

DJ-593MkII / DJ-596MkII

Service Manual

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ALINCO, INC.

SPECIFICATIONS

| General | | | |
|---------------------|--------------|--|--------------------|
| Type | | DJ-593/596T MkII | DJ-593/596E MkII |
| Receiving Range | VHF | 136.000-173.995MHz | 144.000-145.995MHz |
| | UHF | 400.000-511.995MHz | 430.000-439.995MHz |
| Transmitter Range | VHF | 144.000-147.995MHz | 144.000-145.995MHz |
| | UHF | 420.000-449.995MHz | 430.000-439.995MHz |
| Modulation | | F2, F3 | |
| Frequency Stability | | $\pm 2.5\text{ppm}$ ($-10^{\circ}\text{C}\sim+60^{\circ}\text{C}$) ($+14^{\circ}\text{F}\sim+140^{\circ}\text{F}$) | |
| Ant.Impedance | | 50 Ω | |
| Supply Voltage | | 6.0~16.0VDC | |
| Current | Transmit | DC13.8V : VHF Approx.1.2A, UHF : Approx.1.4A 9.6V (EBP-50N) : VHF Approx.1.2A, UHF : Approx.1.5A | |
| | Receive | Approx.75mA | |
| | Battery Save | Approx.25mA | |

| Transmitter | | | |
|-------------------|------------------|----------------------|------------------|
| Type | | DJ-593/596T MkII | DJ-593/596E MkII |
| Power Output | External 13.8V | Approx.5W | |
| | EBP-50N equipped | VHF : 4.5W, UHF : 4W | |
| Modulation | | Variable Reactance | |
| Max.Deviation | | $\pm 5\text{kHz}$ | |
| Spurious Emission | | -60dB or less | |
| Mic.Impedance | | Approx.2k Ω | |

| Receiver | | | |
|--------------------------|--------------------|--|---------------------------|
| Type | | DJ-593/596T MkII | DJ-593/596E MkII |
| System | | Double-conversion super heterodyne | |
| Intermediate Frequencies | | 1 st : 39.15MHz, 2 nd : 450kHz | |
| Sensitivity (12dB SINAD) | 144.000-147.995MHz | 144.000-145.995MHz | 144.000-145.995MHz |
| | 420.000-449.995MHz | 430.000-439.995MHz | 430.000-439.995MHz |
| | | 0.2 μV or less | 0.2 μV or less |
| AF Output | | 300mW or over (MAX) 200mW or over (10% Distortion factor 8 Ω) | |
| Spurious response | | 60dB or over | |
| Squelch sensitivity | | Approx.-10dB μ or less | |

CIRCUIT DESCRIPTION

1) [RX]

1. RX Method: Double Super Heterodyne Method

1st IF : FM 39.15 MHz

2nd IF : 450 kHz

2. Front End

VHF

The signal input from antenna passes through the duplexer FL1 and low pass filter, then it is amplified at RF amplifier Q17. The amplified signal is led to band pass filter and band switch D19, then input to the mixer Q16.

UHF

The signal input from antenna passes through the duplexer FL1 and low pass filter, then it is amplified at RF amplifier Q20. The amplified signal is led to band pass filter and band switch D23, then input to the mixer Q16.

3. Mixer

The input signal to the mixer Q16 and the 1st local signal are added or subtracted at mixer Q16, and the crystal filter XF1 selects the signal of 39.15 MHz, then it is amplified at the 1st IF amplifier Q18 after the adjacent signal is eliminated.

The 1st local signal from VCO output is supplied to the base of mixer Q16 passing through the buffer amplifier Q15. The upper side band of the local signal is used in VHF band and the lower side band of the local signal is used in UHF band.

4. IF

The signal amplified at the 1st IF amplifier Q18 is supplied to pin 16 of IC5 for demodulation. Also the signal of 19.8 MHz from the reference buffer output of IC 2 is multiplied by 2 at Q19, then it is led to pin 1 of IC5. 2 input signals are mixed in the mixer circuit inside IC5 and converted into the 2nd IF signal of 450 kHz.

The 2nd IF signal output from pin 3 of IC5 is supplied to pin 5 of IC5 after the adjacent signal is eliminated at the ceramic filter FL2 in WFM mode, or at the ceramic filter FL3 in NFM mode. The input 2nd IF signal is demodulated at the limiter amplifier and quadrature detection circuit inside IC, then output from pin 9 of IC5 as an AF signal.

5. Squelch

The AF signal output from pin 9 of IC5 is input to pin 8 of IC5. The input signal passes through the noise filter amplifier and rectifier circuit, then output from pin 14 of IC5. The output signal is supplied to A/D port of microprocessor IC6, then the microprocessor IC6 judges it to control ON/OFF of the audio output.

6. Audio

Q24 determines the gain of AF signal output from pin 9 of IC5 according to the WFM/NFM of IC8. Thereby amplified signal passes through AF switch IC15 and band pass active filter IC8, then controls AF signal level at the microprocessor IC6 with the electronic volume IC10. The controlled AF signal is supplied to the audio power amplifier IC9 pin 2. The input AF signal is amplified at IC9 and output from pin 6 to drive the speaker, etc.

7. VCO

VHF

VCO in VHF band consists of the Colpitts oscillator. D6, D9, L16 and L20 determine the oscillating frequency, and the signal is oscillated at the transistor Q4. L20 is passed at shift transistor Q8 when receiving. The oscillated signal is supplied to pin 2 of PLL-IC2 passing through the buffer amplifier Q7 and Q1.

UHF

VCO in UHF band consists of the Colpitts oscillator. D16, D18 and L22 determine the oscillating frequency, and the signal is oscillated at the transistor Q12. The oscillated signal is supplied to pin 19 of PLL-IC2 passing through the buffer amplifier Q7 and Q1.

8. PLL

PLL-IC2 is used to control the oscillating frequency of VCO. IC2 is controlled by the serial control signal sent from the microprocessor IC6. The reference frequency 19.8 MHz of IC2 is oscillated by a TCXO.

VHF

IC2 compares the frequency gained by dividing the signal added to pin 2 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 19.8 MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 8 of IC2, then the signal is converted into the DC voltage at the passive filter and added to the cathode side of VCO vari-cap D6 and D9 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

UHF

IC2 compares the frequency gained by dividing the signal added to pin 19 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 19.8 MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 13 of IC2, then the signal is converted into the DC voltage at the inside circuit for passive filter and added to the cathode side of VCO vari-cap D16 and D18 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

2) [TX]

1. Microphone Amplifier

The microphone amplifier IC14 has 2 operational amplifiers. The voice is converted into the electric signal through the microphone, then supplied to IC14. The input signal is amplified and pre-emphasized to be output.

VHF

The signal output from microphone amplifier is adjusted the maximum frequency deviation in WFM mode at VR1, then adjusted the maximum frequency deviation in NFM mode at VR2. The adjusted signal is added to the cathode of VCO vari-cap D11 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

UHF

The signal output from microphone amplifier is adjusted the maximum frequency deviation in WFM mode at VR3, then adjusted the maximum frequency deviation in NFM mode at VR4. Then the adjusted signal is added to the cathode of VCO vari-cap D17 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

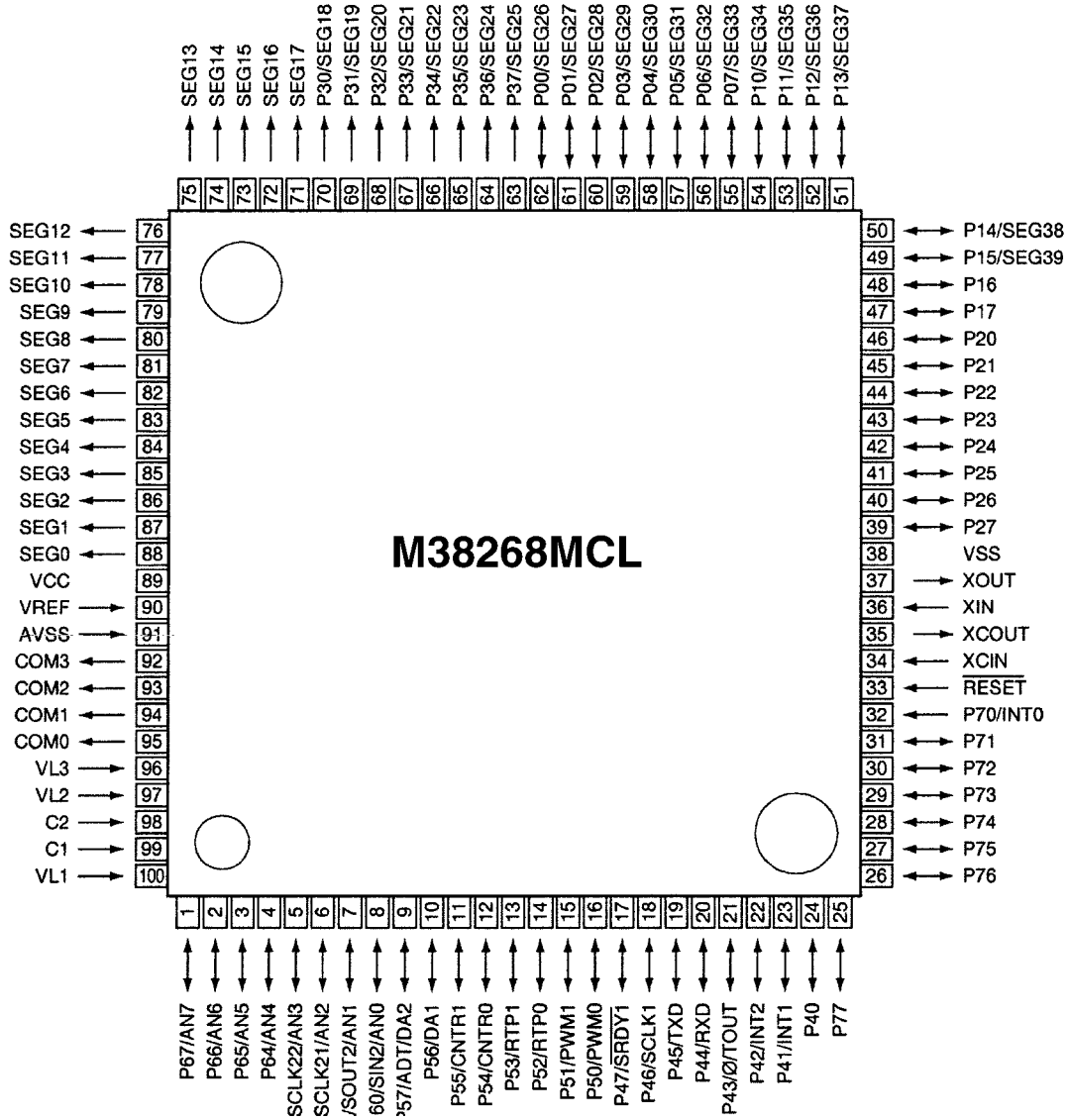
2. Power Amplifier

The oscillated signal at VCO is supplied to the power amplifier Q5, passing through buffer amplifier Q7, driver amplifier IC1 and Q6. The power-amplified signal is supplied to the antenna through the duplexer after the harmonics are attenuated enough.

