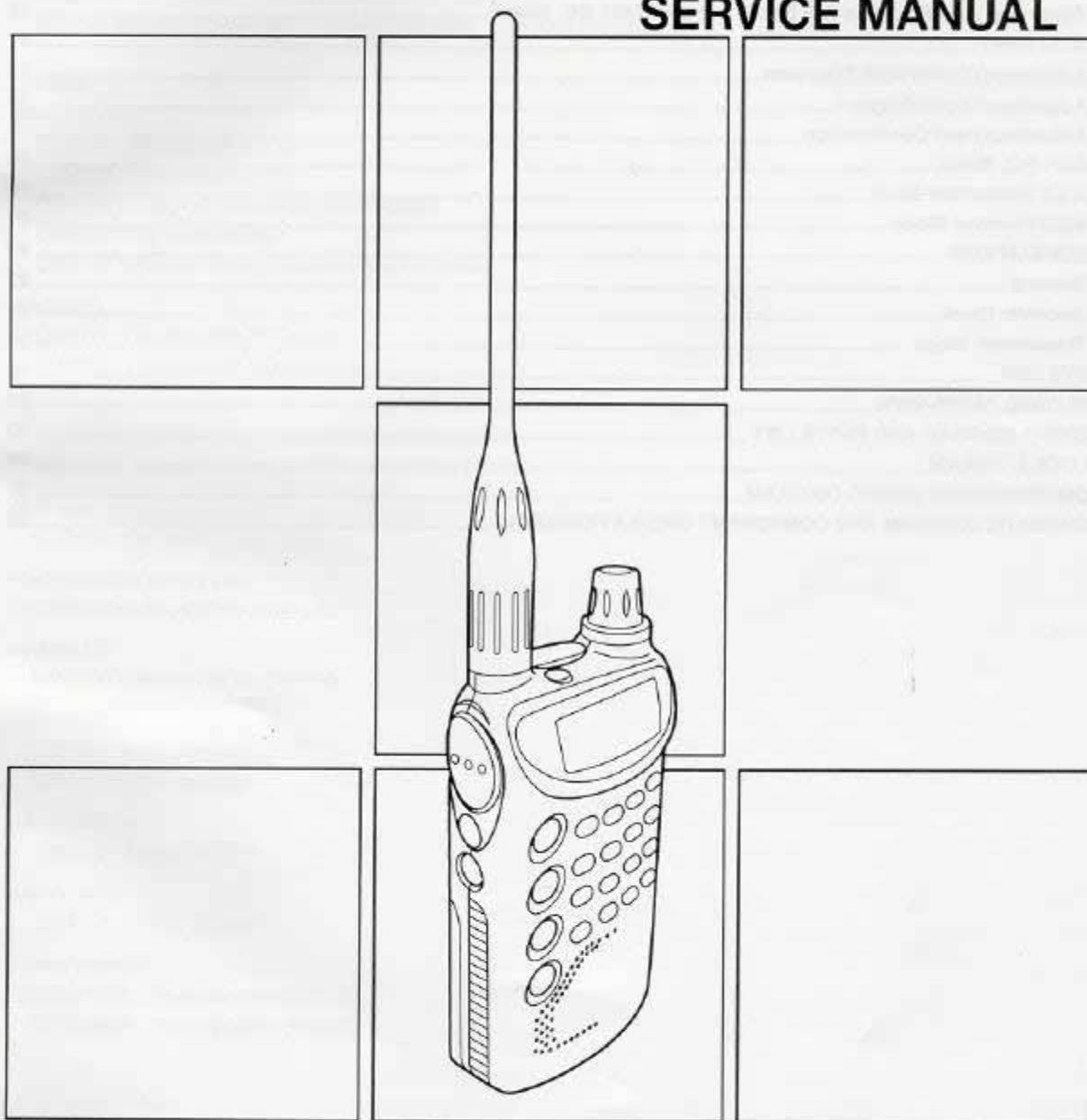


Double Band FM Transceiver

C510A / C510E

SERVICE MANUAL



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1. INTRODUCTION

This service manual is for use with the C510A and C510E transceivers.

Information in the manual relating specifically to C510A is indicated by the notation [C510A], and information in the manual relating specifically to C510E is indicated by the notation [C510E].

- Overview of transceiver -

- The C510A is a double-band FM transceiver for use with the 144 MHz and 450 MHz bands.
- The C510E is a double-band FM transceiver for use with the 144 MHz and 430 MHz bands.

- Accessories and Options -

- The accessories and options for the transceiver are listed below.

Accessories

Antenna, Belt clip, Block diagram, Hand strap,
Belt clip securing screws (2), Owner's manual, Mobile hanger

Options

•Microphones

CMP111 : Microphone and speaker
CMP113 : Tie-pin microphone
CMP115 : Compact microphone and speaker
CMP123 : Ear microphone
CMP127 : Remote control microphone and speaker

•Headsets

CHP111 : Headset with PTT switch
CHP150 : Headset with VOX function

•AC chargers

CSA510A : Rapid charger (AC 120 V, 60 Hz) [C510A]
CSA510E : Rapid charger (AC 230 V, 50/60 Hz) [C510E]

•Soft case

CLC510 : Soft case

•Rechargeable battery pack

CNB510 : 3.6 V, 700 mAh (Ni-cd)

•Helmet clip

CMB600 : Helmet clip for CHP150

•Speaker

CSK12 : Mobile speaker
CSK15 : Mobile speaker

•Mobile bracket

CMB112 : Mobile bracket

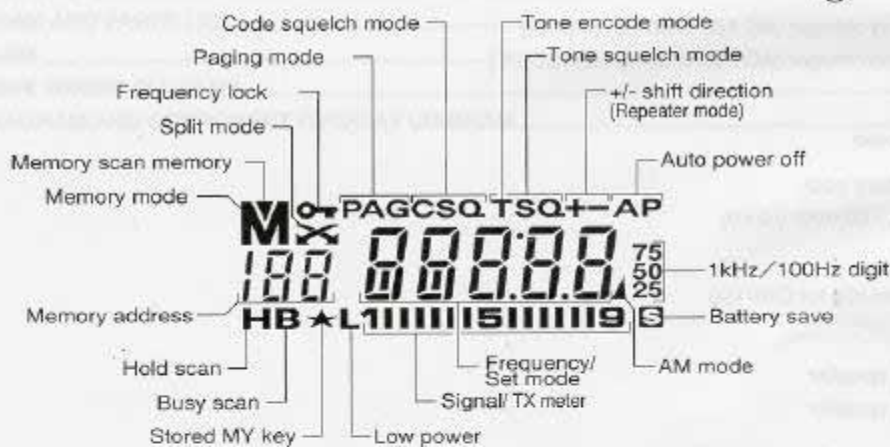
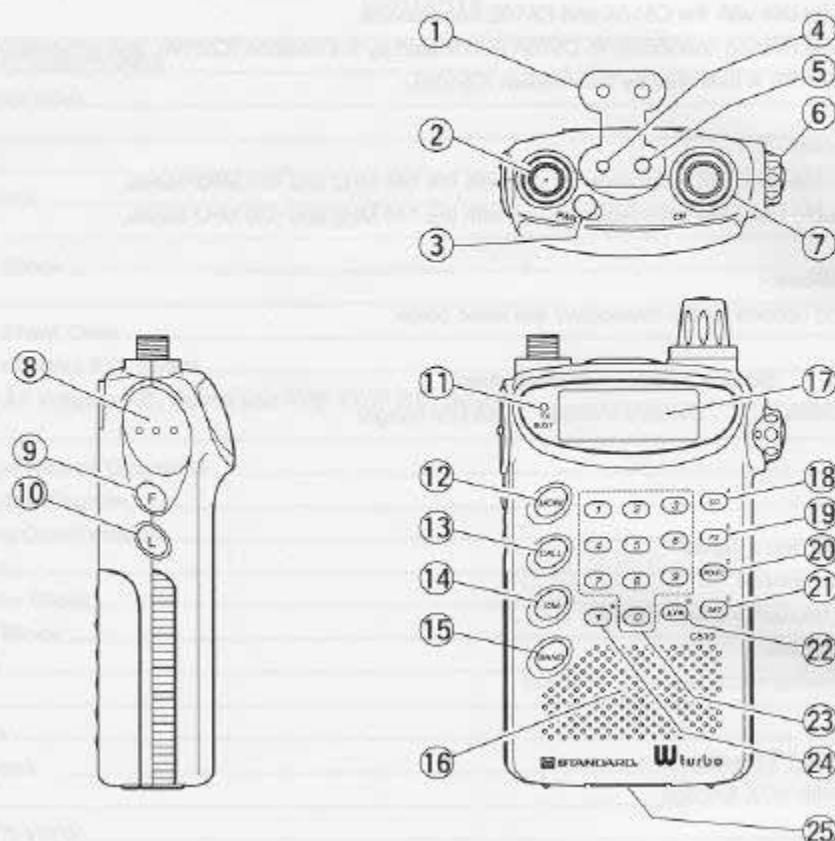
•Mobile adaptor

CMA510 : Mobile adaptor

•Power booster

CPB510DA : Power booster [C510A]
CPB510DE : Power booster [C510E]

2. CONTROLS AND CONNECTIONS



① Microphone / Speaker cap

② Antenna connection terminal (SMA type)

This socket is for connecting the supplied antenna.

③ Power key (PWR)

Holding this key down for 0.3 seconds or more powers on the transceiver.

④ External microphone terminal (M)

This socket is for connecting an optional microphone and speaker (CMP111, CMP115, CMP127), headset with PTT switch (CHP111), or headset with VOX function (CHP150).

⑤ External speaker terminal (S)

This socket is for connecting an optional microphone and speaker (CMP111, CMP115, CMP127), headset with PTT switch (CHP111), or headset with VOX function (CHP150). A speaker or earphone with an impedance of 8 Ω can be connected to this socket and used as an external speaker.

⑥ Volume knob

This knob can be turned to adjust the volume of the sound from the speaker. The monitor key should be held down when adjusting the volume. Turn clockwise to increase the volume.

⑦ Rotary channel selector

This knob can be turned to set the transceiver's receive and transmit frequencies, or to set memory addresses. Also, when the transceiver is in the set mode, this knob is used to change various modes.

⑧ PTT switch

The transceiver switches to the transmit mode for as long as this switch is held down.

⑨ Function key (F)

The transceiver switches to the function mode for as long as this switch is held down.

⑩ Lamp key (L)

Press this key to causes the display lamp to light for five seconds. Pressing this key when the lamp is lit causes the lamp to go dark.

⑪ TX/BUSY indicator

This LED lights red when the transceiver is in transmit mode. It lights green when the transceiver is in receive mode (a RF signal is being received).

⑫ Monitor key (MONI)

The transceiver's squelch function is turned off for as long as this key is held down. Pressing this key when the transceiver is in transmit mode causes tone-burst (1750 Hz) to be output.

⑬ Call key (CALL)

Press this key to causes the transceiver to switch to the call mode and calls up the call frequency. Pressing this key a second time causes the transceiver to return to the frequency previously in use.

⑭ VFO/MEMORY key (V/M)

Press this key to switch between VFO status (the transceiver's status when shipped from the factory or immediately after a reset has been performed) and the memory mode. However, this key has no effect if no data has been stored in memory.

⑮ Band key (BAND)

Press this key to causes the display frequency band to switch between the VHF band and UHF band.

⑯ Speaker

⑰ Display

⑱ Scan key (SC)

Press this key to causes the transceiver to start scan operation.

⑲ Program scan key (PS)

Press this key to causes the transceiver to start or temporarily suspend program scanning.

⑳ PO/FL key

Press this key to switch the transceiver's transmission output level. The frequency is locked when this key is pressed while the F key is held down.

㉑ Set key (SET)

Pressing this key calls up the set mode (28 types). Once the set mode has been activated, the set mode type can be changed by turning the rotary channel selector.

㉒ ▲/★ key

Press this key to increase the frequency or address number setting. Also, while holding down the F key, press this key to switch the set mode registered to the my key.

㉓ Numeric keys (0 ~ 9)

These keys are used to input the transceiver's frequencies directly. One of the 0 to 9 DTMF signals is transmitted by pressing the corresponding number key while holding down the PTT switch.

㉔ ▼ key

Press this key to decrease the frequency or address number setting.

㉕ Interface jack

This jack is for connecting an optional mobile adaptor CMA510 or power booster CPB510DA/CPB510DE.

-All-reset procedure-

This procedure can be used to delete all data stored in memory and return the transceiver to the status it was in when shipped from the factory (initial status). The procedure is called all-reset.

- (1) Press the power key to power off the transceiver.
- (2) Switch on the power by pressing the power key while both the FUNC and MONI keys are held down. (Beeps are heard when the power comes on.)
- (3) Confirm that the display is in initial status.

446.00
[C510A]

433.00
[C510E]

3. THEORY OF OPERATION

Note : Refer to the block diagrams (figure 3-1 through 3-9) in the text for the operations of the circuits.

3.1 PLL Block

The PLL block comprises a VCO, crystal resonator, PLL IC, and low-pass filter. The VCO circuit generates the transmission signal and first local signal directly.

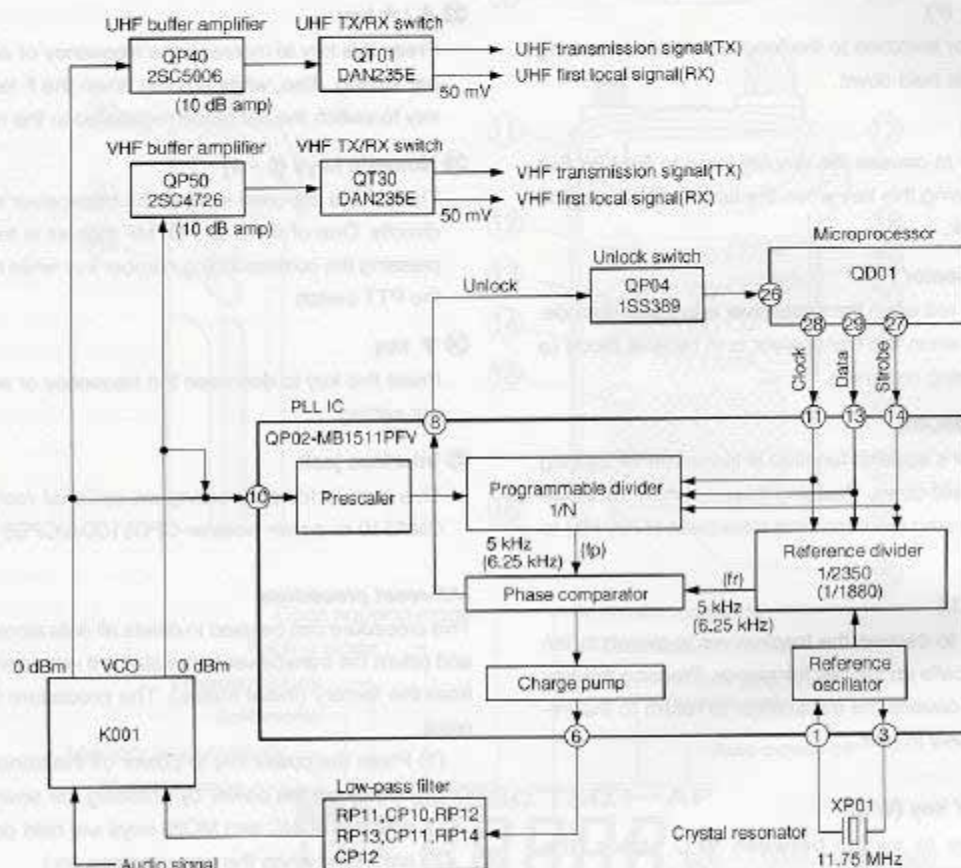


Figure 3-1 PLL block diagram

3.1.1 Programmable Divider

The input oscillation signal is frequency divided by the prescaler using a determined division ratio (1/64 or 1/65). After this, the oscillation signal is input to a programmable divider built into the PLL IC. Based on the data from microprocessor QD01, the programmable divider frequency divides the oscillation signal from the VCO to 1/N to generate a comparison frequency (fp) of 5 kHz or 6.25 kHz.

3.1.2 Reference Divider

The reference divider is a circuit that generates a reference frequency (fr) of 5 kHz or 6.25 kHz based on data from microprocessor QD01. The 11.75 MHz reference oscillation signal from the crystal resonator passes through pin 1 of PLL IC QP02 and is input to the reference divider built into the PLL IC. The 11.75 MHz reference oscillation signal is frequency divided to 1/2,350 (1/1,880) to generate a reference frequency of 5(6.25) kHz.

3.1.3 Phase Comparator

The phase comparator compares the comparison frequency (fp) and the reference frequency (fr) to determine the phase difference.

3.1.4 Charge Pump

The charge pump circuit charges and discharges the electrical charge accumulated in the low-pass filter.

3.1.5 Low-Pass Filter

The low-pass filter CR integrates the level signal (square wave) output from the charge pump, converting it into a DC voltage.

3.1.6 VCO Circuit

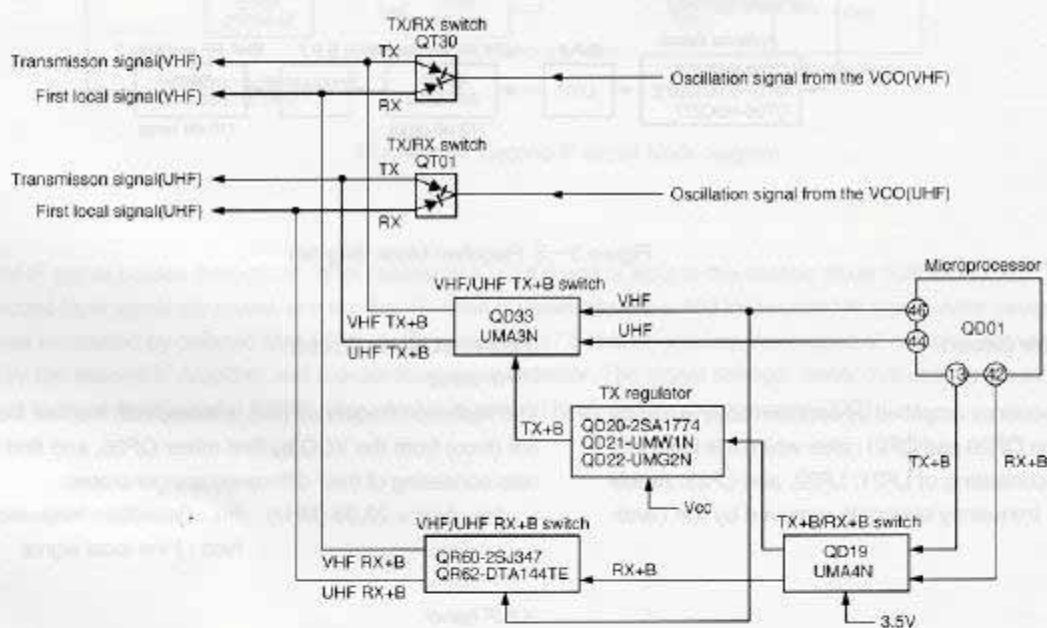
The DC voltage output by the low-pass filter is input to a variable capacitance diode built into the VCO. This DC voltage changes the capacitance between the electrodes of the variable capacitance diode, thereby controlling the oscillation signal of the VCO.

3.1.7 Unlock Detect Circuit

The microprocessor QD01 (pin26) determines whether the status of the PLL circuitry is lock or unlock according to the output level (high or low) from pin 8 of the PLL IC. If the phase comparator built into the PLL IC detects no phase difference (PLL circuit locked), it produces a high level output. This high level output signal is input to an unlock switch QP04, causing it to turn off. When the unlock switch is off, a high level output signal is input to pin 26 of microprocessor QD01. The high level input causes microprocessor QD01 to determine that the PLL circuit is locked.

If there is a phase difference (PLL circuit unlocked), the phase comparator produces a low level output. This low level output signal is input the unlock switch QP04, causing it to turn on. When the unlock switch is on, a low level output signal is input to pin 26 of microprocessor QD01. The low level input causes microprocessor QD01 to determine that the PLL circuit is unlocked.

Refer to figure 3-2 for a description of the VHF TX/RX switch QT30 and UHF TX/RX switch QT01 operations.



