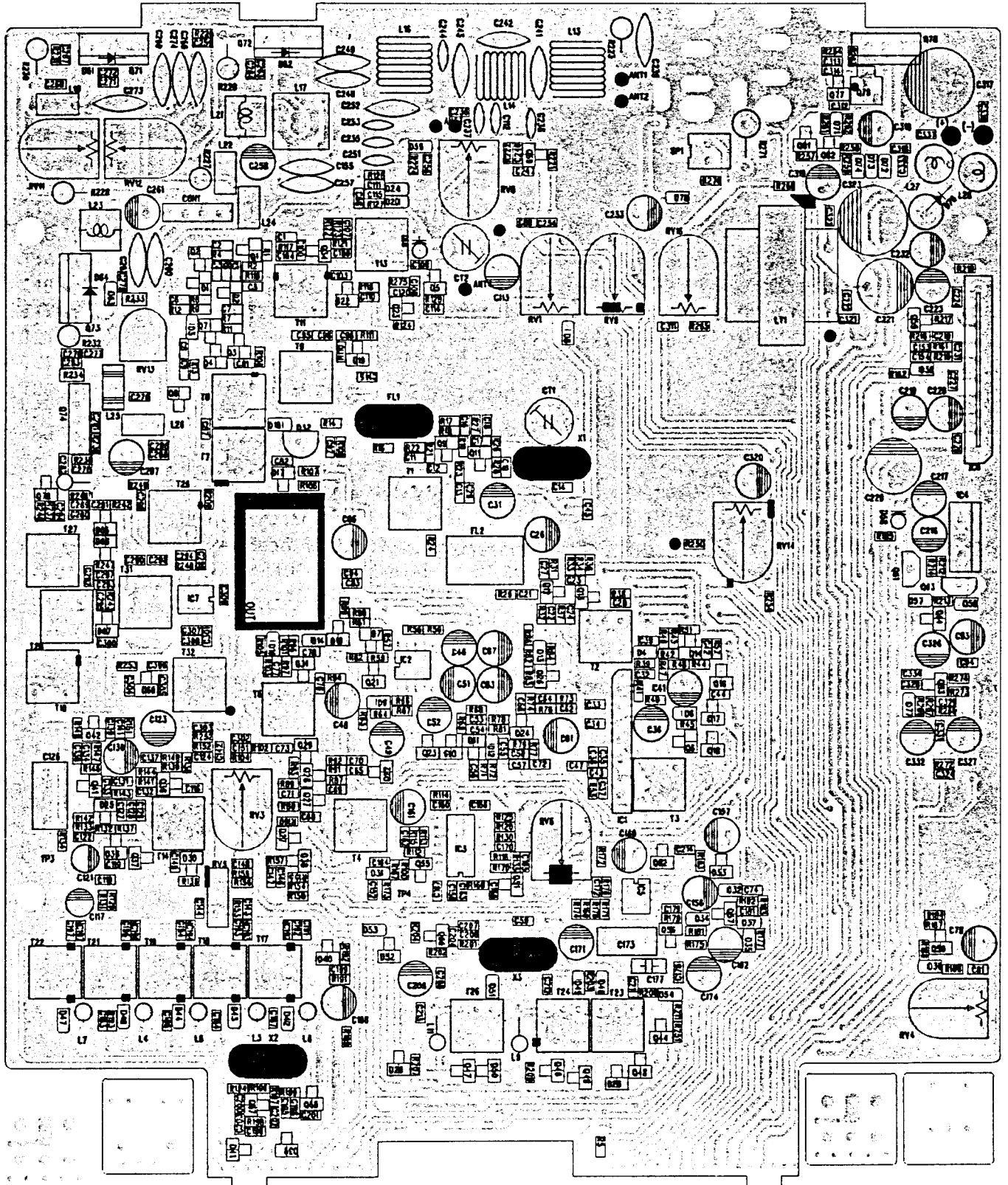
| Symptom               | Cause and Remedy   |
|-----------------------|--|
| Unit Will Not Turn On | <ul style="list-style-type: none"> <li>• Broken/defective DC Power Card</li> <li>• Blown fuse. Be sure you check for the cause.</li> <li>• Defective power switch.</li> <li>• Defective wires or poor soldering in power supply circuit.</li> </ul>  |
| No Sound Received:    | <ul style="list-style-type: none"> <li>• Defective RF circuit in receiver</li> <li>• Defective noise blanker</li> <li>• Defective audio power IC, IC6<br/>Check Voltage at pin 10 of IC6; if approximately 6V, problem is not with this IC</li> <li>• Squelch is "ON" all the time.<br/>If voltage at Base of Q26 is approx 0V with Squelch Control is set to fully counterclockwise position, problem is not in with squelch circuit.<br/>Defective Q26</li> <li>• Check whether the transceiver signal strength meter indicates S9 when a signal (28.800 MHz carrier with 1 kHz, 30% modulation, 100uV level) is supplied to antenna (The meter indication would be as following A and B)<br/>A) The meter indicates "S-9".<br/>You can assume that antenna through IF stage is OK.<br/>No AM.... Checks should be made on Detector (D4) ANL circuit (Q14), Q26 and AF stage (VR402 and IC6).<br/>No SSB But AM OK.... Check frequency and level on emitter of Q66. If no signal, checking should be made on X-tals and Q66<br/>No SSB... Checking should be made on Detector Q24, Q26 and AF stage, VR402 and IC6.</li> <li>B) No deflecting of meter.<br/>Checking should be made on RF stage Q34 and Q32, IF stage Q31, Q29, Q28 and AGC circuit D11, D15, IC2B. If not, then problem is in PLL circuit. Check frequency on TP2 whether it is listed as in the table (Page 9, Alignment procedure, step4)</li> </ul> <ul style="list-style-type: none"> <li>• Defective AGC circuit.</li> <li>• Defective PLL circuit.</li> <li>• Defective antenna connector.</li> </ul> |
| No Noise              | <ul style="list-style-type: none"> <li>• Broken or bad contact in microphone connector or push-to-talk switch.</li> <li>• Defective RX power circuit.</li> <li>• Defective RX audio circuit.</li> <li>• Defective PLL circuit.</li> <li>• Defective squelch circuit</li> <li>• Defective PA-CB switch.</li> </ul>  |

| Symptom                    | Cause and Remedy  |
|----------------------------|---|
| No Transmission            | <ul style="list-style-type: none"> <li>• Broken or bad contact in microphone connector or push-to-talk switch.</li> <li>• Broken or bad contact in antenna connector.</li> <li>• Defect in power supply.</li> <li>• Defect in PLL or Carrier Oscillator (Improper adjustment).</li> <li>• Inoperative microphone amplifier or balance modulator in SSB mode.</li> <li>• Check the frequency at emitter of Q66. If no carrier, check Q66, D48, 49, D51 and X3.</li> <li>• Carrier is OK, but no TX; check the frequency at TP3. If not same as listed in Frequency Table, PLL circuit is defective. If OK, check IC3, Q55, Q64 and Q61.</li> <li>• If no TX on SSB modes and no modulation on AM mode, Mic amplifier or ALC/AMC section is defective. Check Q56, 57, 58 and Q69</li> </ul> |
| No Modulation              | <ul style="list-style-type: none"> <li>• Defective microphone.</li> <li>• Defective microphone connector.</li> <li>• Inoperative microphone amplifier (on both AM, FM and SSB modes.)</li> </ul>  |
| No Noise Blanker Operation | <ul style="list-style-type: none"> <li>• With NB Switch ON, supply a 28.800MHz carrier signal to antenna and check DC voltage at Q7 base as varying the carrier signal from 1uV to 100uV.</li> <li>• Defective IC401, NB switch (SW407): Check pin 8, 29, 33 of IC401</li> <li>• Defective noise-blanker circuit: Check Q1, 2, 3, 4, 7, 8 and D1, D2, D3</li> </ul>   |
| No Scan                    | <ul style="list-style-type: none"> <li>• Defective IC401, SCAN switch (SW409): Check pin 31, 29, 32 of IC401</li> <li>• Defective scan circuit: Check VR402, IC2A</li> </ul>  |
| No LCD Display             | <ul style="list-style-type: none"> <li>• Defective IC401, LCD, 4.5MHz oscillator: Check Q67, Q406, Q414, Q413, IC402 and pin 35~65, 18, 19 of IC401</li> </ul>  |

**Note :** For remedy, replace or repair the defective circuits or component(s).

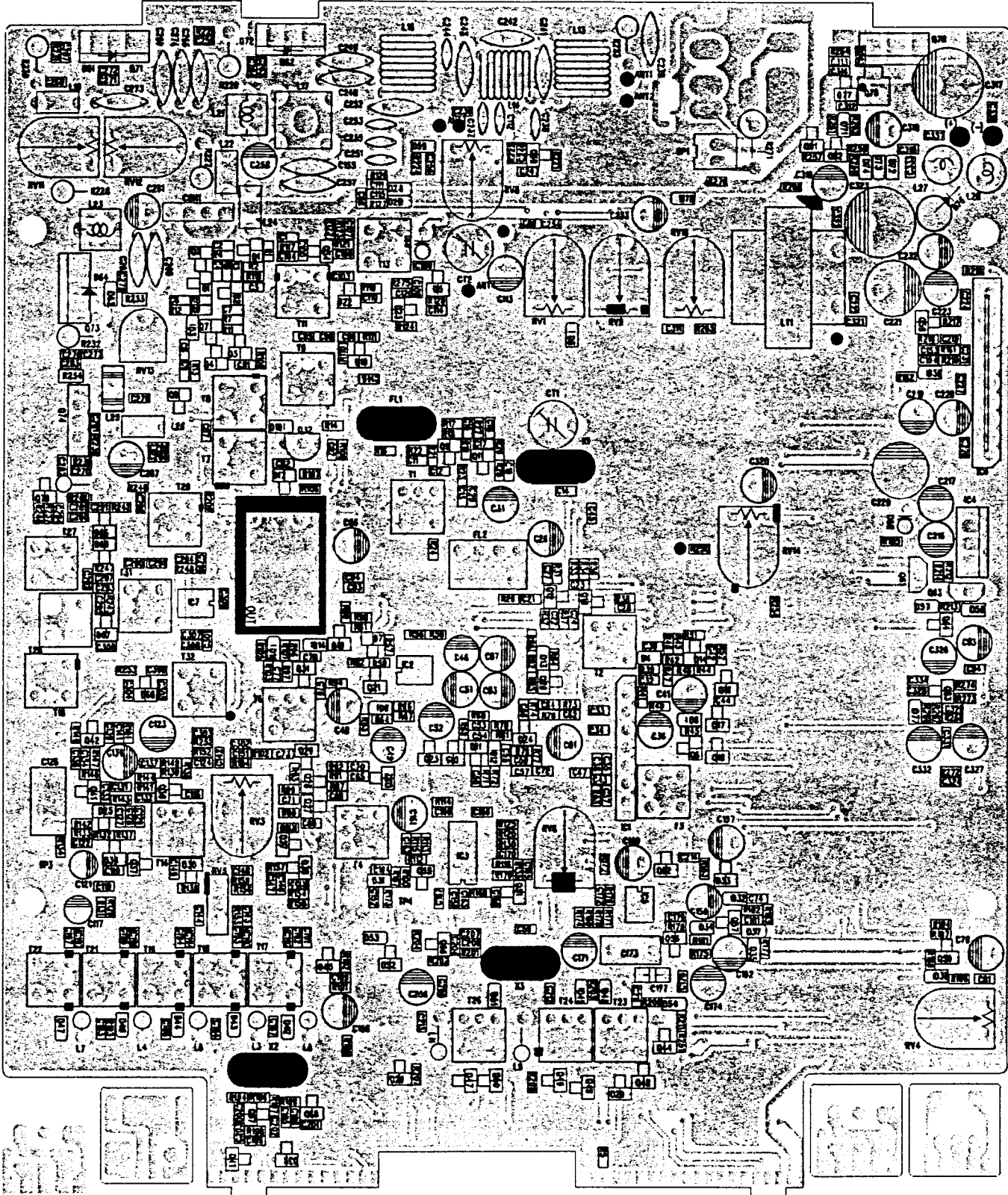
# PRINTED CIRCUIT BOARDS

Main PCB (Top View)

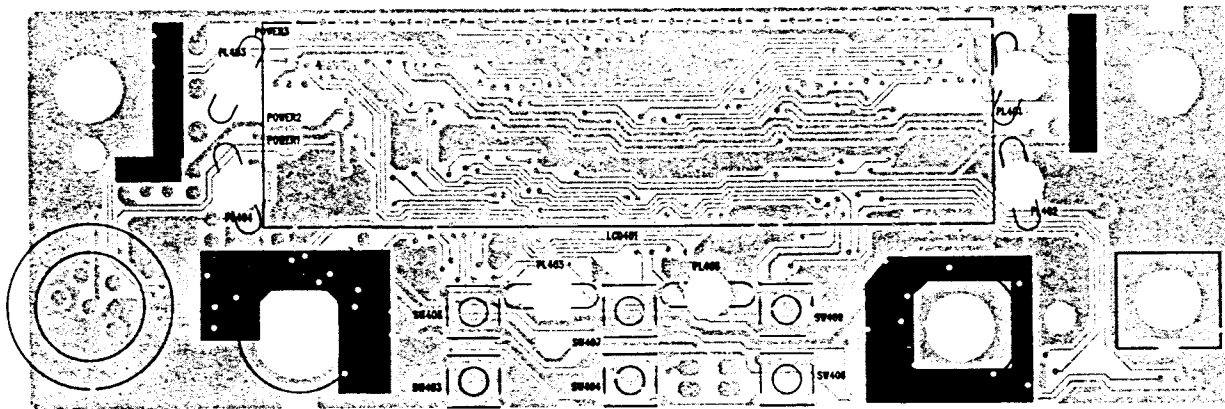




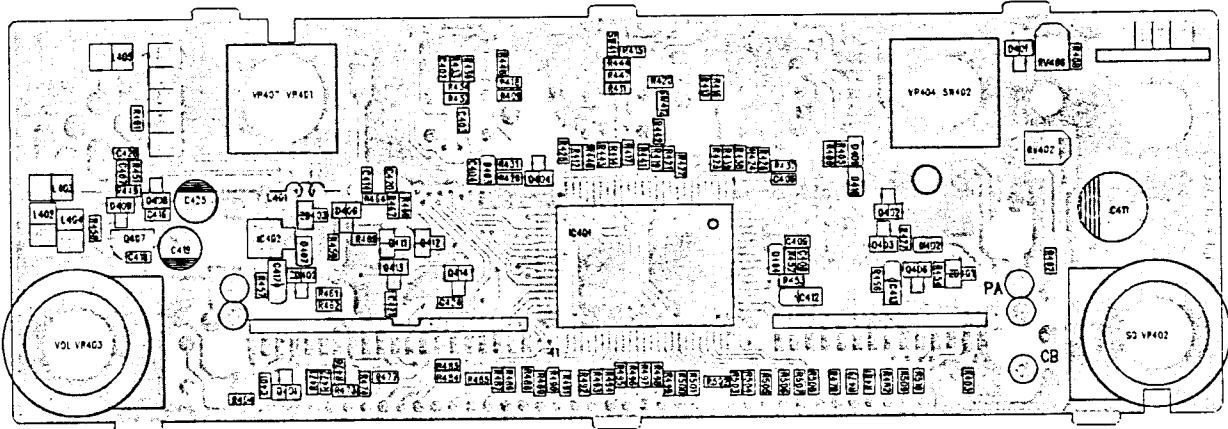
Main PCB (Bottom View)