3) M38268MCL (XA0942)

CPU

Terminal Connection
(TOP VIEW)



| No. | Terminal | Signal | I/O | Description |
|-----|----------------|-----------|-----|--|
| 1 | P67/AN7 | SMT | I | S-meter input |
| 2 | P66/AN6 | SQL | I | Noise level input for squelch |
| 3 | P65/AN5 | BAT | I | Low battery detection input |
| 4 | P64/AN4 | TIN | I | CTCSS/DCS tone input |
| 5 | P63/SCLK22/AN3 | BP1 | I | Band plan 1 |
| 6 | P62/SCLK21/AN2 | BP3 | I | Band plan 3 |
| 7 | P61/SOUT2/AN1 | DCSW | O | DCS signal mute |
| 8 | P60/SIN2/AN0 | FKEY | I | Function key input |
| 9 | P57/ADT/DA2 | DCS | O | CTCSS/DCS tone output, Tuning voltage output |
| 10 | P56/DA1 | DTOUT | O | DTMF output/EVR control output |
| 11 | P55/CNTR1 | C5C | O | C5V power ON/OFF output |
| 12 | P54/CNTR0 | TBST | O | Tone burst output |
| 13 | P53/RTP1 | STB2 | O | Strobe for DAC |
| 14 | P52/RTP0 | RVC | O | VHF-RX power ON/OFF output |
| 15 | P51/PWM3 | CLK | O | Serial clock output |
| 16 | P50/PWM0 | DATA/UL | I/O | Serial data output/Unlock input |
| 17 | P47/SROY1 | RUC | O | UHF-RX power ON/OFF output |
| 18 | P46/SCLK1 | STB1 | O | Strobe for PLL |
| 19 | P45/TXD | CTX | O | UART data transmission output |
| 20 | P44/RXD | CRX | I | UART data reception input |
| 21 | P43/∅/TOUT | BEEP/ BP2 | I/O | Beep tone output/Band plan 2 |
| 22 | P42/INT2 | RE2 | I | Rotary encoder input |
| 23 | P41/INT1 | STL | I | Steal input |
| 24 | P40 | SD | O | Signal detection output |
| 25 | P77 | PT5 | I | PTT input |
| 26 | P76 | DSQ | I | Digital squelch input |
| 27 | P75 | SSTB | O | Strobe signal to scramble IC |
| 28 | P74 | AFS | O | AF switch output |
| 29 | P73 | C/S | O | Digital scramble ON/OFF |
| 30 | P72 | DUD | I | Digital unit detect |
| 31 | P71 | SCR | I | Scramble IC ready signal |
| 32 | P70/INTO | BU | I | Back up signal detection input |
| 33 | RESET | RESET | I | Reset input |
| 34 | XCIN | NC | — | — |
| 35 | XCOU | NC | — | — |
| 36 | XIN | XIN | I | Clock input |
| 37 | XOUT | XOUT | O | Clock output |
| 38 | VSS | VSS | — | CPU GND |
| 39 | P27 | PSW | I | Power switch input |
| 40 | P26 | SDA | O | Serial data output for EEPROM |
| 41 | P25 | SCL | O | Serial clock output for EEPROM |
| 42 | P24 | RE1 | I | Rotary encoder input |
| 43 | P23 | KI0 | I | Key matrix input |
| 44 | P22 | KI1 | I | Key matrix input |
| 45 | P21 | KI2 | I | Key matrix input |
| 46 | P20 | KI3 | I | Key matrix input |
| 47 | P17 | KO3 | O | Key matrix output |
| 48 | P16 | KO2 | O | Key matrix output |

| No. | Terminal | Signal | I/O | Description |
|-----|------------|--------|-----|------------------------------|
| 49 | P15/SEG39 | KO1 | O | Key matrix output |
| 50 | P14/ SEG38 | KO0 | O | Key matrix output |
| 51 | P13/ SEG37 | PUC | O | UHF-PLL power ON/OFF output |
| 52 | P12/ SEG36 | PVC | O | VHF-PLL power ON/OFF output |
| 53 | P11/ SEG35 | TUC | O | UHF-TX power ON/OFF output |
| 54 | P10/ SEG34 | AFP | O | AF AMP power ON/OFF output |
| 55 | P07/SEG33 | TVC | O | VHF-TX power ON/OFF output |
| 56 | P06/SEG32 | UND | O | DCS UHF NARROW ON/OFF output |
| 57 | P05/SEG31 | SEG31 | O | LCD segment signal |
| 58 | P04/SEG30 | SEG30 | O | |
| 59 | P03/SEG29 | SEG29 | O | |
| 60 | P02/SEG28 | SEG28 | O | |
| 61 | P01/SEG27 | SEG27 | O | |
| 62 | P00/SEG26 | SEG26 | O | |
| 63 | P37/SEG25 | SEG25 | O | |
| 64 | P36/SEG24 | SEG24 | O | |
| 65 | P35/SEG23 | SEG23 | O | |
| 66 | P34/SEG22 | SEG22 | O | |
| 67 | P33/SEG21 | SEG21 | O | |
| 68 | P32/SEG20 | SEG20 | O | |
| 69 | P31/SEG19 | SEG19 | O | |
| 70 | P30/SEG18 | SEG18 | O | |
| 71 | SEG17 | SEG17 | O | |
| 72 | SEG16 | SEG16 | O | |
| 73 | SEG15 | SEG15 | O | |
| 74 | SEG14 | SEG14 | O | |
| 75 | SEG13 | SEG13 | O | |
| 76 | SEG12 | SEG12 | O | |
| 77 | SEG11 | SEG11 | O | |
| 78 | SEG10 | SEG10 | O | |
| 79 | SEG9 | SEG9 | O | |
| 80 | SEG8 | SEG8 | O | |
| 81 | SEG7 | SEG7 | O | |
| 82 | SEG6 | SEG6 | O | |
| 83 | SEG5 | SEG5 | O | |
| 84 | SEG4 | SEG4 | O | |
| 85 | SEG3 | SEG3 | O | |
| 86 | SEG2 | SEG2 | O | |
| 87 | SEG1 | SEG1 | O | |
| 88 | SEG0 | SEG0 | O | |
| 89 | VCC | VDD | — | CPU power terminal |
| 90 | VREF | VREF | — | AD converter power supply |
| 91 | AVSS | AVSS | — | AD converter GND |
| 92 | COM3 | COM3 | O | LCD COM3 output |
| 93 | COM2 | COM2 | O | LCD COM2 output |
| 94 | COM1 | COM1 | O | LCD COM1 output |
| 95 | COM0 | COM0 | O | LCD COM0 output |
| 96 | VL3 | VL3 | I | LCD power supply |
| 97 | VL2 | VL2 | I | LCD power supply |
| 98 | C2 | NC | — | — |
| 99 | C1 | NC | — | — |
| 100 | VL1 | VL1 | I | LCD power supply |

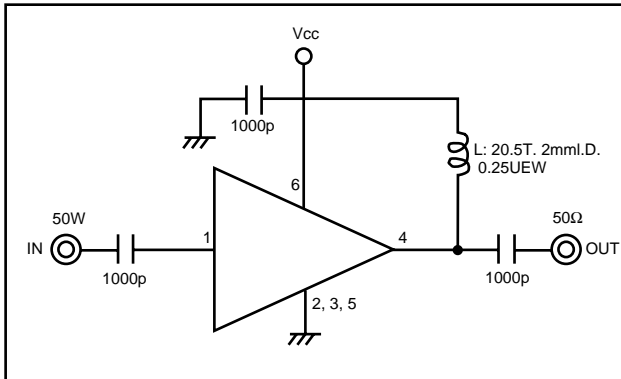
SEMICONDUCTOR DATA

1) μ PC2710T (XA0449)

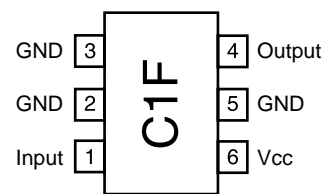
RF Amplifier

| Parameter | Symbol | Condition | Ratings | Unit |
|-------------------------|---------|---------------------------------|---------|------|
| Supply voltage | Vcc | | 5.0 | V |
| Circuit current | Icc | Vcc=5V, no signa | 22 | mA |
| Power gain | GP | Vcc=5V, f=500MHz | 33 | dB |
| Staturated output power | Po(sat) | Vcc=5V, f=500MHz, Pin=-8dBm | +13.5 | dBm |
| Noise figure | NF | Vcc=5V, f=500MHz | 3.5 | dB |
| Upper frequency (-3dB) | fu | Vcc=5V, Reference freq. =100MHz | 1000 | MHz |
| Isolation | ISL | Vcc=5V, f=500MHz | 39 | dB |
| Input return loss | RL in | Vcc=5V, f=500MHz | 6 | dB |
| Output return loss | RL out | Vcc=5V, f=500MHz | 12 | dB |
| Gain flatness | Gp | Vcc=5V, f=0.1~0.6GHz | 0.8 | dB |