When the transceiver is in receive status

| | QD01 | QD19 | QR62 | QR60 | TX/RX switch |
|-----|------------------|------|------|------|-----------------|
| VHF | Pin 42 Lo output | ON | RX+B | OFF | QT30 RX side ON |
| UHF | Pin 42 Lo output | ON | ON | OFF | QT01 RX side ON |

When the transceiver is in transmit status

| | QD01 | QD19 | QD20, QD21, QD22 | QD33 | TX/RX switch |
|-----|------------------|------|------------------|------|-----------------|
| VHF | Pin 13 Lo output | ON | ON | TX+B | QT30 TX side ON |
| UHF | Pin 13 Lo output | ON | ON | ON | QT01 TX side ON |

Figure 3-2 TX/RX switch block diagram

3.2 Receiver Block

The reception method is double-conversion superheterodyne with a first IF frequency of 23.05 MHz (lower) and a second IF frequency of 450 kHz (upper). The receiver block comprises an RF amplifier circuit, first mixer circuit, first IF amplifier circuit, second IF circuit, and audio circuit. The RF amplifier circuit and first mixer circuit are independent for the VHF and UHF bands.

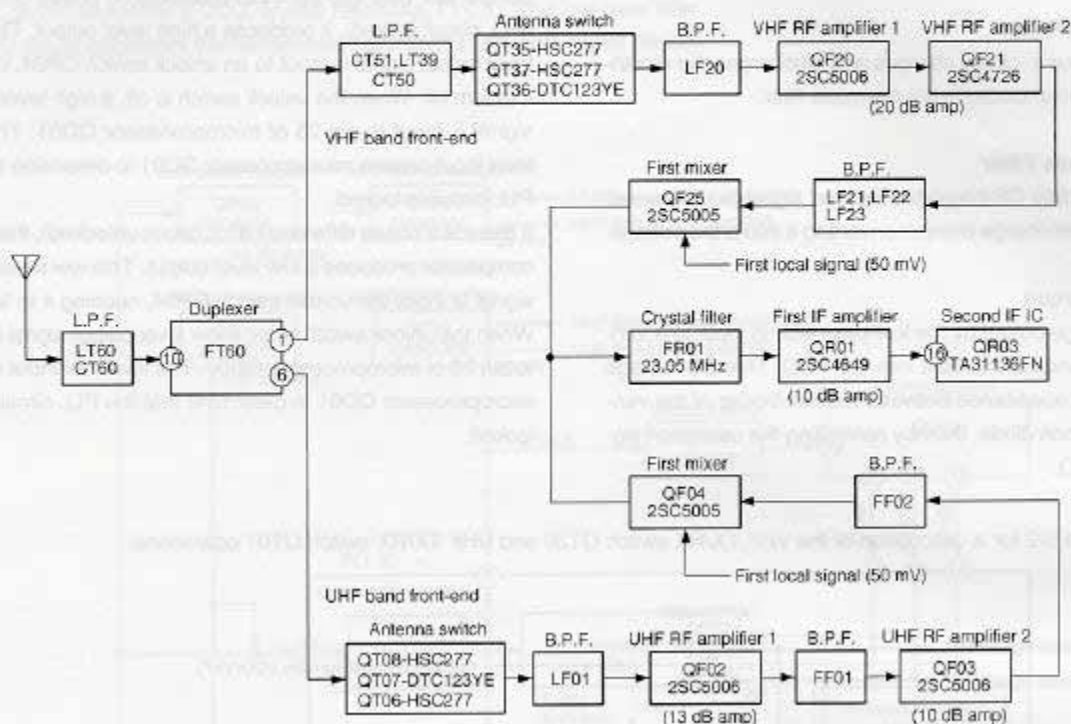


Figure 3-3. Receiver block diagram

3.2.1 RF Amplifier Circuit

-VHF band-

The reception frequency amplified by approximately 20 dB by VHF RF amplifiers QF20 and QF21, after which it is input to a band-pass filter consisting of LF21, LF22, and LF23. At this point, unwanted frequency elements removed by the band-pass filter.

-UHF band-

The reception frequency amplified by approximately 13 dB by UHF RF amplifier QF02, after which it is input to band-pass filter FF01 and applied to UHF RF amplifier QF03. It is amplified by approximately 10 dB by UHF RF amplifier QF03.

3.2.2 First Mixer Circuit

-VHF band-

The reception frequency (f_{rx}) is mixed with the first local signal (f_{vco}) from the VCO by first mixer QF25, and first IF signals consisting of their difference are generated.

$$f_{rx} - f_{vco} = 23.05 \text{ (MHz)} \quad f_{rx} : \text{Reception frequency} \\ f_{vco} : \text{First local signal}$$

-UHF band-

The reception frequency (f_{rx}) is mixed with the first local signal (f_{vco}) from the VCO by first mixer QF04, and first IF signals consisting of their difference are generated.

$$f_{rx} - f_{vco} = 23.05 \text{ (MHz)} \quad f_{rx} : \text{Reception frequency} \\ f_{vco} : \text{First local signal}$$

3.2.3 First IF Amplifier Circuit

After being amplified by approximately 10 dB by first IF amplifier QR03, the 23.05 MHz first IF signal is input to pin 16 of second IF IC QR03.

3.2.4 Second IF Circuit

The second IF IC comprises a second local oscillator, second mixer, second IF amplifier, wave detector, signal strength meter detector, noise amplifier, and noise wave detector.

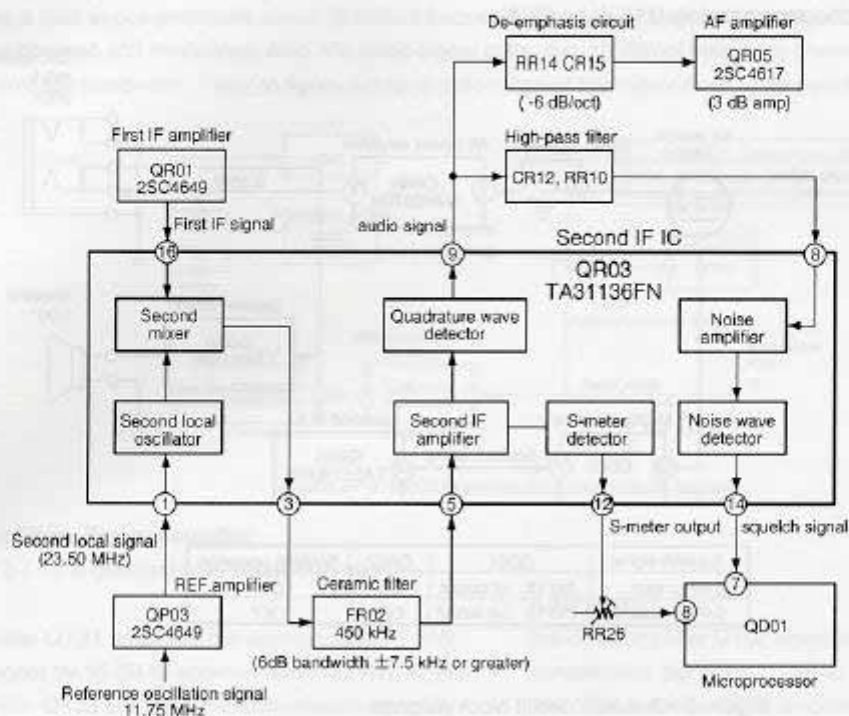


Figure 3-4 Second IF circuit block diagram

The first IF signal passes through pin 16 of second IF IC QR03 and is input to the second mixer built into QR03. The first IF signal and second local signal are mixed, and the first IF signal is converted into a 450 kHz second IF signal. After having adjacent signal elements eliminated by ceramic filter FR02 (6 dB bandwidth ± 7.5 kHz or greater), the second IF signal is converted into an audio signal by the second IF amplifier and a quadrature wave detector. The signal strength meter output from pin 12 of QR03 is level adjusted by semi-fixed resistor RR26, after which it is applied to pin 8 of microprocessor QD01.

3.2.5 Audio Circuit

The frequency of a portion of the audio signal is corrected by the de-emphasis circuit consisting of RR14 and CR15 (-6 dB/oct). After this, the audio signal is amplified by approximately 3 dB by AF amplifier QR05. After passing through AF switch QR07, the audio signal is input to pin 2 of AF power amplifier QR40.

The audio signal is amplified to approximately 0.15 W by QR40.

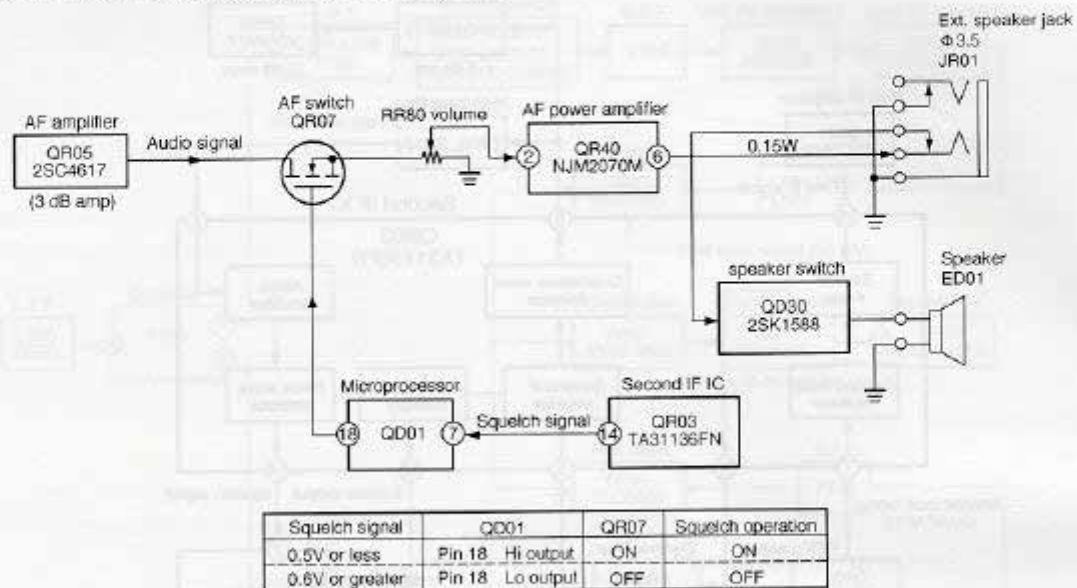


Figure 3-5 Audio circuit block diagram

3.2.6 Squelch Circuit

A portion of the audio signal output from pin 9 of second IF IC QR03 is input to a high-pass filter consisting of CR12 and RR10. Noise elements are extracted from the audio signal by the high-pass filter and input to pin 8 of QR03 as the noise signal. The noise signal has approximately 30 kHz elements only amplified by a noise amplifier built into QR03 to generate the squelch signal. This squelch signal is converted into a DC signal by the noise wave detector built into QR03 and then output from pin 14 of QR03. Refer to figure 3-5 for a description of the squelch on and off operation.

3.2.7 Tone Decoder

A portion of the audio signal output from pin 9 of second IF IC QR03 is input to pin 13 of tone filter QC01.

After its harmonic elements have been eliminated by tone filter QC01, the audio signal is amplified and output from pin 1 of QC01 as the tone signal. This tone signal is input to pin 23 of microprocessor QD01. At this point, if the microprocessor QD01 detects a match between the input tone signal and the transceiver's tone signal setting, output signals from pins 17 and 18 of QD01 to be applied to AF switch QR07 and 5 V regulator QR42. AF switch QR07 turns on and 5 V regulator QR42 operates, supplying power to AF power amplifier QR40 so that it operates. This causes an audio signal to be output from internal speaker ED01.

3.2.8 DTMF Decoder (Paging, Code-squelch)

A portion of the audio signal output from pin 9 of second IF IC QR03 is input to pin 1 of DTMF IC QD36. The audio signal is converted into a serial data and is input to pin 50 of microprocessor QD01. At this point, if the microprocessor QD01 detects a match between the input serial data and the transceiver's DTMF code setting, output signals from pins 17 and 18 of QD01 to be applied to AF switch QR07 and 5 V regulator QR42. AF switch QR07 turns on and 5 V regulator QR42 operates, supplying power to AF power amplifier QR40 so that it operates. This causes an audio signal to be output from internal speaker ED01.

3.3 Transmitter Block

3.3.1 Microphone Amplifier

Audio signal is input to pin 5 of microphone amplifier QM04 (1/2) and amplified by approximately 47 dB. Microphone amplifier QM04 (1/2) has a built-in pre-emphasis circuit (6 dB/oct frequency characteristics), and the high-frequency components of the audio signal are boosted and modulated. Also, the audio signal gains the -18 dB/oct frequency characteristics from low-pass filter QM04 (2/2) to limit the bandwidth. Refer to figure 3-6 for a description of the microphone mute switch QM03 operation.

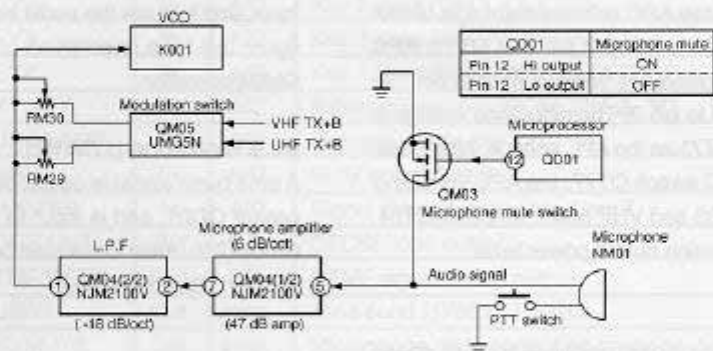


Figure 3-6 Microphone amplifier circuit block diagram

3.3.2 Drive amplifier / Power amplifier

Refer to figure 3-7 for a description of circuit operation.

-VHF band-

Pre-drive amplifier QT31 amplifies the approximately 1 mW transmission signal by 15 dB to approximately 40 mW. After this, drive amplifier QT33 amplifies the transmission signal by 10 dB to approximately 400 mW. The transmission signal is further amplified by approximately 2 W (4.5 V power supply voltage) by the VHF power amplifier QT34.

-UHF band-

Pre-drive amplifier QT02 amplifies the approximately 1.5 mW transmission signal by 15 dB to approximately 45 mW. After this, drive amplifier QT04 amplifies the transmission signal by 10 dB to approximately 400 mW. The transmission signal is further amplified by approximately 1.8 W (4.5 V power supply voltage) by the UHF power amplifier QT05.

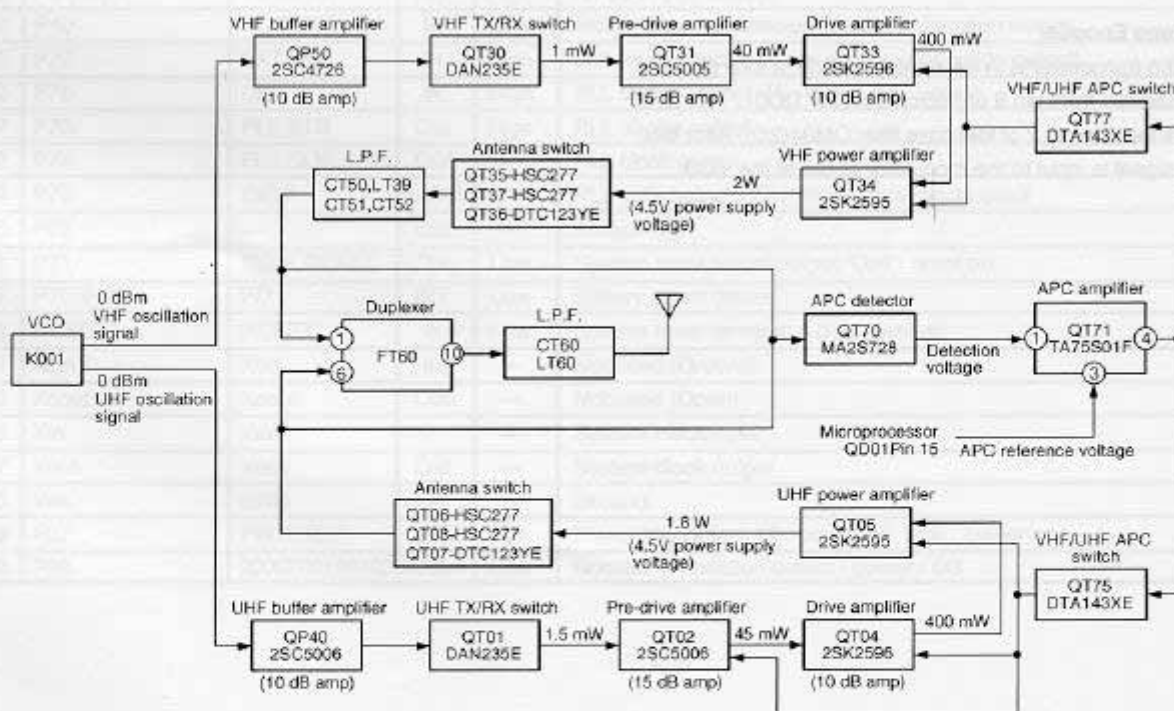


Figure 3-7 Transmission circuit block diagram

3.3.3 Auto Power Control (APC)

Refer to figure 3-7 for a description of the APC circuit operation.

-VHF band-

A portion of the transmission signal amplified by VHF power amplifier QT34 is converted into a DC voltage by APC detector QT70 as the detection voltage. This DC voltage is input to pin 1 of APC QT71. Also, the APC reference voltage output from microprocessor QD01 is input to pin 3 of QT71. APC QT71 compares the APC reference voltage input to pin 1 to the detection voltage input to pin 3. The difference voltage is then output from pin 4 of QT71 as the APC voltage. After passing through VHF/UHF APC switch QT77, the APC voltage is input to drive amplifier QT33 and VHF power amplifier QT34, and it controls the transmission output power level.

-UHF band-

A portion of the transmission signal amplified by UHF power amplifier QT05 is converted into a DC voltage by APC detector QT70 as the detection voltage. This DC voltage is input to pin 1 of APC QT71. Also, the APC reference voltage output from microprocessor QD01 is input to pin 3 of QT71. APC QT71 compares the APC reference voltage input to pin 1 to the detection voltage input to pin 3. The difference voltage is then output from pin 4 of QT71 as the APC voltage. After passing through VHF/UHF APC switch QT76, the APC voltage is input to pre-drive amplifier QT02, drive amplifier QT04 and UHF power amplifier QT05, and it controls the transmission output power level.

3.3.4 Tone Encoder

When the transceiver is in the repeater mode, a tone signal is output directly from pin 9 of microprocessor QD01. This tone signal is input to pin 2 of low-pass filter QM04(2/2). After this, a tone signal is input to the modulator circuit of the VCO.

3.3.5 DTMF Encoder

A DTMF signal is output directly from pin 10 of microprocessor QD01, and is input to pin 5 of microphone amplifier QM04 (1/2). After this, a DTMF signal is input to the modulator circuit of the VCO. While a DTMF signal is being output, a high level is output from pin 12 of microprocessor QD01. At this point, microphone mute switch QM03 is activated by the high level input, and it mutes the audio signal from microphone. Refer to figure 3-6 for a description of the microphone mute switch QM03 operation.

3.3.6 Tone burst (1750 Hz)

A tone burst signal is output directly from pin 11 of microprocessor QD01, and is input to pin 3 of microphone amplifier QM04 (2/2). After this, a tone burst signal is input to the modulator circuit of the VCO.



3.4 Control Block

3.4.1 Microprocessor QD01

The functions of the In / Out ports of microprocessor QD01 are listed below.