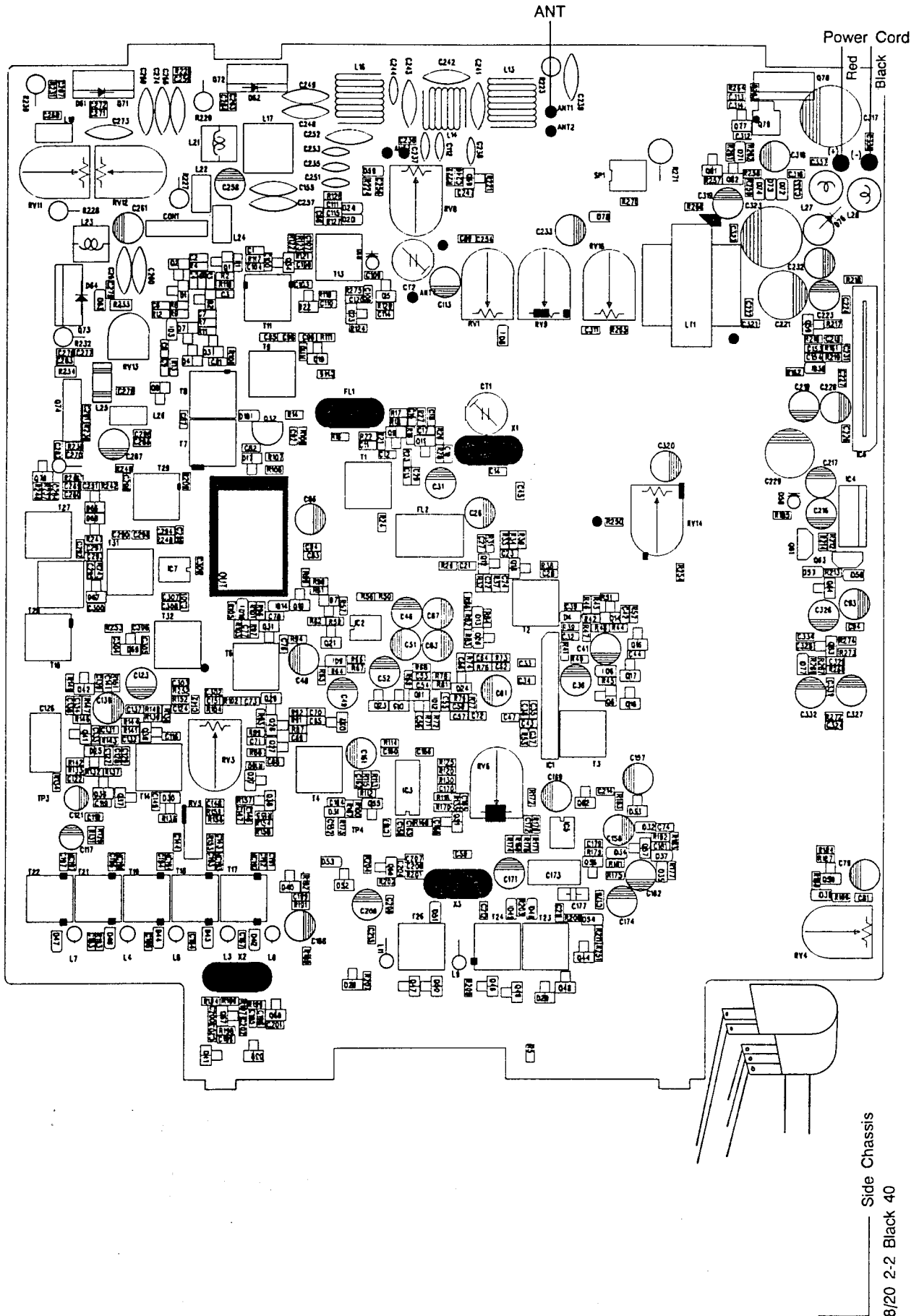
Control PCB (Top View)



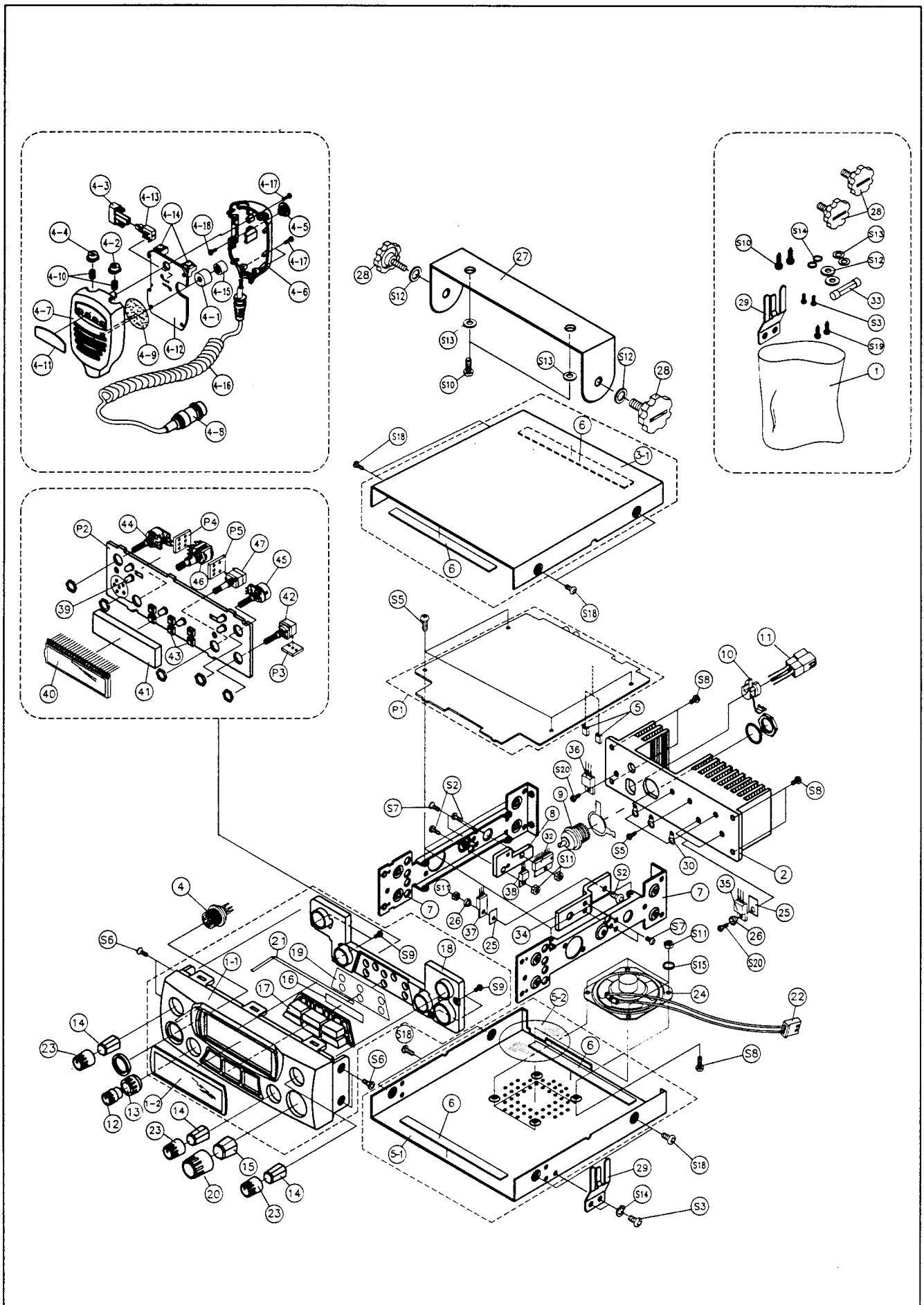
Control PCB (Bottom View)



# WIRING DIAGRAM



# EXPLODED VIEW



# EXPLODED VIEW PARTS LIST

| Ref. No.            | Description                                   | Mfr's Part No. |
|---------------------|---|----------------|
| ASS'Y-Panel, Front  |   | GAF0HTX10      |
| 1-1                 | Panel, Front (Black), HTX-10/RadioShack       | GAF09401B      |
| 1-2                 | Window, LCD HTX-10/RadioShack                 | GELCO3900      |
| 16                  | Sticker, Function Knob, 45x4x0.1t (Black)     | GEKF001XX      |
| 17                  | Knob, Function HTX-10/RadioShack              | GKFS485HY      |
| 18                  | Illumination, PC Milky(TRC-485)               | GFIX001XX      |
| 19                  | Light, Cover Sheet, PVC 0.3t, Black (TRC-485) | GPRV001XX      |
| 21                  | Shield Plate (Bezel); 120x3x0.2t              | GPHDHTXXX      |
| S9                  | Screw, Pan Head, T/S-2S, 2x5(Zn)Y             | GSPT2Z109      |
| ASS'Y-Cover, Top    |   | GVPHHTX10      |
| 3-1                 | Cover, Top, HTX-10(Black)                     | GVPHTX10Y      |
| 6                   | Felt, Cover, 8x125x1t                         | GOFC8X125      |
| ASS'Y-Cover, Bottom |   | GVMHHTX10      |
| 5-1                 | Cover, Bottom, HTX-10(Black)                  | GVMHTX10Y      |
| 5-2                 | Felt, Speaker, 80piex0.3t                     | GOF80X03       |
| 6                   | Felt, Cover, 8x125x1t                         | GOFC8X125      |
| 22                  | Wire, Harness(H), 2P, 120(2), 2-C             | GWHA0212A      |
| 24                  | Speaker, PS-7711                              | JOPS7711X      |
| S8                  | Screw, Bind Head, M3x6(Black/N-Cotting)       | GSBM0BX06      |
| S11                 | Nut, Hex M3(Zn)                               | GSNHOZX12      |
| S15                 | Washer, Spring, M3(Zn)                        | GSWSOZX21      |
| Hardware Kit        |   | GHARHTX10      |
| S2                  | Screw, Bind Head, M3x10(Zn)                   | GSBMOZX39      |
| S5                  | Screw, Bind Head, T/S-2S, 3x6(Zn)             | GSBT2ZX06      |
| S6                  | Screw, Flat Head, M3x5(Zn)                    | GSFMOZX57      |
| S7                  | Flat, Head, T/S-2S, 3x6(Zn)                   | GSFT2ZX22      |
| S8                  | Screw, Bind Head, M3x6(Black/N-Cotting)       | GSBMOBX06      |
| S9                  | Screw, Pan Head, T/S-2S, 2x5(Zn)Y             | GSPT2Z109      |
| S18                 | Screw, Tap Tight, BH 3x6(Black/N-Cotting)     | GSABB0301      |
| S20                 | Bind Head, T/S-2S, 3x8(Zn)                    | GSBT2ZX87      |
| 4-17                | Screw, Pan Head, T/S-2S, 2.3x8(Black)         | GSPT2B208      |
| 4-18                | Screw, Pan Head, T/S-2S, 3x6(Zn)              | GSPT2ZX42      |
| Parts Individual    |   |                |
| P1                  | ASS'Y, PCB, Main                              | JPMXHTX10      |
| P2                  | ASS'Y, PCB, Front                             | JPFXHTX10      |
| P3                  | ASS'Y, PCB, Channel                           | JPSCH0005      |
| P4                  | ASS'Y, PCB, MIC-G, RF-G                       | JPSMA0008      |
| P5                  | ASS'Y, PCB, Fine                              | JPSF10003      |
| 4                   | Socket, Mic, SIn-16-6(R/S3), W/NUT Ring       | GNS166RS3      |
| 5                   | Jumper, Mini, 2.54mm                          | GWJM2.54X      |
| 12                  | Knob, In, SS-485(SF Black)                    | GKISS485Y      |
| 13                  | Knob, Out, SS-485(SF Black)                   | GKOSS485Y      |
| 14                  | Knob, VR Shaft, AE-4200N(Black)               | GKV4200LX      |

|                       |   |           |
|-----------------------|---|-----------|
| 15                    | Shaft, CH Knob, AE-5000(ABS Black)              | GKC5000XX |
| 20                    | CAP, Channel Knob, SI-Rubber(TRC-485) Black     | GOKC001XX |
| 23                    | CAP, Volume Knob, TRC-485, SI-Rubber(Black)     | GOKV001XX |
| 39                    | Pilot Lamp 3pie 30mA 10V                        | JL3X30X10 |
| 40                    | LCD KXN27730DAP                                 | JLCK27730 |
| 41                    | LCD, Housing, TRC-485                           | GELH00601 |
| 42                    | Switch, Channel, YPS2101, 20SK, W/NUT           | JSC2101XX |
| 43                    | Tact, DT-1102                                   | JST1105XX |
| 44                    | SW/Single Round, CSPNS-1624B/20mm, 50KA, W/NUT  | JV150KAPB |
|                       | Single Round, 161HB-20SK-B50K, W/NUT            |           |
| 45                    | Volume, Double Round, 3B100K/15A5K, W/NUT       | JV1250KBX |
| 46                    | VR(Push SW), Single Round, TPHR1 20KC-3B 10K,   | JV23B100X |
| 47                    | W/NUT   | JV120KCXX |
| ASS'Y-Heat Sink, Back |   | GCHBHTX10 |
| 2                     | Heat Sink, Back, HTX-10(AL6063-75)              | GCHBHTXXX |
| 9                     | ANT, Connector, CH-239(SIN)                     | GNCAC239X |
|                       | (W/NUT) Spring, Washer, Terminal                |           |
| 10                    | Cord, Stopper, SR-4P-4                          | GOMSR4P4X |
| 11                    | DC, Power Cord(A), SY-550 Mail                  | GWPSY550X |
| 25                    | T.R, Mica Sheet, SIL-Pad, 900-S                 | GOGTSILXX |
| 26                    | TR, Insulation Bushing, OD6.0xMD3.5xD3.2x2.3t   | GOHS6X3X3 |
| 30                    | Terminal LUG, 3pie                              | GOT03PIEX |
| 35                    | Transistor, 2SCI969, 2312                       | JTC1969XX |
| 36                    | Transistor, KTB778                              | JTKT778XX |
| S5                    | Bind Head, T/S-2S, 3x6(Zn)                      | GSBT2ZX06 |
| S20                   | Bind Head, T/S-2S, 3x8(Zn)                      | GSBT2ZX87 |
| ASS'Y-Chassis, Side   |   | GCCSHTX10 |
| 7                     | Chassis, Side, TRC-485(EGI 1.0t)                | GCCST485X |
| 8                     | I.C, Heat Sink, TRC-485(ALP 4.0t)               | GCHT485IX |
| 25                    | T.R, Mica Sheet, SIL-PAD, 900-S                 | GOGTSILXX |
| 26                    | TR, Insulation Bushing, OD6.0xMD3.5xD3.2x2.3t   | GOHS6X3X3 |
| 32                    | IC, KIA7217, 6217K                              | JIIA7217X |
| 34                    | T.R, Heat, Sink, HAM-485                        | GCHKH485X |
| 37                    | Transistor, 2SC2166                             | JTC2166XX |
| 38                    | IC, KIA78081A, 7808                             | JIL78081X |
| S2                    | Bind, Head, Screw, M3x10(Zn)                    | GSBMOZX39 |
| S7                    | Flat, Head, T/S-2S, 3x6(Zn)                     | GSFT2ZX22 |
| S11                   | Nut, Hex, M3(Zn)                                | GSNHOZX12 |
| Installation Kit      |   | GINSHTX10 |
| 27                    | B.K.T, Mounting, CB-240AF(Black)                | GDMB240AY |
| 28                    | Screw, Mounting, M4x8(Black)                    | GSMSO4X8L |
| 29                    | Hanger, MIC, All Model(Ni)                      | GMHALLMOD |
| 33                    | Fuse, 250V, 10A(6PieX30L)                       | JZF250V17 |
| S3                    | Screw, Bind Head, T/S-2S, 3x6(N-Cotting/Black)  | GSBT2BX05 |
| S10                   | Screw, Truss Head, T/S-1, 5x12(N-Cotting/Black) | GSTT1BX18 |
| S12                   | Washer, Rubber, OD15xD5.0x2t                    | GSWRO5X15 |
| S13                   | Washer, Flat, OD12xD5.2x0.5t(Black)             | GSWFOBX18 |
| S14                   | Washer, Spring, M3(Black)                       | GSWSOBX19 |
| S19                   | Screw, Bind Head, T/S-1S, 3x10(Ni)              | GSBT1NX20 |

|      | ASS'Y-Microphone                              | JPAMHTX10 |
|------|---|-----------|
| 4-1  | Holder, CON MIC, Rubber(PRO-200)              | GCOICONRU |
| 4-2  | Knob, MIC Down, HTX-10(Light Gray)            | GMKDS550A |
| 4-3  | Button, Push Memory, 8012(ABS Black)          | GMKKM8012 |
| 4-4  | Knob, MIC UP, HTX-10(Light Gray)              | GMKUS550A |
| 4-5  | Hanger, Back, 0.75g(Black)(UL94HB)            | GMT075GBK |
| 4-6  | Cover, MIC Back, SY-550(ABS Black)            | GMVBS550X |
| 4-7  | Cover, MIC Front, SY-550(ABS Black)           | GMVFS550X |
| 4-8  | Plug, MIC, N-16-6(P)                          | GNP166PXX |
| 4-9  | Felt, Speaker, 35.5pie x 0.15t                | GOF355PX  |
| 4-10 | Spring, Knob, STS304 0.2t                     | GRKX001XX |
| 4-11 | Plate, MIC, HTX-10/RadioShack                 | GPM041XXX |
| 4-12 | ASS'Y, PCB, Microphone                        | JPSMHTX10 |
| 4-13 | Switch, Push, DP-2251N                        | JSP2262NX |
| 4-14 | Switch, Tack, DT-1104A                        | JST1236XX |
| 4-15 | MIC, Condenser, JS-80C(9.7pie)                | JZDJS80CS |
| 4-16 | Cord, MIC 5C-1S(Black), KSK-56002 300mm/S:7mm | JZM5C1SBX |
| 4-17 | Screw, Pan Head, T/S-2S, 2.3x8(Black)         | GSPT2B208 |
| 4-18 | Screw, Pan Head, T/S-2S, 3x6(Zn)              | GSPT2ZX42 |