Test Circuit

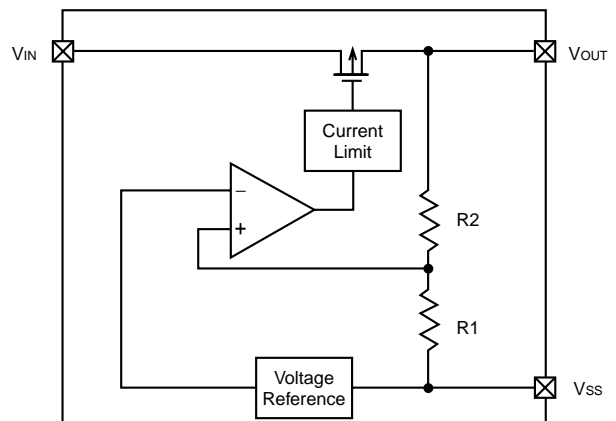
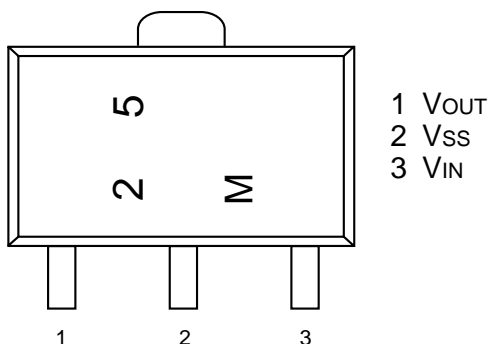


Top View



2) XC6202P502PR (XA0888)

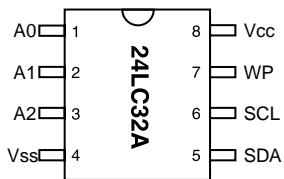
Top View



3) 24LC32AT-I/SN (XA0604)

32K 2.5V I²C Serial EEPROM

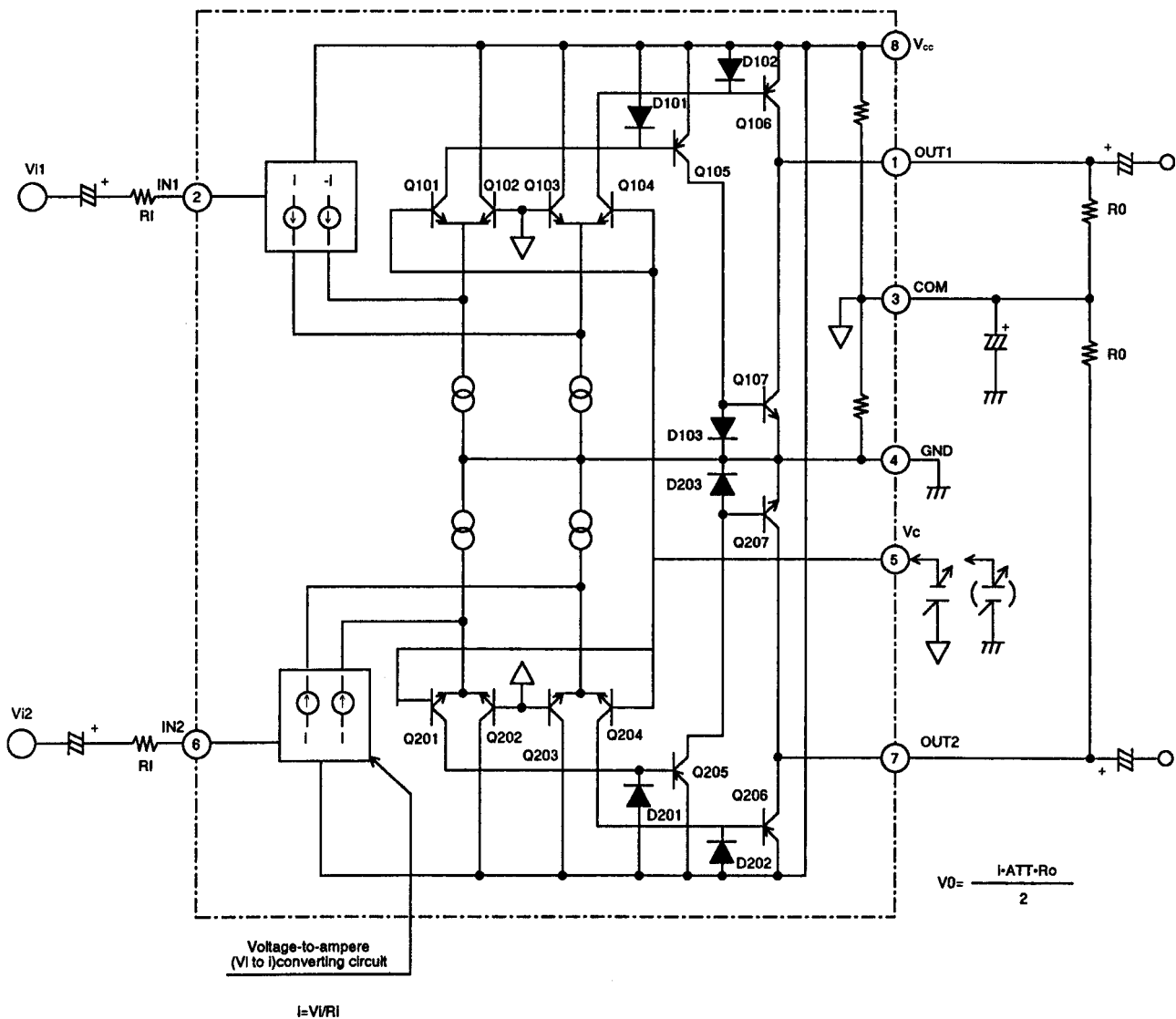
PDIP



| Name | Function |
|--------|--------------------------------|
| A0..A2 | User Configurable Chip Selects |
| Vss | Ground |
| SDA | Serial Address/Data I/O |
| SCL | Serial Clock |
| WP | Write Protect Input |
| Vcc | +2.5V~6.0V Power Supply |

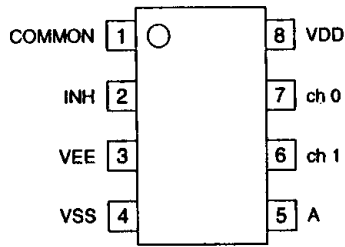
4) M5222FP-600C (XA0385)

Electronic Volume

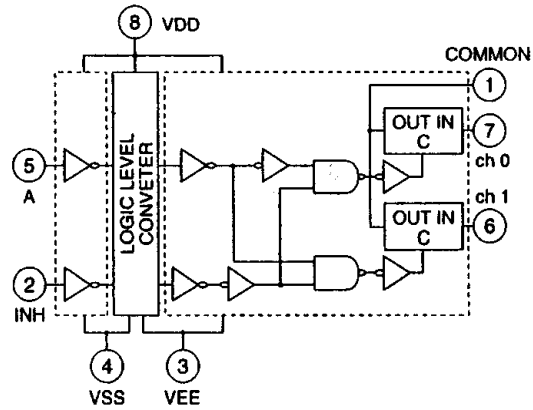


5) TC4W53FU (XA0348)