Table 3-2 (1/2)

| No. | Port Name | Assign | In/Out | Active | Function |
|-----|----------------|--------------------|--------|--------|---|
| 1 | P67/AN7 | KEY1 | In | A/D | Key 1 input (MONI,1,2,3,SC) |
| 2 | P66/AN6 | KEY2 | In | A/D | Key 2 input (CALL,4,5,6,PS) |
| 3 | P65/AN5 | KEY3 | In | A/D | Key 3 input (V/M,7,8,9,PO/FL) |
| 4 | P64/AN4 | KEY4 | In | A/D | Key 4 input (BAND,▼,0,▲,SET) |
| 5 | P63/SCLK22/AN3 | EXT KEY | In | A/D | External key input (MONI,V/M,▲,▼) |
| 6 | P62/SCLK21/AN2 | FUNC/LAMP | In | A/D | Function / lamp key input |
| 7 | P61/SOUT2/AN1 | BUSY | In | A/D | Busy signal detect |
| 8 | P60/SIN2/AN0 | S-METER | In | A/D | Signal strength meter level input |
| 9 | P57/ADT/DA2 | TONE OUT | Out | D/A | CTCSS tone output |
| 10 | P56/DA1 | DTMF/BEEP | Out | D/A | DTMF signal / beep output |
| 11 | P55/CNTR1 | BURST | Out | High | Tone burst (1750 Hz) output |
| 12 | P54/CNTR0 | MIC MUTE | Out | High | Microphone mute control Hi : mute on Low : mute off |
| 13 | P53/RTP1 | TX+B | Out | Low | Transmit power supply control Hi : power off Low : power on |
| 14 | P52/RTP0 | PTT | In | High | PTT key detect Hi : PTT on Low : PTT off |
| 15 | P51/PWM1 | SHIFT/PO | Out | --- | APC reference voltage output |
| 16 | P50/PWM0 | BUSY LED | Out | High | Busy LED control Hi : LED on Low : LED off |
| 17 | P47/SRDY1 | AF MAIN | Out | High | Audio signal / beep output control Hi : signal output on Low : signal output off |
| 18 | P46/SCLK1 | AF PRE | Out | High | Audio signal output control Hi : audio output on Low : audio output off |
| 19 | P45/TXD | TXD/BOOST D0 | Out | --- | Booster D0 |
| 20 | P44/RXD | RXD/BOOST D1 | In/Out | --- | Booster D1 |
| 21 | P43/Q/TOUT | INT SPK | Out | High | Internal speaker output control Hi : speaker on Low : speaker off |
| 22 | P42/INT2 | ROTARY TRG | INT | Low | Rotary channel selector operation detect |
| 23 | P41/INT1 | TONE IN | INT | High | CTCSS tone decode |
| 24 | P40 | ROTARY UD | In | Low | Rotary channel selector operation direction detect |
| 25 | P77 | EXT DC | In | High | cellular connector power supply(connection detect) |
| 26 | P76 | UL | In | High | PLL unlock detect Hi : lock Low : unlock |
| 27 | P75 | PLL STB | Out | High | PLL strobe output |
| 28 | P74 | PLL CLK | Out | --- | PLL clock output |
| 29 | P73 | DATA | In/Out | --- | PLL data output / EEP-ROM data input/output |
| 30 | P72 | --- | Out | --- | Always high |
| 31 | P71 | SELF RESET | Out | Low | System reset signal output Low : reset on |
| 32 | P70/INT0 | PD | INT | Low | Battery down detect |
| 33 | RESET | RESET | In | Low | System reset terminal Low : reset on |
| 34 | Xcin | Xcin | In | --- | Not used (Ground) |
| 35 | Xcout | Xcout | Out | --- | Not used (Open) |
| 36 | Xin | Xin | In | --- | System clock input |
| 37 | Xout | Xout | Out | --- | System clock output |
| 38 | Vss | GND | --- | --- | Ground |
| 39 | P27 | PWR KEY | INT | Low | Power key detect Hi : power off Low : power on |
| 40 | P26 | BOOST DC / PO / D3 | In/Out | Low | Booster connection detect / power / D3 |

Table 3-2 (2/2)

| No. | Port Name | Assign | In/Out | Active | Function |
|-----|-----------|-------------|--------|--------|---|
| 41 | P25 | PLL+B | Out | Low | PLL power supply control Hi : power off Low : power on |
| 42 | P24 | RX+B | Out | Low | Receive power supply control Hi : power off Low : power on |
| 43 | P23 | --- | Out | --- | Always high |
| 44 | P22 | UHF | Out | Low | UHF band power supply control Hi : power off Low : power on |
| 45 | P21 | --- | Out | --- | Always high |
| 46 | P20 | VHF | Out | Low | VHF band power supply control Hi : power off Low : power on |
| 47 | P17 | SCK | Out | High | EEP-ROM clock output |
| 48 | P16 | ACK | Out | High | DTMF code input clock |
| 49 | P15/SEG39 | STD | In | --- | DTMF signal detect |
| 50 | P14/SEG38 | SD | In | High | DTMF data input |
| 51 | P13/SEG37 | --- | In | --- | Not used(open) (C510A : ground / C510E : open) |
| 52 | P12/SEG36 | --- | In | --- | Not used(ground) (C510A : open / C510E : open) |
| 53 | P11/SEG35 | --- | In | --- | Not used(open) (C510A : open / C510E : open) |
| 54 | P10/SEG34 | --- | In | --- | Not used(open) (C510A : open / C510E : ground) |
| 55 | P07/SEG33 | SEG33 | Out | --- | LCD segment signal output |
| 56 | P06/SEG32 | SEG32 | Out | --- | LCD segment signal output |
| 57 | P05/SEG31 | DTMF+B | Out | Low | DTMF decoder power supply control Hi : power off Low : power on |
| 58 | P04/SEG30 | TSQ+B | Out | Low | CTCSS decode circuit power supply control Hi : power off Low : power on |
| 59 | P03/SEG29 | TONE FILTER | Out | --- | Tone filter shift control (change in 131.8 Hz) |
| 60 | P02/SEG28 | BOOST D2 | Out | --- | Booster D2 |
| 61 | P01/SEG27 | LAMP | Out | High | Lamp control Hi : lamp on Low : lamp off |
| 62 | P00/SEG26 | SW+B | Out | Low | Peripheral circuit power supply control Hi : power off Low : power on |
| 63 | P37/SEG25 | S25 | Out | --- | LCD segment signal output |
| 64 | P36/SEG24 | S24 | | | |
| 88 | SEG0 | S0 | --- | --- | --- |
| 89 | Vcc | Vcc | --- | --- | Power supply(DC 3.0V) |
| 90 | VREF | VREF | --- | --- | A/D converter power supply / A/D reference voltage terminal |
| 91 | AVss | Avss | --- | --- | A/D converter ground |
| 92 | COM3 | NC | --- | --- | Not used(open) |
| 93 | COM2 | CO2 | Out | --- | LCD common signal output |
| 94 | COM1 | CO1 | Out | --- | LCD common signal output |
| 95 | COM0 | CO0 | Out | --- | LCD common signal output |
| 96 | VL3 | VL3 | --- | --- | LCD bias power supply (3.0V) |
| 97 | VL2 | VL2 | --- | --- | LCD bias power supply (2.0V) |
| 98 | C2 | NC | --- | --- | Not used(open) |
| 99 | C1 | NC | --- | --- | Not used(open) |
| 100 | VL1 | VL1 | --- | --- | LCD bias power supply (1.0V) |

3.4.2 Beep

The beep signal is output from pin 10 of microprocessor QD01. After this, the beep signal is input to pin 2 of AF power amplifier QR40, where it is amplified. The amplified beep signal is output from pin 6 of AF power amplifier QR40, passes through external speaker socket JR01, and drives internal speaker ED01.

3.4.3 Display (LCD)

Microprocessor QD01 drives LCD QD02 directly. The driving method is dynamic drive using 28 segment terminals, three common terminals, and a 1/3 duty ratio. The LCD segment and common connections are illustrated below.

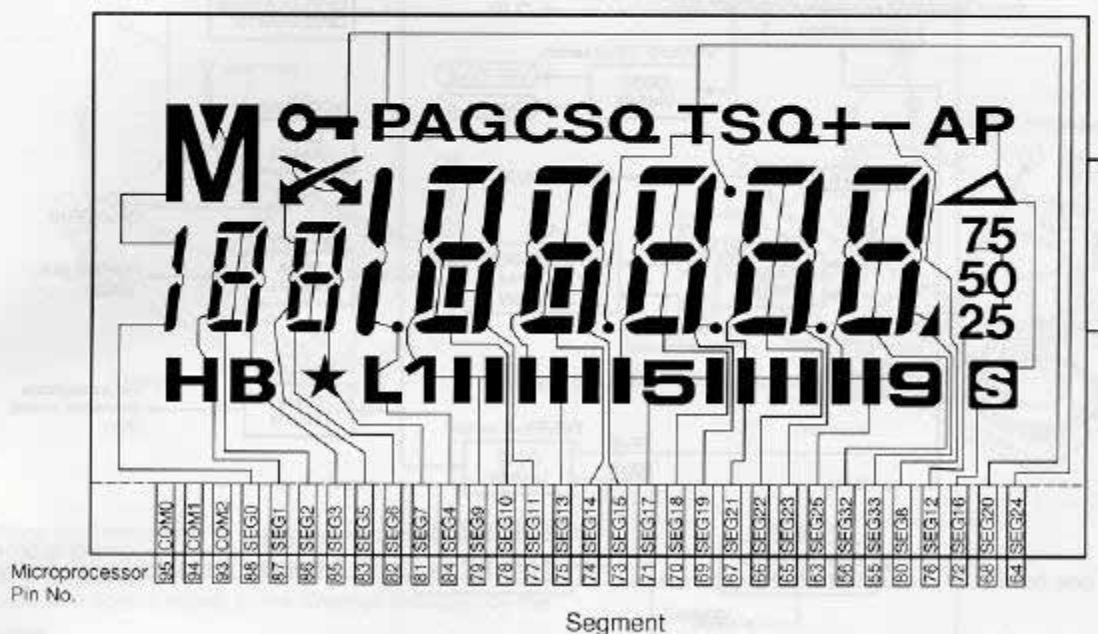


Figure 3—8 LCD connection diagram

3.5 Power Supply Block

The power supply block is diagrammed below.

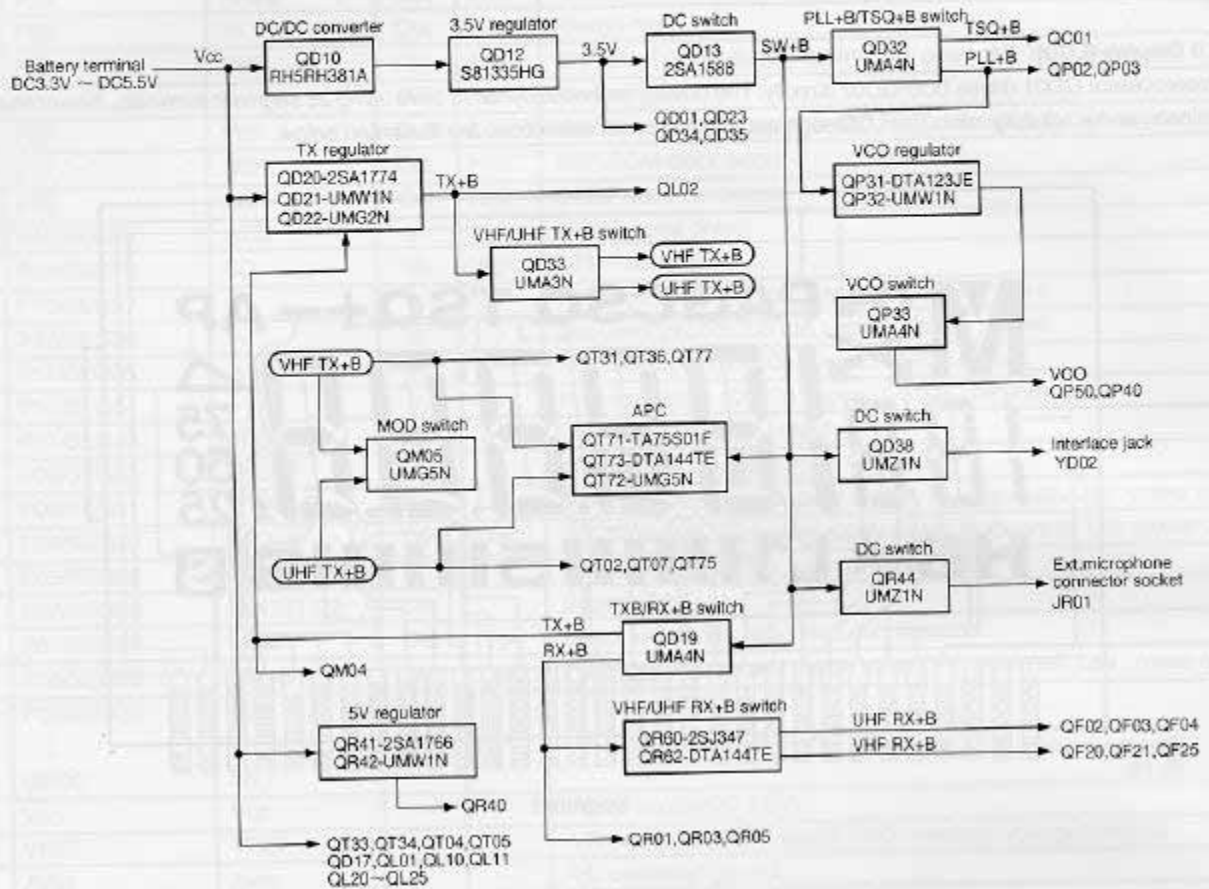


Figure 3-9 Power supply block diagram

4. DISASSEMBLY

Note : Be sure to switch off the transceiver's power before disassembling it.

4.1 Removing the Front Case

- Remove the battery cover, and place the transceiver as shown in figure 4-1.
- Remove the two screws (A), two screws (B) and two screws (C).

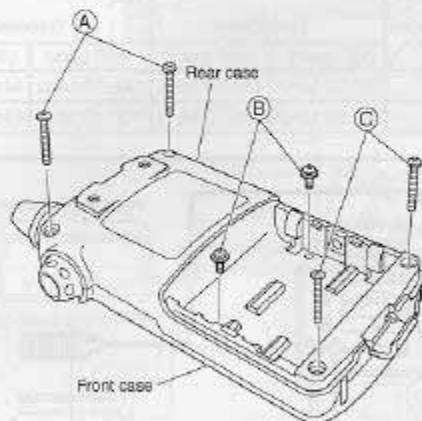


Figure 4-1

- Place the transceiver so that the front case (the surface with the controls) is facing upward, then grasp the front case and open it slowly in the direction indicated by the arrow.

Note : When opening the front case away from the rear case, do not open the left side. Doing so could damage the flexible P.C. board and coaxial cable YA01, YA02.

- Move slide insulators YR01 and YD01 in the direction indicated by the arrow. This will allow the flexible P.C. board to be removed.
- When coaxial cables YA01 and YA02 are disconnected, the front case can be detached from the rear case.

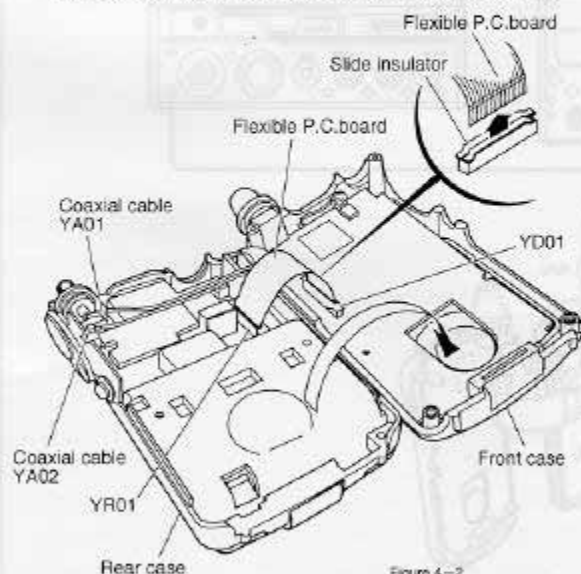


Figure 4-2

4.2 Removing the Control P.C. Board

- Pull off the rotary channel selector knob and remove the single slotted round nut (D) using a slotted round screwdriver.
- Remove the solder from location (1) (two places) and (2) YA02 (two places). Disconnect the two lead wires from the speaker and coaxial cable YA02.
- Remove the coaxial cable YA01.
- Remove the two screws (E) and the control P.C. board can be removed from the front case.

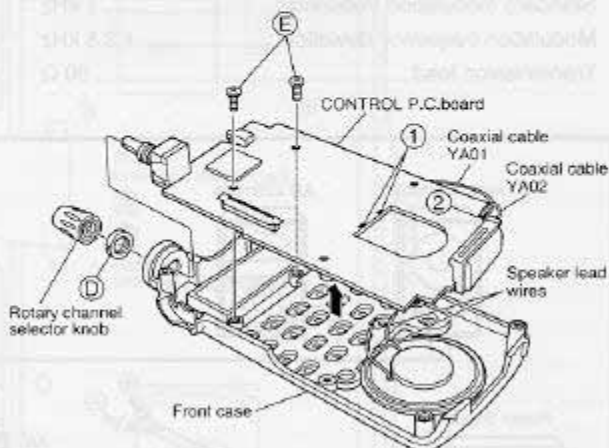


Figure 4-3

4.3 Removing the AF Volume P.C. Board and TX/RX P.C. Board

- Pull off the volume control knob and remove the single screw (F). The AF volume P.C. board can be removed from the rear case.
- Remove the microphone/speaker cap and remove the solder from location (3), (4) (all three places).
- Remove the clamp and three screws (G) and the TX/RX P.C. board can be removed from the rear case.

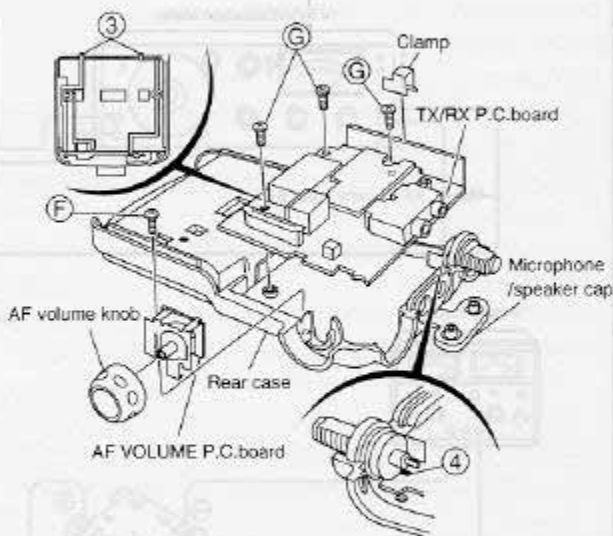


Figure 4-4

5. ADJUSTMENT

5.1 Adjustment Connection Diagrams

Make sure that all test equipment is properly calibrated. Allow sufficient time after powering on equipment for it to warm up before performing adjustments.

Standard conditions-

Power supply voltage DC 4.5 V
 Audio output 25 mW
 Audio load 8 Ω
 Standard modulation frequency 1 kHz
 Modulation frequency deviation ± 3.5 kHz
 Transmission load 50 Ω

Adjustment frequencies See Table 5-1

Note : 0 dB μ = 1 μ V (emf)

Table 5-1

| Adjustment frequencies | Reception | | Transmission | |
|------------------------|------------|------------|--------------|------------|
| | VHF band | UHF band | VHF band | UHF band |
| C510A | 146.02 MHz | 444.02 MHz | 146.10 MHz | 444.10 MHz |
| C510E | 146.02 MHz | 435.02 MHz | 146.10 MHz | 435.10 MHz |