# ELECTRICAL PARTS LIST

| Ref. No           | Description                                   | Mfr's Part No. |
|-------------------|---|----------------|
| P1                | ASS'Y, PCB, MAIN                              | JPMXHTX10      |
| <b>Coils</b>      |   |                |
| T1                | IFT, ST404 7mm                                | JA404X7XX      |
| T2                | IFT, ST405 7mm                                | JA405X7XX      |
| T3                | IFT, ST435 7mm                                | JA435X7XX      |
| T4                | IFT, ST711A 7mm                               | JA711A7XX      |
| T6                | IFT, ST710 7mm                                | JA710X7XX      |
| T7-8              | IFT, ST706 7mm                                | JA706X7XX      |
| T9                | IFT, ST704B 7mm                               | JA704B7XX      |
| T11               | IFT, ST704B 7mm                               | JA704B7XX      |
| T13               | IFT, ST703M 7mm                               | JA703M7XX      |
| T14               | IFT, ST4304 7mm                               | JA43047XX      |
| T16               | IFT, LB344D 7mm                               | JALB344DX      |
| T17-19            | IFT, ST745 7mm                                | JA745X7XX      |
| T21-22            | IFT, ST745 7mm                                | JA745X7XX      |
| T23-24            | IFT, ST718 7mm                                | JA718X7XX      |
| T26               | IFT, ST718M 7mm                               | JA718M7XX      |
| T27               | IFT, ST735B 7mm                               | JA735B7XX      |
| T28               | IFT, ST735M 7mm                               | JA735M7XX      |
| T29               | IFT, ST706 7mm                                | JA706X7XX      |
| T31               | IFT, ST735M 7mm                               | JA735M7XX      |
| T32               | IFT, ST703M 7mm                               | JA703M7XX      |
| L1                | Core, Bead, BF03                              | JBOBBF03X      |
| L3                | Inductor, 100uH(LAL04NA)                      | JBII101KX      |
| L4                | Inductor, 470uH(LAL04NA)                      | JBII471XX      |
| L6-9              | Inductor, 470uH(LAL04NA)                      | JBII471XX      |
| L11               | Inductor, 470uH(LAL04NA)                      | JBII471XX      |
| L13               | Spring, ST096(0.8x6.0x8.5t)                   | JBIS096XX      |
| L14               | Spring, RF-103-B(0.8x6.0x6.5t)                | JBISR103B      |
| L16               | Spring, RF-103-B(0.8x6.0x6.5t)                | JBISR103B      |
| L17               | Spring, (B/F, Winding)                        | JBIS08653      |
| L18               | Inductor, 0.47uH(LAL02NA)                     | JBII471XX      |
| L19-20            | Core, Bead, BF03                              | JBOBBF03X      |
| L22               | Core, Bead, BF03                              | JBOBBF03X      |
| L23               | Spring, LE-215(0.8x3.0x4t)                    | JBISLE215      |
| L24               | Core, Bead, BF03                              | JBOBBF03X      |
| L25               | Ring, Core                                    | JBORCCXXX      |
| L26               | Core, Bead, BF03                              | JBOBBF03X      |
| <b>Capacitors</b> |   |                |
| C1                | Ceramic(1608), 1.5P, 50V, CG, +/-0.25pF(Chip) | JCH1R5CCC      |
| C2                | Ceramic(1608), 220P, 50V, CG, +/-5%(Chip)     | JCH221CJC      |
| C3                | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C4                | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C6                | Ceramic(1608), 0.0033uF, 50V, B, +/-10%(Chip) | JCH332BKC      |
| C7                | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C8                | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C9                | Ceramic(1608), 82P,50V, CG, +/-5%(Chip)       | JCH820CJC      |



| Ref. No. | Description                                  | Mfr's Part No. |
|----------|--|----------------|
| C11      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C13      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C14      | Ceramic(1608), 5P, 50V, CG, +/-0.25pF(Chip)  | JCH050CCC      |
| C16      | Ceramic(1608), 2P, 50V, CG, +/-0.25pF(Chip)  | JCH020CCC      |
| C17      | Ceramic(1608), 470P, 50V, CG, +/-5%(Chip)    | JCH471CJC      |
| C18      | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)    | JCH101CJC      |
| C19      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C21      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C22      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C23      | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip) | JCH102BKC      |
| C24      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C26      | Eelect, 50V, 5x11, 3.3uF, +/-20%             | JCEFA3R3X      |
| C27      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C28-29   | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C31      | Elect, 16V, 5x11, 22uF, +/-20%               | JCECA22XX      |
| C32      | Ceramic(1608), 39P, 50V, CG, +/-5%(Chip)     | JCH390CJC      |
| C33      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C34      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C36      | Elect, 16V, 5x11, 47uF, +/-20%               | JCECB47XX      |
| C37      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C38      | Ceramic(1608), 15P, 50V, CG, +/-5%(Chip)     | JCH150CJC      |
| C39      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C41      | Elect, 50V, 5x11, 1uF, +/-20%                | JCEFA1XXX      |
| C42-43   | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip) | JCH223BKC      |
| C44      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C45      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C46      | Elect, 50V 5x11 4.7uF, +/-20%                | JCEFA4R7X      |
| C47      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C48      | Elect, 50V, 5x11, 2.2uF, +/-20%              | JCEFA2R2X      |
| C49      | Elect, 16V, 5x11, 47uF, +/-20%               | JCECB47XX      |
| C51      | Elect, 50V, 5x11, 0.47uF, +/-20%             | JCEFAR47X      |
| C53      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C54      | Ceramic(1608), 220P, 50V, CG, +/-5%(Chip)    | JCH221CJC      |
| C55      | Ceramic(1608), 56P, 50V, CG, +/-5%(Chip)     | JCH560CJC      |
| C56      | Ceramic(1608), 10P, 50V, CG, +/-0.25%(Chip)  | JCH100CCC      |
| C57      | Ceramic(1608), 47P, 50V, CG, +/-5%(Chip)     | JCH470CJC      |
| C58      | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip) | JCH102BKC      |
| C59      | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)    | JCH101CJC      |
| C61      | Elect, 16V, 5x11, 47uF, +/-20%               | JCECB47XX      |
| C62      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C63      | Elect, 16V, 5x11, 22uF, +/-20%               | JCECA22XX      |
| C64      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C65      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C66      | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip) | JCH102BKC      |
| C67      | Elect, 50V, 5x11, 4.7uF, +/-20%              | JCEFA4R7X      |
| C68-69   | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C70      | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)   | JCH104BKC      |
| C71-72   | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C73      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |
| C74      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C76-77   | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip) | JCH473BKC      |
| C78      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)  | JCH103BKC      |

| Ref. No. | Description                                   | Mfr's Part No. |
|----------|---|----------------|
| C79      | Elect, 16V, 5x11, 47uF, +/-20%                | JCECB47XX      |
| C81      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C82-83   | Ceramic(1608), 0.0047uF, B, +/-10%(Chip)      | JCH472BKC      |
| C84      | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C86      | Elect, 16V, 5x11, 10uF, +/-20%                | JCECA10XX      |
| C87      | Ceramic(1608), 3P, 50V, CG, +/-0.25%(Chip)    | JCH030CCC      |
| C88-89   | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C91      | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C92      | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)  | JCH102BKC      |
| C93      | Elect, 16V, 5x11, 10uF, +/-20%                | JCECA10XX      |
| C94      | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C95      | Ceramic(1608), 10P, 50V, CG, +/-0.25pF(Chip)  | JCH100CCC      |
| C98      | Ceramic(1608), 5P, 50V, CG, +/-0.25pF(Chip)   | JCH050CCC      |
| C100     | Ceramic(1608), 10P, 50V, CG, +/-0.25pF(Chip)  | JCH100CCC      |
| C104     | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C106-107 | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C108     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH820CJC      |
| C109-111 | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C113     | Elect, 16V, 5x11, 100uF, +/-20%               | JCECC100X      |
| C114-115 | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C116     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C117     | Elect, 50V, 5x11, 2.2uF, +/-20%               | JCEFA2R2X      |
| C118     | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)  | JCH102BKC      |
| C119     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C121     | Elect, 50V, 5x11, 1uF, +/-20%                 | JCEFA1XXX      |
| C122     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C123     | Elect, 16V, 5x11, 100uF, +/-20%               | JCECC100X      |
| C124     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C126     | Mylar*, 0.068uF, 50V, +/-10%(Small)           | JCMU068XX      |
| C128     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)      | JCH680CJC      |
| C129     | Ceramic(1608), 5P, 50V, CG, +/-0.25%(Chip)    | JCH050CCC      |
| C131     | Ceramic(1608), 1.5P, 50V, CG, +/-0.25%(Chip)  | JCH1R5CCC      |
| C132     | Ceramic(1608), 47P, 50V, CG, +/-5%(Chip)      | JCH470CJC      |
| C133     | Ceramic(1608), 270P, 50V, CG, +/-5%(Chip)     | JCH271CJC      |
| C134     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C136     | Elect, 16V, 5x11, 100uF, +/-20%               | JCECC100X      |
| C137     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C138     | Ceramic(1608), 3P, 50V, CG, +/-0.25pF(Chip)   | JCH030CCC      |
| C139     | Ceramic(1608), 10P, 50V, CG, +/-0.25pF(Chip)  | JCH100CCC      |
| C141-143 | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C144     | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C145     | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C146     | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)    | JCH104BKC      |
| C147     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C148     | Ceramic(1608), 0.068uF, 25V, B, +/-10%(Chip)  | JCH683BKC      |
| C149     | Ceramic(1608), 15P, 50V, CG, +/-5%(Chip)      | JCH150CJC      |
| C151-152 | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C153     | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C154     | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C155     | Ceramic, 0.1uF, 50V, +80, -20%(Disk)          | JCC104FZD      |
| C156     | Elect, 16V, 5x11, 100uF, +/-20%               | JCECC100X      |

\* Mylar is a registered trademark of E. I. DuPont de Nemours and company.

| Ref. No. | Description                                     | Mfr's Part No. |
|----------|---|----------------|
| C157     | Elect, 50V, 5x11, 1uF, +/-20%                   | JCEFA1XXX      |
| C159     | Ceramic(1608), 8P, 50V, CG, +/-0.25pF(Chip)     | JCH080CCC      |
| C160     | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)      | JCH104BKC      |
| C161     | Elect, 16V, 5x11, 47uF, +/-20%                  | JCECB47XX      |
| C162     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)    | JCH473BKC      |
| C163     | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)      | JCH104BKC      |
| C164     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C165-166 | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)      | JCH104BKC      |
| C167     | Ceramic(1608), 100P, CG, +/-5%(Chip)            | JCH101CJC      |
| C168     | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)      | JCH104BKC      |
| C169     | Elect, 50V, 5x11, 0.22uF, +/-20%                | JCEFAR22X      |
| C170     | Ceramic(1608), 0.1uF, 25V, B, +/-10%(Chip)      | JCH104BKC      |
| C171     | Elect, 50V, 5x11, 0.22uF, +/-20%                | JCEFA1XXX      |
| C172     | Ceramic(1608), 470P, 50V, CG, +/-5%(Chip)       | JCH471CJC      |
| C173     | Mylar, 0.1uF, 50V, +/-10%(Small)                | JCMU0R1XX      |
| C174     | Elect, 16V, 5x11, 100uF, +/-20%                 | JCECC100X      |
| C176     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)    | JCH473BKC      |
| C177     | Mylar, 0.01uF, 50V, +/-10%(Small)               | JCMU01XXX      |
| C179     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)    | JCH473BKC      |
| C181     | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)    | JCH102BKC      |
| C182     | Elect, 50V, 5x11, 2.2uF, +/-20%                 | JCEFA2R2X      |
| C183-184 | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C186-187 | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C188     | Elect, 50V, 5x11, 0.1uF, +/-20%                 | JCEFA0R1X      |
| C189     | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)    | JCH102BKC      |
| C191     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C192     | Ceramic(1608), 82P, 50V, CG, +/-5%(Chip)        | JCH820CJC      |
| C193     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)        | JCH680CJC      |
| C194     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)       | JCH101CJC      |
| C195     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)    | JCH473BKC      |
| C196     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)        | JCH680CJC      |
| C197     | Ceramic(1608), 180P, 50V, CG, +/-5%(Chip)       | JCH181CJC      |
| C198     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C199     | Ceramic(1608), 120P, 50V, CG, +/-5%(Chip)       | JCH121CJC      |
| C200     | Ceramic(1608), 390P, 50V, CG, +/-5%(Chip)       | JCH391CJC      |
| C202     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C203     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)       | JCH101CJC      |
| C204     | Ceramic(1608), 270P, 50V, CG, +/-5%(Chip)       | JCH271CJC      |
| C206     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)       | JCH101CJC      |
| C207     | Ceramic(1608), 220P, 50V, CG, +/-5%(Chip)       | JCH221CJC      |
| C208     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)     | JCH103BKC      |
| C209     | Elect, 16V, 5x11, 10uF, +/-20%                  | JCECA10XX      |
| C211     | Ceramic(1608), 270P, 50V, CG, +/-5%(Chip)       | JCH270CJC      |
| C212     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)        | JCH680CJC      |
| C213     | Ceramic(1608), 12P, 50V, CG, +/-5%(Chip)        | JCH120CJC      |
| C214     | Ceramic(1608), 0.1uF, 50V, 25V, B, +/-10%(Chip) | JCH104BKC      |
| C216-217 | Elect, 16V, 5x11, 10uF, +/-20%                  | JCECA10XX      |
| C218     | Elect, 16V, 5x11, 47uF, +/-20%                  | JCECB47XX      |
| C219     | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)    | JCH102BKC      |
| C221     | Elect, 16V, 8x11.5, 470uF, +/-20%               | JCECD470X      |
| C222     | Ceramic(1608), 0.0047uF, 50V, B, +/-10%(Chip)   | JCH472BKC      |
| C223     | Elect, 50V, 5x11, 0.47uF, +/-20%                | JCEFAR47X      |

| Ref. No. | Description                                   | Mfr's Part No. |
|----------|---|----------------|
| C224     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C226     | Ceramic(1608), 0.068uF, 25V, B, +/-10%(Chip)  | JCH683BKC      |
| C227     | Ceramic(1608), 150P, 50V, CG, +/-5%(Chip)     | JCH151CJC      |
| C228     | Elect, 16V, 5x11, 33uF, +/-20%                | JCECA33XX      |
| C229     | Elect, 16V, 8x11.5, 470uF, +/-20%             | JCECD470X      |
| C231     | Ceramic(1608), 0,022uF, 50V, B, +/-10%(Chip)  | JCH222BKC      |
| C232     | Elect, 50V, 5x11.5, 4.7uF, +/-20%             | JCEFA4R7X      |
| C237     | Ceramic, 1.5P, 50V, CH, +/-0.25pF(Disk)       | JCC1R5CCD      |
| C238     | Ceramic, 18P, 50V, CH, +/-5%(Disk)            | JCC180CJD      |
| C239     | Capacitor, Ceramic, 120P CH +/-5%(Disk)       | JCC121CJD      |
| C241     | Ceramic, 150P, 50V, CH, +/-5%(Disk)           | JCC151CJD      |
| C242     | Ceramic, 33P, 50V, CH, +/-5%(Disk)            | JCC330CJD      |
| C243     | Ceramic, 180P, 50V, CH, +/-5%(Disk)           | JCC181CJD      |
| C244     | Ceramic, 56P, 50V, CH, +/-5%(Disk)            | JCC560CJD      |
| C246     | Ceramic(1608), 33P, 50V, CG, +/-5%(Chip)      | JCH330CJC      |
| C247     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C248     | Ceramic, 470P, 50V, CH, +/-5%(Disk)           | JCC471CJD      |
| C249     | Ceramic, 0.01uF, 50V, B, +/-10%(Disk)         | JCC103BKD      |
| C251     | Ceramic, 1P, 50V, CH, +/-0.25pF(Disk)         | JCC010CCD      |
| C252     | Ceramic, 470P, 50V, CH, +/-5%(Disk)           | JCC471CJD      |
| C254     | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C256     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C257     | Ceramic, 0.01uF, 50V, B, +/-10%(Disk)         | JCC103BKD      |
| C259     | Ceramic(1608), 0,022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C260     | Ceramic, 0.01uF, 50V, B, +/-10%(Disk)         | JCC103BKD      |
| C261     | Elect, 50V, 5x11, 2.2uF, +/-20%               | JCEFA2R2X      |
| C262     | Ceramic, 0.047uF, 50V, F, +80%, -20%(Disk)    | JCC473FZD      |
| C266     | Ceramic, 390P, 50V, CH, +/-5%(Disk)           | JCC391CJD      |
| C267     | Ceramic(1608), 0.022uF, 50V, B, +/-10%(Chip)  | JCH223BKC      |
| C269     | Ceramic, 220P, 50V, CH, +/-5%(Disk)           | JCC221CJD      |
| C270     | Ceramic(1608), 33P, 50V, CG, +/-5%(Chip)      | JCH330CJC      |
| C273     | Ceramic, 390P, 50V, CH, +/-5%(Disk)           | JCC391CJD      |
| C276     | Ceramic(1608), 47P, 50V, CG, +/-5%(Chip)      | JCH470CJC      |
| C277     | Ceramic(1608), 0.0022uF, 50V, B, +/-10%(Chip) | JCH222BKC      |
| C278     | Ceramic(1608), 0.1uF, 50V, B, +/-10%(Chip)    | JCH104BKC      |
| C279     | Ceramic(1608), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C281     | Ceramic(1608), 3P, 50V, CG, +/-0.25pF(Chip)   | JCH030CCC      |
| C282     | Ceramic(1608), 47P, 50V, CG, +/-5%(Chip)      | JCH470CJC      |
| C283-284 | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C286     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C287     | Elect, 16V, 5x11, 22uF, +/-20%                | JCECA22XX      |
| C288     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C289     | Ceramic(1608), 22P, 50V, CG, +/-5%(Chip)      | JCH220CJC      |
| C291     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C292     | Ceramic(1608), 3P, 50V, CG, +/-0.25pF(Chip)   | JCH030CCC      |
| C293     | Ceramic(1608), 1.5P, 50V, CG, +/-0.25pF(Chip) | JCH1R5CCC      |
| C294     | Ceramic(1608), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C295     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)      | JCH680CJC      |
| C296     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C297     | Ceramic(1608), 68P, 50V, CG, +/-5%(Chip)      | JCH680CJC      |
| C298     | Ceramic(1608), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C299     | Ceramic(1608), 0.001uF, 50V, B, +/-10%(Chip)  | JCH102BKC      |