Pin Assignment

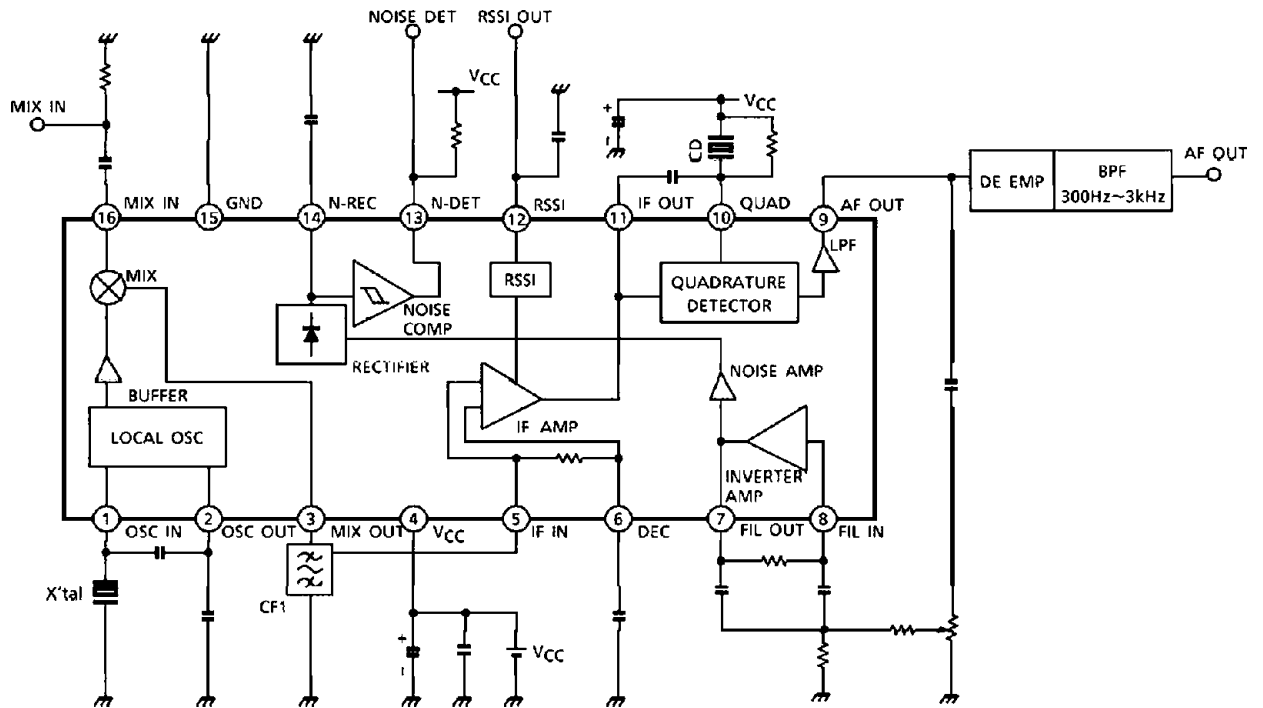


Block Diagram



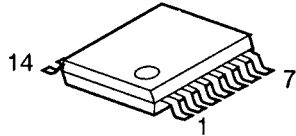
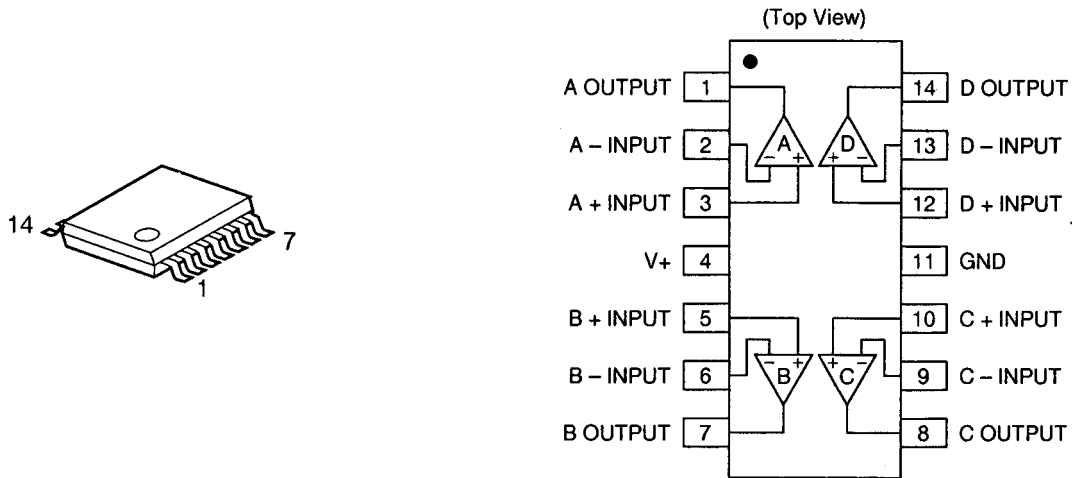
6) TA31136FN (XA0404)

Pin Assignment / Block Diagram (Top View)



7) NJM2902V-TE1 (XA0596)

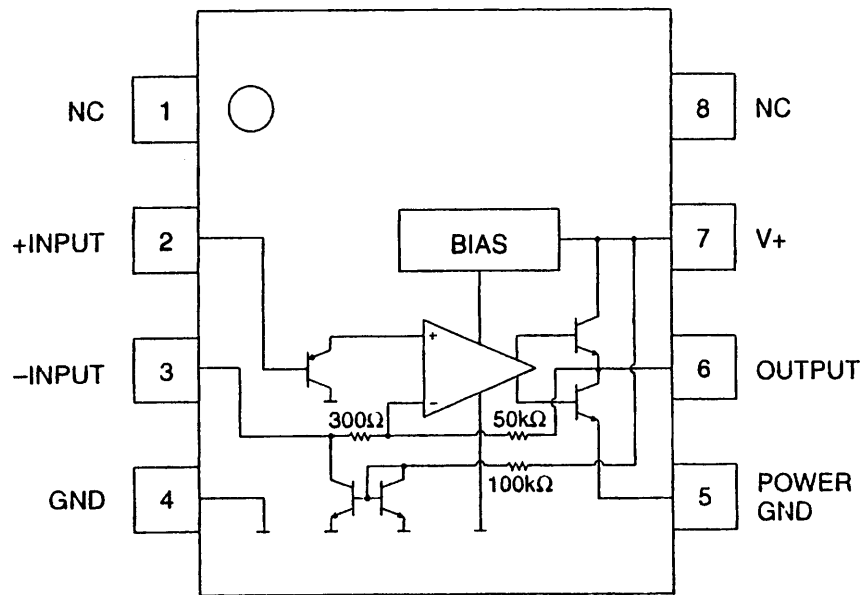
Quad Single Supply Operational Amplifier



8) NJM2070M (XA0210)

Low Voltage
Power Amplifier

Block Diagram



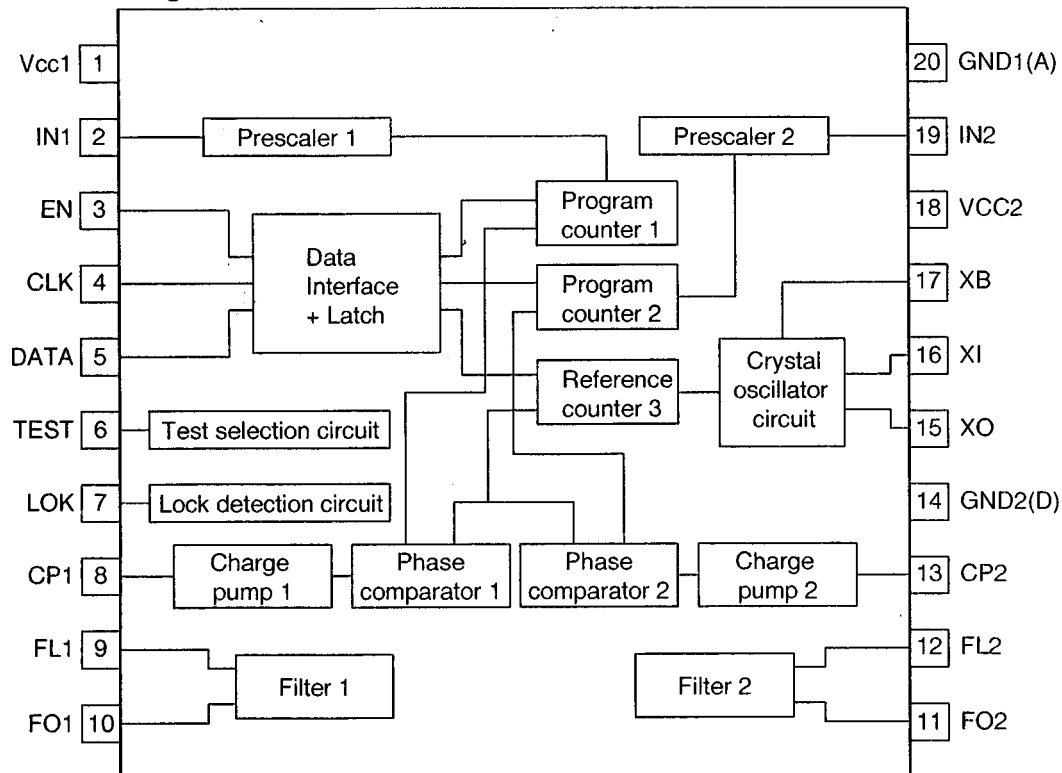
9) μ PD3140GS-E1 (XA0312)

80 ~ 550MHz Dual PLL Synthesizer

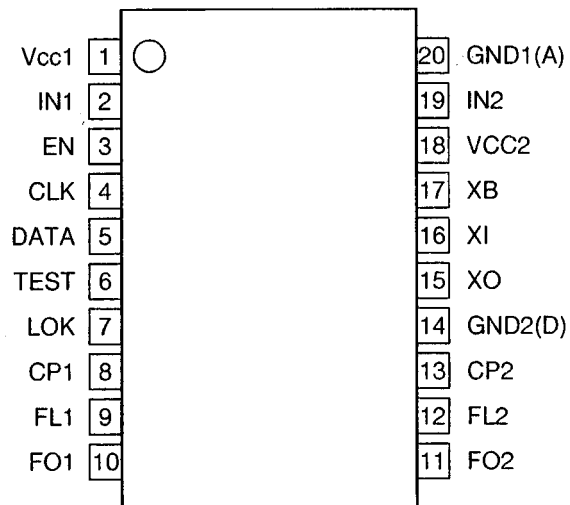
Specifications

Operating frequency: 200 ~ 400MHz ($V_{in}=-12 \sim 0$ dBm, pin 2 and 19 input)
 80 ~ 550MHz ($V_{in}=-8 \sim 0$ dBm, pin 2 and 19 input)
 Consumption current: 2.7 ~ 4.1mA ($V_{cc}=1.8$ V while 1 channel is used)
 4.3 ~ 6.6mA ($V_{cc}=1.8$ V while both channels are used)
 0 ~ 10 μ A ($V_{cc}=1.8$ V in power save mode)
 3.5 ~ 5.3mA ($V_{cc}=5$ V while 1 channel is used)
 5.6 ~ 8.6mA ($V_{cc}=5$ V while both channels are used)
 Operating voltage: 1.8 ~ 5.5V

Block Diagram



Terminal Connection



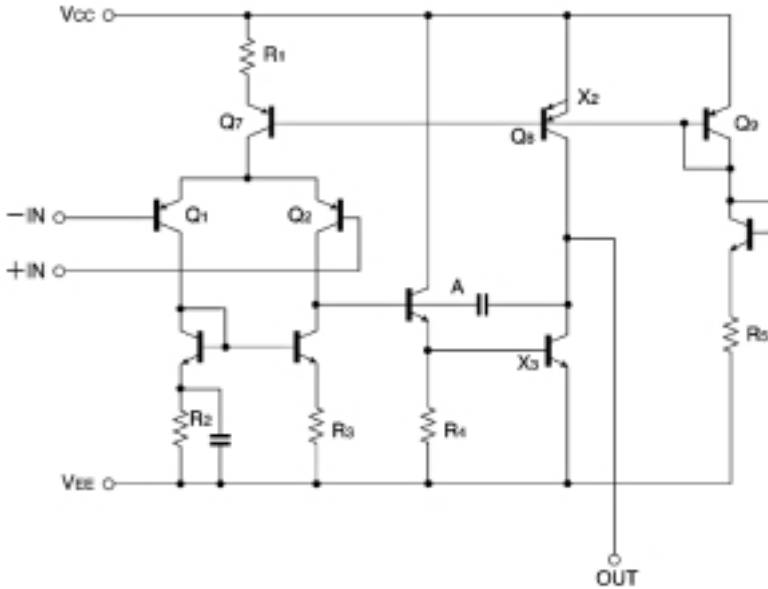
10) BA4510FV-E2 (XA0537)