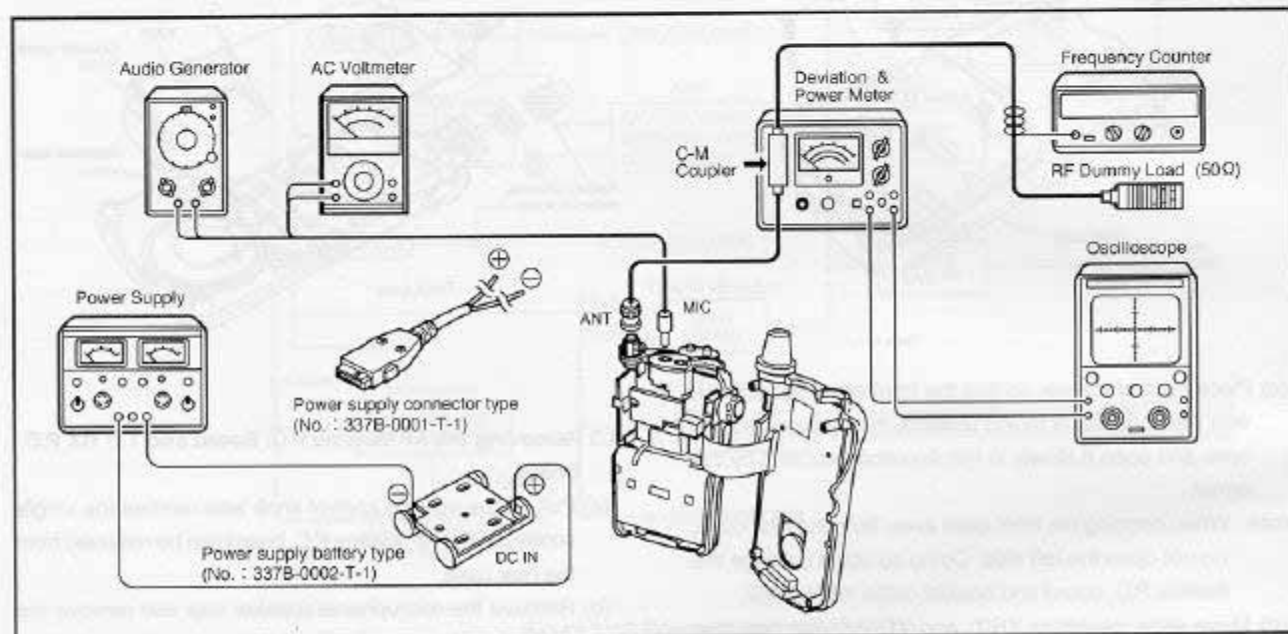


Figure 5-1 Transmission connection diagram

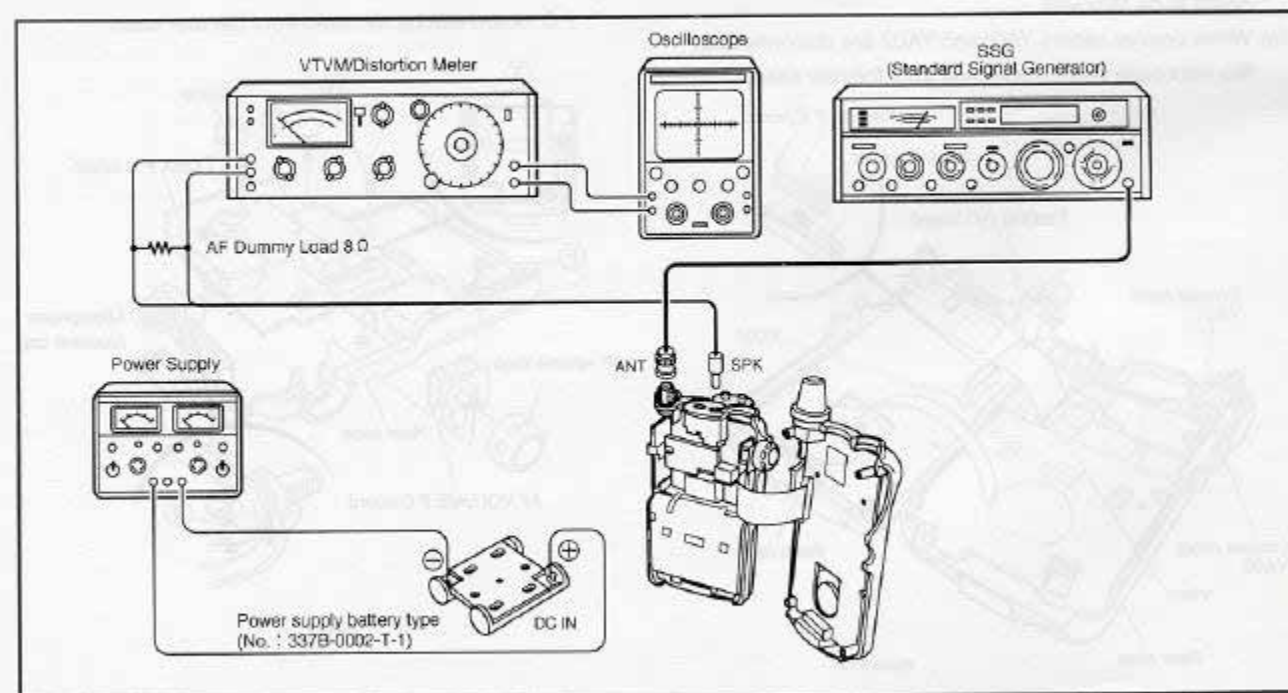


Figure 5-2 Reception connection diagram

5.2 Adjustment Point Diagram

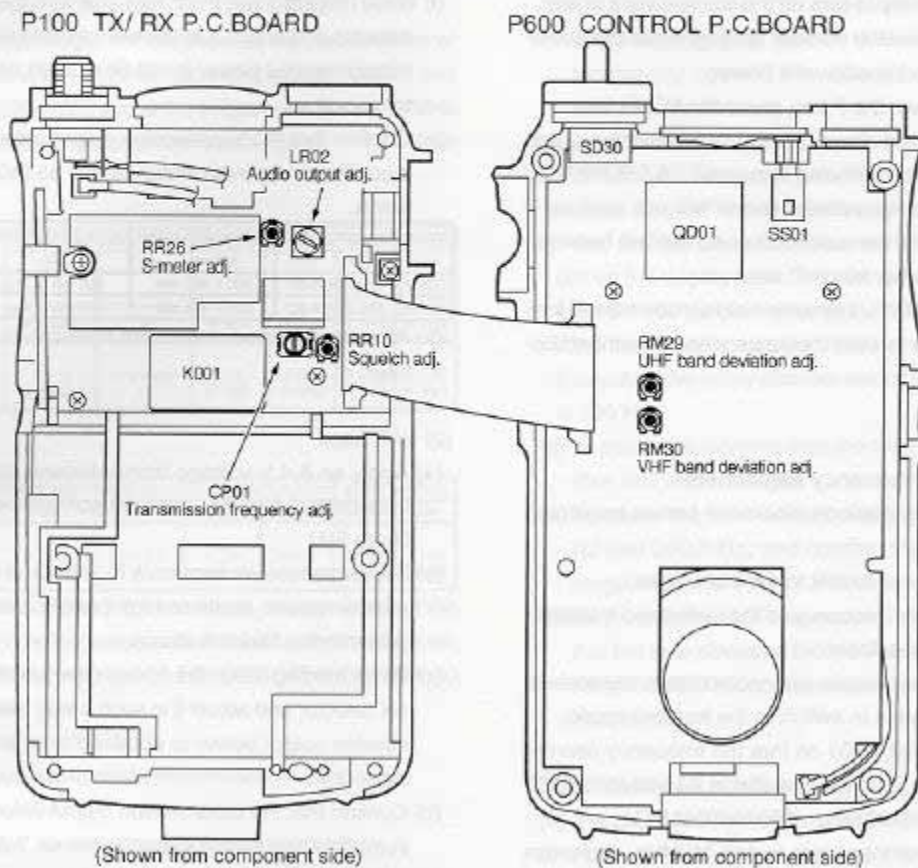


Figure 5-3

5.3 Adjustment and Confirmation

Note : This transceiver must be adjusted in the adjustment mode. How to start up the adjustment mode is described below.

- Press the power key to turn off the transceiver's power.
- While holding down the number "2" key, press the power key to turn on the transceiver's power.
- While holding down the F key, press the PO/FL key.
- With the F key held down, press the number keys one after the other in the following sequence : "5," "3," "2," "3," "2" and "1." (The adjustment mode will not start up if intervals of more than a second or so are left between pressing one number key and the next.)
- Next, press the PO/FL key while holding down the F key. It is now possible to start the adjustments described below.

5.3.1 PLL Block

-VCO transmission frequency adjustment-

- Turn CP01 three rotations clockwise before beginning adjustments.
- Apply a 4.5 V power supply to the transceiver.
- Set the transceiver frequency to the UHF band transmission frequency (see Table 5-1).
- With the directional coupler connected to the transceiver, press the PTT switch to switch to the transmit mode.
- At this point, adjust CP01 so that the frequency counter indication (transmission frequency) is 444.10 MHz \pm 100 Hz [C510A] or 435.10 MHz \pm 100 Hz [C510E].
- Set the transceiver frequency to 146.10 MHz, and press the PTT switch to switch to the transmit mode.
- At this point, confirm that the frequency counter indication (transmission frequency) is 146.10 MHz \pm 100 Hz.

5.3.2 Transmitter Block

-Transmission output adjustment-

(1) UHF band

- Apply an 8.4 V voltage from interface jack YD02 to the transceiver. (Use the power supply connector type. See figure 5-1)
- Set the transceiver's frequency to the UHF band transmission frequency (see Table 5-1), set the transmission power mode to high power, and set the transceiver to the transmit status.
- While holding down the F key, now turn the rotary channel selector and adjust it in such a way that a 3.3 W transmission output power is obtained from antenna connector socket.
- Confirm that the transmission output values, current consumption and power balance are as listed in the table below.

| Model | Frequency(MHz) | transmission output values | current consumption | power balance |
|-------|----------------|----------------------------|---------------------|---------------|
| C510A | 438.10/449.90 | 3.0 ~ 3.6 W | 1.8 A or less | 0.3 W or less |
| C510E | 430.10/439.90 | 3.0 ~ 3.6 W | 1.8 A or less | 0.3 W or less |

- Set the transceiver's frequency to the UHF band transmission frequency (see Table 5-1), set the transmission power mode to high power, and set the transceiver to the transmit status.
- While holding down the F key, now turn the rotary channel selector and adjust it in such a way that a 300 mW transmission output power is obtained from antenna connector socket.
- Confirm that the transmission output values, current consumption and power balance are as listed in the table below.

| Model | Frequency(MHz) | transmission output values | current consumption | power balance |
|-------|----------------|----------------------------|---------------------|----------------|
| C510A | 438.10/449.90 | 200 ~ 400 mW | 600 mA or less | 100 mW or less |
| C510E | 430.10/439.90 | 200 ~ 400 mW | 600 mA or less | 100 mW or less |

- After confirmation, return the transceiver to receive status.

(2) VHF band

- Apply an 8.4 V voltage from interface jack YD02 to the transceiver. (Use the power supply connector type. See figure 5-1)
- Set the transceiver frequency to 146.10 MHz, set the transmission power mode to high power, and set the transceiver to the transmit status.
- While holding down the F key, now turn the rotary channel selector and adjust it in such a way that a 3.3 W transmission output power is obtained from antenna connector socket.
- Confirm that the transmission output values, current consumption and power balance are as listed in the table below.

| Frequency(MHz) | transmission output values | current consumption | power balance |
|----------------|----------------------------|---------------------|---------------|
| 144.10/147.90 | 3.0 ~ 3.6 W | 1.5 A or less | 0.3 W or less |

- Set the transceiver frequency to 146.10 MHz, set the transmission power mode to high power, and set the transceiver to the transmit status.
- While holding down the F key, now turn the rotary channel selector and adjust it in such a way that a 300 mW transmission output power is obtained from antenna connector socket.
- Confirm that the transmission output values, current consumption and power balance are as listed in the table below.

| Frequency(MHz) | transmission output values | current consumption | power balance |
|----------------|----------------------------|---------------------|----------------|
| 144.10/147.90 | 200 ~ 400 mW | 600 mA or less | 100 mW or less |

- After confirmation, return the transceiver to receive status.

-Transmission output confirmation-

- Apply a 4.5 V voltage from the battery terminal to the transceiver.
- Confirm that the transmission output and current consumption values are as listed in the tables below.
- Confirm that the power balance at the frequencies of 438.10 MHz and 449.90 MHz[C510A] or 430.10 MHz and 439.90 MHz[C510E] and at the frequencies of 144.10 MHz and 147.90 MHz matches the values given in the tables below.

(1) UHF band

| Model | Frequency | transmission output values | | current consumption | | power balance | |
|-------|------------|----------------------------|-------------|---------------------|---------------|---------------|---------------|
| | | High | Low | High | Low | High | Low |
| C510A | 438.10 MHz | | | | | | |
| | 444.10 MHz | 1.1 W | 0.2 ~ 0.4 W | 1.2 A | 0.6 A or less | 0.2 W | 0.1 W or less |
| | 449.90 MHz | or greater | | | | | |
| C510E | 430.10 MHz | | | | | | |
| | 435.10 MHz | 1.1 W | 0.2 ~ 0.4 W | 1.2 A | 0.6 A or less | 0.2 W | 0.1 W or less |
| | 439.90 MHz | or greater | | | | | |

(2) VHF band

| Frequency | transmission output values | | current consumption | | power balance | |
|------------|----------------------------|-------------|---------------------|---------------|---------------|---------------|
| | High | Low | High | Low | High | Low |
| 144.10 MHz | | | | | | |
| 146.10 MHz | 1.2 W | 0.2 ~ 0.4 W | 1.2 A | 0.6 A or less | 0.2 W | 0.1 W or less |
| 147.90 MHz | or greater | | | | | |

- Connect CMA510 to the transceiver, and confirm that the transmission output value is over 2.3 W at the frequencies of 146.10 MHz and 444.10 MHz[C510A] and of 435.10 MHz[C510E].

-Deviation adjustment and confirmation-

(1) UHF band

- Apply a 4.5 V power supply to the transceiver.
- Set the transceiver frequency to the UHF band transmission frequency (see Table 5-1).
- Switch off the filter of the modulation analyzer.
- Input a 1 kHz, 50 mV (OPEN) sine wave to the transceiver from the audio generator (AG). Switch the transceiver to the transmit mode.
- At this point, adjust RM29 so that the maximum deviation is ± 4.7 kHz.
- Gradually reduce the output level of the audio generator (AG) until deviation is ± 3.5 kHz. At this point, confirm that the audio generator (AG) sine wave output level is between 5 mV and 9 mV (OPEN).

(2) VHF band

- Set the transceiver frequency to 146.10 MHz.
- Switch off the filter of the modulation analyzer.
- Input a 1 kHz, 50 mV (OPEN) sine wave to the transceiver from the audio generator (AG). Switch the transceiver to the transmit mode.
- At this point, adjust RM30 so that the maximum deviation is ± 4.7 kHz.
- Gradually reduce the output level of the audio generator (AG) until deviation is ± 3.5 kHz. At this point, confirm that the audio generator (AG) sine wave output level is between 5 mV and 9 mV (OPEN).

-Tone deviation confirmation-

- Set the HPF of the modulation analyzer to off and the LPF to 3 kHz.
- Apply a 4.5 V power supply to the transceiver.
- Set the transceiver frequency to the UHF band transmission frequency (see Table 5-1). Set the transceiver's tone frequency to 100 Hz. Switch to transmit mode (unmodulated status).

Setting Procedure :

Press the SET key, and turn the rotary channel selector to display "tSq: oF" on the display area. Next, hold down the F key and turn the rotary channel selector to display "tSq: on" on the display area. Turn the rotary channel selector so that "CF 100" is displayed on the display area. At this point if the frequency is not set to 100 Hz, while holding down the F key, turn the rotary channel selector so that the frequency is 100 Hz.

- At this point, confirm that the tone deviation is between ± 0.4 kHz and ± 1.2 kHz.
- Measure the tone deviation at tone frequencies of 67.0 Hz and 250.3 Hz, and confirm that it comes within the range of ± 0.4 kHz to ± 1.2 kHz.
- Set the transceiver's frequency to 146.10 MHz, and confirm that the tone deviation at tone frequencies of 100 Hz, 67.0 Hz and 250.3 Hz comes within the range of ± 0.4 kHz to ± 1.2 kHz.

-DTMF deviation confirmation-

- Switch off the filter of the modulation analyzer.
- Apply a 4.5 V power supply to the transceiver. Set the transceiver frequency to the UHF band transmission frequency (see Table 5-1).
- While holding down the PTT switch, press the "8" key of the numeric keys.
- At this point, confirm that the DTMF deviation is between ± 2.5 kHz and ± 4.0 kHz.
- Set the transceiver frequency to 146.10 MHz and while holding down the PTT switch, press the "8" key of the numeric keys.
- At this point, confirm that the DTMF deviation is between ± 2.5 kHz and ± 4.0 kHz.

-Transmission ham & noise confirmation-

- Confirm that the transmission ham & noise values are as listed in the table below.
- Set the HPF of the modulation analyzer to 50 Hz and the LPF to 20 kHz.

| Transmission frequency(MHz) | Ham & noise level |
|-----------------------------|-------------------|
| 146.10 | 32 dB or greater |
| 444.10 [C510A] | 32 dB or greater |
| 435.10 [C510E] | 32 dB or greater |

-Tone burst deviation confirmation-

- (a) Set the HPF of the modulation analyzer to 50 Hz and the LPF to 20 kHz.
- (b) Set the transceiver frequency to the UHF band transmission frequency (see Table 5-1).
- (c) While holding down the PTT switch, press the MONI key.
- (d) At this point, confirm that the tone burst deviation is between ± 2.5 kHz and ± 4.0 kHz. Confirm that the tone frequency is $1750 \text{ Hz} \pm 10 \text{ Hz}$.
- (e) Set the transceiver's frequency to 146.10 MHz, and perform the same confirmation described in steps (c) and (d).

5.3.3 Receiver Block

-Audio output adjustment-

- (a) Set the transceiver frequency to the UHF band reception frequency (see Table 5-1).
- (b) Set the standard signal generator (SSG) as follows.
Frequency : UHF band reception frequency (see Table 5-1)
Standard modulation frequency : 1 kHz
Standard frequency deviation : ± 3.5 kHz
Output level : $+60 \text{ dB}\mu$
- (c) Adjust LR02 so that the audio output level is maximized.

-Signal strength meter sensitivity adjustment-

- (a) Set the transceiver frequency to the UHF band reception frequency (see Table 5-1).
- (b) Set the standard signal generator (SSG) as follows.
Frequency : UHF band reception frequency (see Table 5-1)
Standard modulation frequency : 1 kHz
Standard frequency deviation : ± 3.5 kHz
Output level : $+15 \text{ dB}\mu$
- (c) Adjust RR26 so that the signal strength meter registers through S9.
- (d) After once lowering the SSG output level, raise the output level slowly. Confirm that all the signal strength meter segments register when the output level is $+20 \text{ dB}\mu$ or less.
- (e) Next, set the transceiver and SSG frequency to the 146.02 MHz.
- (f) After once lowering the SSG output level, raise the output level slowly. Confirm that all the signal strength meter segments register when the output level is $+20 \text{ dB}\mu$ or less.

-Squelch adjustment-

- (a) Set the transceiver frequency to 146.02 MHz.
- (b) Set the standard signal generator (SSG) as follows.
Frequency : 146.02 MHz
Standard modulation frequency : 1 kHz
Standard frequency deviation : ± 3.5 kHz
Output level : $-12 \text{ dB}\mu$
- (c) Adjust RR10 so that the oscilloscope waveform undergoes a complete level change (squelch opens).
- (d) Gradually lower the SSG output level. After confirming that squelch closes, raise the output level again. Confirm that squelch opens when the SSG output level is between $-10 \text{ dB}\mu$ and $-14 \text{ dB}\mu$.
- (e) Next, set the transceiver and SSG frequency to the UHF band reception frequency (see Table 5-1). Set the SSG output level to $-10 \text{ dB}\mu$.
- (f) Turn the rotary channel selector while holding down the F key, and adjust it in such a way that the oscilloscope waveform undergoes a complete level change (squelch opens).
- (g) Gradually lower the SSG output level. After confirming that squelch closes, raise the output level again. Confirm that squelch opens when the SSG output level is between $-8 \text{ dB}\mu$ and $-12 \text{ dB}\mu$.

-Reception sensitivity confirmation-

(1) UHF band

- (a) Set the transceiver frequency to the UHF band reception frequency (see Table 5-1).
- (b) Set the standard signal generator (SSG) as follows.
Frequency : UHF band reception frequency (see Table 5-1)
Standard modulation frequency : 1 kHz
Standard frequency deviation : ± 3.5 kHz
- (c) At this point, confirm that 12 dB SINAD is approximately $-9 \text{ dB}\mu$.
- (d) Measure 20 dB QS at frequencies of 430.02 MHz and 439.98 MHz [C510E] or 438.02 MHz and 449.98 MHz [C510A]. At this point, confirm that the difference between the measured 20 dB QS values is 3 dB or less.

(2) VHF band

- (a) Set the transceiver frequency to 146.02 MHz.
- (b) Set the standard signal generator (SSG) as follows.
Frequency : 146.02 MHz
Standard modulation frequency : 1 kHz
Standard frequency deviation : ± 3.5 kHz
- (c) At this point, confirm that 12 dB SINAD is approximately $-10 \text{ dB}\mu$.
- (d) Measure 20 dB QS at frequencies of 144.02 and 147.98 MHz. At this point, confirm that the difference between the measured 20 dB QS values is 3 dB or less.

-Tone decoder confirmation-

Note : Prepare a second transceiver with a tone squelch unit installed.

- Set two transceivers to the same frequency(444.110 MHz[C510A],435.10 MHz[C510E] or 146.10 MHz).
- Set the same tone frequency (179.9 Hz) for both transceivers.
- Switch the C510A/C510E only to the tone squelch mode.
- Switch the other transceiver to the transmit mode. At this point, confirm that squelch does not open on the C510A/C510E when the RF signal is received.
- Next, switch the other transceiver to the tone squelch mode as well.
- Switch the other transceiver to the transmit mode. At this point, confirm that squelch opens on the C510A/C510E when the RF signal is received.
- Cancel tone squelch mode on both transceivers.

-Reception ham & noise confirmation-

- Confirm that the reception ham & noise values are as listed in the table below.(Unsquelched)

| Reception frequency(MHz) | Ham & noise level |
|--------------------------|-------------------|
| 146.02 | 40 dB or greater |
| 444.02[C510A] | 40 dB or greater |
| 435.02[C510E] | 40 dB or greater |


-Beep volume confirmation-

- Confirm that a beep sounds when the F key is pressed and that its volume changes when the volume control is turned.

-Paging reception confirmation-

Note : Prepare a second transceiver equipped with a paging function.

- Set two transceivers to the same frequency(444.110 MHz[C510A],435.10 MHz[C510E]).
- Set the same paging code for both transceivers.(any paging code may be used)
- Switch the C510A/C510E and other transceiver to the paging mode.
- Switch the other transceiver to the transmit mode. At this point, confirm that paging operates on the C510A/C510E when the RF signal is received.
- Cancel tone squelch mode on both transceivers.