| Ref. No      | Description                                   | Mfr's Part No. |
|--------------|---|----------------|
| C300         | Ceramic(1680), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C301         | Ceramic(1680), 0.001uF, 50V, B, +/-10%(Chip)  | JCH102BKC      |
| C302         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C303         | Ceramic(1680), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C304         | Ceramic(1680), 18P, 50V, CG, +/-5%(Chip)      | JCH180CJC      |
| C306         | Ceramic(1680), 39P, 50V, CG, +/-5%(Chip)      | JCH390CJC      |
| C307         | Ceramic(1680), 330P, 50V, CG, +/-5%(Chip)     | JCH331CJC      |
| C308         | Ceramic(1680), 82P, 50V, CG, +/-5%(Chip)      | JCH820CJC      |
| C309         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C311         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C312         | Ceramic(1680), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C313         | Ceramic(1680), 0.047uF, 25V, B, +/-10%(Chip)  | JCH473BKC      |
| C314         | Ceramic(1680), 0.001uF, 50V, B, +/-10%(Chip)  | JCH102BKC      |
| C316         | Ceramic(1680), 100P, 50V, CG, +/-5%(Chip)     | JCH101CJC      |
| C317         | Elect, 16V, 10x15, 1000uF, +/-20%             | JCECM1000      |
| C318         | Elect, 16V, 5x11, 33uF, +/-20%                | JCECA33XX      |
| C319         | Elect, 50V, 5x11, 2.2uF, +/-20%               | JCEFA2R2X      |
| C320         | Elect, 50V, 5x11, 1uF, +/-20%                 | JCEFA1XXX      |
| C321-322     | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C323         | Elect, 16V, 10x15, 1000uF, +/-20%             | JCECM1000      |
| C324         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C327         | Elect, 50V, 5x11, 0.22uF, +/-20%              | JCEFAR22X      |
| C333         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C334         | Ceramic(1680), 0.0047uF, 50V, B, +/-10%(Chip) | JCH472BKC      |
| C336         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| C337         | Ceramic(1680), 0.01uF, 50V, B, +/-10%(Chip)   | JCH103BKC      |
| CT1          | Trimmer, 6pie, 60pF                           | JCR6P60XX      |
| <b>Diode</b> |   |                |
| D1-2         | Schottky(Chip), SB01-05CP                     | JDSB0105C      |
| D3-4         | Switching(Chip), 1SS355                       | JD1SS355C      |
| D5           | RF Switching(Chip), KDV173                    | JDFKDV173      |
| D6           | Switching(Chip), 1SS355                       | JD1SS355C      |
| D7           | Switching(Chip), S226RTK(MMBD1203)            | JDS226RTK      |
| D8-9         | Switching(Chip), 1SS355                       | JD1SS355C      |
| D10          | Band, Switching, 1SS135                       | JD1SS135X      |
| D11          | Schottky(Chip), SB01-05CP                     | JDSB0105C      |
| D12          | Switching(Chip), 1SS135                       | JD1SS355C      |
| D14          | Switching(Chip), 1SS135                       | JD1SS355C      |
| D15          | Switching(Chip), SB01-05CP                    | JDSB0105C      |
| D16          | Switching(Chip), 1SS355                       | JD1SS355C      |
| D17          | Switching(Chip), S184RTK(MMBD1204)            | JDS184RTK      |
| D18          | Switching(Chip), 1SS355                       | JD1SS355C      |
| D20          | Switching(Chip), KDS114RTK                    | JDKDS114C      |
| D23          | Switching(Chip), KDV251S                      | JDKDV251S      |
| D24          | Switching(Chip), KDS114RTK                    | JDKDS114C      |
| D25          | Switching(Chip), KDV251S                      | JDKDV251S      |
| D27          | Switching(Chip), S181RTK(MMBD1205)            | JDS181RTK      |
| D28-29       | Switching(Chip), S184RTK(MMBD1204)            | JDS184RTK      |
| D30          | Switching(Chip), KDV251S                      | JDKDV251S      |
| D31-32       | Switching(Chip), 1SS355                       | JD1SS355C      |
| D33          | Switching(Chip), S226RTK(MMBD1203)            | JDS226RTK      |

| Ref. No.                   | Description                                   | Mfr's Part No. |
|----------------------------|---|----------------|
| D34-38                     | Switching(Chip), 1SS355                       | JD1SS355C      |
| D39                        | Switching(Chip), S184RTK(MMBD1204)            | JDS184RTK      |
| D40                        | Switching(Chip), KDV251S                      | JDKDV251S      |
| D41                        | Switching(Chip), S184RTK(MMBD1204)            | JDS184RTK      |
| D42-44                     | Switching(Chip), KDS114RTK                    | JDKDS114C      |
| D46-49                     | Switching(Chip), KDS114RTK                    | JDKDS114C      |
| D51                        | Switching(Chip), KDS114RTK                    | JDKDS114C      |
| D52                        | Switching(Chip), S184RTK(MMBD1204)            | JDS184RTK      |
| D53-54                     | Switching(Chip), 1SS355                       | JD1SS355C      |
| D56-57                     | Switching(Chip), 1SS355                       | JD1SS355C      |
| D58                        | Rectifier, IN4004                             | JD1N4004X      |
| D59                        | Switching(Chip), 1SS355                       | JD1SS355C      |
| D61-62                     | Rectifier, IN4001G(Glass)                     | JD1N4001G      |
| D63                        | Switching(Chip), 1SS355                       | JD1SS355C      |
| D64                        | Rectifier, IN4001G(Glass)                     | JD1N4001G      |
| D66-69                     | Switching(Chip), KDV251S                      | JDKDV251S      |
| D71-74                     | Switching(Chip), 1SS355                       | JD1SS355C      |
| D76                        | Rectifier, IN5401                             | JD1N5401X      |
| <b>Transformer</b>         |   |                |
| LT1                        | Choke, E119mm, 2Pin                           | JECKE119X      |
| <b>Filter</b>              |   |                |
| FL1                        | X-TAL, HC-18/U, 10.695MHz                     | JGX10R695      |
| FL2                        | Ceramic, KBF455CMF                            | JGC455XXX      |
| MCF1                       | X-TAL, 10M04DSUNI, 10L04D                     | JGX10M04X      |
| <b>Integrated Circuits</b> |   |                |
| IC1                        | BA403, Detector, FM                           | JIBA403XX      |
| IC2                        | (Chip), BA728F, A. G. C.                      | JIBA728FC      |
| IC3                        | NJM1496, Balance, Modulator                   | JINJ1496X      |
| IC4                        | IC, KIA78081A, 7808                           | JIL78081X      |
| IC5                        | (Chip), A4558F, MIC-AMP                       | JIA4558FX      |
| IC6                        | IC, KIA7217, 6217K                            | JIIA7217X      |
| IC7                        | (Chip), KIA6058F, Mixer                       | JII6058FX      |
| <b>Resistors</b>           |   |                |
| R1                         | Thick Film Chip(1680), 560 ohm, 1/10W, +/-5%  | JRH560HCX      |
| R2                         | Thick Film Chip(1680), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R3                         | Thick Film Chip(1680), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R4                         | Thick Film Chip(1680), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R5                         | Thick Film Chip(1680), 47 kohm, 1/10W, +/-5%  | JRH047KCX      |
| R6                         | Thick Film Chip(1680), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R7                         | Thick Film Chip(1680), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R8                         | Thick Film Chip(1680), 560 kohm, 1/10W, +/-5% | JRH560KCX      |
| R9                         | Thick Film Chip(1680), 820 kohm, 1/10W, +/-5% | JRH820KCX      |
| R11                        | Thick Film Chip(1680), 47 ohm, 1/10W, +/-5%   | JRH047HCX      |
| R12                        | Thick Film Chip(1680), 4.7 kohm, 1/10W, +/-5% | JRH4R7KCX      |
| R13                        | Thick Film Chip(1680), 22 kohm, 1/10W, +/-5%  | JRH022KCX      |
| R14                        | Thick Film Chip(1680), 1.5 kohm, 1/10W, +/-5% | JRH1R5KCX      |
| R16                        | Thick Film Chip(1680), 2.7 kohm, 1/10W, +/-5% | JRH2R7KCX      |

| Ref. No. | Description                                   | Mfr's Part No. |
|----------|---|----------------|
| R17      | Thick Film Chip(1608), 220 ohm, 1/10W, +/-5%  | JRH220HCX      |
| R18      | Thick Film Chip(1608), 470 ohm, 1/10W, +/-5%  | JRH470HCX      |
| R19      | Thick Film Chip(1608), 3.9 kohm, 1/10W, +/-5% | JRH3R9KCX      |
| R21      | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX      |
| R22      | Thick Film Chip(1608), 330 ohm, 1/10W, +/-5%  | JRH330HCX      |
| R23-24   | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH110KCX      |
| R26      | Thick Film Chip(1608), 68 kohm, 1/10W, +/-5%  | JRH068KCX      |
| R27      | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R28      | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5% | JRH4R7KCX      |
| R29      | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R31      | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R32      | Thick Film Chip(1608), 470 ohm, 1/10W, +/-5%  | JRH470HCX      |
| R33      | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R34      | Thick Film Chip(1608), 680 kohm, 1/10W, +/-5% | JRH680KCX      |
| R36      | Thick Film Chip(1608), 39 kohm, 1/10W, +/-5%  | JRH039KCX      |
| R37      | Thick Film Chip(1608), 150 ohm, 1/10W, +/-5%  | JRH150HCX      |
| R38      | Thick Film Chip(1608), 180 ohm, 1/10W, +/-5%  | JRH180HCX      |
| R39      | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R41      | Thick Film Chip(1608), 330 ohm, 1/10W, +/-5%  | JRH330HCX      |
| R42      | Thick Film Chip(1608), 68 kohm, 1/10W, +/-5%  | JRH068KCX      |
| R43      | Thick Film Chip(1608), 33 kohm, 1/10W, +/-5%  | JRH033KCX      |
| R44      | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R45      | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R46      | Thick Film Chip(1608), 22 kohm, 1/10W, +/-5%  | JRH022KCX      |
| R47-48   | Thick Film Chip(1608), 33 kohm, 1/10W, +/-5%  | JRH033KCX      |
| R49      | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX      |
| R50      | Thick Film Chip(1608), 3.9 kohm, 1/10W, +/-5% | JRH3R9KCX      |
| R51      | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R52      | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R53      | Thick Film Chip(1608), 1.5 Mohm, 1/10W, +/-5% | JRH1R5MCX      |
| R56      | Thick Film Chip(1608), 4.7 Mohm, 1/10W, +/-5% | JRH4R7MCX      |
| R57      | Thick Film Chip(1608), 2.2 Mohm, 1/10W, +/-5% | JRH2R2MCX      |
| R59      | Thick Film Chip(1608), 82 kohm, 1/10W, +/-5%  | JRH082KCX      |
| R61      | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R62      | Thick Film Chip(1608), 39 kohm, 1/10W, +/-5%  | JRH039KCX      |
| R63      | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R64      | Thick Film Chip(1608), 3.9 kohm, 1/10W, +/-5% | JRH3R9KCX      |
| R66      | Thick Film Chip(1608), 330 kohm, 1/10W, +/-5% | JRH330KCX      |
| R67      | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R68      | Thick Film Chip(1608), 330 kohm, 1/10W, +/-5% | JRH330KCX      |
| R69      | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R71      | Thick Film Chip(1608), 12 kohm, 1/10W, +/-5%  | JRH012KCX      |
| R72      | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5% | JRH3R3KCX      |
| R73-74   | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R76      | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5% | JRH3R3KCX      |
| R77-78   | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R79      | Thick Film Chip(1608), 120 kohm, 1/10W, +/-5% | JRH120KCX      |
| R81      | Thick Film Chip(1608), 33 kohm, 1/10W, +/-5%  | JRH033KCX      |
| R82      | Thick Film Chip(1608), 470 ohm, 1/10W, +/-5%  | JRH470HCX      |
| R83      | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R86      | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5% | JRH3R3KCX      |
| R87      | Thick Film Chip(1608), 68 ohm, 1/10W, +/-5%   | JRH068HCX      |

| Ref. No  | Description                                   | Mfr's Part |
|----------|---|------------|
| R88      | Thick Film Chip(1608), 150 ohm, 1/10W, +/-5%  | JRH150HCX  |
| R89      | Thick Film Chip(1608), 270 ohm, 1/10W, +/-5%  | JRH270HCX  |
| R91      | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R92      | Thick Film Chip(1608), 680 ohm, 1/10W, +/-5%  | JRH680HCX  |
| R93      | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX  |
| R94      | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R96      | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX  |
| R97      | Thick Film Chip(1608), 680 ohm, 1/10W, +/-5%  | JRH680HCX  |
| R98      | Thick Film Chip(1608), 33 ohm, 1/10W, +/-5%   | JRH033KCX  |
| R99      | Thick Film Chip(1608), 5.6 kohm, 1/10W, +/-5% | JRH5R6KCX  |
| R100     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX  |
| R101     | Thick Film Chip(1608), 560 ohm, 1/10W, +/-5%  | JRH560HCX  |
| R102     | Thick Film Chip(1608), 470 ohm, 1/10W, +/-5%  | JRH470HCX  |
| R103     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R104     | Thick Film Chip(1608), 8.2 kohm, 1/10W, +/-5% | JRH8R2KCX  |
| R105     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5% | JRH1R5KCX  |
| R106     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX  |
| R107     | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5% | JRH3R3KCX  |
| R108     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R109     | Thick Film Chip(1608), 390 ohm, 1/10W, +/-5%  | JRH390HCX  |
| R112     | Thick Film Chip(1608), 2.7 kohm, 1/10W, +/-5% | JRH2R7KCX  |
| R113-114 | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R115     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX  |
| R116     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R117     | Thick Film Chip(1608), 5.6 kohm, 1/10W, +/-5% | JRH5R6KCX  |
| R119     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R120     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5% | JRH4R7KCX  |
| R121     | Thick Film Chip(1608), 680 ohm, 1/10W, +/-5%  | JRH680HCX  |
| R122     | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX  |
| R123     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX  |
| R124     | Thick Film Chip(1608), 220 kohm, 1/10W, +/-5% | JRH220KCX  |
| R125     | Thick Film Chip(1608), 2.7 kohm, 1/10W, +/-5% | JRH2R7KCX  |
| R126     | Thick Film Chip(1608), 1.8 kohm, 1/10W, +/-5% | JRH1R8KCX  |
| R127     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5% | JRH1R5KCX  |
| R128     | Thick Film Chip(1608), 5.6 kohm, 1/10W, +/-5% | JRH5R6KCX  |
| R129     | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX  |
| R130     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5% | JRH4R7KCX  |
| R131     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX  |
| R132     | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX  |
| R133     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX  |
| R134     | Thick Film Chip(1608), 56 kohm, 1/10W, +/-5%  | JRH056KCX  |
| R135     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX  |
| R136     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX  |
| R137     | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX  |
| R138     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5% | JRH1R5KCX  |
| R139     | Thick Film Chip(1608), 150 kohm, 1/10W, +/-5% | JRH150KCX  |
| R141     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R142     | Thick Film Chip(1608), 22 kohm, 1/10W, +/-5%  | JRH022KCX  |
| R143     | Thick Film Chip(1608), 6.8 kohm, 1/10W, +/-5% | JRH6R8KCX  |
| R144     | Thick Film Chip(1608), 8.2 kohm, 1/10W, +/-5% | JRH8R2KCX  |
| R146     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |
| R147     | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5% | JRH3R3KCX  |
| R148     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%  | JRH100HCX  |