Dual Operational Amplifier

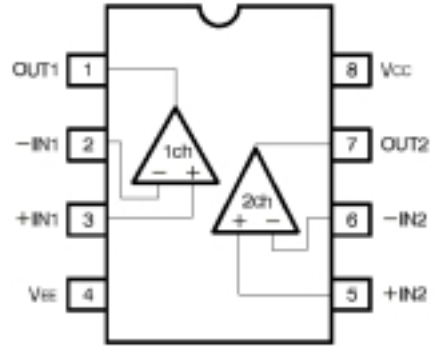
$V_{CC} = \pm 2.5V$ Typ

High through rate: $5V/\mu Sec$

Block Diagram



(Top View)

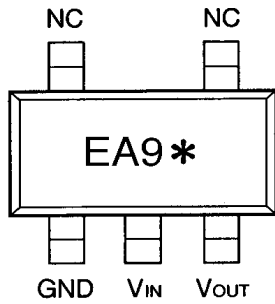


11) S-80845ALMP-EA9-T2 (XA0620)

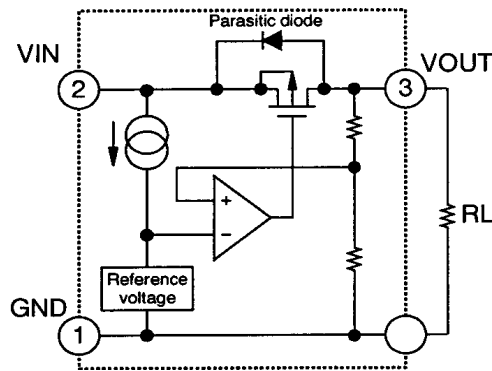
Voltage Regulator

$V_{in} = 18V$

$I_{out} = 100mA$



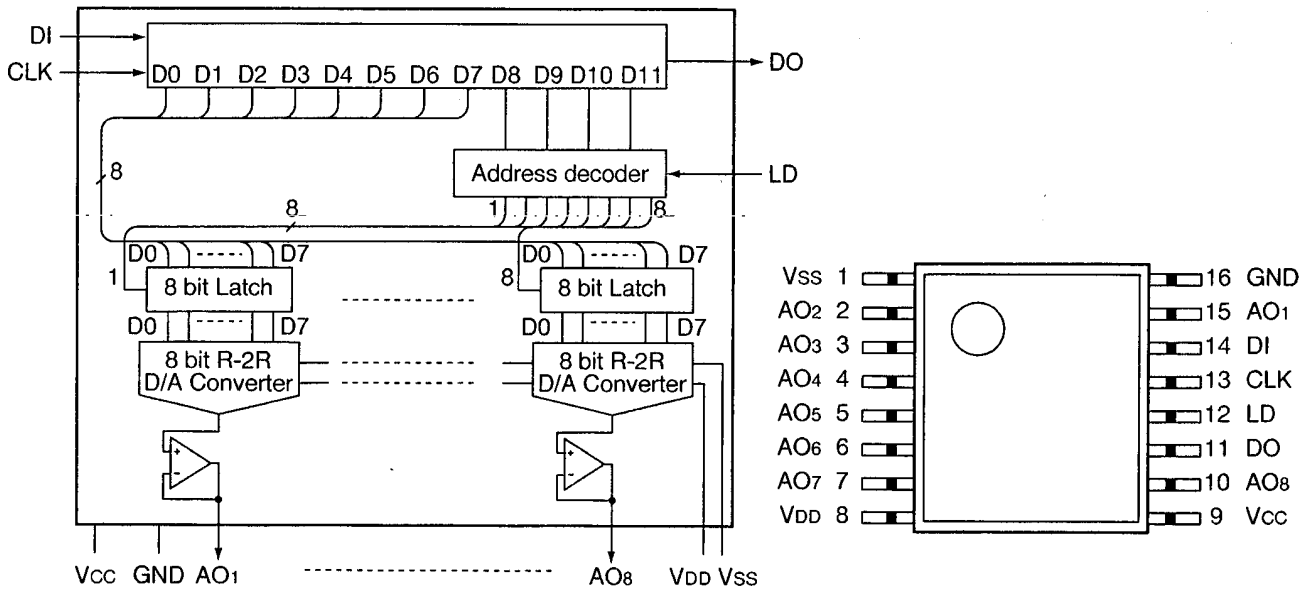
* Lot number



12) MB88347LPFV-G-BND-EF (XA0599)

D/A converter for digital tuning

Block Diagram



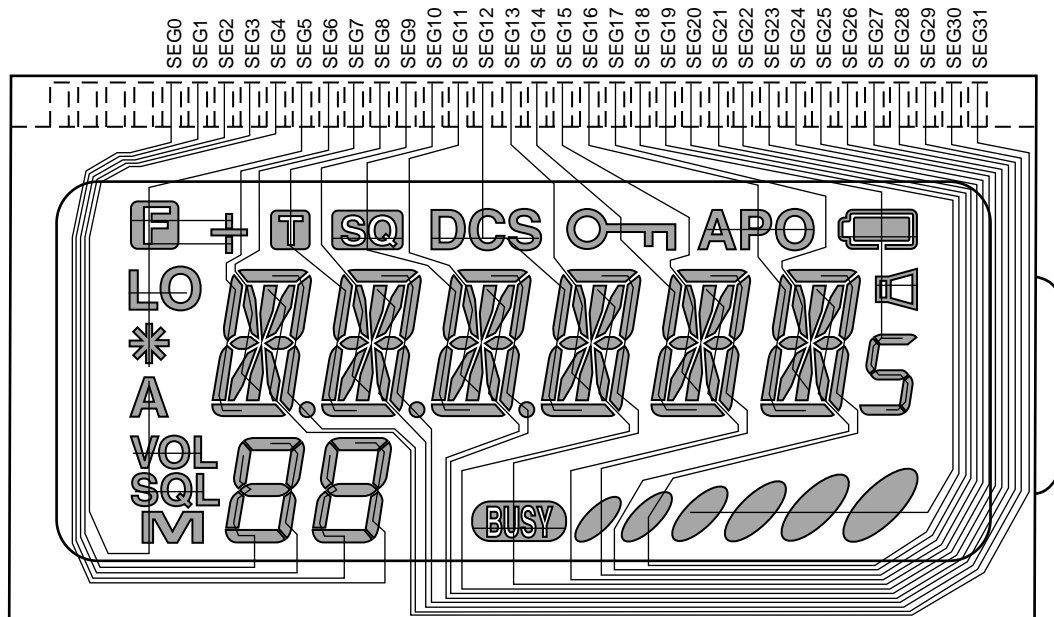
| Pin No. | Name | I/O | Descriptions |
|--|--|-----|---|
| 14 | DI | I | Serial data input terminal. Input 12 bit serial data. (Do not leave it open.) |
| 11 | DO | O | The MSB bit data of 12 bit shift register is output at the falling edge of CLK. |
| 13 | CLK | I | Shift clock input terminal. The input signal of DI terminal is input to 12 bit shift register at the rising edge of clock shift. (Do not leave it open.) |
| 12 | LD | I | When LD terminal is "High", the value of shift register is loaded in decoder and D/A output register. (Do not leave it open. Fix to "Low" when no data is transited.) |
| 15 2 3 4 5 6 7 10 | AO1 AO2 AO3 AO4 AO5 AO6 AO7 AO8 | O | 8 bit D/A converter output terminal with operational amplifier. |
| 9 | Vcc | - | MCU interface, power supply terminal of operational amplifier. |
| 16 | GND | - | MCU interface, ground terminal of operational amplifier. |
| 8 | VDD | - | Reference power supply (High) input terminal of D/A converter. |
| 1 | Vss | - | Reference power supply (Low) input terminal of D/A converter. |