Adjustment : 

6. SPECIFICATIONS

6.1 General

| | |
|--|---|
| Frequency range | VHF band : 144.000 MHz ~ 147.995 MHz UHF band : 438.000 MHz ~ 449.995 MHz[C510A] 430.000 MHz ~ 439.995 MHz[C510E] |
| Frequency type | F2, F3 |
| Microphone impedance | 2 k Ω |
| Speaker impedance | 8 Ω |
| Antenna impedance | 50 Ω |
| Antenna connector | SMA type |
| Operating voltage range | DC 3.3 V ~ 8.4 V |
| Rated voltage | DC 4.5 V |
| Current consumption | |
| Transmission (High power) | VHF band : Approx. 850 mA UHF band : Approx. 950 mA |
| Transmission (Low power) | VHF band : Approx. 400 mA UHF band : Approx. 430 mA |
| Reception | VHF band : approx. 29 mA UHF band : approx. 33 mA |
| Battery save (1.0 sec.) | Approx. 11 mA |
| Dimensions (Excluding protrusions) | 58 mm (W) x 104 mm (H) x 27 mm (D) |
| Weight (including battery and antenna) | Approx. 210 g |

6.2 Receiver Block

| | |
|---|---|
| Reception method | Double super heterodyne |
| Intermediate frequencies | First IF : 23.05 MHz (lower) Second IF : 450 kHz (upper) |
| Reception sensitivity (12 dB SINAD) | VHF band : 0.2 μ V or less UHF band : 0.22 μ V or less |
| S/N ratio at 0.5 μ V input | 30 dB or greater |
| Squelch open sensitivity | 0.2 μ V or less |
| Audio output | Approx. 100 mW (8 Ω /10% distortion) |

6.3 Transmitter Block

Transmission output

| Transmission output | High power | Low power |
|----------------------------|---------------|---------------|
| Power supply | | |
| Size AA alkaline batteries | Approx. 1 W | Approx. 0.3 W |
| CNB510 | Approx. 0.7 W | |

| | |
|---------------------------------------|--|
| Modulation method | Reactance modulation |
| Maximum frequency deviation | ± 5 kHz |
| Spurious signal rejection ratio | VHF band : - 60 dB or less UHF band : - 60 dB or less |
| Internal microphone | Electric condenser microphone |

Specifications are subject to change without notice due to product improvements.

7. PARTS LIST

Parts list

The parts list contains information on electrical and mechanical parts.

Electrical parts are listed first, followed by mechanical parts.

Parts used only in C510A are indicated by the notation [C510A] in the description column.

Parts used only in C510E are indicated by the notation [C510E] in the description column.

Chip parts

Part numbers whose first three characters correspond to the following codes indicate chip parts.

| -Capacitors- | -Resistors- | -Semiconductors- | -Coils- |
|--------------|-------------|------------------|---------|
| DD4..... | NI..... | BA..... | LU..... |
| DD5..... | NN..... | HX..... | |
| DD9..... | NY..... | HY..... | |
| DF9..... | RI..... | HZ..... | |
| DK4..... | | | |
| DK5..... | | | |
| DK9..... | | | |
| EY..... | | | |

Ordering replacement parts

Please supply the following information.

Part symbol (4 characters), Part number (10 characters), "Description", Model and serial number

Kind of parts

If the first one or two characters of a part number is one of the following, it indicates the type of part.