| Ref. No. | Description  | Mfr's Part No. |
|----------|--|----------------|
| R149     | Thick Film Chip(1608), 330 kohm, 1/10W, +/-5%            | JRH330KCX      |
| R151     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%            | JRH1R5KCX      |
| R152     | Thick Film Chip(1608), 47 ohm, 1/10W, +/-5%              | JRH047HCX      |
| R153     | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5%            | JRH3R3KCX      |
| R154     | Thick Film Chip(1608), 22 kohm, 1/10W, +/-5%             | JRH022KCX      |
| R156     | Thick Film Chip(1608), 56 kohm, 1/10W, +/-5%             | JRH056KCX      |
| R157     | Thick Film Chip(1608), 6.8 kohm, 1/10W, +/-5%            | JRH6R8KCX      |
| R158     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R159     | Thick Film Chip(1608), 12 kohm, 1/10W, +/-5%             | JRH012KCX      |
| R161     | Thick Film Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R162     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R163     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R167     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%             | JRH100HCX      |
| R168     | Thick Film Chip(1608), 330 kohm, 1/10W, +/-5%            | JRH010KCX      |
| R169     | Thick Film Chip(1608), 12 kohm, 1/10W, +/-5%             | JRH012KCX      |
| R170-171 | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R172     | Thick Film Chip(1608), 22 kohm, 1/10W, +/-5%             | JRH022KCX      |
| R173     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R174     | Thick Film Chip(1608), 220 ohm, 1/10W, +/-5%             | JRH220HCX      |
| R175     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R176     | Thick Film Chip(1608), 150 kohm, 1/10W, +/-5%            | JRH150KCX      |
| R177     | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%             | JRH100HCX      |
| R178     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R179     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R181     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R182     | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5%            | JRH3R3KCX      |
| R183     | Thick Film Chip(1608), 15 kohm, 1/10W, +/-5%             | JRH015KCX      |
| R184     | Thick Film Chip(1608), 220 kohm, 1/10W, +/-5%            | JRH220KCX      |
| R185     | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%               | JRH000HCX      |
| R186     | Thick Film Chip(1608), 2.7 kohm, 1/10W, +/-5%            | JRH2R7KCX      |
| R187     | Thick Film Chip(1608), 8.2 kohm, 1/10W, +/-5%            | JRH8R2KCX      |
| R188     | Thick Film Chip(1608), 6.8 kohm, 1/10W, +/-5%            | JRH6R8KCX      |
| R189     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R191     | Thick Film Chip(1608), 39 kohm, 1/10W, +/-5%             | JRH039KCX      |
| R192     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R193     | Thick Film Chip(1608), 3.9 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R194     | Thick Film Chip(1608), 6.8 kohm, 1/10W, +/-5%            | JRH6R8KCX      |
| R196     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R197     | Thick Film Chip(1608), 47 ohm, 1/10W, +/-5%              | JRH047HCX      |
| R198     | Thick Film Chip(1608), 1.2 kohm, 1/10W, +/-5%            | JRH1R2KCX      |
| R199     | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5%            | JRH2R2KCX      |
| R201     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R202     | Thick Film Chip(1608), 180 kohm, 1/10W, +/-5%            | JRH180KCX      |
| R203     | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5%            | JRH2R2KCX      |
| R204     | Thick Film Chip(1608), 220 ohm, 1/10W, +/-5%             | JRH220HCX      |
| R206-207 | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R208     | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%             | JRH010KCX      |
| R209     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R211     | Thick Film Chip(1608), 3.3 kohm, 1/10W, +/-5%            | JRH3R3KCX      |
| R212     | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%              | JRH001KCX      |
| R213     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%            | JRH1R5KCX      |
| R214     | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5%            | JRH4R7KCX      |
| R216     | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%            | JRH1R5KCX      |

| Ref. No.          | Description                                     | Mfr's Part No. |
|-------------------|---|----------------|
| R217              | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%    | JRH010KCX      |
| R218              | Thick Film Chip(1608), 56 ohm, 1/10W, +/-5%     | JRH056HCX      |
| R219              | Thick Film Chip(1608), 56 kohm, 1/10W, +/-5%    | JRH056KCX      |
| R221-222          | Thick Film Chip(1608), 470 ohm, 1/10W, +/-5%    | JRH470HCX      |
| R223              | Thick Film Carbonfilm, 10 kohm, 1/2W(ST), +/-5% | JR0010KCS      |
| R224              | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%     | JRH001KCX      |
| R226              | Thick Film Chip(1608), 47 ohm, 1/10W, +/-5%     | JRH047HCX      |
| R227-228          | Carbonfilm, 180 ohm, 1/2W(ST), +/-5%            | JR0180HCS      |
| R229              | Carbonfilm, 22 ohm, 1/2W(ST), +/-5%             | JR0022HCS      |
| R231              | Thick Film Chip(1608), 47 ohm, 1/10W, +/-5%     | JRH047HCX      |
| R232              | Carbonfilm, 22 ohm, 1/2W(ST), +/-5%             | JR0022HCS      |
| R233              | Thick Film Chip(2012), 180 ohm, 1/8W, +/-5%     | JRC180HCX      |
| R234              | Thick Film Chip(2012), 4.7 ohm, 1/8W, +/-5%     | JRC4R7HCX      |
| R237              | Thick Film Chip(1608), 47 ohm, 1/10W, +/-5%     | JRH047HCX      |
| R236              | Thick Film Chip(1608), 330 ohm, 1/10W, +/-5%    | JRH330HCX      |
| R238              | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%   | JRH1R5KCX      |
| R239              | Carbonfilm, 22 ohm, 1/2W(ST), +/-5%             | JR0022HCS      |
| R241              | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%   | JRH1R5KCX      |
| R242-243          | Thick Film Chip(1608), 220 kohm, 1/10W, +/-5%   | JRH220KCX      |
| R246              | Thick Film Chip(1608), 330 ohm, 1/10W, +/-5%    | JRH330HCX      |
| R247              | Thick Film Chip(1608), 220 kohm, 1/10W, +/-5%   | JRH220KCX      |
| R249              | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%    | JRH100HCX      |
| R251              | Thick Film Chip(1608), 22 kohm, 1/10W, +/-5%    | JRH022KCX      |
| R252              | Thick Film Chip(1608), 100 ohm, 1/10W, +/-5%    | JRH100HCX      |
| R253              | Thick Film Chip(1608), 220 kohm, 1/10W, +/-5%   | JRH220KCX      |
| R254              | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%     | JRH033KCX      |
| R257              | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5%   | JRH2R2KCX      |
| R258-259          | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%     | JRH001KCX      |
| R261              | Thick Film Chip(1608), 560 ohm, 1/10W, +/-5%    | JRH560HCX      |
| R262              | Thick Film Chip(1608), 10 ohm, 1/10W, +/-5%     | JRH010HCX      |
| R263              | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%    | JRH010KCX      |
| R264              | Thick Film Chip(1608), 560 ohm, 1/10W, +/-5%    | JRH560HCX      |
| R265-266          | Thick Film Chip(1608), 5.6 ohm, 1/10W, +/-5%    | JRH5R6KCX      |
| R271              | Metal, 10 ohm, 2W(ST), +/-5%                    | JR0010HES      |
| R273              | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5%   | JRH1R5KCX      |
| <b>Transistor</b> |   |                |
| Q1-2              | (Chip), KTC3879-Y, SOT-23                       | JTC3879YX      |
| Q3                | (Chip), KRA105S, SOT-23                         | JTA105SXX      |
| Q4                | (Chip), KRC114SRTK, SOT-23                      | JTC114SRT      |
| Q7                | (Chip), KTA1505SY, SOT-23                       | JTA1505SY      |
| Q8-9              | (Chip), KTC3879-Y, SOT-23                       | JTC3879YX      |
| Q11               | (Chip), KTC3879-Y, SOT-23                       | JTC3879YX      |
| Q12-13            | (Chip), KTC3879-O, SOT-23                       | JTC3879OX      |
| Q14               | (Chip), KTA1505SY, SOT-23                       | JTA1505SY      |
| Q16               | (Chip), KRC110SRTK, SOT-23                      | JTC110SRT      |
| Q17               | (Chip), KRA105S, SOT-23                         | JTA105SXX      |
| Q18               | (Chip), KRC114SRTK, SOT-23                      | JTC114SRT      |
| Q19               | (Chip), KTC3876SY(WY), SOT-23                   | JTC3876SY      |
| Q21               | (Chip), KRC104SRTK, SOT-23                      | JTC104SRT      |
| Q22               | (Chip), KRC104SRTK, SOT-23                      | JTC110SRT      |
| Q24               | (Chip), KTC3876SY(WY), SOT-23                   | JTC3876SY      |
| Q26               | (Chip), KTC3876SY(WY), SOT-23                   | JTC3876SY      |

| Ref. No                   | Description                            | Mfr's Part No. |
|---------------------------|--|----------------|
| Q27-29                    | (Chip), KTC3879-Y, SOT-23              | JTC3879YX      |
| Q31                       | (Chip), KTC3879-Y, SOT-23              | JTC3879YX      |
| Q32                       | FET, K163                              | JFK163XXX      |
| Q34                       | (Chip), 2SC3838, SOT-23                | JT2SC3838      |
| Q36-37                    | (Chip), KTC3875-GR, SOT-23             | JTC3875GR      |
| Q38                       | (Chip), KRC110SRTK, SOT-23             | JTC110SRT      |
| Q39                       | (Chip), KTC3880-SY, SOT-23             | JTC3880SY      |
| Q41-42                    | (Chip), KTC3880-SY, SOT-23             | JTC3880SY      |
| Q44                       | (Chip), KRA105S, SOT-23                | JTA105SXX      |
| Q46-47                    | (Chip), KRA105S, SOT-23                | JTA105SXX      |
| Q48-50                    | (Chip), KRC114SRTK, SOT-23             | JTC114SRT      |
| Q51                       | (Chip), KRC110SRTK, SOT-23             | JTC110SRT      |
| Q55-56                    | (Chip), KTC3876SY(WY), SOT-23          | JTC3876SY      |
| Q57                       | (Chip), KTA1505SY, SOT-23              | JTA1505SY      |
| Q58                       | (Chip), KTC3876SY(WY), SOT-23          | JTC3876SY      |
| Q59                       | (Chip), KRC114SRTK, SOT-23             | JTC114SRT      |
| Q61                       | KTA200-Y, 200, TO-92                   | JT200YXXX      |
| Q62                       | (Chip), KRC111SRTK, SOT-23             | JTC111SRT      |
| Q63                       | KTC-200Y, 200, TO-92                   | JT-200YXX      |
| Q64                       | (Chip), KRA110SRTK, SOT-23             | JTA110SRT      |
| Q66-67                    | (Chip), KTC3880-Y, SOT-23              | JTC3880SY      |
| Q68                       | (Chip), KRC114SRTK, SOT-23             | JTC114SRT      |
| Q69                       | (Chip), KTC3880-SY, SOT-23             | JTC3880SY      |
| Q71-72                    | Transistor, 2SC1969, 2312              | JTC1969XX      |
| Q73                       | Transistor, 2SC2166                    | JTC2166XX      |
| Q74                       | 2SC2314F                               | JTC2314XX      |
| Q76                       | (Chip), KTC3876SY(WY), SOT-23          | JTC3876SY      |
| Q77                       | (Chip), KTC3876SY(WY), SOT-23          | JTC3876SY      |
| Q78                       | Transistor, KTB778                     | JTKT778XX      |
| Q79                       | (Chip), KRA1001(KY), A1001YRTF, SOT-89 | JTA1001YR      |
| Q81                       | (Chip), KTC3880-SY, SOT-23             | JTC3880SY      |
| Q82                       | (Chip), KTC3876SY(WY), SOT-23          | JTC3876SY      |
| <b>Semifixed Resister</b> |  |                |
| RV1                       | 100KB, 8H, 3P                          | JU100KBHB      |
| RV3                       | 20KB, 8H, 3P                           | JU20KBHBX      |
| RV4                       | 500B, 8H, 3P                           | JU500BHBX      |
| RV5                       | 100KB, 8V, 2P                          | JU100KBVA      |
| RV6                       | 10KB, 8H, 3P                           | JU10KBHBX      |
| RV8                       | 100KB, 8H, 3P                          | JU100KBHB      |
| RV9                       | 10KB, 8H, 3P                           | JU10KBHBX      |
| RV11-12                   | 100 ohm, 8H, 3P                        | JU100OHBX      |
| RV13                      | 1KB, 6H, 3P                            | JU1KB6H3X      |
| RV14                      | 100KB, 8H, 3P                          | JU100KBHB      |
| RV16                      | 5KB, 8H, 3P                            | JU5KBHBXX      |
| <b>X-TAL</b>              |  |                |
| X1                        | (HAM. SYC), 10.240MHz(32pF/20ppm)      | JX10240XG      |
| X2                        | (HAM. SYC), 4.5MHz(32pF/5ppm)          | JX04500XH      |
| X3                        | (HAM. SYC), 10.6975MHz(32pF/10ppm)     | JX106975A      |

| Ref. No.   | Description   | Mfr's Part No.  |
|--|---|---|
| <b>Jack</b>  |   |   |
| J2   | Earphone, EJ3503(W/O NUT, PCB)  | JZJE3R5PX   |
| <b>Wafer</b>   |   |   |
| CON1<br>SP1  | Flat, Wafer, FW-0640-04<br>LOW, Profile, LOCK, Wafer, LWL-0640-02   | GWCONFW04<br>GWCONLW02  |
| <b>TIN, Jumper</b>   |   |   |
| W/L19<br>W/L22<br>W/L24<br>W/L26   | TIN, Jumper, 6mm, W/L19(Core, Bead)<br>TIN, Jumper, 6mm, W/L22(Core, Bead)<br>TIN, Jumper, 6mm, W/L24(Core, Bead)<br>TIN, Jumper, 6mm, W/L26(Core, Bead)  | GWJ06XXXX<br>GWJ06XXXX<br>GWJ06XXXX<br>GWJ06XXXX  |
| <b>End of ASS'Y-PCB, MAIN</b>  |   |   |
| P2   | ASS'Y, PCB, Front   | JPFXHTX10   |
| <b>Coil</b>  |   |   |
| L401<br>L402-L405  | Inductor, 0.47uH(LAL03NA)<br>Inductor, Chip, 4.7uH(LEM2520)   | JBII4R7WX<br>JBII4R7CB  |
| <b>Capacitor</b>   |   |   |
| C411<br>C401<br>C402<br>C403-404<br>C406<br>C407-409<br>C412<br>C413<br>C414<br>C416<br>C417<br>C418<br>C419<br>C420-421<br>C424<br>C425<br>C426 | Elect, 16V, 6.3x11, 220uF<br>Ceramic(1608), 0.01uF, B, +/-10%(Chip)<br>Ceramic(1608), 0.047uF, B, +/-10%(Chip)<br>Ceramic(1608), 0.1uF, B, +/-10%(Chip)<br>Ceramic(1608), 470P, CG, +/-5%(Chip)<br>Ceramic(1608), 0.01uF, B, +/-10%(Chip)<br>Tantalum, Chip, 2.2uF, 16V(A)<br>Tantalum, Chip, 0.47uF, 25V(A)<br>Ceramic(1608), 0.01uF, B, +/-10%(Chip)<br>Ceramic(1608), 0.022uF, B, +/-10%(Chip)<br>Tantalum, Chip, 1uF, 16V(A)<br>Ceramic(1608), 0.022uF, B, +/-10%(Chip)<br>Elect, 16V, 5x11, 47uF<br>Ceramic(1608), 0.047uF, B, +/-10%(Chip)<br>Ceramic(1608), 0.047uF, B, +/-10%(Chip)<br>Elect, 16V, 5x11, 47uF<br>Ceramic(1608), 0.0047uF, B, +/-10%(Chip) | JCECC220X<br>JCH103BKC<br>JCH473BKC<br>JCH104BKC<br>JCH471CJC<br>JCH103BKC<br>JCTC2R216<br>JCTC47100<br>JCH103BKC<br>JCH223BKC<br>JCTC01016<br>JCH223BKC<br>JCECB47XX<br>JCH473BKC<br>JCH473BKC<br>JCECB47XX<br>JCH472BKC |
| <b>Diode</b>   |   |   |
| D401<br>D403-404<br>D406<br>D407<br>D408<br>D409-410<br>ZD401<br>ZD403<br>ZD402  | Switching(Chip), S184RTK(MMBD1204)<br>Switching(Chip), 1SS355<br>Switching(Chip), S184RTK(MMBD1204)<br>Switching(Chip), 1SS355<br>Switching(Chip), S184RTK(MMBD1204)<br>Switching(Chip), 1SS355<br>Zener(Chip), BZX6V2<br>Zener(Chip), BZX5V6, MTZ5.6B<br>Zener(Chip), BZX84C10   | JDS184RTK<br>JD1SS355C<br>JDS184RTK<br>JD1SS355C<br>JDS184RTK<br>JD1SS355C<br>JDBZX6V2C<br>JDBZX5V6C<br>JDBZX10V0   |