13) Transistor, Diode and LED Outline Drawings

Top View

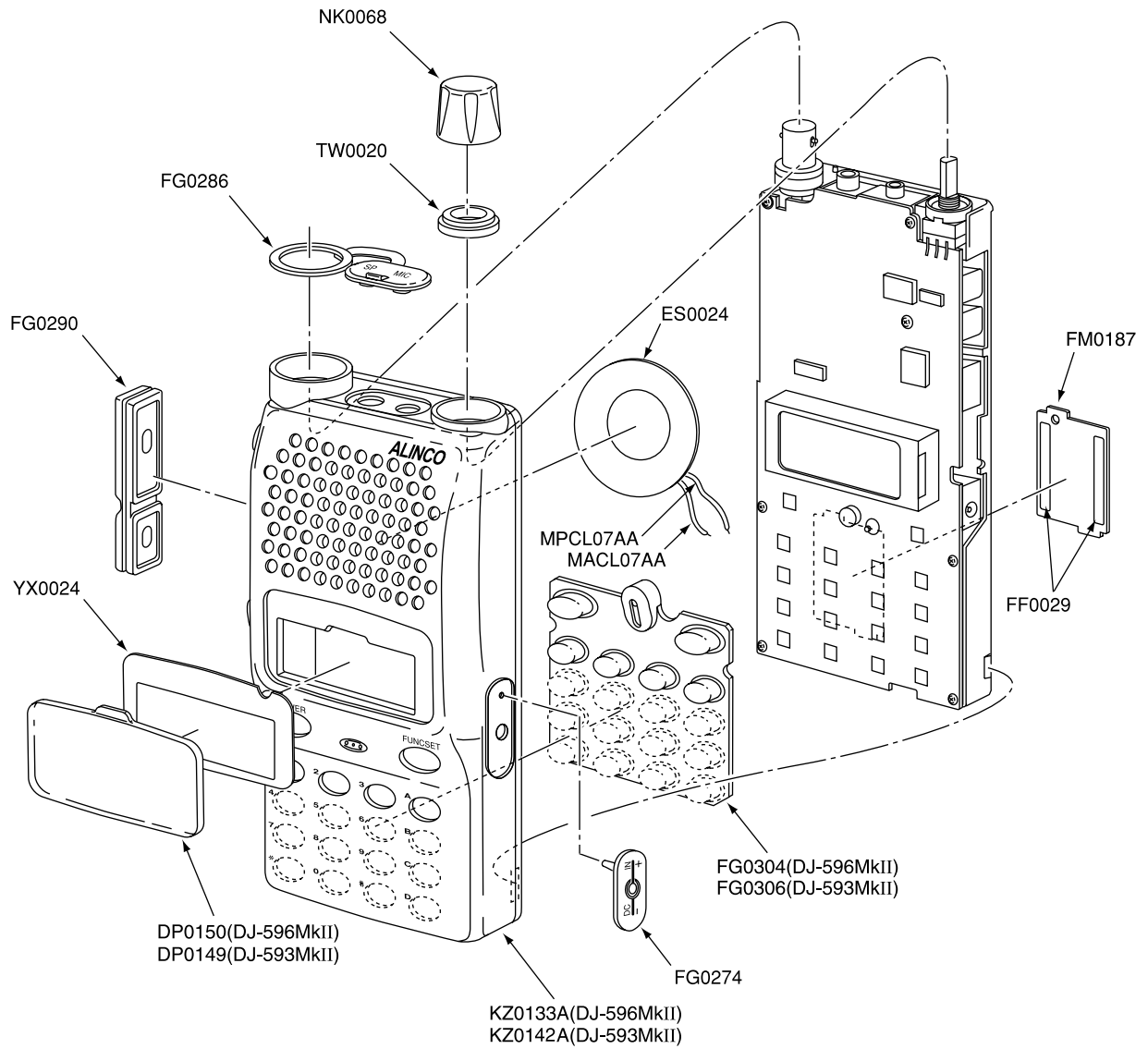
| | | | | | | |
|-------------------------|------------------------|------------------------|------------------------|------------------------------|------------------------|---------------------------|
| 1SV279 (TPH3) XD0364 | 1SV307(TPH3) XD0326 | 1SV311 TPL3 XD0344 | 2SB766A-TX XT0170 | 2SC5066FT-Y(Te85L) XT0180 | 2SD2216R-TX XT0135 | 2SK882-GR-TE85L XE0040 |
| | | | | | | |
| 2SK2975-T11-A XE0038 | 2SK3074 XE0044 | BRPG1201W TR XL0028 | DA204U T106 XD0130 | DAN235E-TL XD0320 | ISS390 TE61 XD0342 | MA132WA-TX XD0321 |
| | | | | | | |
| MA2S077-TX XD0319 | MA2S304001AR XD0343 | MA2S111-TX XD0323 | MA2S728-TX XD0315 | MA741WA TX XD0251 | RN731V TE-17 XD0257 | RN1107 TE85L XU0193 |
| | | | | | | |
| RN1111 TE85L XU0197 | RN2107 TE85L XU0192 | S3DG7 XD0261 | SML-310MTT86 XL0036 | U2FWJ44N(TE12R) XD0294 | UN9211 TX XU0063 | UN911H TX XU0092 |
| | | | | | | |
| XP1111-TX XU0171 | XP1116-TX XU0188 | XP1501-TX XU0172 | | | | |
| | | | | | | |
| | | | | | | |

14) LCD Connection (EL0044)