| -Capacitors- | -Resistors- | -Semiconductors- | -Coils- | -Crystal- |
|--------------|-------------|------------------|---------|-----------|
| C..... | BW..... | BA..... | FC..... | J..... |
| D..... | G..... | H..... | L..... | X..... |
| E..... | N..... | | ML..... | |
| | R..... | | | |
| -Capacitors- | -Resistors- | | | |
| S..... | FF..... | | | |
| | FG..... | | | |
| | FM..... | | | |
| | FN..... | | | |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|-------------|-----|------------|---------------------------------|-------------|-----|------------|---------------------------------|
| | | | P100 VHF TX/IF P.C.BOARD | | | | P100 VHF TX/IF P.C.BOARD |
| P001 | 1 | W1337B1002 | MAIN P.C.BOARD-KIT | CR11 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| P100 | 1 | W1337B1012 | VHF TX/IF P.C.BOARD | CR12 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CF01 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) | CR13 | 1 | DD95221300 | 220 pF $\pm 5\%$ (CG) |
| CF20 | 1 | DD95180300 | 18 pF $\pm 5\%$ (CG) | CR14 | 1 | DD95221300 | 220 pF $\pm 5\%$ (CG) |
| CF42 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR15 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CF70 | 1 | DD90030300 | 3 pF ± 0.25 pF (CJ) | CR16 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ |
| CF71 | 1 | DD90020300 | 2 pF ± 0.25 pF (CK) | CR17 | 1 | DD95180300 | 18 pF $\pm 5\%$ (CG) |
| CF72 | 1 | DD90040300 | 4 pF ± 0.25 pF (CH) | CR18 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CP01 | 1 | CX11000020 | CTZ10A 10 pF | CR19 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ |
| CP02 | 1 | DD95220300 | 22 pF $\pm 5\%$ (CG) | CR20 | 1 | DK96223200 | 0.022 μ F $\pm 10\%$ |
| CP03 | 1 | DD95330300 | 33 pF $\pm 5\%$ (CG) | CR21 | 1 | DK96472300 | 4700 pF $\pm 10\%$ |
| CP04 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) | CR22 | 1 | EY10800450 | 10 μ F / 4 V |
| CP05 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CR23 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CP06 | 1 | DD95430300 | 43 pF $\pm 5\%$ (CG) | CR24 | 1 | DK96223200 | 0.022 μ F $\pm 10\%$ |
| CP07 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) | CR25 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ |
| CP08 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CR26 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ |
| CP09 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ | CR27 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ |
| CP10 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ | CR28 | 1 | DK96223200 | 0.022 μ F $\pm 10\%$ |
| CP11 | 1 | EY10800450 | 10 μ F / 4 V | CR29 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CP12 | 1 | DK96224200 | 0.22 μ F $\pm 10\%$ 16 V | CR30 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CP13 | 1 | DD90030300 | 3 pF ± 0.25 pF (CJ) | CR40 | 1 | DK96223200 | 0.022 μ F $\pm 10\%$ |
| CP14 | 1 | DD90050300 | 5 pF ± 0.25 pF (CH) | CR41 | 1 | EY10501610 | 1 μ F / 16 V |
| CP15 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) | CR42 | 1 | EY15700470 | 150 μ F / 4 V |
| CP16 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ | CR43 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ |
| CP17 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR44 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP30 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CR45 | 1 | EY08601070 | 68 μ F / 10 V |
| CP31 | 1 | EY47500430 | 4.7 μ F / 4 V | CR46 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ |
| CP32 | 1 | EY47600470 | 47 μ F / 4 V | CR47 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP33 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR48 | 1 | EY10700670 | 100 μ F / 6.3 V |
| CP40 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR49 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP41 | 1 | DD90020300 | 2 pF ± 0.25 pF (CK) | CR50 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP42 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR51 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP43 | 1 | DK96102200 | 1000 pF $\pm 10\%$ | CR52 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP44 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR60 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP45 | 1 | DD90040300 | 4 pF ± 0.25 pF (CH) | CR61 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP50 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR62 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP51 | 1 | DD90020300 | 2 pF ± 0.25 pF (CK) | CR63 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP52 | 1 | DK96102200 | 1000 pF $\pm 10\%$ | CR70 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP53 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | CR71 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CP54 | 1 | DD91100300 | 10 pF ± 0.5 pF (CH) | CT01 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CR02 | 1 | DD95330300 | 33 pF $\pm 5\%$ (CG) | CT02 | 1 | DD91100300 | 10 pF ± 0.5 pF (CH) |
| CR03 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT03 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CR04 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT04 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CR05 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT05 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CR06 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT06 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ |
| CR07 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT08 | 1 | DD95220300 | 22 pF $\pm 5\%$ (CG) |
| CR09 | 1 | EY22600470 | 22 μ F / 4 V | CT21 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| CR10 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | CT22 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| | | | | CT23 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) |
| | | | | CT24 | 1 | DD91060300 | 6 pF ± 0.5 pF (CH) [C510A] |
| | | | | CT24 | 1 | DD91080300 | 8 pF ± 0.5 pF (CH) [C510E] |
| | | | | CT25 | 1 | DD95101300 | 100 pF $\pm 5\%$ (CG) |
| | | | | CT26 | 1 | EY22601070 | 22 μ F / 10 V |
| | | | | CT27 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |
| | | | | CT30 | 1 | DK96102300 | 1000 pF $\pm 10\%$ |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|----------------------------------|-----|------------|-------------------------------|----------------------------------|-----|------------|------------------------------|
| P100 VHF TX/IF P.C. BOARD | | | | P100 VHF TX/IF P.C. BOARD | | | |
| CT31 | 1 | DD95470300 | 47 pF ± 5 % (CG) | LT01 | 1 | LU04180040 | ELJRE 18 nH ± 5 % |
| CT34 | 1 | DK96102300 | 1000 pF ± 10 % | LT02 | 1 | LU04220040 | ELJRE 22 nH ± 5 % |
| CT35 | 1 | DK96102300 | 1000 pF ± 10 % | LT08 | 1 | ML010028M0 | 1.0-5T (AIR COIL) |
| CT36 | 1 | DD95150300 | 15 pF ± 5 % (CG) | LT30 | 1 | LU04820040 | ELJRE 82 nH ± 5 % |
| CT37 | 1 | DD95101300 | 100 pF ± 5 % (CG) | LT31 | 1 | LU04680040 | ELJRE 68 nH ± 5 % |
| CT38 | 1 | DK96102300 | 1000 pF ± 10 % | LT32 | 1 | LU18220010 | ELJND 22 nH ± 10 % |
| CT39 | 1 | EY10501610 | 1 µF / 16 V | LT33 | 1 | LU28680010 | LQN21A 68 nH ± 5 % |
| CT40 | 1 | DK96102300 | 1000 pF ± 10 % | LT34 | 1 | LU28580010 | LQN21A 56 nH ± 5 % |
| CT41 | 1 | DK96102300 | 1000 pF ± 10 % | LT35 | 1 | ML010028Q0 | 1.0-9T (AIR COIL) |
| CT42 | 1 | DD95150300 | 15 pF ± 5 % (CG) | LT36 | 1 | ML010028P0 | 1.0-7T (AIR COIL) |
| CT43 | 1 | DD95180300 | 18 pF ± 5 % (CG) | LT38 | 1 | ML019025C0 | 1.9-6T (AIR COIL) |
| CT44 | 1 | DK96102300 | 1000 pF ± 10 % | LT39 | 1 | ML019025C0 | 1.9-6T (AIR COIL) |
| CT45 | 1 | DD95180300 | 18 pF ± 5 % (CG) | LT40 | 1 | LU18102010 | ELJND 1 µH ± 5 % |
| CT46 | 1 | DD95330300 | 33 pF ± 5 % (CG) | LT60 | 1 | ML010028M0 | 1.0-5T (AIR COIL) |
| CT47 | 1 | DD95220300 | 22 pF ± 5 % (CG) | QP01 | 1 | HZ20012050 | 1SS272 |
| CT48 | 1 | DK96102300 | 1000 pF ± 10 % | QP02 | 1 | HC10082180 | MB1511PFV (PLL IC) |
| CT49 | 1 | DK96102300 | 1000 pF ± 10 % | QP03 | 1 | HX346492B0 | 2SC4649 (N,P) |
| CT50 | 1 | DD95470300 | 47 pF ± 5 % (CG) | QP04 | 1 | HZ20054050 | 1SS389 |
| CT51 | 1 | DD95220300 | 22 pF ± 5 % (CG) | QP30 | 1 | HZ20052050 | 1SS381 |
| CT52 | 1 | DK96102300 | 1000 pF ± 10 % | QP31 | 1 | BA12105000 | DTA123JE or RN2105 |
| CT53 | 1 | DK96102300 | 1000 pF ± 10 % | QP32 | 1 | BA21001000 | UMW1N |
| CT60 | 1 | DD90030300 | 3 pF ± 0.25 pF (CJ) | QP33 | 1 | BA12711000 | UMA4N or RN2711 |
| CT70 | 1 | DD90010300 | 1 pF ± 0.25 pF (CK) | QP40 | 1 | HX350061A0 | 2SC5006 (FB) |
| CT71 | 1 | DD90010300 | 1 pF ± 0.25 pF (CK) | QP50 | 1 | HX347261P0 | 2SC4726 (P) |
| CT72 | 1 | DD91080300 | 8 pF ± 0.5 pF (CH) | QR01 | 1 | HX346492B0 | 2SC4649 (N,P) |
| CT73 | 1 | DK96102300 | 1000 pF ± 10 % | QR02 | 1 | HZ21105000 | DAN222 or 1SS361 |
| CT74 | 1 | DK96103200 | 0.01 µF ± 10 % | QR03 | 1 | HC10352050 | TA31136FN (SECOND IF IC) |
| CT75 | 1 | DK96103200 | 0.01 µF ± 10 % | QR04 | 1 | HZ21105000 | DAN222 or 1SS361 |
| CT76 | 1 | DK96103200 | 0.01 µF ± 10 % | QR05 | 1 | HX346172A0 | 2SC4617 (Q,R) |
| CT77 | 1 | DK96102300 | 1000 pF ± 10 % | QR07 | 1 | HY21830000 | 2SK1830 |
| CT78 | 1 | DK96102300 | 1000 pF ± 10 % | QR08 | 1 | HX346172A0 | 2SC4617 (Q,R) |
| CT79 | 1 | DK96102300 | 1000 pF ± 10 % | QR09 | 1 | BA20061210 | UMX1N |
| CT80 | 1 | DK96102300 | 1000 pF ± 10 % | QR40 | 1 | HC10098090 | NJM2070M (AUDIO IC) |
| CT81 | 1 | DK96102300 | 1000 pF ± 10 % | QR41 | 1 | HX11766000 | 2SA1766 |
| CT82 | 1 | EY10501610 | 1 µF / 16 V | QR42 | 1 | BA21001000 | UMW1N |
| FR01 | 1 | JX23003270 | D235015AD1 (23.05MHz FILTER) | QR43 | 1 | HZ31306050 | 015Z56-X |
| FR70 | 1 | FU12205010 | PROTECT UNIT ICP-S1.2 | QR44 | 1 | BA31001000 | UMZ1N or HN1B01FU |
| FT60 | 1 | FF80440010 | DUPLEXER GDPX150/350A301 | QR60 | 1 | HY10347000 | 2SJ347 |
| JF01 | 1 | YJ10003120 | ANTENNA SOCKET (SMA) | QR61 | 1 | BA12113000 | DTA144TE or RN2113 or UN9110 |
| JF02 | 1 | YJ90001280 | MM7329-2700 | QR62 | 1 | BA12113000 | DTA144TE or RN2113 or UN9110 |
| JR01 | 1 | YJ01004110 | LGA2519-3601 (MIC/SPK SOCKET) | QR63 | 1 | BA10040210 | UMA6N |
| K001 | 1 | KH054Y6030 | VCO (VHF/UHF) | QR64 | 1 | HZ20053050 | 1SS387 |
| LF70 | 1 | LU04082040 | ELJRE 8.2 nH ± 5 % | QR65 | 1 | HZ20053050 | 1SS387 |
| LF71 | 1 | LU04082040 | ELJRE 8.2 nH ± 5 % | QR66 | 1 | HZ20053050 | 1SS387 |
| LP01 | 1 | LU18102010 | ELJND 1 µH ± 5 % | QR70 | 1 | HX419501A0 | 2SD1950 (VL) |
| LP40 | 1 | LU04270040 | ELJRE 27 nH ± 5 % | QR71 | 1 | HZ20052010 | HRU0302A |
| LP50 | 1 | LU18121010 | ELJND 120 nH ± 5 % | QT01 | 1 | HZ20029210 | DAN235E |
| LR01 | 1 | LU18102010 | ELJND 1 µH ± 5 % | QT02 | 1 | HX350061A0 | 2SC5006 (FB) |
| LR02 | 1 | LA50126010 | 5CD | QT07 | 1 | BA20059210 | DTC123YE |
| | | | | QT08 | 1 | HZ20051010 | HSC277 |
| | | | | QT30 | 1 | HZ20029210 | DAN235E |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|-------------|-----|------------|---------------------------------|-------------|-----|------------|---------------------------------|
| | | | P100 VHF TX/IF P.C.BOARD | | | | P100 VHF TX/IF P.C.BOARD |
| QT31 | 1 | HX350051A0 | 2SC5005 (FB) | RR01 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W |
| QT33 | 1 | HY22595000 | 2SK2595 (RF POWER MOS FET) | RR02 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| QT34 | 1 | HY22595000 | 2SK2595 (RF POWER MOS FET) | RR03 | 1 | NP05152610 | 1.5 k Ω $\pm 5\%$ 1/16 W |
| QT35 | 1 | HZ20051010 | HSC277 | RR04 | 1 | NP05334610 | 330 k Ω $\pm 5\%$ 1/16 W |
| QT36 | 1 | BA20059210 | DTC123YE | RR05 | 1 | NP05220610 | 22 Ω $\pm 5\%$ 1/16 W |
| QT37 | 1 | HZ20051010 | HSC277 | RR06 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W |
| QT70 | 1 | HZ20057020 | MA25728 | RR07 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| QT71 | 1 | HC10336050 | TA75901F | RR08 | 1 | NP05333610 | 33 k Ω $\pm 5\%$ 1/16 W |
| QT72 | 1 | BA21707000 | UMG5N or RN1707 | RR09 | 1 | NP05683610 | 68 k Ω $\pm 5\%$ 1/16 W |
| QT73 | 1 | BA12113000 | DTA144TE or RN2113 or UN9110 | RR10 | 1 | NY01030300 | MVR22 10 k Ω (CHIP VR) |
| QT74 | 1 | HZ20054050 | 1SS389 | RR11 | 1 | NP05154610 | 150 k Ω $\pm 5\%$ 1/16 W |
| QT75 | 1 | BA10056210 | DTA143XE | RR12 | 1 | NP05472610 | 4.7 k Ω $\pm 5\%$ 1/16 W |
| QT76 | 1 | HZ20052050 | 1SS381 | RR13 | 1 | NP05154610 | 150 k Ω $\pm 5\%$ 1/16 W |
| QT77 | 1 | BA10056210 | DTA143XE | RR14 | 1 | NP05332610 | 3.3 k Ω $\pm 5\%$ 1/16 W |
| Q001 | 1 | HD20031010 | DIODE V06C | RR15 | 1 | NP05224610 | 220 k Ω $\pm 5\%$ 1/16 W |
| RF01 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RR16 | 1 | NP05153610 | 15 k Ω $\pm 5\%$ 1/16 W |
| RF70 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RR17 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| RP01 | 1 | NP05472610 | 4.7 k Ω $\pm 5\%$ 1/16 W | RR18 | 1 | NP05224610 | 220 k Ω $\pm 5\%$ 1/16 W |
| RP02 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W | RR19 | 1 | NP05153610 | 15 k Ω $\pm 5\%$ 1/16 W |
| RP03 | 1 | NP05472610 | 4.7 k Ω $\pm 5\%$ 1/16 W | RR20 | 1 | NP05153610 | 15 k Ω $\pm 5\%$ 1/16 W |
| RP04 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W | RR21 | 1 | NP05474610 | 470 k Ω $\pm 5\%$ 1/16 W |
| RP05 | 1 | NP05472610 | 4.7 k Ω $\pm 5\%$ 1/16 W | RR22 | 1 | NP05681610 | 680 Ω $\pm 5\%$ 1/16 W |
| RP06 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W | RR23 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| RP07 | 1 | NP05473610 | 47 k Ω $\pm 5\%$ 1/16 W | RR24 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| RP08 | 1 | NP05684610 | 680 k Ω $\pm 5\%$ 1/16 W | RR25 | 1 | NP05474610 | 470 k Ω $\pm 5\%$ 1/16 W |
| RP09 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W | RR26 | 1 | NY02040300 | MVR22 200 k Ω (CHIP VR) |
| RP11 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W | RR27 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W |
| RP12 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W | RR28 | 1 | NP05684610 | 680 k Ω $\pm 5\%$ 1/16 W |
| RP13 | 1 | NP05681610 | 680 Ω $\pm 5\%$ 1/16 W | RR29 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| RP14 | 1 | NP05222610 | 2.2 k Ω $\pm 5\%$ 1/16 W | RR30 | 1 | NP05105610 | 1 M Ω $\pm 5\%$ 1/16 W |
| RP15 | 1 | NP05470610 | 47 Ω $\pm 5\%$ 1/16 W | RR31 | 1 | NP05474610 | 470 k Ω $\pm 5\%$ 1/16 W |
| RP16 | 1 | NP05470610 | 47 Ω $\pm 5\%$ 1/16 W | RR40 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| RP17 | 1 | NP05474610 | 470 k Ω $\pm 5\%$ 1/16 W | RR41 | 1 | NP05334610 | 330 k Ω $\pm 5\%$ 1/16 W |
| RP18 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RR42 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| RP19 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W | RR43 | 1 | NP05100610 | 10 Ω $\pm 5\%$ 1/16 W |
| RP30 | 1 | NP05333610 | 33 k Ω $\pm 5\%$ 1/16 W | RR44 | 1 | NP05022610 | 2.2 Ω $\pm 5\%$ 1/16 W |
| RP31 | 1 | NP05154610 | 150 k Ω $\pm 5\%$ 1/16 W | RR45 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| RP32 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RR46 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| RP33 | 1 | NP05100610 | 10 Ω $\pm 5\%$ 1/16 W | RR47 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W |
| RP40 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W | RR48 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| RP41 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W | RR49 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| RP42 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W | RR50 | 1 | NP05105610 | 1 M Ω $\pm 5\%$ 1/16 W |
| RP43 | 1 | NP05470610 | 47 Ω $\pm 5\%$ 1/16 W | RR51 | 1 | NP05155610 | 1.5 M Ω $\pm 5\%$ 1/16 W |
| RP44 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RR52 | 1 | NP05153610 | 15 k Ω $\pm 5\%$ 1/16 W |
| RP50 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W | RR53 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| RP51 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W | RR50 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| RP52 | 1 | NP05221610 | 220 Ω $\pm 5\%$ 1/16 W | RT01 | 1 | NP05222610 | 2.2 k Ω $\pm 5\%$ 1/16 W |
| RP53 | 1 | NP05470610 | 47 Ω $\pm 5\%$ 1/16 W | RT02 | 1 | NP05152610 | 1.5 k Ω $\pm 5\%$ 1/16 W |
| RP54 | 1 | NP05223610 | 22 k Ω $\pm 5\%$ 1/16 W | RT03 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| | | | | RT04 | 1 | NP05220610 | 22 Ω $\pm 5\%$ 1/16 W |
| | | | | RT05 | 1 | NP05100610 | 10 Ω $\pm 5\%$ 1/16 W |
| | | | | RT06 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| | | | | RT07 | 1 | NP05471610 | 470 Ω $\pm 5\%$ 1/16 W |
| | | | | RT13 | 1 | NP05151610 | 150 Ω $\pm 5\%$ 1/16 W |
| | | | | RT14 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| | | | | RT30 | 1 | NP05222610 | 2.2 k Ω $\pm 5\%$ 1/16 W |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | | | REF. DESIG. | QTY | PART NO. | DESCRIPTION | | |
|------------------------------|-----|------------|------------------------------|----------|--------------|------------------------------|-----|------------|-----------------------------|-----------|--------|
| P100 VHF TX/IF P.C.BOARD | | | | | | P200 UHF TX/SWITCH P.C.BOARD | | | | | |
| RT31 | 1 | NP05152610 | 1.5 kΩ | ± 5 % | 1/16 W | QT04 | 1 | HY22596000 | 2SK2595 (RF POWER MOS FET) | | |
| RT32 | 1 | NP05102610 | 1 kΩ | ± 5 % | 1/16 W | QT05 | 1 | HY22595000 | 2SK2595 (RF POWER MOS FET) | | |
| RT33 | 1 | NP05330610 | 33 Ω | ± 5 % | 1/16 W | QT06 | 1 | HZ20051010 | HSC277 | | |
| RT34 | 1 | NP05100610 | 10 Ω | ± 5 % | 1/16 W | RT08 | 1 | NP05472610 | 4.7 kΩ | ± 5 % | 1/16 W |
| RT35 | 1 | NP05102610 | 1 kΩ | ± 5 % | 1/16 W | RT09 | 1 | NP05102610 | 1 kΩ | ± 5 % | 1/16 W |
| RT36 | 1 | NP05330610 | 33 Ω | ± 5 % | 1/16 W | RT10 | 1 | NP05103610 | 10 kΩ | ± 5 % | 1/16 W |
| RT37 | 1 | NP05223610 | 22 kΩ | ± 5 % | 1/16 W | RT11 | 1 | NP05102610 | 1 kΩ | ± 5 % | 1/16 W |
| RT39 | 1 | NP05472610 | 4.7 kΩ | ± 5 % | 1/16 W | RT60 | 1 | NP05334610 | 330 kΩ | ± 5 % | 1/16 W |
| RT40 | 1 | NP05103610 | 10 kΩ | ± 5 % | 1/16 W | RT61 | 1 | NP05473610 | 47 kΩ | ± 5 % | 1/16 W |
| RT41 | 1 | NP05103610 | 10 kΩ | ± 5 % | 1/16 W | RT62 | 1 | NP05224610 | 220 kΩ | ± 5 % | 1/16 W |
| RT42 | 1 | NP05102610 | 1 kΩ | ± 5 % | 1/16 W | ST60 | 1 | SP01011820 | SKQDAA TACT SWITCH FOR PTT | | |
| RT43 | 1 | NP05151610 | 150 Ω | ± 5 % | 1/16 W | ST61 | 1 | SP01011820 | SKQDAA TACT SWITCH FOR FUNK | | |
| RT44 | 1 | NP05470610 | 47 Ω | ± 5 % | 1/16 W | ST62 | 1 | SP01011820 | SKQDAA TACT SWITCH FOR LAMP | | |
| RT45 | 1 | NP05104610 | 100 kΩ | ± 5 % | 1/16 W | | | | | | |
| RT72 | 1 | NP05222610 | 2.2 kΩ | ± 5 % | 1/16 W | | | | | | |
| RT73 | 1 | NP05103610 | 10 kΩ | ± 5 % | 1/16 W | | | | | | |
| RT74 | 1 | NP05104610 | 100 kΩ | ± 5 % | 1/16 W | | | | | | |
| W100 | 1 | WE243B1000 | FLEXIBLE P.C.BOARD | | | | | | | | |
| XP01 | 1 | JX11001270 | UM-5 11.75MHz | | | | | | | | |
| YA01 | 1 | YB00190500 | MXFG76XX1900A1(COXIAL CORD) | | | | | | | | |
| YA02 | 1 | YB00190500 | MXFG76XX1900A1(COXIAL CORD) | | | | | | | | |
| YF01 | 1 | YP06902160 | IMSA-9230B-1-05Z001-T (5PIN) | | | | | | | | |
| YF02 | 1 | YP06902160 | IMSA-9230B-1-05Z001-T (5PIN) | | | | | | | | |
| YF03 | 1 | YP06902160 | IMSA-9230B-1-05Z001-T (5PIN) | | | | | | | | |
| YR01 | 1 | YJ07009550 | IL-FPR-33S-VF (33PIN) | | | | | | | | |
| YR02 | 1 | YJ07010070 | IL-WX-06S-VF-B (6PIN) | | | | | | | | |
| | | | | | | | | | | | |
| P200 UHF TX/SWITCH P.C.BOARD | | | | | | | | | | | |
| P200 | 1 | W1337B1022 | UHF TX/SWITCH P.C.BOARD | | | P300 | 1 | W1337B1032 | VHF/UHF RX P.C.BOARD | | |
| CT09 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF02 | 1 | DD90050300 | 5 pF | ± 0.25 pF | (CH) |
| CT10 | 1 | DD95180300 | 18 pF | ± 5 % | (CG) | CF03 | 1 | DD91080300 | 8 pF | ± 0.5 pF | (CH) |
| CT11 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF04 | 1 | DD91100300 | 10 pF | ± 0.5 pF | (CH) |
| CT13 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF05 | 1 | DD91070300 | 7 pF | ± 0.5 pF | (CH) |
| CT14 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF06 | 1 | DK96102300 | 1000 pF | ± 10 % | |
| CT15 | 1 | DD95470300 | 47 pF | ± 5 % | (CG) [C510A] | CF07 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| CT15 | 1 | DD95580300 | 58 pF | ± 5 % | (CG) [C510E] | CF08 | 1 | DD00050200 | 5 pF | ± 0.25 pF | (CH) |
| CT16 | 1 | DD95101300 | 100 pF | ± 5 % | (CG) | CF09 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| CT17 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF11 | 1 | DK96102300 | 1000 pF | ± 10 % | |
| CT18 | 1 | DD91060300 | 6 pF | ± 0.5 pF | (CH) | CF12 | 1 | DD91080300 | 8 pF | ± 0.5 pF | (CH) |
| CT19 | 1 | DD95200300 | 20 pF | ± 5 % | (CG) | CF14 | 1 | DD09010200 | 1 pF | | (CK) |
| CT20 | 1 | DK96103200 | 0.01 pF | ± 10 % | | CF15 | 1 | DD00040200 | 4 pF | ± 0.25 pF | (CH) |
| CT28 | 1 | EY10600450 | 10 μF / 4 V | | | CF16 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| CT61 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF21 | 1 | DD01100200 | 10 pF | ± 0.5 pF | (CH) |
| CT62 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF22 | 1 | DD05220200 | 22 pF | ± 5 % | (CH) |
| CT63 | 1 | DK96102300 | 1000 pF | ± 10 % | | CF23 | 1 | DD01070200 | 7 pF | ± 0.5 pF | (CH) |
| LT03 | 1 | LU28100010 | LQN21A 10 nH ± 5 % | | | CF24 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| LT04 | 1 | LU18220010 | ELJND 22 nH ± 10 % | | | CF25 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| LT05 | 1 | LU28150010 | LQN21A 15 nH ± 5 % | | | CF26 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| LT06 | 1 | LU28033010 | LQN21A 3.3 nH ± 0.5 nH | | | CF27 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| LT07 | 1 | ML010028P0 | 1.0-7T (AIR COIL) | | | CF28 | 1 | DD01100200 | 10 pF | ± 0.5 pF | (CH) |
| | | | | | | CF29 | 1 | DD00050200 | 5 pF | ± 0.25 pF | (CH) |
| | | | | | | CF30 | 1 | DD09015200 | 1.5 pF | | (CK) |
| | | | | | | CF31 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| | | | | | | CF32 | 1 | DD00050200 | 5 pF | ± 0.25 pF | (CH) |
| | | | | | | CF33 | 1 | DD01090200 | 9 pF | ± 0.5 pF | (CH) |
| | | | | | | CF34 | 1 | DD09015200 | 1.5 pF | | (CK) |
| | | | | | | CF35 | 1 | DD01060200 | 6 pF | ± 0.5 pF | (CH) |
| | | | | | | CF36 | 1 | DD00050200 | 5 pF | ± 0.25 pF | (CH) |
| | | | | | | CF37 | 1 | DD95180300 | 18 pF | ± 5 % | (CG) |
| | | | | | | CF38 | 1 | DD00050200 | 5 pF | ± 0.25 pF | (CH) |
| | | | | | | CF39 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| | | | | | | CF40 | 1 | DD09015200 | 1.5 pF | | (CK) |
| | | | | | | CF41 | 1 | DK06102200 | 1000 pF | ± 10 % | |
| | | | | | | CF43 | 1 | DK96102300 | 1000 pF | ± 10 % | |
| | | | | | | CF50 | 1 | DD90050300 | 5 pF | ± 0.25 pF | (CH) |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | | REF. DESIG. | QTY | PART NO. | DESCRIPTION | |
|----------------------------|-----|------------|-------------------|----------------|----------------------------|-----|------------|--------------|--------------|
| P300 VHF/UHF RX P.C. BOARD | | | | | P300 VHF/UHF RX P.C. BOARD | | | | |
| CF51 | 1 | DK06102200 | 1000 pF | ± 10 % | QF21 | 1 | HX347261P0 | 2SC4726 (P) | |
| CF52 | 1 | DD91100300 | 10 pF | ± 0.5 pF (CH) | QF22 | 1 | HZ20052050 | 1SS381 | |
| CF53 | 1 | DD95120300 | 12 pF | ± 5 % (CG) | QF23 | 1 | HZ20052050 | 1SS381 | |
| CF54 | 1 | DD00050200 | 5 pF | ± 0.25 pF (CH) | QF24 | 1 | HZ20052050 | 1SS381 | |
| CF55 | 1 | DK96102300 | 1000 pF | ± 10 % | QF25 | 1 | HX350051A0 | 2SC5005 (FB) | |
| CF56 | 1 | DD00040200 | 4 pF | ± 0.25 pF (CH) | QF50 | 1 | HX350061A0 | 2SC5006 (FB) | |
| CF57 | 1 | DK96102300 | 1000 pF | ± 10 % | QF51 | 1 | HX347261P0 | 2SC4726 (P) | |
| CF58 | 1 | DK06102200 | 1000 pF | ± 10 % | QF52 | 1 | HZ20052050 | 1SS381 | |
| CF59 | 1 | DD00030200 | 3 pF | ± 0.25 pF (CJ) | QF53 | 1 | HZ20052050 | 1SS381 | |
| CF60 | 1 | DD90010300 | 1 pF | ± 0.25 pF (CK) | QF54 | 1 | HX350051A0 | 2SC5005 (FB) | |
| CF61 | 1 | DD90030300 | 3 pF | ± 0.25 pF (CJ) | QF70 | 1 | HZ50001010 | HVC131 | |
| CF62 | 1 | DD90010300 | 1 pF | ± 0.25 pF (CK) | QF71 | 1 | HX350081A0 | 2SC5008 (FB) | |
| CF63 | 1 | DD91080300 | 8 pF | ± 0.5 pF (CH) | QF72 | 1 | HX350061A0 | 2SC5006 (FB) | |
| CF64 | 1 | DD90020300 | 2 pF | ± 0.25 pF (CK) | QF73 | 1 | HX350061A0 | 2SC5006 (FB) | |
| CF65 | 1 | DD09010200 | 1 pF | (CK) | QF74 | 1 | HZ50001010 | HVC131 | |
| CF73 | 1 | DK06102200 | 1000 pF | ± 10 % | RF02 | 1 | NP05222610 | 2.2 kΩ | ± 5 % 1/16 W |
| CF74 | 1 | DD00040200 | 4 pF | ± 0.25 pF (CH) | RF03 | 1 | NP05221610 | 220 Ω | ± 5 % 1/16 W |
| CF75 | 1 | DD90025300 | 2.5 pF | ± 0.25 pF (CH) | RF04 | 1 | NP05154610 | 150 kΩ | ± 5 % 1/16 W |
| CF76 | 1 | DD01080200 | 8 pF | ± 0.5 pF (CH) | RF05 | 1 | NP05470610 | 47 Ω | ± 5 % 1/16 W |
| CF77 | 1 | DK06102200 | 1000 pF | ± 10 % | RF06 | 1 | NP05221610 | 220 Ω | ± 5 % 1/16 W |
| CF78 | 1 | DD00050200 | 5 pF | ± 0.25 pF (CH) | RF07 | 1 | NP05154610 | 150 kΩ | ± 5 % 1/16 W |
| CF79 | 1 | DD05101200 | 100 pF | ± 5 % (CH) | RF08 | 1 | NP05470610 | 47 Ω | ± 5 % 1/16 W |
| CF80 | 1 | DD01100200 | 10 pF | ± 0.5 pF (CH) | RF10 | 1 | NP05334610 | 330 kΩ | ± 5 % 1/16 W |
| CF81 | 1 | DK06102200 | 1000 pF | ± 10 % | RF11 | 1 | NP05222610 | 2.2 kΩ | ± 5 % 1/16 W |
| CF82 | 1 | DD00020200 | 2 pF | ± 0.25 pF (CK) | RF12 | 1 | NP05101610 | 100 Ω | ± 5 % 1/16 W |
| CF83 | 1 | DD05101200 | 100 pF | ± 5 % (CH) | RF20 | 1 | NP05682610 | 6.8 kΩ | ± 5 % 1/16 W |
| CF84 | 1 | DD09010200 | 1 pF | (CK) | RF21 | 1 | NP05682610 | 6.8 kΩ | ± 5 % 1/16 W |
| CR01 | 1 | DD01070200 | 7 pF | ± 0.5 pF (CH) | RF22 | 1 | NP05101610 | 100 Ω | ± 5 % 1/16 W |
| FF01 | 1 | FF40445010 | SAW FILTER 445MHz | [C510A] | RF23 | 1 | NP05682610 | 6.8 kΩ | ± 5 % 1/16 W |
| FF01 | 1 | FF40435010 | SAW FILTER 435MHz | [C510E] | RF24 | 1 | NP05101610 | 100 Ω | ± 5 % 1/16 W |
| FF02 | 1 | FF40445010 | SAW FILTER 445MHz | [C510A] | RF25 | 1 | NP05682610 | 6.8 kΩ | ± 5 % 1/16 W |
| FF02 | 1 | FF40435010 | SAW FILTER 435MHz | [C510E] | RF26 | 1 | NP05101610 | 100 Ω | ± 5 % 1/16 W |
| LF01 | 1 | LU28082010 | LQW21A 8.2 nH | ± 0.5 nH | RF27 | 1 | NP05472610 | 4.7 kΩ | ± 5 % 1/16 W |
| LF02 | 1 | LU04330040 | ELJRE 33 nH | ± 5 % | RF28 | 1 | NP05472610 | 4.7 kΩ | ± 5 % 1/16 W |
| LF03 | 1 | LU04100040 | ELJRE 10 nH | ± 5 % | RF29 | 1 | NP05472610 | 4.7 kΩ | ± 5 % 1/16 W |
| LF04 | 1 | LU04180040 | ELJRE 18 nH | ± 5 % | RF30 | 1 | NP05474610 | 470 kΩ | ± 5 % 1/16 W |
| LF05 | 1 | LU04330040 | ELJRE 33 nH | ± 5 % | RF31 | 1 | NP05000610 | 0 Ω | ± 5 % 1/16 W |
| LF20 | 1 | LU28680010 | LQW21A 68 nH | ± 5 % | RF32 | 1 | NP05474610 | 470 kΩ | ± 5 % 1/16 W |
| LF21 | 1 | LU18820010 | ELJND 82 nH | ± 5 % | RF33 | 1 | NP05222610 | 2.2 kΩ | ± 5 % 1/16 W |
| LF22 | 1 | LU18820010 | ELJND 82 nH | ± 5 % | RF34 | 1 | NP05100610 | 10 Ω | ± 5 % 1/16 W |
| LF23 | 1 | LU18820010 | ELJND 82 nH | ± 5 % | RF50 | 1 | NP05222610 | 2.2 kΩ | ± 5 % 1/16 W |
| LF50 | 1 | LU04100040 | ELJRE 10 nH | ± 5 % | RF51 | 1 | NP05683610 | 68 kΩ | ± 5 % 1/16 W |
| LF51 | 1 | LU04180040 | ELJRE 18 nH | ± 5 % | RF52 | 1 | NP05223610 | 22 kΩ | ± 5 % 1/16 W |
| LF52 | 1 | LU04180040 | ELJRE 18 nH | ± 5 % | RF53 | 1 | NP05682610 | 6.8 kΩ | ± 5 % 1/16 W |
| LF72 | 1 | LU04033040 | ELJRE 3.3 nH | ± 0.3 nH | RF54 | 1 | NP05101610 | 100 Ω | ± 5 % 1/16 W |
| LF73 | 1 | LU04033040 | ELJRE 3.3 nH | ± 0.3 nH | RF55 | 1 | NP05472610 | 4.7 kΩ | ± 5 % 1/16 W |
| LF74 | 1 | LU04100040 | ELJRE 10 nH | ± 5 % | RF56 | 1 | NP05472610 | 4.7 kΩ | ± 5 % 1/16 W |
| QF01 | 1 | HZ20029210 | DAN235E | | RF68 | 1 | NP05224610 | 220 kΩ | ± 5 % 1/16 W |
| QF02 | 1 | HX350061A0 | 2SC5006 (FB) | | RF59 | 1 | NP05222610 | 2.2 kΩ | ± 5 % 1/16 W |
| QF03 | 1 | HX350061A0 | 2SC5006 (FB) | | | | | | |
| QF04 | 1 | HX350051A0 | 2SC5005 (FB) | | | | | | |
| QF05 | 1 | HZ20029210 | DAN235E | | | | | | |
| QF20 | 1 | HX350061A0 | 2SC5006 (FB) | | | | | | |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | | | REF. DESIG. | QTY | PART NO. | DESCRIPTION | | |
|---------------------------|-----|------------|-----------------------------|------------|--------|------------------------|-----|------------|------------------|------------|------|
| P300 VHF/UHF RX P.C.BOARD | | | | | | P600 CONTROL P.C.BOARD | | | | | |
| RF71 | 1 | NP05222610 | 2.2 k Ω | $\pm 5\%$ | 1/16 W | CD21 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| RF72 | 1 | NP05101610 | 100 Ω | $\pm 5\%$ | 1/16 W | CD22 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| RF73 | 1 | NP05104610 | 100 k Ω | $\pm 5\%$ | 1/16 W | CD23 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| RF74 | 1 | NP05220610 | 22 Ω | $\pm 5\%$ | 1/16 W | CD24 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| RF75 | 1 | NP05331610 | 330 Ω | $\pm 5\%$ | 1/16 W | CD25 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| RF76 | 1 | NP05103610 | 10 k Ω | $\pm 5\%$ | 1/16 W | CD26 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| RF77 | 1 | NP05222610 | 2.2 k Ω | $\pm 5\%$ | 1/16 W | CD27 | 1 | EY10600450 | 10 μ F / 4 V | | |
| RF78 | 1 | NP05154610 | 150 k Ω | $\pm 5\%$ | 1/16 W | CD28 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| RF79 | 1 | NP05331610 | 330 Ω | $\pm 5\%$ | 1/16 W | CD30 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| RF80 | 1 | NP05333610 | 33 k Ω | $\pm 5\%$ | 1/16 W | | | | | | |
| P400 FILTER P.C.BOARD | | | | | | CD31 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| P400 | 1 | WI337B1042 | FILTER P.C.BOARD | | | CD32 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| FR02 | 1 | FG450302E0 | CFWM450E or ALFYM450E | | | CD33 | 1 | DK06102200 | 1000 pF | $\pm 10\%$ | |
| P500 AF VOLUME P.C.BOARD | | | | | | CD34 | 1 | DK06102200 | 1000 pF | $\pm 10\%$ | |
| P500 | 1 | WI337B1052 | AF VOLUME P.C.BOARD | | | CD35 | 1 | DK96473200 | 0.047 μ F | $\pm 10\%$ | |
| RR80 | 1 | RB01030470 | RK08H1110 10 k Ω (B) | | | CD36 | 1 | DK96473200 | 0.047 μ F | $\pm 10\%$ | |
| YR03 | 1 | YP07005040 | IL-WX-06P-HF-B (6PIN) | | | CD37 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| P600 CONTROL P.C.BOARD | | | | | | CD38 | 1 | DD05101200 | 100 pF | $\pm 5\%$ | (CH) |
| P002 | 1 | WI337B2002 | CONTROL P.C.BOARD-KIT | | | CD39 | 1 | DD05101200 | 100 pF | $\pm 5\%$ | (CH) |
| P600 | 1 | WI337B2012 | CONTROL P.C.BOARD | | | CD40 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| CC01 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | | CD41 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| CC02 | 1 | DK96223200 | 0.022 μ F | $\pm 10\%$ | | CD42 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| CC03 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | | CD43 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | |
| CC04 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | | CD44 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | |
| CC05 | 1 | EY10501070 | 1 μ F / 10 V | | | CD45 | 1 | DK06102200 | 1000 pF | $\pm 10\%$ | |
| CC06 | 1 | DK96333200 | 0.033 μ F | $\pm 10\%$ | | CD46 | 1 | DD95430300 | 43 pF | $\pm 5\%$ | (CG) |
| CC07 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | | CD47 | 1 | DD05390200 | 39 pF | $\pm 5\%$ | (CH) |
| CC08 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | | CD48 | 1 | EY22600470 | 22 μ F / 4 V | | |
| CC09 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | | CD49 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| CC10 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | | CD50 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| CC11 | 1 | EY10501070 | 1 μ F / 10 V | | | CD51 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| CC12 | 1 | EY22600470 | 22 μ F / 4 V | | | CD52 | 1 | DK96473200 | 0.047 μ F | $\pm 10\%$ | |
| CD10 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | | CD53 | 1 | DD95300300 | 30 pF | $\pm 5\%$ | (CG) |
| CD11 | 1 | EY68601070 | 68 μ F / 10 V | | | CD54 | 1 | DD95330300 | 33 pF | $\pm 5\%$ | (CG) |
| CD12 | 1 | EY68601070 | 68 μ F / 10 V | | | CD55 | 1 | EY22600470 | 22 μ F / 4 V | | |
| CD13 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | | CD56 | 1 | DK06103200 | 0.01 μ F | $\pm 10\%$ | |
| CD14 | 1 | EY68601070 | 68 μ F / 10 V | | | CD57 | 1 | DK06103200 | 0.01 μ F | $\pm 10\%$ | |
| CD15 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | | CD58 | 1 | DK06103200 | 0.01 μ F | $\pm 10\%$ | |
| CD16 | 1 | EY10700470 | 100 μ F / 4 V | | | CD59 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| CD17 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | | CD60 | 1 | DK96223200 | 0.022 μ F | $\pm 10\%$ | |
| CD18 | 1 | EY10600450 | 10 μ F / 4 V | | | CD61 | 1 | DK06103200 | 0.01 μ F | $\pm 10\%$ | |
| CD19 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | | CL01 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| CD20 | 1 | EY47600470 | 47 μ F / 4 V | | | CL10 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| | | | | | | CM01 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| | | | | | | CM02 | 1 | DK96102300 | 1000 pF | $\pm 10\%$ | |
| | | | | | | CM03 | 1 | DK96473200 | 0.047 μ F | $\pm 10\%$ | |
| | | | | | | CM10 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| | | | | | | CM11 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| | | | | | | CM12 | 1 | DD95101300 | 100 pF | $\pm 5\%$ | (CG) |
| | | | | | | CM13 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| | | | | | | CM14 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |
| | | | | | | CM15 | 1 | DK96472300 | 4700 pF | $\pm 10\%$ | |
| | | | | | | CM16 | 1 | DD95331300 | 330 pF | $\pm 5\%$ | (CG) |
| | | | | | | CM17 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| | | | | | | CM18 | 1 | DK96103200 | 0.01 μ F | $\pm 10\%$ | |
| | | | | | | CM19 | 1 | EY10501070 | 1 μ F / 10 V | | |
| | | | | | | CM20 | 1 | DK96104200 | 0.1 μ F | $\pm 10\%$ | |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|-------------|-----|------------|--------------------------------------|-------------|-----|------------|---------------------------------|
| | | | P600 CONTROL P.C. BOARD | | | | P600 CONTROL P.C. BOARD |
| CM21 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | QL01 | 1 | HI10094300 | BRFG1204W (TX/BUSY LAMP) |
| CM22 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ | QL02 | 1 | BA21001000 | UMW1N |
| CM23 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QL10 | 1 | HI10011690 | L1650YG (LED FOR LCD) |
| CM24 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ | | | | |
| CM25 | 1 | DK96104200 | 0.1 μ F $\pm 10\%$ | QL11 | 1 | HI10011690 | L1650YG (LED FOR LCD) |
| CM26 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QL20 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| CM27 | 1 | DK96103200 | 0.01 μ F $\pm 10\%$ | | | | |
| CM28 | 1 | EY22600470 | 22 μ F / 4 V | QL21 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| CM29 | 1 | DK06102200 | 1000 pF $\pm 10\%$ | QL22 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| | | | | QL23 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| CM40 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QL24 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| CM41 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QL25 | 1 | HI10151320 | LT1E67A (LED FOR 10KEY) |
| CM42 | 1 | EY10600450 | 10 μ F / 4 V | QL26 | 1 | HX421531A0 | 2SD2153 (W) |
| CM43 | 1 | DK96473200 | 0.047 μ F $\pm 10\%$ | | | | |
| CS01 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QM01 | 1 | HZ31306050 | 015Z5.6-X |
| CS10 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QM02 | 1 | HZ31306050 | 015Z5.6-X |
| | | | | QM03 | 1 | HY21830000 | 2SK1830 |
| CS11 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QM04 | 1 | HC10178090 | NUM2100V |
| CS12 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | QM05 | 1 | BA21707000 | UMG5N or RN1707 |
| CS13 | 1 | DK96102300 | 1000 pF $\pm 10\%$ | | | | |
| ED01 | 1 | QK00322020 | SPEAKER T032S23T0711 8 Ω 0.5W | QM40 | 1 | BA12105000 | DTA123JE or RN2105 |
| JD01 | 1 | YU01006700 | ZEBRA CONNECTOR | | | | |
| JD02 | 1 | YJ90001280 | MM7329-2700 | QS01 | 1 | HZ20042050 | 1SS371 |
| | | | | QS02 | 1 | HZ20042050 | 1SS371 |
| LD10 | 1 | LUB1104010 | CM-5 100 μ H | | | | |
| NM01 | 1 | MS50000470 | E.C.M. EM-125TH | RC01 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QC01 | 1 | HC10145090 | NJM064V | RC02 | 1 | NP05154610 | 150 k Ω $\pm 5\%$ 1/16 W |
| QC02 | 1 | BA20060210 | UMG2N | RC03 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QC03 | 1 | HZ20043050 | 1SS372 | RC04 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| | | | | RC05 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| QD01 | 1 | HS337BM10F | M38267E8L-GP [U11 ONLY] | RC06 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD01 | 1 | HU337BM10F | M38267M8L-GP [U12-E13-] | RC07 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD02 | 1 | HQ20601980 | MJ16192-34N (LCD) | RC08 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD10 | 1 | HC10019770 | RH5RH381A (DC/DC CONVERTER) | RC09 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| | | | | RC10 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD11 | 1 | HZ20054020 | MA729 | | | | |
| QD12 | 1 | HC98A35530 | S-81335HG-KI | RC11 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD13 | 1 | HX115881A0 | 2SA1588 (Y) | RC12 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD14 | 1 | HZ20001080 | SFPM-62V | RC13 | 1 | NP05473610 | 47 k Ω $\pm 5\%$ 1/16 W |
| QD15 | 1 | HZ20054050 | 1SS389 | RC14 | 1 | NP05473610 | 47 k Ω $\pm 5\%$ 1/16 W |
| QD16 | 1 | HY10347000 | 2SJ347 | RC15 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W |
| QD17 | 1 | HC10059550 | PST9123N (RESET IC) | RC16 | 1 | NP05332610 | 3.3 k Ω $\pm 5\%$ 1/16 W |
| QD18 | 1 | HC10075550 | PST9146N (RESET IC) | RC17 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD19 | 1 | BA12711000 | UMA4N or RN2711 | RC18 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W |
| QD20 | 1 | HX117742A0 | 2SA1774 (Q,R) | RC19 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| | | | | | | | |
| QD21 | 1 | BA21001000 | UMW1N | RD10 | 1 | NN05047610 | 4.7 Ω $\pm 5\%$ 1/16 W |
| QD22 | 1 | BA20060210 | UMG2N | | | | |
| QD23 | 1 | HC10059550 | PST9123N (RESET IC) | RD11 | 1 | NN05010610 | 1 Ω $\pm 5\%$ 1/16 W |
| QD24 | 1 | HZ20052010 | HRUC0302A | RD12 | 1 | NP05470610 | 47 Ω $\pm 5\%$ 1/16 W |
| QD30 | 1 | HY21588100 | 2SK1588 | RD13 | 1 | NP05472610 | 4.7 k Ω $\pm 5\%$ 1/16 W |
| | | | | RD14 | 1 | NP05183610 | 18 k Ω $\pm 5\%$ 1/16 W |
| QD31 | 1 | BA12113000 | DTA144TE or RN2113 or UN9110 | RD15 | 1 | NP05103610 | 10 k Ω $\pm 5\%$ 1/16 W |
| QD32 | 1 | BA12711000 | UMA4N or RN2711 | RD16 | 1 | NP05102610 | 1 k Ω $\pm 5\%$ 1/16 W |
| QD33 | 1 | BA10065210 | UMA3N | RD17 | 1 | NP05473610 | 47 k Ω $\pm 5\%$ 1/16 W |
| QD34 | 1 | HC10007990 | 24LC16BT-VSN (EEPROM) | RD18 | 1 | NP05104610 | 100 k Ω $\pm 5\%$ 1/16 W |
| QD35 | 1 | BA12113000 | DTA144TE or RN2113 or UN9110 | RD19 | 1 | NP05474610 | 470 k Ω $\pm 5\%$ 1/16 W |
| QD36 | 1 | HC10356030 | LC73881M (DTMF IC) | RD20 | 1 | NP05101610 | 100 Ω $\pm 5\%$ 1/16 W |
| QD37 | 1 | HZ20054050 | 1SS389 | | | | |
| QD38 | 1 | BA31001000 | UMZ1N or HN1B01FU | | | | |