| Ref. No.                   | Description                                   | Mfr's Part No. |
|----------------------------|---|----------------|
| <b>Integrated Circuits</b> |   |                |
| IC401                      | IC, SY-205, LC72322N-9530, CPU                | JISY205XX      |
| IC402                      | IC, (Chip), KIA78L05F, Regulator              | JII78L05F      |
| <b>Pilot Lamp</b>          |   |                |
| PL401-405                  | Pilot Lamp 3mm dia 30mA 10V                   | JL3X30X10      |
| <b>L.C.D.</b>              |   |                |
| LCD401                     | LCD KXN27730DAP                               | JLCK27730      |
| <b>Resistor</b>            |   |                |
| R401                       | Thick Film Chip(1608), 560 ohm, 1/10W, +/-5%  | JRH560HCX      |
| R402                       | Thick Film Chip(1608), 68 kohm, 1/10W, +/-5%  | JRH068KCX      |
| R403                       | Thick Film Chip(1608), 1.5 kohm, 1/10W, +/-5% | JRH1R5KCX      |
| R404                       | Thick Film Chip(1608), 5.6 kohm, 1/10W, +/-5% | JRH5R6KCX      |
| R405                       | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R413                       | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX      |
| R415                       | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R416                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R419                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R20                        | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R421-423                   | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R426                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R428-429                   | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R431                       | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R432                       | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX      |
| R433                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R434                       | Thick Film Chip(1608), 56 kohm, 1/10W, +/-5%  | JRH056KCX      |
| R436-439                   | Thick Film Chip(1608), 1 Mohm, 1/10W, +/-5%   | JRH001MCX      |
| R441-444                   | Thick Film Chip(1608), 1 Mohm, 1/10W, +/-5%   | JRH001MCX      |
| R446-448                   | Thick Film Chip(1608), 1 Mohm, 1/10W, +/-5%   | JRH001MCX      |
| R449                       | Thick Film Chip(1608), 2.2 kohm, 1/10W, +/-5% | JRH2R2KCX      |
| R451                       | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX      |
| R452                       | Thick Film Chip(1608), 12 kohm, 1/10W, +/-5%  | JRH012KCX      |
| R453                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R454                       | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R456-457                   | Thick Film Chip(1608), 1 kohm, 1/10W, +/-5%   | JRH001KCX      |
| R458                       | Thick Film Chip(1608), 4.7 kohm, 1/10W, +/-5% | JRH4R7KCX      |
| R459                       | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R462                       | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R464                       | Thick Film Chip(1608), 10 kohm, 1/10W, +/-5%  | JRH010KCX      |
| R468                       | Thick Film Chip(1608), 47 kohm, 1/10W, +/-5%  | JRH047KCX      |
| R469                       | Thick Film Chip(1608), 56 kohm, 1/10W, +/-5%  | JRH056KCX      |
| R467                       | Thick Film Chip(1608), 82 kohm, 1/10W, +/-5%  | JRH082KCX      |
| R471-472                   | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R473                       | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R474                       | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R476                       | Thick Film Chip(1608), 470 kohm, 1/10W, +/-5% | JRH470KCX      |
| R477                       | Thick Film Chip(1608), 0 ohm, 1/10W, +/-5%    | JRH000HCX      |
| R478                       | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |
| R482-510                   | Thick Film Chip(1608), 100 kohm, 1/10W, +/-5% | JRH100KCX      |

| Ref. No  | Description  | Mfr's Part No.  |
|--|--|---|
| <b>Switch</b>  |  |   |
| SW403-404<br>SW406-409   | Tact, DT-1102<br>Tact, DT-1102   | JST1105XX<br>JST1105XX  |
| <b>Transistor</b>  |  |   |
| Q401<br>Q404<br>Q406<br>Q407<br>Q408<br>Q411<br>Q412<br>Q413-414                               | Thick Film (Chip), KRC110SRTK, SOT-23<br>Thick Film (Chip), KRC114SRTK, SOT-23<br>Thick Film (Chip), KTA1505SY, SOT-23<br>KTC-200Y, KTC-200, TO-92<br>Thick Film (Chip), KRA105S, SOT-23<br>Thick Film (Chip), KTC3876SY(WY), SOT-23<br>Thick Film (Chip), KTA1505SY, SOT-23<br>Thick Film (Chip), KRC114SRTK, SOT-23  | JTC110SRT<br>JTC114SRT<br>JTA1505SY<br>JT-200YXX<br>JTA105SXX<br>JTC3876SY<br>JTA1505SY<br>JTC114SRT  |
| <b>Semifixed Resistor</b>  |  |   |
| RV402  | Thick Film (Chip), MVR32, HXBRN473   | JU473MVRX   |
| <b>Volume</b>  |  |   |
| VR402<br>VR403   | Single Round, 161HB-20SK-B50K, W/NUT<br>SW/Single Round, CSPNS-1624B/20mm, 50KA, W/NUT   | JV1250KBX<br>JV150KAPB  |
| P3<br>SW401  | ASS'Y, PCB, Channel<br>Switch, Channel. YPS2101, 20SK, W/NUT   | JPSCH0005<br>JSC2101XX  |
| P5<br>VR404/SW402  | ASS'Y, PCB, Fine<br>VR(PUSH SW), Single Round, TPHR1 20KC-3B<br>10K, W/NUT   | JPSF10003<br>JV120KCXX  |
| P4<br>VR401/407  | ASS'Y, PCB, MIC-G, RF-G<br>Volume, Double Round, 3B100K/15A5K, W/NUT   | JPSFI0003<br>JV120KCXX  |
| 4-12<br>C601<br>C603<br>C604<br>R601-603<br>R602<br>R603<br>SW601<br>SW602-603<br>4-15<br>4-16 | ASS'Y, PCB, Microphone<br>Capacitor, Elect, 16V, 5x11, 10uF, +/-20%<br>Capacitor, Ceramic, 0.001uF, B, +/-10%(AXIAL)<br>Mylar, Capacitor, 0.1uF, 50V, +/-10%(SMALL)<br>Resistor, Carbonfilm, 22 kohm, 1/16W(ST), +/-5%<br>Resistor, Carbonfilm, 4.7 kohm, 1/16W(ST), +/-5%<br>Resistor, Carbonfilm, 22 kohm, 1/16W(ST), +/-5%<br>Switch, Push, DP-2251N<br>Switch, Tack, DT-1104A<br>MIC, Condenser, JS-80C(9.7pie)<br>Cord, Mic 5C-1S(Black), KSK-56002 300mm/S:7mm | JPSMHTX10<br>JCECA10XX<br>JCC102BKA<br>JCMU0R1XX<br>JR0022KAS<br>JR04R7KAS<br>JR0022KAS<br>JSP2262NX<br>JST1236XX<br>JZDJS80CS<br>JZM5C1SBX |
| <b>Cord</b>  |  |   |
| 48   | Cord, DC Power(B), HTX-10, Femail(10A FUSE)  | GWPHTX10X   |

# VOLTAGE CHART

## Measurement Conditions:

Power supply voltage : 13.8V DC

Test equipment : Digital Voltmeter (DM332)

Measurement channel : 19 CH

Unless otherwise specified, set controls are as follows:

MODE : AM

SQ : MIN

ANL/NB : OFF

RF GAIN : MAX

CLARIFIER : CENTER

| Symbol No. | Name      | RX / TX  | Base Gate | Collector Drain | Emitter Source |
|------------|-----------|----------|-----------|-----------------|----------------|
| Q1         | KTC3879-Y | RX       | 0.7       | 2.2             | 0              |
| Q2         | KTC3879-Y | RX       | 0.7       | 2.1             | 0              |
| Q3         | KRA105S   | RX NB ON | 0.1       | 7               | 7.1            |
| Q4         | KRA114S   | RX NB ON | 2.3       | 0.1             | 0              |
| Q7         | KTA1505   | RX NB ON | 6.5       | 0.3             | 7              |
| Q8         | KTC3879-Y | RX NB ON | 0.3       | 0               | 0              |
| Q9         | KTC3879-Y | RX       | 0.85      | 7.5             | 0.22           |
| Q11        | KTC3879-Y | RX       | 2.82      | 3.3             | 2.2            |
| Q12        | KTC3879-O | RX       | 1.2       | 6.9             | 0.52           |
| Q13        | KTC3879-O | RX       | 1.0       | 7.6             | 0.2            |
| Q14        | KIA1505   | RX       | 0.25      | 0.27            | 0.95           |
| Q16        | KRC110S   | RX FM    | 7.93      | 0               | 0              |
| Q17        | KRA105S   | RX FM    | 0.07      | 7.9             | 7.9            |
| Q18        | KRC114S   | RX FM    | 4.77      | 0.07            | 0              |
| Q19        | KTC3876   | RX       | 0.14      | 0.1             | 0.04           |
| Q21        | KRC104S   | RX       | 0.07      | 0.45            | 0              |
| Q22        | KRC110S   | RX       | 0         | 0               | 0              |
| Q24        | KTC3876   | RX       | 1.27      | 4.1             | 0.84           |
| Q26        | KTC3876   | RX       | 0         | 0               | 0              |

| Symbol No. | Name       | RX / TX      | Base Gate | Collector Drain | Emitter Source |
|------------|------------|--------------|-----------|-----------------|----------------|
| Q27        | KTC3879-Y  | RX           | 2.92      | 6.13            | 2.21           |
| Q28        | KTC3879-Y  | RX           | 3.63      | 6.06            | 2.92           |
| Q29        | KTC3879-Y  | RX           | 0.69      | 3.63            | 0              |
| Q31        | KTC3879-Y  | RX           | 0.99      | 8.05            | 0.36           |
| Q32        | FET K163   | RX           | Gate      | Source          | Drain          |
|            |            |              | 6.43      | 0               | 0.32           |
| Q34        | 2SC3838    | RX           | 2.0       | 6.7             | 1.32           |
| Q36        | KTC3875-GR | RX TX        | 1.0       | 5.65            | 0.58           |
| Q37        | KTC3875-GR | RX TX        | 0.58      | 5.65            | 0              |
| Q38        | KRC110S    | TX FM        | 0.5       | 2.01            | 0              |
| Q39        | KTC3880    | RX TX        | 0.73      | 3.65            | 0              |
| Q41        | KTC3880    | RX TX        | 3.47      | 7.59            | 2.76           |
| Q42        | KTC3880    | RX TX        | 0.73      | 5.27            | 0              |
| Q44        | KRA105S    | RX TX(AM/FM) | 0.07      | 8.04            | 8.1            |
| Q46        | KRA105S    | RX TX(LSB)   | 0.07      | 8.06            | 8.1            |
| Q47        | KRA105S    | RX TX(USB)   | 0.07      | 8.04            | 8.1            |
| Q48        | KRC114S    | RX TX(AM/FM) | 4.28      | 0.07            | 0              |
| Q49        | KRC114S    | RX TX(LSB)   | 4.95      | 0.07            | 0              |
| Q50        | KRC114S    | RX TX(USB)   | 4.95      | 0.07            | 0              |
| Q51        | KRC110S    | RX TX(AM/FM) | 7.99      | 0.01            | 0              |
| Q55        | KTC3876    | TX SSB       | 3.9       | 6.6             | 3.3            |
| Q56        | KTC3876    | TX           | 0.16      | 0               | 0.12           |
| Q57        | KTA1505    | TX           | 7.2       | 0.17            | 8.15           |
| Q58        | KRC3876    | TX           | 0.87      | 7.63            | 1.58           |
| Q59        | KRC114S    | TX           | 7.28      | 0.01            | 0              |
| Q61        | KTA200     | TX           | 7.35      | 8.3             | 8.01           |



| Symbol No. | Name    | RX / TX      | Base Gate | Collector Drain | Emitter Source |     |
|------------|---------|--------------|-----------|-----------------|----------------|-----|
| Q62        | KRC111S | TX FM        | 8.5       | 0               | 0              |     |
| Q63        | KTC200  | RX           | 7.84      | 8.1             | 7.1            |     |
| Q64        | KTA110S | TX           | 0.13      | 0               | 1.06           |     |
| Q66        | KTC3880 | RX           | SSB       | 3.1             | 6.8            | 2.5 |
|            |         |              | AM/FM     | 0.5             | 0.3            | 0   |
|            |         | TX           | 3.1       | 6.8             | 2.6            |     |
| Q67        | KTC3880 | RX TX        | 3.3       | 5.66            | 2.8            |     |
| Q68        | KRC114S | RX TX(STEP0) | 0.2       | 4.06            | 0              |     |
| Q69        | KTC3880 | TX SSB       | 0         | 7.56            | 0.8            |     |
| Q71        | 2SC1969 | TX AM        | 0.68      | 6.2             | 0              |     |
|            |         | TX FM        | 0.68      | 11.8            | 0              |     |
|            |         | TX SSB       | 0.68      | 13.3            | 0              |     |
| Q72        | 2SC1969 | TX AM        | 0.68      | 6.2             | 0              |     |
|            |         | TX FM        | 0.68      | 11.8            | 0              |     |
|            |         | TX SSB       | 0.68      | 13.3            | 0              |     |
| Q73        | 2SC2166 | TX AM        | 0.69      | 6.2             | 0              |     |
|            |         | TX FM        | 0.69      | 11.8            | 0              |     |
|            |         | TX SSB       | 0.69      | 13.3            | 0              |     |
| Q74        | 2SC2314 | TX           | 1.2       | 7.18            | 0.5            |     |
| Q76        | KTC3876 | TX           | 1.4       | 7.2             | 0.7            |     |
| Q77        | KTC3876 | TX AM        | 6.7       | 12.1            | 6.2            |     |
|            |         | TX FM        | 6.7       | 11.7            | 6.2            |     |
|            |         | TX SSB       | 12.3      | 12.6            | 12             |     |
| Q78        | KTB778  | TX AM        | 12.7      | 6.2             | 13.5           |     |
|            |         | TX FM        | 12.4      | 11.8            | 13.3           |     |
|            |         | TX SSB       | 12.3      | 12.3            | 13.3           |     |

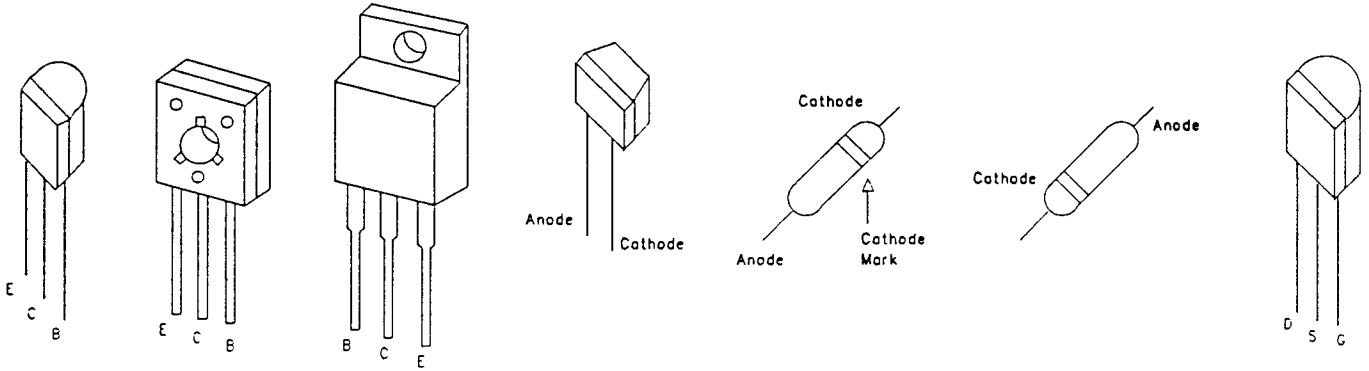
| Symbol No. | Name    | RX / TX      | Base Gate | Collector Drain | Emitter Source |
|------------|---------|--------------|-----------|-----------------|----------------|
| Q79        | KRA1001 | TX AM        | 12.1      | 6.2             | 12.7           |
|            |         | TX FM        | 11.7      | 11.8            | 12.4           |
|            |         | TX SSB       | 12.6      | 12.3            | 12.3           |
| Q81        | KTC3880 | TX AM        | 0         | 6.2             | 0              |
|            |         | TX FM        | 0.9       | 0.6             | 0              |
|            |         | TX SSB       | 0         | 12.8            | 0              |
| Q82        | KTC3876 | TX AM        | 0.3       | 12.1            | 2.3            |
|            |         | TX FM        | 0.4       | 11.7            | 4.9            |
|            |         | TX SSB       | 7.4       | 12.6            | 6.8            |
| Q401       | KRC110S | RX(TONE LOW) | 4.9       | 0               | 0              |
| Q404       | KRC114S | TX FM        | 4.8       | 0.1             | 0              |
| Q406       | KTA1505 | RX TX        | 7.3       | 0               | 5.66           |
| Q407       | KTC200  | RX TX        | 10        | 13.8            | 9.36           |
| Q408       | KRA105S | TX           | 0.7       | 5.7             | 5.7            |
| Q411       | KTC3876 | RX(P-P)      | 2.14      | 4.9             | 1.64           |
| Q412       | KTA1505 | RX(P-P)      | 5.25      | 0               | 4.97           |
| Q413       | KRC114S | RX(SHIFT ON) | 0         | 1.8             | 0              |
| Q414       | KRC114S | RX(SHIFT ON) | 0         | 1.8             | 0              |