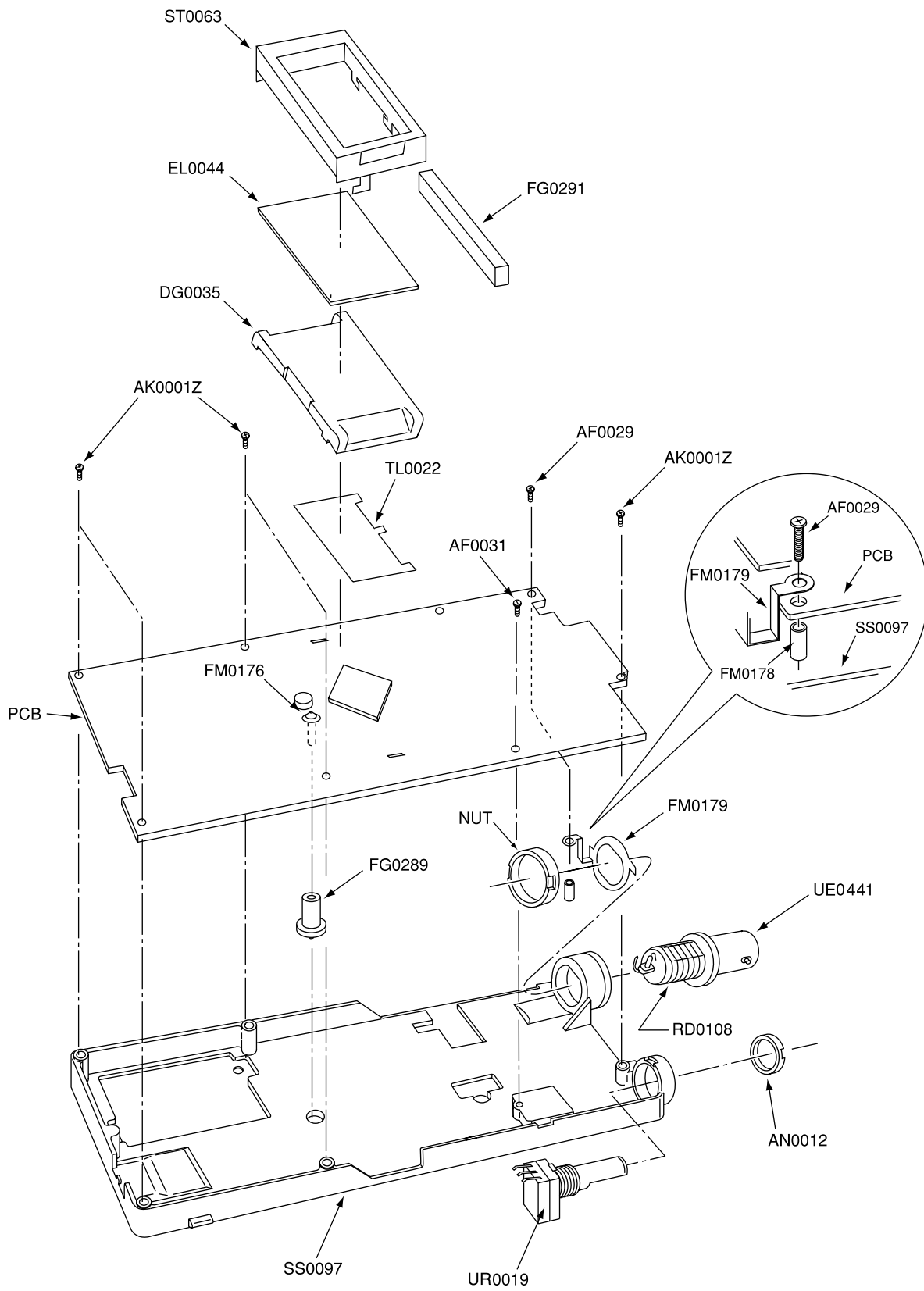


EXPLODED VIEW

1) Front View



2) Rear View



PARTS LIST

MAIN Unit

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|---------------|----------------------|---------|
| | FM0176 | | PLUS TERMINAL DJ195 | |
| | RD0108 | | J1/6Z | |
| | FM0194 | | RADIATIVE PLATE 596 | |
| | ST0063 | | LCD HOLDER DJ195 | |
| | FG0291 | | LCD RUBBER CONNECT. | |
| | TL0022 | | REFLECTIVE SHEET 195 | |
| | TS0142 | | VCO Case XH655 | |
| | TS0148 | | VCO Sealed DJP85 | |
| | UP0463 | | NEW DUAL PCB | |
| | DG0035 | | LCD LIGHT | |
| C1 | CU3535 | Chip. C | GRM36B102K50PT | |
| C2 | CU3535 | Chip. C | GRM36B102K50PT | |
| C3 | CU3517 | Chip. C | GRM36CH330J50PT | |
| C4 | CU3531 | Chip. C | GRM36B471K50PT | |
| C5 | CU3507 | Chip. C | GRM36CH060D50PT | |
| C6 | CU3535 | Chip. C | GRM36B102K50PT | |
| C7 | CU3517 | Chip. C | GRM36CH330J50PT | |
| C8 | CU3535 | Chip. C | GRM36B102K50PT | |
| C10 | CU3503 | Chip. C | GRM36CK020C50PT | |
| C11 | CU3516 | Chip. C | GRM36CH270J50PT | |
| C12 | CU0108 | Chip. C | LMK212BJ105KG | |
| C13 | CU3535 | Chip. C | GRM36B102K50PT | |
| C14 | CU3531 | Chip. C | GRM36B471K50PT | |
| C15 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C16 | CU3535 | Chip. C | GRM36B102K50PT | |
| C18 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C19 | CU3531 | Chip. C | GRM36B471K50PT | |
| C20 | CU0108 | Chip. C | LMK212BJ105KG | |
| C21 | CU3531 | Chip. C | GRM36B471K50PT | |
| C22 | CU3531 | Chip. C | GRM36B471K50PT | |
| C23 | CU3531 | Chip. C | GRM36B471K50PT | |
| C24 | CU3535 | Chip. C | GRM36B102K50PT | |
| C25 | CU3014 | Chip. C | C1608CH1H180JT-AS | |
| C26 | CU3535 | Chip. C | GRM36B102K50PT | |
| C28 | CU3531 | Chip. C | GRM36B471K50PT | |
| C29 | CU3547 | Chip. C | GRM36B103K16PT | |
| C30 | CU3531 | Chip. C | GRM36B471K50PT | |
| C31 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C32 | CU3535 | Chip. C | GRM36B102K50PT | |
| C33 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C34 | CU3513 | Chip. C | GRM36CH150J50PT | |
| C37 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C38 | CU3531 | Chip. C | GRM36B471K50PT | |
| C39 | CU3531 | Chip. C | GRM36B471K50PT | |
| C40 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C42 | CU3535 | Chip. C | GRM36B102K50PT | |
| C43 | CU3535 | Chip. C | GRM36B102K50PT | |
| C44 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C45 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C46 | CU3535 | Chip. C | GRM36B102K50PT | |
| C47 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C48 | CU3512 | Chip. C | GRM36CH120J50PT | |
| C49 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C50 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C52 | CU3531 | Chip. C | GRM36B471K50PT | |
| C53 | CU3547 | Chip. C | GRM36B103K16PT | |
| C54 | CU3535 | Chip. C | GRM36B102K50PT | |
| C55 | CS0398 | Chip Tantalum | TMCP0J225MTR | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|---------------|------------------|---------|
| C56 | CU3531 | Chip. C | GRM36B471K50PT | |
| C57 | CU3531 | Chip. C | GRM36B471K50PT | |
| C59 | CS0403 | Chip Tantalum | TMCP1D224MTR | |
| C60 | CU3516 | Chip. C | GRM36CH270J50PT | |
| C61 | CU3526 | Chip. C | GRM36CH181J25PT | |
| C62 | CU3531 | Chip. C | GRM36B471K50PT | |
| C63 | CU3531 | Chip. C | GRM36B471K50PT | |
| C64 | CU3547 | Chip. C | GRM36B103K16PT | |
| C65 | CU3531 | Chip. C | GRM36B471K50PT | |
| C66 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C67 | CS0403 | Chip Tantalum | TMCP1D224MTR | |
| C68 | CU3531 | Chip. C | GRM36B471K50PT | |
| C69 | CU3531 | Chip. C | GRM36B471K50PT | |
| C70 | CU0108 | Chip. C | LMK212BJ105KG | |
| C72 | CU3531 | Chip. C | GRM36B471K50PT | |
| C73 | CS0398 | Chip Tantalum | TMCP0J225MTR | |
| C76 | CU3531 | Chip. C | GRM36B471K50PT | |
| C77 | CU3510 | Chip. C | GRM36CH090D50PT | |
| C78 | CU0108 | Chip. C | LMK212BJ105KG | |
| C79 | CU3514 | Chip. C | GRM36CH180J50PT | |
| C80 | CU3501 | Chip. C | GRM36CK0R5C50PT | |
| C81 | CU3535 | Chip. C | GRM36B102K50PT | |
| C82 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C83 | CU3535 | Chip. C | GRM36B102K50PT | |
| C84 | CU3535 | Chip. C | GRM36B102K50PT | |
| C85 | CU3535 | Chip. C | GRM36B102K50PT | |
| C86 | CU3510 | Chip. C | GRM36CH090D50PT | |
| C87 | CU3506 | Chip. C | GRM36CH050C50PT | |
| C88 | CU3535 | Chip. C | GRM36B102K50PT | |
| C89 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C90 | CU3502 | Chip. C | GRM36CK010C50PT | |
| C91 | CU3535 | Chip. C | GRM36B102K50PT | |
| C92 | CU3535 | Chip. C | GRM36B102K50PT | |
| C93 | CU3529 | Chip. C | GRM36B331K50PT | |
| C94 | CU3535 | Chip. C | GRM36B102K50PT | |
| C95 | CU3511 | Chip. C | GRM36CH100D50PT | |
| C96 | CU3511 | Chip. C | GRM36CH100D50PT | |
| C97 | CU3514 | Chip. C | GRM36CH180J50PT | |
| C98 | CU3535 | Chip. C | GRM36B102K50PT | |
| C99 | CU3501 | Chip. C | GRM36CK0R5C50PT | |
| C100 | CU3547 | Chip. C | GRM36B103K16PT | |
| C101 | CU3517 | Chip. C | GRM36CH330J50PT | |
| C102 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C103 | CU3517 | Chip. C | GRM36CH330J50PT | |
| C104 | CU3507 | Chip. C | GRM36CH060D50PT | |
| C105 | CU3512 | Chip. C | GRM36CH120J50PT | |
| C106 | CU3516 | Chip. C | GRM36CH270J50PT | |
| C107 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C108 | CU3512 | Chip. C | GRM36CH120J50PT | |
| C109 | CU3547 | Chip. C | GRM36B103K16PT | |
| C110 | CU3535 | Chip. C | GRM36B102K50PT | |
| C111 | CU3547 | Chip. C | GRM36B103K16PT | |
| C112 | CU3547 | Chip. C | GRM36B103K16PT | |
| C113 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C114 | CU3535 | Chip. C | GRM36B102K50PT | |
| C115 | CU3531 | Chip. C | GRM36B471K50PT | |
| C116 | CU3509 | Chip. C | GRM36CH080D50PT | |
| C118 | CU3503 | Chip. C | GRM36CK020C50PT | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-----------------|------------------|---------|
| C119 | CU3531 | Chip. C | GRM36B471K50PT | |
| C120 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C121 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C122 | CU3547 | Chip. C | GRM36B103K16PT | |
| C123 | CU3504 | Chip. C | GRM36CJ030C50PT | |
| C124 | CU3501 | Chip. C | GRM36CK0R5C50PT | |
| C125 | CU3501 | Chip. C | GRM36CK0R5C50PT | |
| C126 | CU3531 | Chip. C | GRM36B471K50PT | |
| C127 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C128 | CU3523 | Chip. C | GRM36CH101J50PT | |
| C129 | CU3535 | Chip. C | GRM36B102K50PT | |
| C130 | CU3504 | Chip. C | GRM36CJ030C50PT | |
| C131 | CU3506 | Chip. C | GRM36CH050C50PT | |
| C132 | CU3519 | Chip. C | GRM36CH470J50PT | |
| C133 | CU3506 | Chip. C | GRM36CH050C50PT | |
| C134 | CU3507 | Chip. C | GRM36CH060D50PT | |
| C135 | CE0392 | Electrolytic C. | 6MV47UW | |
| C136 | CU3547 | Chip. C | GRM36B103K16PT | |
| C137 | CU3504 | Chip. C | GRM36CJ030C50PT | |
| C138 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C139 | CU3516 | Chip. C | GRM36CH270J50PT | |
| C140 | CU3512 | Chip. C | GRM36CH120J50PT | |
| C141 | CU3516 | Chip. C | GRM36CH270J50PT | |
| C142 | CU3535 | Chip. C | GRM36B102K50PT | |
| C143 | CU3535 | Chip. C | GRM36B102K50PT | |
| C144 | CU3547 | Chip. C | GRM36B103K16PT | |
| C145 | CU3547 | Chip. C | GRM36B103K16PT | |
| C146 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C148 | CU3535 | Chip. C | GRM36B102K50PT | |
| C149 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C150 | CU0108 | Chip. C | LMK212BJ105KG | |
| C151 | CU3522 | Chip. C | GRM36CH820J50PT | |
| C154 | CU3547 | Chip. C | GRM36B103K16PT | |
| C155 | CU3527 | Chip. C | GRM36CH221J25PT | |
| C156 | CU3527 | Chip. C | GRM36CH221J25PT | |
| C157 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C158 | CU3547 | Chip. C | GRM36B103K16PT | |
| C160 | CU3535 | Chip. C | GRM36B102K50PT | |
| C161 | CU3535 | Chip. C | GRM36B102K50PT | |
| C162 | CU3535 | Chip. C | GRM36B102K50PT | |
| C163 | CU0108 | Chip. C | LMK212BJ105KG | |
| C164 | CE0392 | Electrolytic C. | 6MV47UW | |
| C165 | CU3535 | Chip. C | GRM36B102K50PT | |
| C166 | CU3535 | Chip. C | GRM36B102K50PT | |
| C167 | CE0373 | Electrolytic C. | 16MV 100UW | |
| C169 | CU3551 | Chip. C | GRM36B223K16PT | |
| C170 | CU3535 | Chip. C | GRM36B102K50PT | |
| C171 | CS0398 | Chip Tantalum | TMCP0J225MTR | |
| C172 | CU3551 | Chip. C | GRM36B223K16PT | |
| C173 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C174 | CU3541 | Chip. C | GRM36B332K50PT | |
| C175 | CU3551 | Chip. C | GRM36B223K16PT | |
| C176 | CU3551 | Chip. C | GRM36B223K16PT | |
| C177 | CS0367 | Chip Tantalum | TMCMA0J106MTR | |
| C178 | CU3547 | Chip. C | GRM36B103K16PT | |