10. BLOCK DIAGRAM

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|-------------------------|-----|------------|---------------------|-------------------------|-----|------------|-----------------------|
| P600 CONTROL P.C. BOARD | | | | P600 CONTROL P.C. BOARD | | | |
| RD21 | 1 | NP05152610 | 1.5 kΩ ± 5 % 1/16 W | RD81 | 1 | NP05153610 | 15 kΩ ± 5 % 1/16 W |
| RD22 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | RD82 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W |
| RD23 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | RD84 | 1 | NN05000610 | 0 Ω ± 5 % 1/16 W |
| RD24 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | RD90 | 1 | NP05000610 | 0 Ω ± 5 % 1/16 W |
| RD25 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W | | | | [C510E] |
| RD26 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RD92 | 1 | NN05000610 | 0 Ω ± 5 % 1/16 W |
| RD27 | 1 | NP05223610 | 2.2 kΩ ± 5 % 1/16 W | | | | [C510A] |
| RD28 | 1 | RI05470120 | 47 OHM ± 5 % 1/2 W | RD93 | 1 | NP05000610 | 0 Ω ± 5 % 1/16 W |
| RD29 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | | | | [C510E] |
| RD30 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | | | | |
| RD31 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL01 | 1 | NP05022610 | 2.2 Ω ± 5 % 1/16 W |
| RD32 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | RL02 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD33 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL03 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W |
| RD34 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL04 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD35 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL05 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W |
| RD36 | 1 | NP05223610 | 22 kΩ ± 5 % 1/16 W | RL06 | 1 | NP05330610 | 33 Ω ± 5 % 1/16 W |
| RD37 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RL10 | 1 | NP05022610 | 2.2 Ω ± 5 % 1/16 W |
| RD38 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | RL20 | 1 | NP05022610 | 2.2 Ω ± 5 % 1/16 W |
| RD39 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | RL21 | 1 | NP05100610 | 10 Ω ± 5 % 1/16 W |
| RD40 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL22 | 1 | NP05332610 | 3.3 kΩ ± 5 % 1/16 W |
| RD41 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RL23 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W |
| RD42 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM01 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W |
| RD44 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | RM02 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W |
| RD45 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM10 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W |
| RD46 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM11 | 1 | NP05222610 | 2.2 kΩ ± 5 % 1/16 W |
| RD47 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM12 | 1 | NP05684610 | 680 kΩ ± 5 % 1/16 W |
| RD48 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM13 | 1 | NP05471610 | 470 Ω ± 5 % 1/16 W |
| RD49 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM14 | 1 | NP05154610 | 150 kΩ ± 5 % 1/16 W |
| RD50 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM15 | 1 | NP05223610 | 22 kΩ ± 5 % 1/16 W |
| RD51 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM16 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W |
| RD52 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM17 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W |
| RD53 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM18 | 1 | NP05682610 | 6.8 kΩ ± 5 % 1/16 W |
| RD54 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM19 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W |
| RD55 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM20 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W |
| RD56 | 1 | NP05473610 | 47 kΩ ± 5 % 1/16 W | RM21 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD57 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM22 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD58 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM23 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD59 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | RM24 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W |
| RD60 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM25 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W |
| RD61 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM26 | 1 | NP05823610 | 82 kΩ ± 5 % 1/16 W |
| RD62 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM27 | 1 | NP05334610 | 330 kΩ ± 5 % 1/16 W |
| RD63 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM28 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W |
| RD64 | 1 | NP05470610 | 47 Ω ± 5 % 1/16 W | RM29 | 1 | NY01030300 | MVR22 10 kΩ (CHIP VR) |
| RD65 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM30 | 1 | NY01030300 | MVR22 10 kΩ (CHIP VR) |
| RD66 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM31 | 1 | NP05101610 | 100 Ω ± 5 % 1/16 W |
| RD67 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | RM32 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W |
| RD68 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | RM33 | 1 | NP05472610 | 4.7 kΩ ± 5 % 1/16 W |
| RD69 | 1 | NP05105610 | 1 MΩ ± 5 % 1/16 W | RM40 | 1 | NP05471610 | 470 Ω ± 5 % 1/16 W |
| RD70 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RM41 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W |
| RD71 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | RS01 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W |
| RD72 | 1 | NP05220610 | 22 Ω ± 5 % 1/16 W | RS02 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W |
| RD73 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | RS10 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W |
| RD74 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | | | | |
| RD75 | 1 | NP05103610 | 10 kΩ ± 5 % 1/16 W | | | | |
| RD76 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | | | | |
| RD77 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | | | | |
| RD78 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | | | | |
| RD79 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W | | | | |
| RD80 | 1 | NP05105610 | 1 MΩ ± 5 % 1/16 W | | | | |

| REF. DESIG. | QTY | PART NO. | DESCRIPTION | REF. DESIG. | QTY | PART NO. | DESCRIPTION |
|--------------------------------|-----|------------|--|------------------|-----|------------|------------------------------------|
| P600 CONTROL P.C. BOARD | | | | MECHANISM | | | |
| RS11 | 1 | NP05154610 | 150 kΩ ± 5 % 1/16 W | 001B | 1 | 337B064030 | FRONT CASE [C510A] |
| RS12 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 001B | 1 | 337B064010 | FRONT CASE [C510E] |
| RS13 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | 002B | 1 | 337B122010 | WINDOW FOR ADHESIVE |
| RS14 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | 003B | 1 | 337B158010 | WINDOW |
| RS15 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | 004B | 1 | 337B202010 | SPEAKER NET |
| RS16 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W | 005B | 1 | 337B270030 | BUTTON FOR POWER SWITCH |
| RS17 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 006B | 1 | 337B270010 | KEY PAD |
| RS18 | 1 | NP05154610 | 150 kΩ ± 5 % 1/16 W | 007B | 1 | 337B151010 | INTRODUCER |
| RS19 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 008B | 1 | 337B274010 | REFLECTOR |
| RS20 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | | | | |
| RS21 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | 011B | 1 | 337B118010 | SPACER FOR ROTARY SWITCH(SD30) |
| RS22 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | 012B | 1 | 337B067020 | CAP FOR INTERFACE CABLE SOCKET |
| RS23 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W | | | | |
| RS24 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 021B | 1 | 337B353010 | RING FOR CHANNEL KNOB |
| RS25 | 1 | NP05154610 | 150 kΩ ± 5 % 1/16 W | 022B | 1 | 302C011010 | NUT FOR ROTARY SWITCH(SD30) |
| RS26 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 023B | 1 | 337B154020 | CHANNEL KNOB |
| RS27 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | 024B | 2 | 51970204U0 | P TITE SCREW M2X4 |
| RS28 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | | | | |
| RS29 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | 031B | 1 | 337B064020 | REAR CASE |
| RS30 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W | 032B | 1 | 337B107010 | SHEET FOR REAR CASE(M2.6 HOLE) |
| | | | | 033B | 1 | 337B107020 | SHEET FOR VOLUME KNOB |
| RS31 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 034B | 1 | 337B102010 | LOCK FOR BATTERY LID |
| RS32 | 1 | NP05154610 | 150 kΩ ± 5 % 1/16 W | 035B | 1 | 337B112010 | SHAFT FOR LOCK(034B) |
| RS33 | 1 | NP05102610 | 1 kΩ ± 5 % 1/16 W | 036B | 1 | 337B067010 | CAP FOR EXT.SPK/MIC SOCKET |
| RS34 | 1 | NP05474610 | 470 kΩ ± 5 % 1/16 W | 040B | 3 | 337B056020 | BUFFER FOR CONTACTOR |
| RS35 | 1 | NP05224610 | 220 kΩ ± 5 % 1/16 W | | | | |
| RS36 | 1 | NP05104610 | 100 kΩ ± 5 % 1/16 W | 041B | 1 | 337B163010 | BATTERY TRAY |
| RS37 | 1 | NP05333610 | 33 kΩ ± 5 % 1/16 W | 042B | 1 | 337B123010 | BATTERY CONTACTOR(+) |
| | | | | 043B | 1 | 337B123020 | BATTERY CONTACTOR(-) |
| SD30 | 1 | SR01200110 | EC09P20 ROTARY SWITCH | 044B | 1 | 337B123030 | BATTERY CONTACTOR(+,-) |
| SS01 | 1 | SP01012340 | SKOLLA TACT SWITCH FOR POWER | 045B | 1 | 337B123040 | BATTERY CONTACTOR(-,+) |
| XD30 | 1 | FQ04004060 | CERAMIC VIB. CSAC4.00MGC200 | 046B | 1 | 337B123050 | BATTERY CONTACTOR(CHRG -) |
| XD31 | 1 | FQ04194040 | CERAMIC VIB. CSAC4.19MGC | 047B | 1 | 337B123060 | BATTERY CONTACTOR(CHRG +) |
| YD01 | 1 | YJ07009650 | IL-FPR-33S-VF (33PIN) | 048B | 1 | 337B120020 | INSULATOR FOR BATTERY TRAY |
| YD02 | 1 | YJ90001270 | 16P-1C(16PIN INTERFACE CABLE SOCKET)JACK W/RF JACK | 049B | 1 | 337B120030 | INSULATOR FOR BATTERY TRAY |
| | | | | | | | |
| | | | | 051B | 1 | 337B123070 | CONTACTOR FOR ANTENNA SOCKET(JF01) |
| | | | | 052B | 1 | 484C011010 | NUT FOR ANTENNA SOCKET(JF01) |
| | | | | 054B | 1 | 337B056030 | BUFFER FOR VCO |
| | | | | 055B | 1 | 337B160010 | BRACKET FOR VOLUME KNOB |
| | | | | 056B | 1 | 337B154010 | VOLUME KNOB |
| | | | | 057B | 1 | 337B259010 | BUSHING FOR VOLUME KNOB |
| | | | | 058B | 1 | 51901603A0 | P.H. B TITE (1) M1.6X3 |
| | | | | 059B | 3 | 51901603A0 | P.H. B TITE (1) M1.6X3 |
| | | | | | | | |
| | | | | 061B | 1 | 337B116010 | LEAF SPRING |
| | | | | 062B | 1 | 337B270020 | PTT BUTTON |
| | | | | 063B | 1 | 337B104010 | PTT RETAINER |
| | | | | 064B | 1 | 337B123100 | CONTACTOR FOR UHF TX / SWITCH PCB |
| | | | | 065B | 2 | 51230212U0 | T.H. HEAD SCREW M2X12 |
| | | | | 066B | 2 | 337B010010 | SCREW FOR FRONT CASE BATTERY TRAY |
| | | | | | | | |
| | | | | 067B | 2 | 51230212U0 | T.H. HEAD SCREW M2X12 |
| | | | | 068B | 1 | 337B257010 | BATTERY LID |
| | | | | 069B | 1 | 337B861020 | MODEL NAME LABEL [C510A] |
| | | | | 069B | 1 | 337B861030 | MODEL NAME LABEL [C510E] |
| | | | | | | | |
| | | | | 091B | 1 | 156B056020 | BUFFER FOR CHARGE CONTACTOR(-) |
| | | | | 092B | 2 | 337B118020 | SPACER FOR BATTERY TRAY |
| | | | | 093B | 4 | 337B056040 | BUFFER FOR 10KEY |
| | | | | 094B | 1 | 003B115130 | GND CONTACTOR FOR VOLUME BRACKET |
| | | | | | | | |
| | | | | 001K | 1 | 337B123090 | CONTACTOR FOR VHF TX/IF P.C. BOARD |