| Symbol No.         | RX / TX  | Pin No. | Voltage | Symbol No.         | RX / TX            | Pin No. | Voltage |
|--------------------|----------|---------|---------|--------------------|--------------------|---------|---------|
| IC 1<br>(BA 403)   | RX FM    | 1       | 2.03    | IC 3<br>(NJM 1496) | TX                 | 10      | 3.8     |
|                    |          | 2       | 2.03    |                    | TX                 | 11      | 0.1     |
|                    |          | 3       | 6.07    |                    | TX AM FM           | 12      | 4.3     |
|                    |          |         |         |                    | TX SSB             |         | 3.9     |
|                    |          | 4       | 0       |                    | TX                 | 13      | 0.1     |
|                    |          | 5       | 3.46    |                    | TX                 | 14      | 0       |
|                    |          | 6       | 3.48    |                    | IC 4<br>(KIA 7808) | RX TX   | 1       |
|                    |          | 7       | 3.4     | 2                  |                    |         | 0       |
| IC 2<br>(BA 728)   | RX       | 1       | 0.1     | IC 5<br>(KIA 4558) | TX                 | 3       | 8.2     |
|                    |          | 2       | 0.5     |                    |                    | 1       | 4.2     |
|                    |          | 3       | 0.01    |                    |                    | 2       | 4.2     |
|                    |          | 4       | 0       |                    |                    | 3       | 4.3     |
|                    |          | 5       | 0.1     |                    |                    | 4       | 0       |
|                    |          | 6       | 0.45    |                    |                    | 5       | 3.4     |
|                    |          | 7       | 0       |                    |                    | 6       | 3.2     |
|                    |          | 8       | 7.12    |                    |                    | 7       | 7.5     |
| IC 3<br>(NJM 1496) | TX AM FM | 1       | 0.14    | IC 6<br>(KIA 7217) | RX TX              | 1       | 13.9    |
|                    | TX SSB   |         | 3.4     |                    |                    |         |         |
|                    | TX AM FM | 2       | 2.4     |                    | RX TX              | 2       | 12.7    |
|                    | TX SSB   |         | 2.7     |                    | RX TX              | 3       | 4.1     |
|                    | TX AM FM | 3       | 2.4     |                    | RX                 | 4       | 8.2     |
|                    | TX SSB   |         | 2.7     |                    | TX                 |         | 11.1    |
|                    | TX       | 4       | 3.3     |                    | RX                 | 5       | 1.5     |
|                    | TX       | 5       | 1.3     |                    | TX                 |         | 0.3     |
|                    | TX       | 6       | 3.9     |                    | RX                 | 6       | 3.4     |
|                    | TX       | 7       | 0       |                    | TX                 |         | 3.0     |
|                    | TX       | 8       | 3.6     |                    | RX                 | 7       | 3.4     |
|                    | TX       | 9       | 0       |                    | TX                 |         | 1.5     |

| Symbol No.         | RX / TX       | Pin No. | Voltage | Symbol No.         | RX / TX        | Pin No. | Voltage |
|--------------------|---------------|---------|---------|--------------------|----------------|---------|---------|
| IC 6<br>(KIA 7217) | RX            | 8       | 1.2     | IC 401<br>(SY-205) | LSB            | 15      | 5       |
|                    | TX            |         | 0.1     |                    | USB            | 16      | 5       |
|                    | RX TX         | 9       | 0       |                    | AM             | 17      | 5       |
|                    | RX            | 10      | 7       |                    | FM             | 18      | 4.7     |
|                    | TX            |         | 10.4    |                    | + SHIFT        | 19      | 0       |
| IC 7<br>(KIA 6058) | TX            | 1       | 0.9     |                    | SHIFT OFF      | 20      | 5       |
|                    |               | 2       | 1.6     |                    | RX TX          | 21      | 5       |
|                    |               | 3       | 7.2     |                    | TONE LOW<br>ON | 22      | 5       |
|                    |               | 4       | 1.6     |                    | 1KHz STEP      | 23      | 4.7     |
|                    |               | 5       | 0       |                    | 2KHz STEP      | 24      | 4.7     |
|                    |               | 6       | 7.1     |                    | 3KHz STEP      | 25      | 4.7     |
|                    |               | 7       | 7.1     |                    | 4KHz STEP      | 26      | 4.7     |
|                    |               | 8       | 7.2     |                    | RX TX          | 27      | 5       |
| IC 401<br>(SY-205) | RX TX         | 1       | 2.53    |                    | RX TX          | 28      | 5       |
|                    | RX TX         | 2       | 0       |                    | RX TX          | 29      | 5       |
|                    | TX            | 3       | 5.4     |                    | RX TX          | 30      | 5       |
|                    | RX TX         | 4       | 5       |                    | RX TX          | 31      | 5       |
|                    | RX TX         | 5       | 0       |                    | RX TX          | 32      | 0       |
|                    | RX TX         | 6       | 5       |                    | RX TX          | 33      | 1.65    |
|                    | RX BEEP<br>ON | 7       | 5 (P-P) |                    | RX TX          | 34      | 0       |
|                    | RX TX         | 8       | 0       |                    | RX TX          | 35      | 0       |
|                    | RX TX         | 9       | 5.6     | RX TX              | 36-65          | 5 (P-P) |         |
|                    | RX            | 10      | 7.0     | RX TX              | 66             | 5.6     |         |
|                    | TX            |         | 0       | RX TX              | 67             | 5.6     |         |
|                    | RX TX         | 11      | 0       | RX TX              | 68             | 5       |         |
|                    | RX TX         | 12      | 0       | TX                 | 69             | 4.1     |         |
|                    | RX TX         | 13      | 5       | RX TX              | 70             | 2.6     |         |
|                    | RX TX         | 14      | 0       | RX TX              | 71             | 2.6     |         |

| Symbol No.         | RX / TX | Pin No. | Voltage | Symbol No. | RX / TX | Pin No. | Voltage |
|--------------------|---------|---------|---------|------------|---------|---------|---------|
| IC 401<br>(SY-205) | RX TX   | 72      | 5       | IC 402     | RX TX   | 1       | 13.8    |
|                    | RX TX   | 73      | 5       |            | RX TX   | 2       | 0.6     |
|                    | RX TX   | 74      | 0       |            | RX TX   | 3       | 5.6     |
|                    | RX TX   | 75      | 2.6     |            |         |         |         |
|                    | RX TX   | 76      | 0       |            |         |         |         |
|                    | RX TX   | 77      | 0       |            |         |         |         |
|                    | RX TX   | 78      | 1       |            |         |         |         |
|                    | RX TX   | 79      | 0       |            |         |         |         |
|                    | RX TX   | 80      | 2.7     |            |         |         |         |

# SEMICONDUCTOR LEAD IDENTIFICATION AND IC INTERNAL DIAGRAM



KTC3192  
KTC200  
KTA200  
KTA200

2SC2314

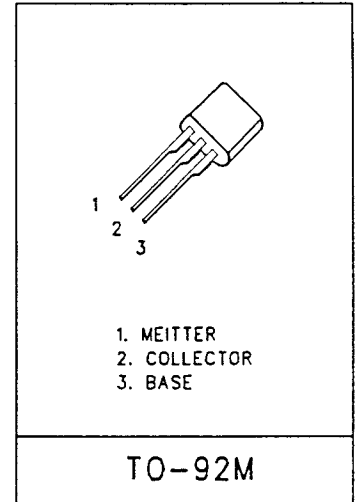
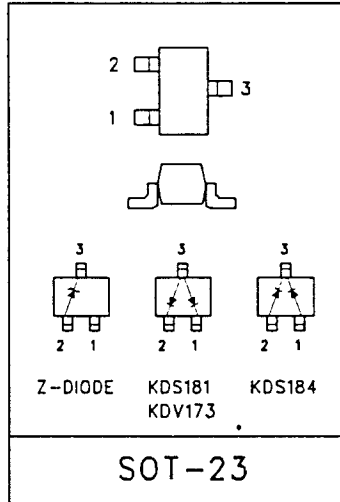
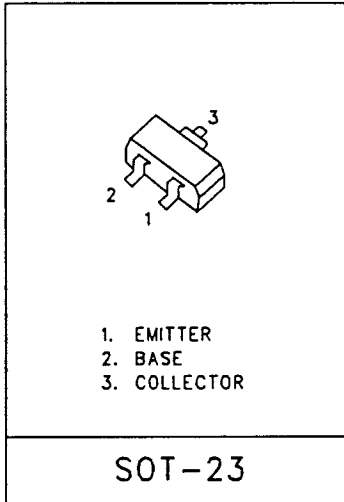
2SC1969  
2SC2166  
2SB824

SVC251

1N60  
1N4148  
1SS135  
1N4004  
1N4001  
1SS355  
1N5401  
1N4001-G

KDS114

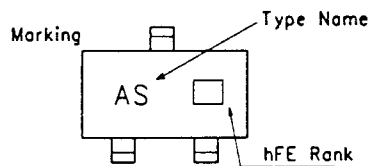
2SK163



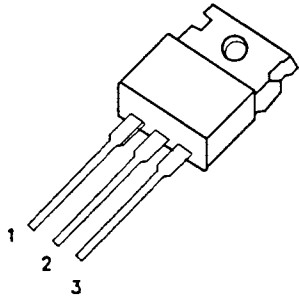
KTC3876    KTC3879  
KTC3875    KTC3880  
KRC110S    KRA105S  
KRA101S    KRA150S  
KRA1504  
KRC114S  
KRC104S  
KRA110S  
KRC111S

KDS196

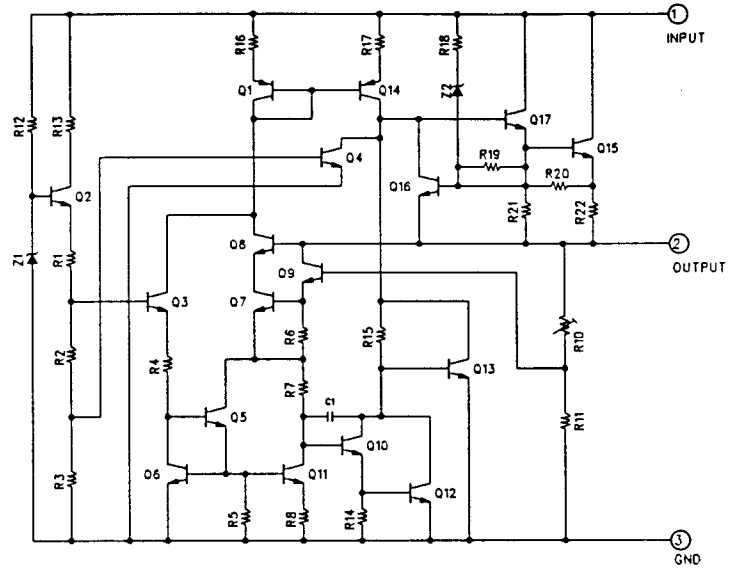
KTC200  
KTA200



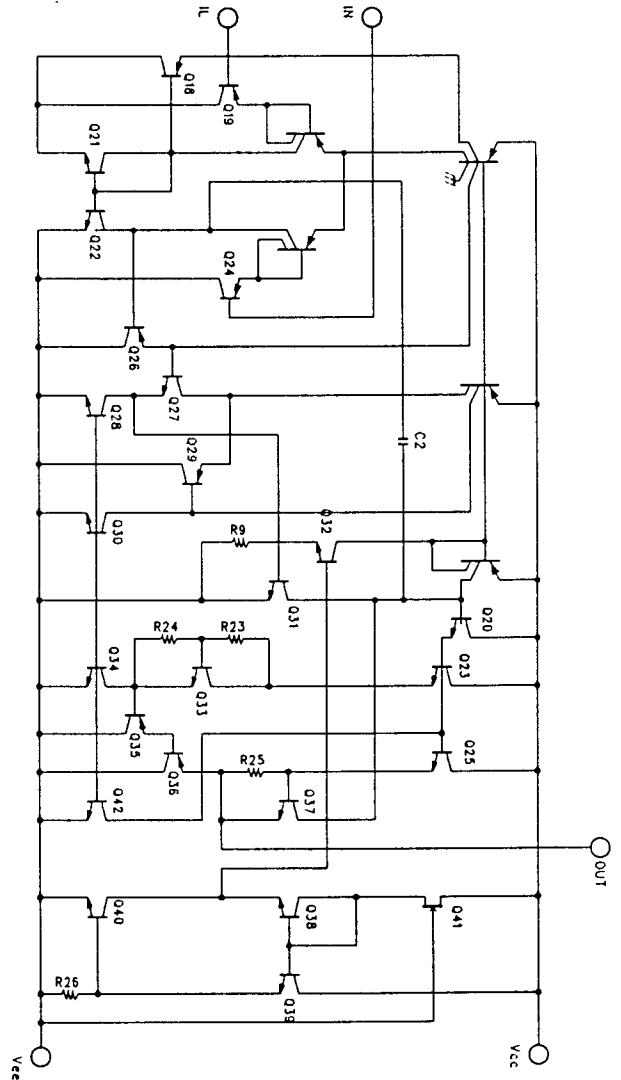
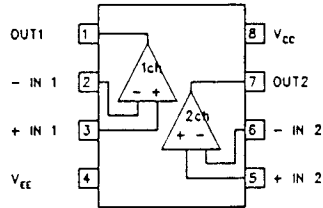
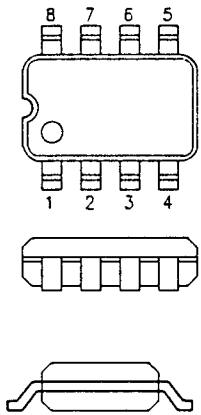
# KIA7808P



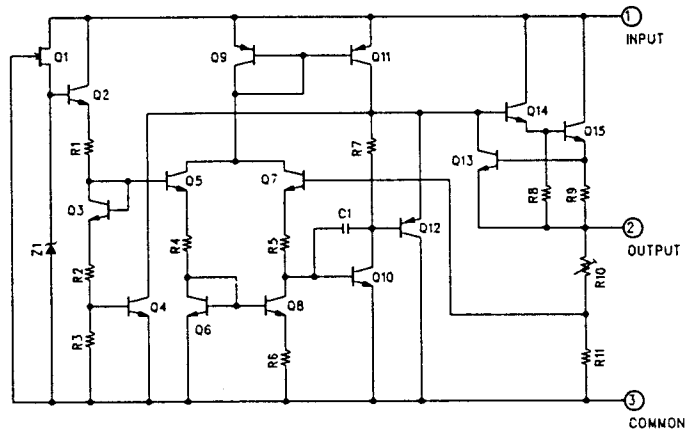
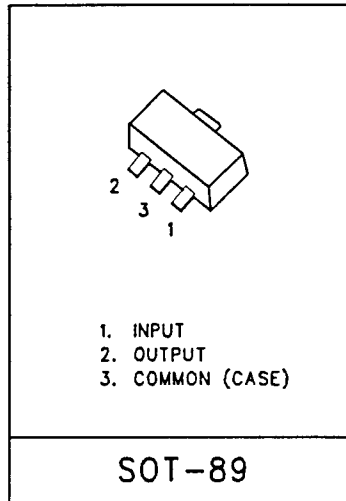
- 1. INPUT
- 2. OUTPUT
- 3. GND (CASE)



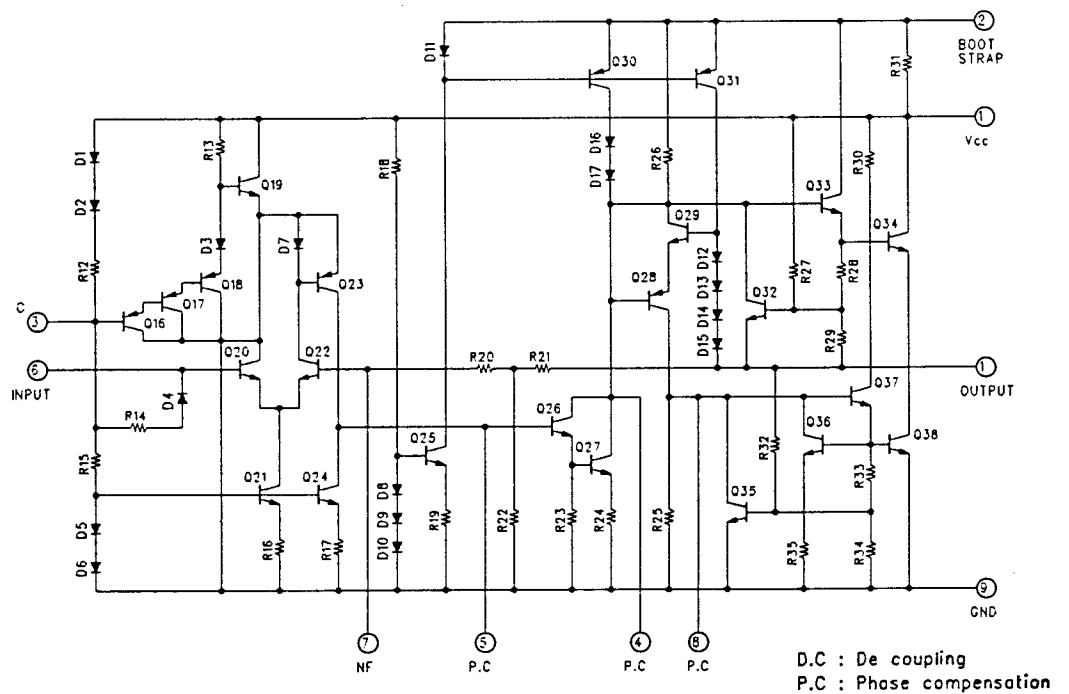
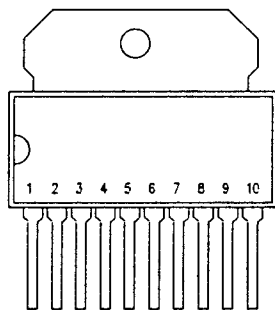
# BA728F



# KIA78L05F

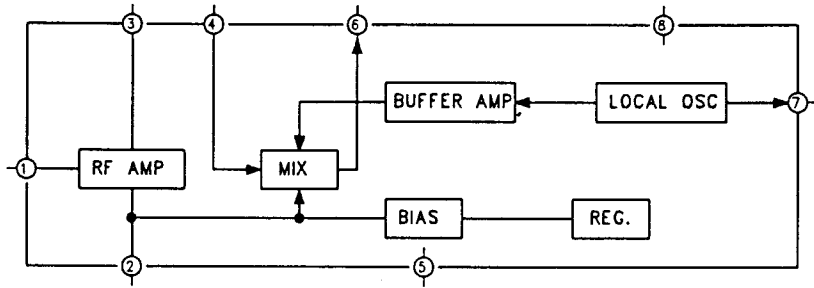
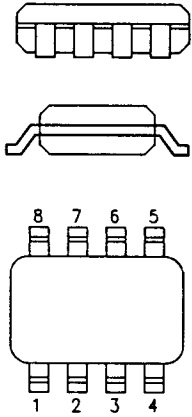