C510A 11 < 0132 >
C510E 13 < 0132 >

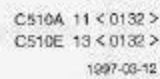
This exploded view diagram illustrates the assembly of a mobile phone, showing the main body (001B) and its various components. The diagram is organized into four vertical sections, numbered 1 through 4 at the top and bottom. Key components and their part numbers include:

- Top Section (1):** QD02, 007B, 008B, JD01, 002B, 003B.
- Top Section (2):** 023B, 022B, 021B, 005B, 093B, 006B.
- Top Section (3):** P600, 011B, SD30, 024B, YD01, W001, YA02, YA01, JD02, YD02, NM01, 012B, ED01, 004B.
- Top Section (4):** 092B, 069B, 041B, 066B, 067B.
- Middle Section:** 062B, 063B, 036B, 052B, 031B, 065B, 043B, 040B, 044B, 048B, 046B, 040B, 045B, 091B, 042B, 049B, QD01, 092B, 068B.
- Bottom Section (1):** 001K, P100, P300, JF02, JR01, 051B, JF01, 064B, 059B, FR02, 061B, P200, P400, 059B, 054B, YR03, RR80, 094B, 058B.
- Bottom Section (2):** 032B, 055B, 057B.
- Bottom Section (3):** 033B, 056B, 034B, 035B.
- Bottom Section (4):** 047B.

The diagram shows the spatial relationship between these components, indicating how they fit together to form the complete mobile phone assembly.

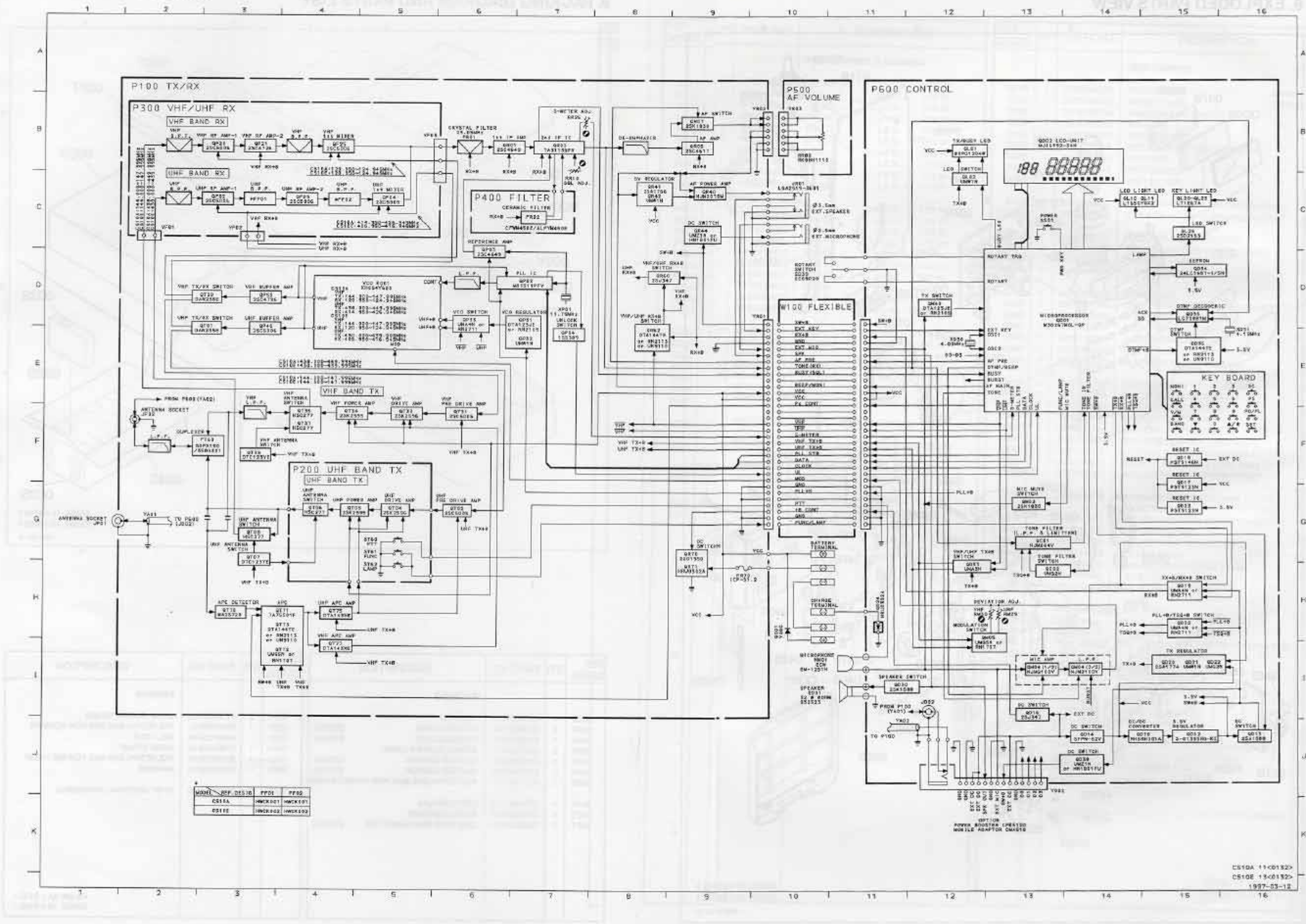
C510A 11 < 0132 >
C510E 13 < 0132 >
1997-03-12

1997-03-12

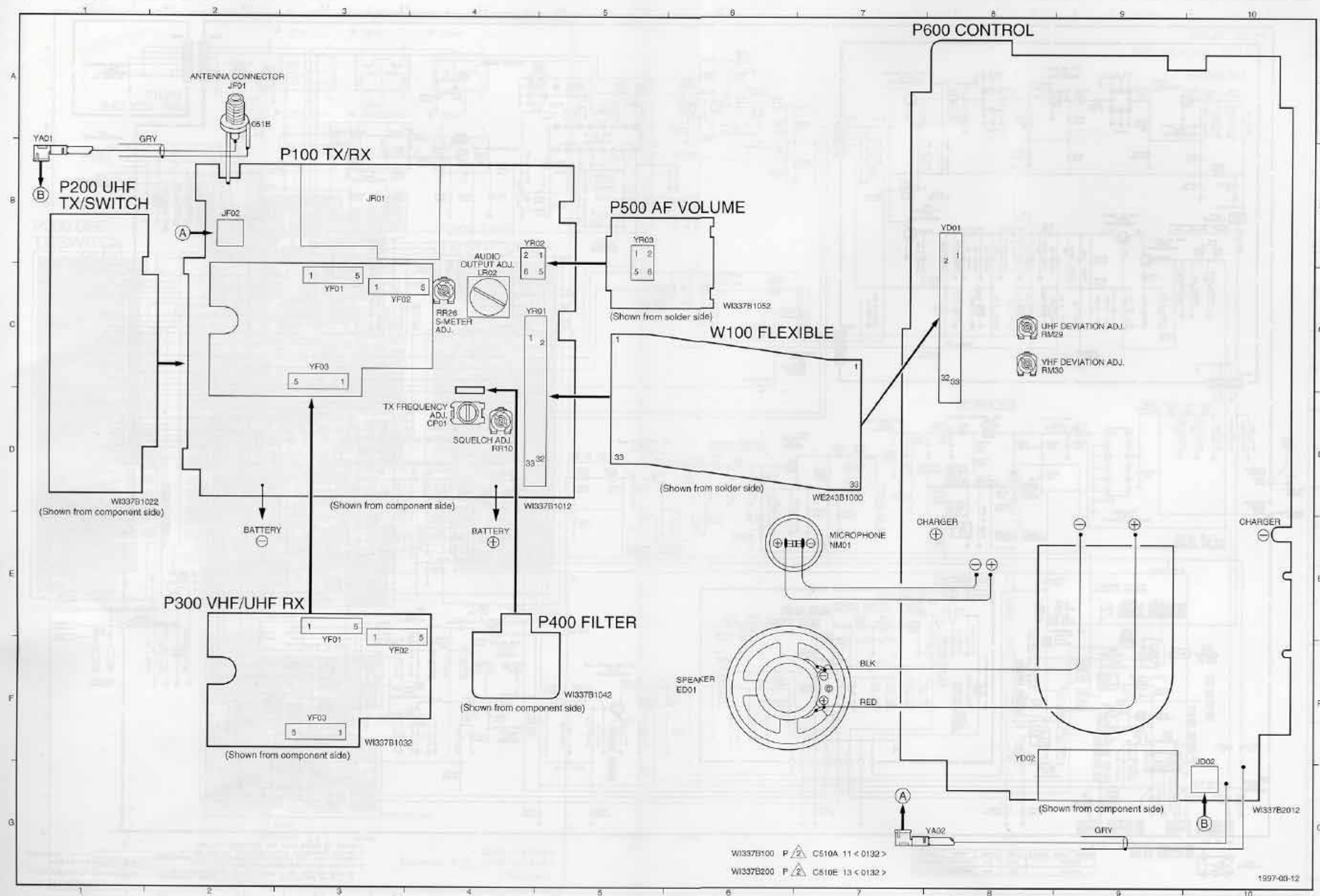


C510A 11 < 0132 >
C510E 13 < 0132 >

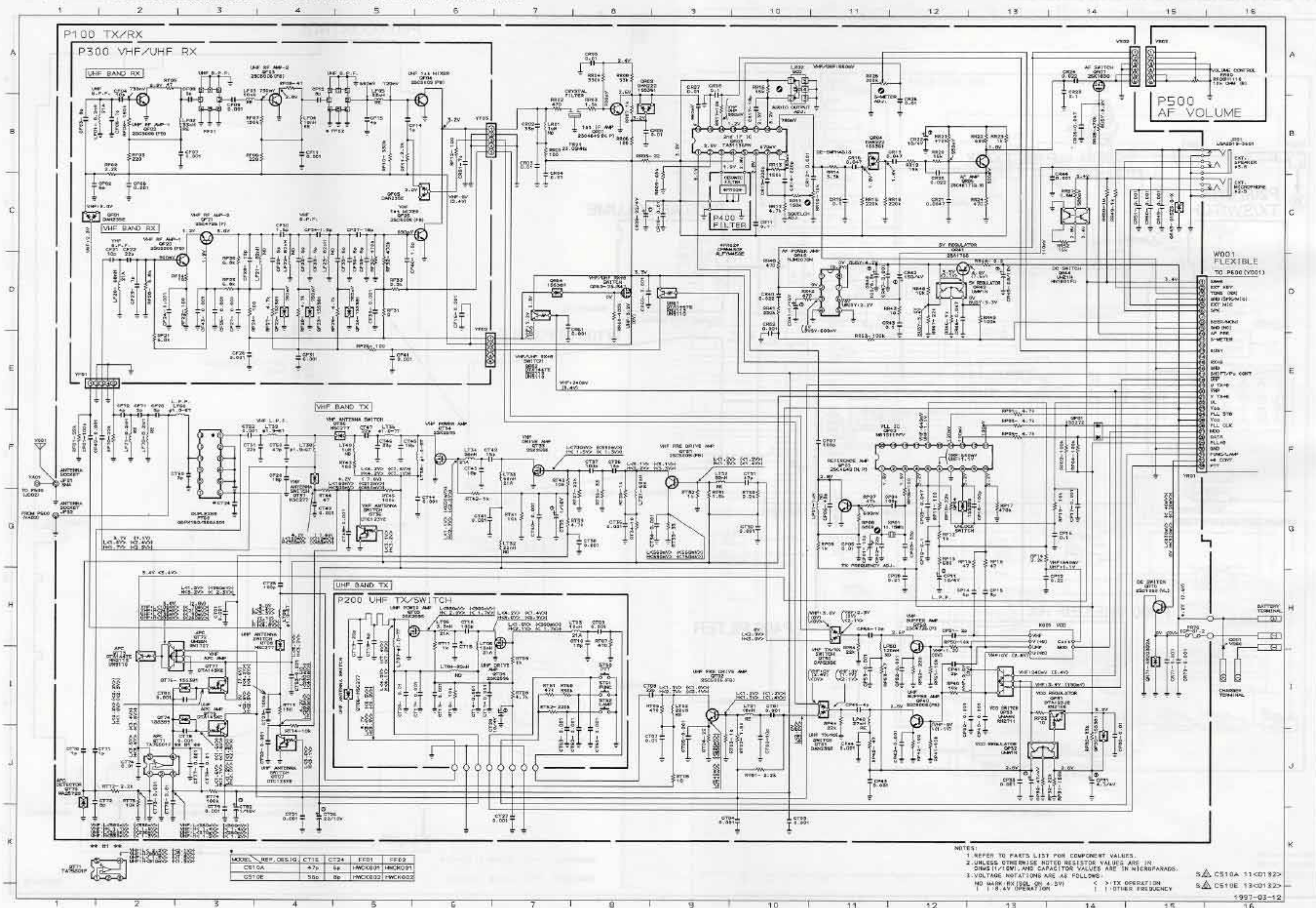
A horizontal scale bar with markings from 4 to 16. The markings are evenly spaced and labeled with numbers.

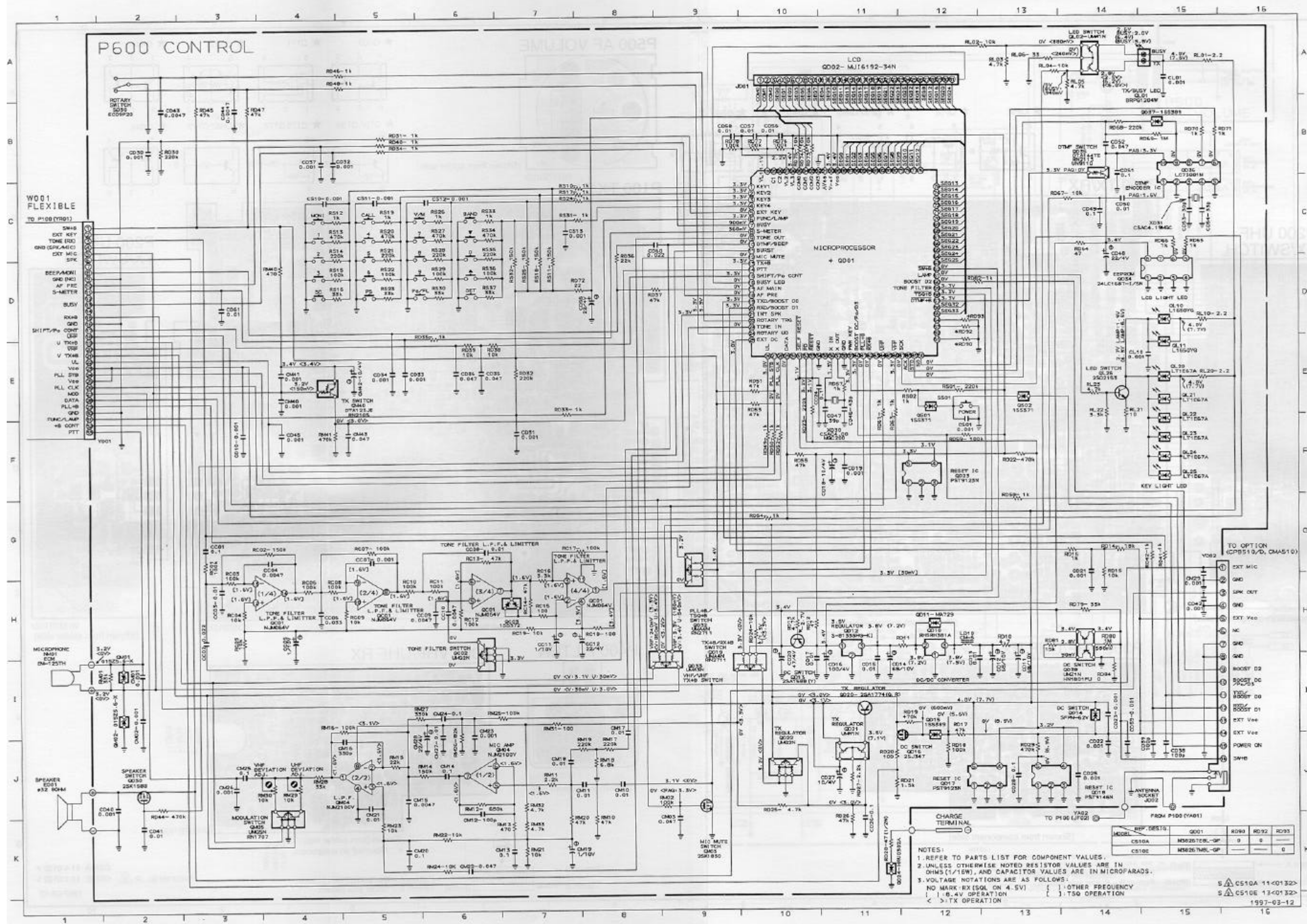


11. COMPREHENSIVE WIRING DIAGRAM



12. SCHEMATIC DIAGRAM AND COMPONENT OVERLAY DIAGRAM





NOTES:
1. REFER TO PARTS LIST FOR COMPONENT VALUES.
2. UNLESS OTHERWISE NOTED RESISTOR VALUES ARE IN OHMS (1/16W), AND CAPACITOR VALUES ARE IN MICROFARADS.
3. VOLTAGE NOTATIONS ARE AS FOLLOWS:
NO MARK: RX (50L ON 4.5V) { 1: OTHER FREQUENCY
1: 1.6-4V OPERATION { 2: T50 OPERATION
< 3: TX OPERATION

| MODEL | REV. DESIG. | Q001 | R001 | R002 | R003 |
|-------|-------------|------|------|------|------|
| CS10A | M5620TBL-GP | 0 | 0 | 0 | 0 |
| CS10E | M5620TBL-GP | 0 | 0 | 0 | 0 |

S Δ CS10A 11-0132
S Δ CS10E 13-0132
1997-03-12