# KIA7217AP

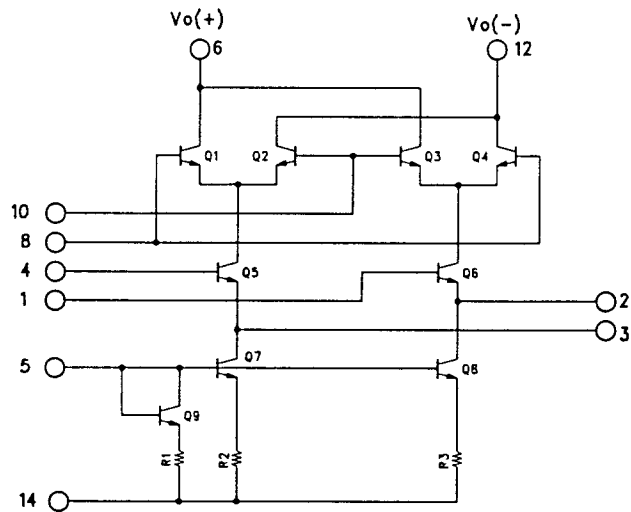
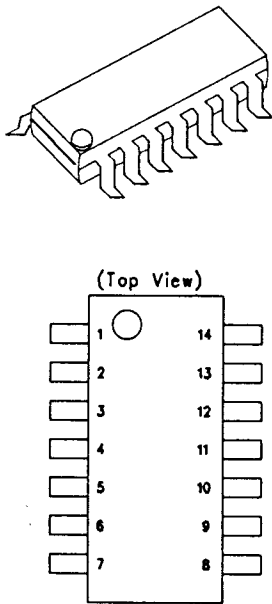




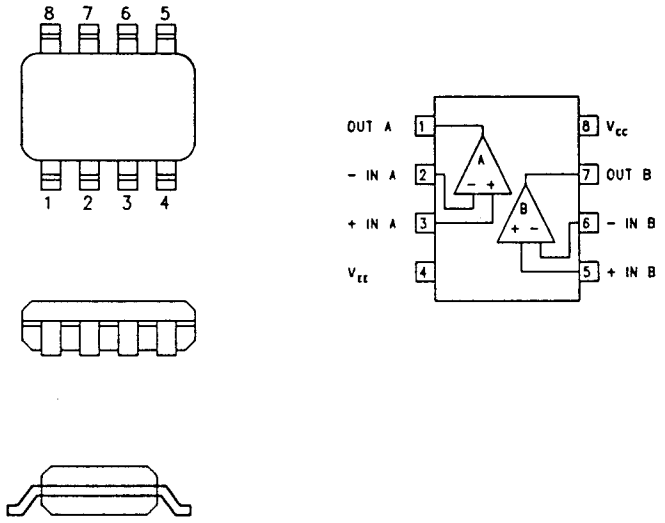
# KIA6058F



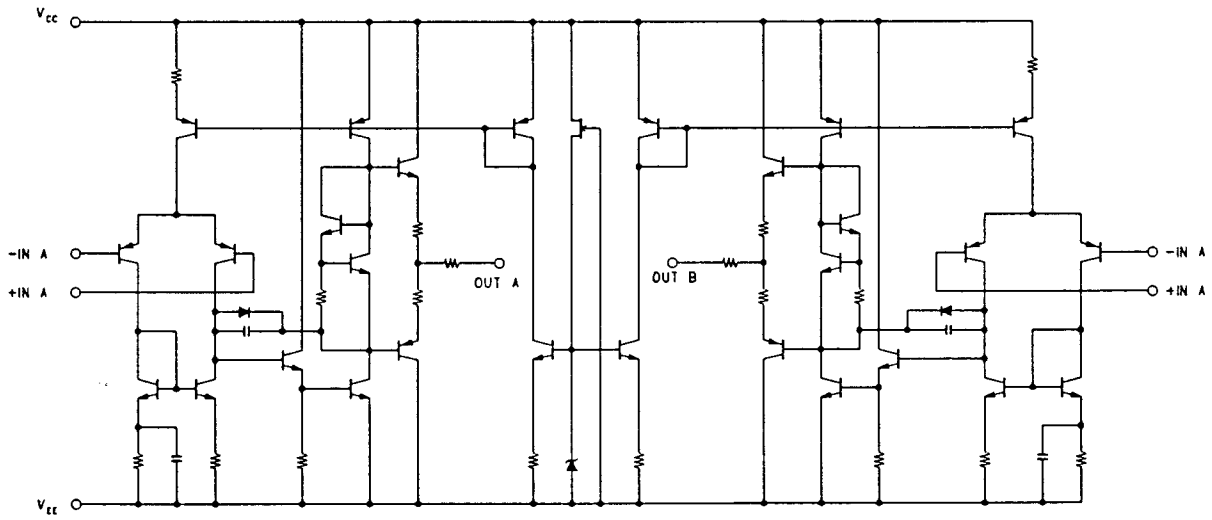
# NJM1496



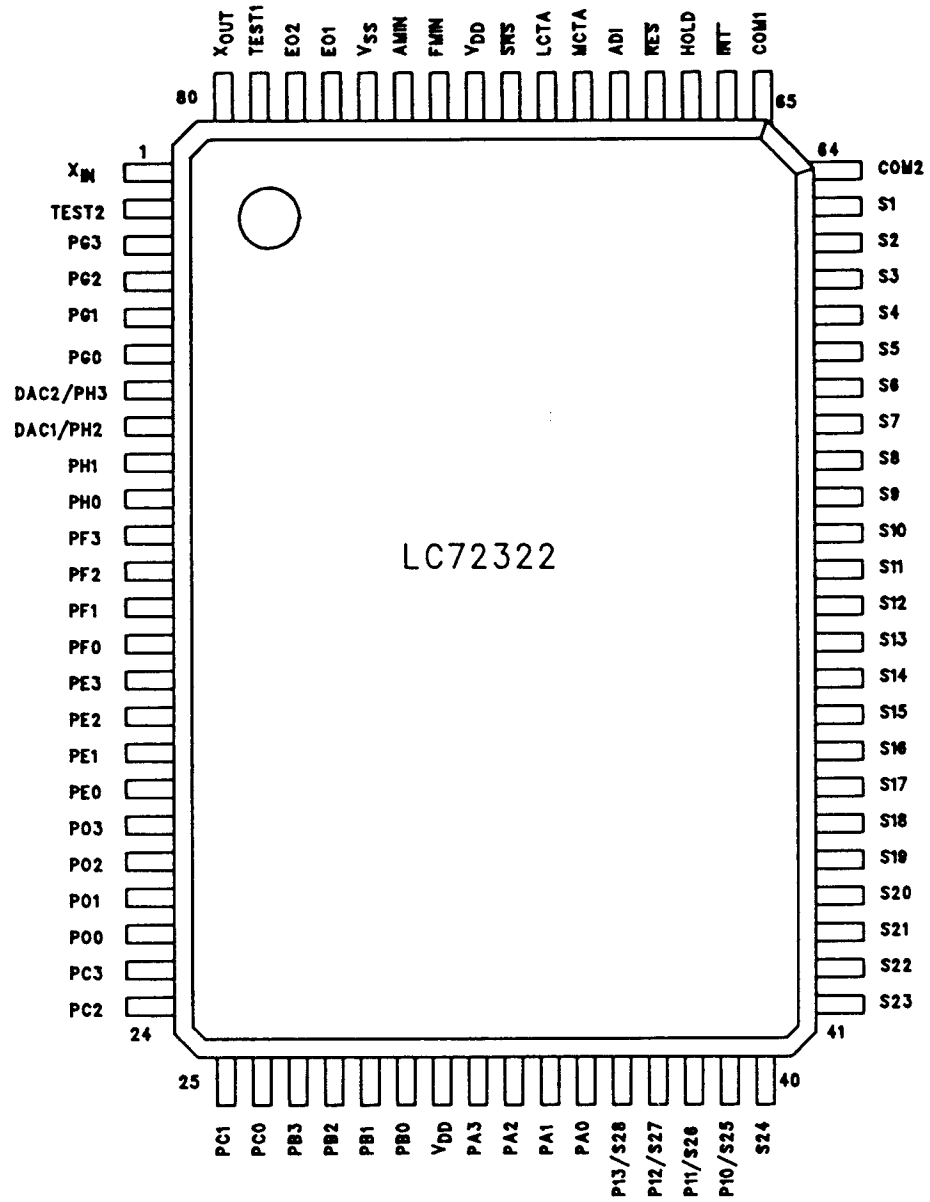
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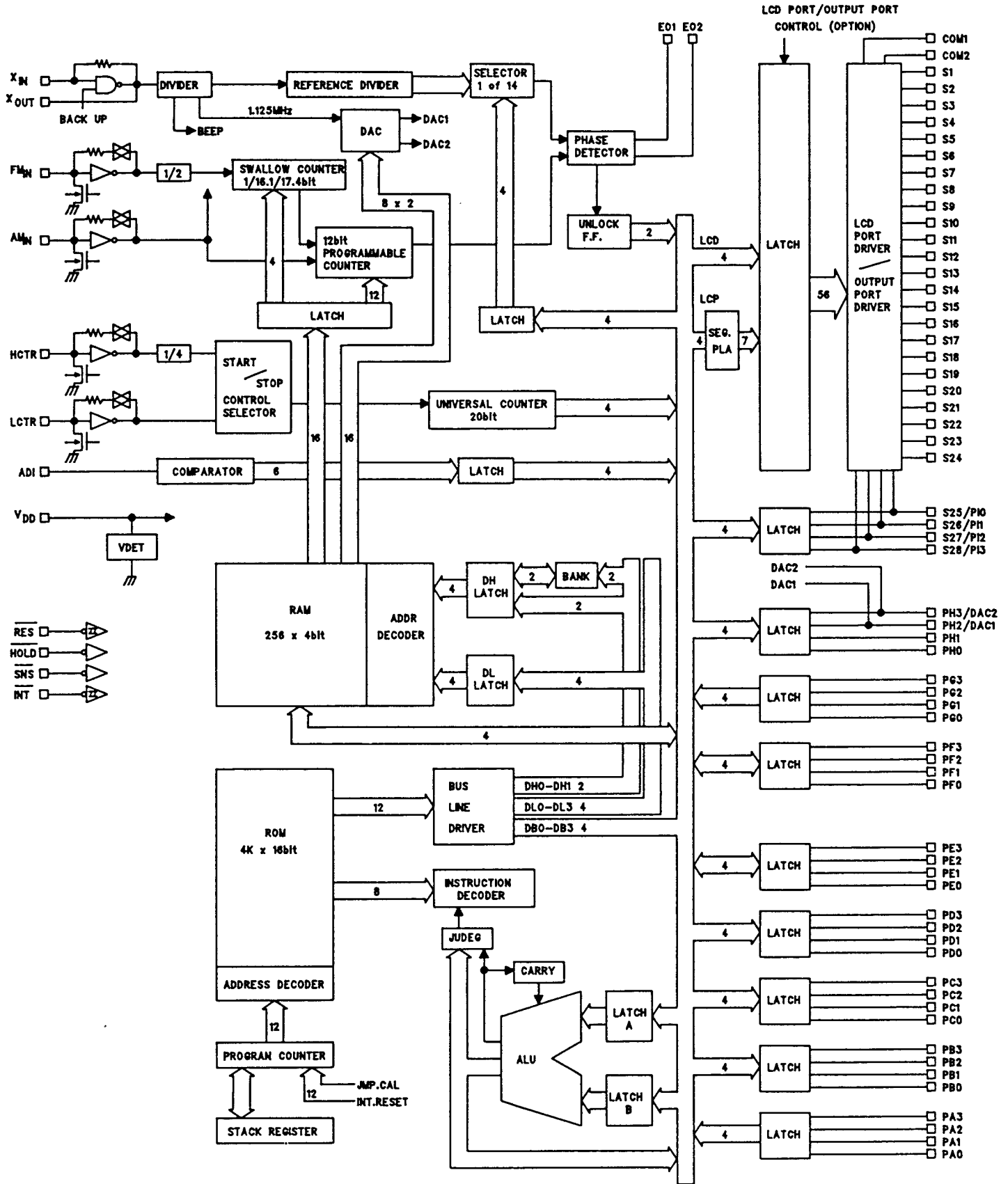
## EQUIVALENT CIRCUIT

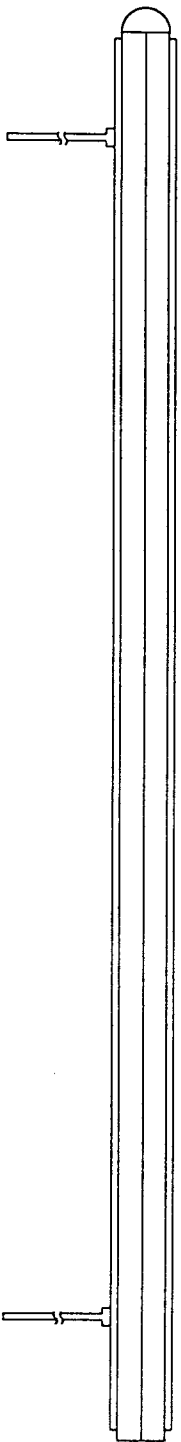
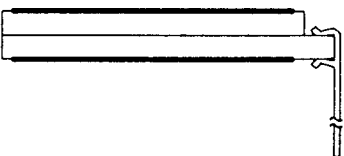
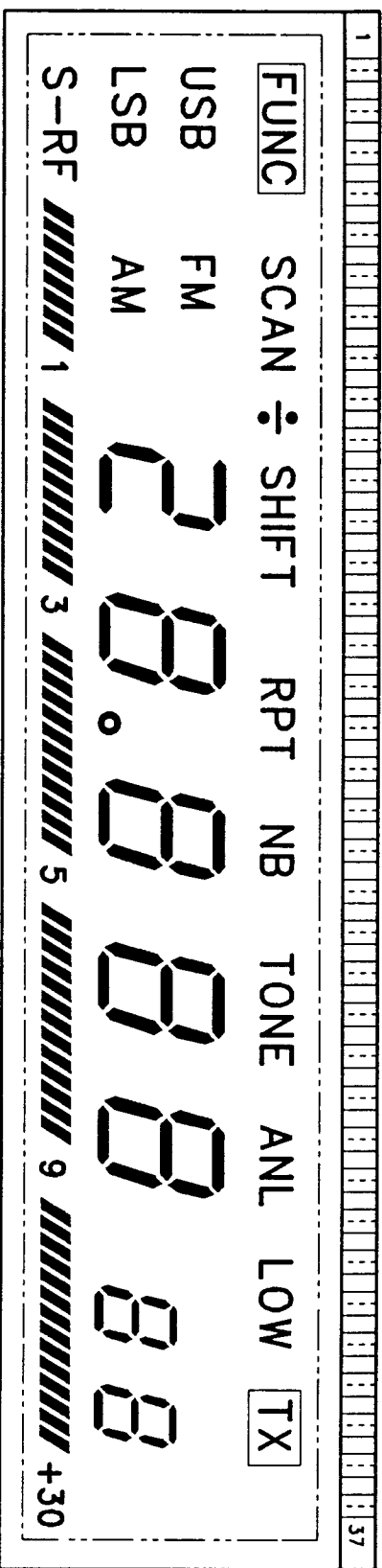


# LC72322



# LC72322





- NOTE
1. C-MOS: LC 7232
  2. 1/2 DUTY, 1/2 BIAS.
  3. 5.0 VOP.
  4. VIEWING DIRECTION 12:00
  5. OPERATION TEMP. -30°C TO +80°C
  6. STORAGE TEMP. -30°C TO +80°C
  7. APPLICATION : CAR-CB
  8. POSITIVE TYPE.
  9. FRONT POL : T/M  
REAR POL : T/P

|    |          |      |      |     |    |      |          |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |      |    |      |      |
|----|----------|------|------|-----|----|------|----------|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|------|----|------|------|
| 1  | 2        | 3    | 4    | 5   | 6  | 7    | 8        | 9  | 10  | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31  | 32  | 33   | 34 | 35   | 36   |
| .  | .        | .    | FUNC | USB | FM | SCAN | 10.G     | 1E | RPT | 2A | 2D | 2E | 2F | 3A | 3D | 3E | 3F | 4A | 4D | 4E | 4F | 5A | 5D | 5E | 5F | 6A | 6D | 6E | 6F | .   | ANL | .    | NB | .    | COM1 |
| K1 | K2:SHIFT | S-RF | .    | LSB | AM | S1   | 1A.C.F.P | 1B | 2   | S2 | 2C | 2G | 2B | S3 | 3C | 3G | 3B | S4 | 4C | 4G | 4D | 5S | 5C | 5G | 5B | TX | 6C | 6G | 6B | LOW | .   | TONE | .  | COM2 | .    |