| C179 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C180 | CU0108 | Chip. C | LMK212BJ105KG | |
| C181 | CU3538 | Chip. C | GRM36B182K50PT | |
| C182 | CS0403 | Chip Tantalum | TMCP1D224MTR | |
| C183 | CU0108 | Chip. C | LMK212BJ105KG | |
| C184 | CU3535 | Chip. C | GRM36B102K50PT | |
| C185 | CU3550 | Chip. C | GRM36B183K16PT | |
| C186 | CU3535 | Chip. C | GRM36B102K50PT | |
| C187 | CE0315Z | Electrolytic C. | 16CV47BS | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-----------------|-------------------|---------|
| C188 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C189 | CU3551 | Chip. C | GRM36B223K16PT | |
| C190 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C191 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C192 | CU3535 | Chip. C | GRM36B102K50PT | |
| C193 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C194 | CE0308 | Electrolytic C. | 6.3CV 100BS | |
| C195 | CU0108 | Chip. C | LMK212BJ105KG | |
| C196 | CU3514 | Chip. C | GRM36CH180J50PT | |
| C197 | CU3513 | Chip. C | GRM36CH150J50PT | |
| C198 | CU3544 | Chip. C | GRM36B562K25PT | |
| C199 | CU3540 | Chip. C | GRM36B272K50PT | |
| C201 | CU3531 | Chip. C | GRM36B471K50PT | |
| C202 | CU3535 | Chip. C | GRM36B102K50PT | |
| C203 | CU3547 | Chip. C | GRM36B103K16PT | |
| C204 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C205 | CU3546 | Chip. C | GRM36B822K16PT | |
| C206 | CU3047 | Chip. C | C1608JB1H103KT-N | |
| C207 | CU3547 | Chip. C | GRM36B103K16PT | |
| C208 | CU3547 | Chip. C | GRM36B103K16PT | |
| C209 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C210 | CU3539 | Chip. C | GRM36B222K50PT | |
| C211 | CU3535 | Chip. C | GRM36B102K50PT | |
| C212 | CU3534 | Chip. C | GRM36B821K50PT | |
| C213 | CS0403 | Chip Tantalum | TMCP1D224MTR | |
| C214 | CU3535 | Chip. C | GRM36B102K50PT | |
| C215 | CU3535 | Chip. C | GRM36B102K50PT | |
| C216 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C218 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C219 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C220 | CU0108 | Chip. C | LMK212BJ105KG | |
| C221 | CU3535 | Chip. C | GRM36B102K50PT | |
| C222 | CU3535 | Chip. C | GRM36B102K50PT | |
| C223 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C224 | CS0403 | Chip Tantalum | TMCP1D224MTR | |
| C225 | CU0108 | Chip. C | LMK212BJ105KG | |
| C226 | CU3535 | Chip. C | GRM36B102K50PT | |
| C227 | CU3539 | Chip. C | GRM36B222K50PT | |
| C228 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C229 | CU3521 | Chip. C | GRM36CH680J50PT | |
| C230 | CU3535 | Chip. C | GRM36B102K50PT | |
| C231 | CU3535 | Chip. C | GRM36B102K50PT | |
| C232 | CU3547 | Chip. C | GRM36B103K16PT | |
| C233 | CU3111 | Chip. C | C1608JB1C104KT-N | |
| C234 | CU0108 | Chip. C | LMK212BJ105KG | |
| C235 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C236 | CU3018 | Chip. C | C1608CH1H390JT-AS | |
| C237 | CU3512 | Chip. C | GRM36CH120J50PT | |
| C238 | CU3515 | Chip. C | GRM36CH220J50PT | |
| C239 | CS0408 | Chip Tantalum | 6MCM156MATER | |
| C241 | CU3535 | Chip. C | GRM36B102K50PT | |
| C242 | CU3551 | Chip. C | GRM36B223K16PT | |
| C921 | CS0398 | Chip Tantalum | TMCP0J225MTR | |
| C922 | CS0220 | Chip Tantalum | TMCMA1C225MTR | |
| C932 | CU3535 | Chip. C | GRM36B102K50PT | |
| C933 | CU3547 | Chip. C | GRM36B103K16PT | |
| C934 | CS0398 | Chip Tantalum | TMCP0J225MTR | |
| CN2 | UE0267 | Connector | AXN420C330P | |
| D1 | XD0326 | Chip Diode | 1SV307(TPH3) | |
| D2 | XD0251 | Chip Diode | MA741WA TX | |
| D3 | XD0326 | Chip Diode | 1SV307(TPH3) | |
| D4 | XD0326 | Chip Diode | 1SV307(TPH3) | |
| D5 | XD0323 | Chip Diode | MA2S111-TX | |
| D6 | XD0343 | Chip Diode | MA2S304001AR | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|----------------|----------------------|---------|
| D7 | XD0257 | Chip Diode | RN731V TE-17 | |
| D9 | XD0343 | Chip Diode | MA2S304001AR | |
| D12 | XD0319 | Chip Diode | MA2S077-TX | |
| D13 | XD0321 | Chip Diode | MA132WA-TX | |
| D14 | XD0319 | Chip Diode | MA2S077-TX | |
| D16 | XD0364 | Chip Diode | 1SV279(TPH3) | |
| D17 | XD0364 | Chip Diode | 1SV279(TPH3) | |
| D18 | XD0364 | Chip Diode | 1SV279(TPH3) | |
| D19 | XD0319 | Chip Diode | MA2S077-TX | |
| D20 | XD0343 | Chip Diode | MA2S304001AR | |
| D21 | XD0343 | Chip Diode | MA2S304001AR | |
| D22 | XD0343 | Chip Diode | MA2S304001AR | |
| D23 | XD0319 | Chip Diode | MA2S077-TX | |
| D24 | XD0343 | Chip Diode | MA2S304001AR | |
| D25 | XD0344 | Chip Diode | 1SV311 (TPL3) | |
| D26 | XD0344 | Chip Diode | 1SV311 (TPL3) | |
| D27 | XD0344 | Chip Diode | 1SV311 (TPL3) | |
| D28 | XD0319 | Chip Diode | MA2S077-TX | |
| D29 | XD0342 | Chip Diode | 1SS390 TE61 | |
| D30 | XD0344 | Chip Diode | 1SV311 (TPL3) | |
| D31 | XD0320 | Chip Diode | DAN235E-TL | |
| D32 | XD0320 | Chip Diode | DAN235E-TL | |
| D33 | XD0261 | Chip Diode | S3DG7 | |
| D35 | XD0130 | Chip Diode | DA204U T106 | |
| D36 | XD0315 | Chip Diode | MA2S728-TX | |
| D37 | XD0321 | Chip Diode | MA132WA-TX | |
| D38 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D39 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D40 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D41 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D42 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D43 | XL0036 | Chip LED | SML-310MTT86 | 593MkII |
| D44 | XL0028 | Chip LED | BRPG1201W TR | |
| D45 | XD0323 | Chip Diode | MA2S111-TX | |
| D46 | XD0294 | Chip Diode | U2FWJ44N(TE12R) | |
| D47 | XD0323 | Chip Diode | MA2S111-TX | |
| D48 | XD0326 | Chip Diode | 1SV307(TPH3) | |
| D49 | XD0321 | Chip Diode | MA132WA-TX | |
| D921 | XD0254 | Chip Diode | 1SS355 TE17 | |
| D931 | XD0377 | Chip Diode | MAZ0270H-TX | |
| FL1 | XC0053 | Duplex Filter | GDPX150/350A301 | |
| FL2 | XC0079 | Ceramic Filter | ALFCM450E | |
| FL3 | XC0080 | Ceramic Filter | ALFCM450G | |
| IC1 | XA0449 | IC | UPC2710T-E3 | |
| IC2 | XA0312 | IC | UPD3140GS-E1 | |
| IC3 | XA0888 | IC | XC6202P502PR | |
| IC4 | XA0599 | IC | MB88347LPFV-G-BND-EF | |
| IC5 | XA0404 | IC | TA31136FN(EL) | |
| IC6 | XA0942 | IC | M38268MCL053GP | |
| IC7 | XA0604 | IC | 24LC32AT-I/SN | |
| IC8 | XA0596 | IC | NJM2902V-TE1 | |
| IC9 | XA0210 | IC | NJM2070M T1 | |
| IC10 | XA0385 | IC | M5222FP-600C | |
| IC11 | XA0620 | IC | S-80845ALMP-EA9-T2 | |
| IC13 | XA0348 | IC | TC4W53FU(TE12) | |
| IC14 | XA0537 | IC | BA4510FV-E2 | |
| IC15 | XA0348 | IC | TC4W53FU(TE12) | |
| IC921 | XA0925 | IC | S-816A50AMC | |
| IC931 | XA0348 | IC | TC4W53FU(TE12) | |
| JK1 | UJ0046 | Jack | MJ82-1 | |
| JK2 | UJ0019 | Jack | HSJ1493-01-010 | |
| JK3 | UJ0022 | Jack | HSJ1102-01-540 | |
| L1 | QS35167 | Coil | 0.35-1.6-7T-L | |
| L2 | QC0547 | Chip Inductor | LK1608 R47K-T | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-----------------|---------------------|---------|
| L3 | QS35165 | Coil | 0.35-1.60-5T-L | |
| L4 | QS2519A | Coil | 0.25-1.90-10T-L | |
| L5 | QB0045 | Chip Inductor | EXCCL3225U1 | |
| L6 | QB0045 | Chip Inductor | EXCCL3225U1 | |
| L7 | QC0600 | Chip Inductor | LQW1608AR22J00 | |
| L8 | QC0533 | Chip Inductor | LQN21A39NJ04 | |
| L9 | QC0507 | Chip Inductor | LK16081R0K-T | |
| L10 | QC0288 | Chip Inductor | NL252018T-1R0JA | |
| L11 | QC0538 | Chip Inductor | LQN21AR10J04 | |
| L12 | QS30093 | Coil | 0.30-0.90-3T-L | |
| L13 | QC0523 | Chip Inductor | LQN21A3N3D04 | |
| L15 | QC0538 | Chip Inductor | LQN21AR10J04 | |
| L16 | QC0535 | Chip Inductor | LQN21A56NJ04 | |
| L17 | QC0616 | Chip Inductor | LL1608-FS12NJ | |
| L18 | QS40142 | Coil | 0.40-1.40-2T-L | |
| L19 | QC0507 | Chip Inductor | LK16081R0K-T | |
| L20 | QC0532 | Chip Inductor | LQN21A33NJ04 | |
| L21 | QC0507 | Chip Inductor | LK16081R0K-T | |
| L22 | QC0584 | Chip Inductor | LQW1608A10NJ00T1 | |
| L23 | QC0595 | Chip Inductor | LQW1608A82NJ00T1 | |
| L24 | QC0595 | Chip Inductor | LQW1608A82NJ00T1 | |
| L25 | QC0595 | Chip Inductor | LQW1608A82NJ00T1 | |
| L26 | QC0591 | Chip Inductor | LQW1608A39NJ00T1 | |
| L27 | QC0590 | Chip Inductor | LQW1608A33NJ00 | |
| L28 | QC0595 | Chip Inductor | LQW1608A82NJ00T1 | |
| L29 | QC0506 | Chip Inductor | LK1608R56K-T | |
| L30 | QC0508 | Chip Inductor | LK16082R2K-T | |
| L31 | QC0506 | Chip Inductor | LK1608R56K-T | |
| L32 | QC0650 | Chip Inductor | LL1005FH10NJ | |
| L33 | QC0586 | Chip Inductor | LQW1608A15NJ00 | |
| L34 | QC0586 | Chip Inductor | LQW1608A15NJ00 | |
| L35 | QC0529 | Chip Inductor | LQN21A18NJ04 | |
| L36 | QC0587 | Chip Inductor | LQW1608A18NJ000 | |
| L37 | QC0585 | Chip Inductor | LQW1608A12NJ00 | |
| L38 | QC0592 | Chip Inductor | LQW1608A47NJ00T1 | |
| L39 | QC0600 | Chip Inductor | LQW1608AR22J00 | |
| LCD1 | EL0044 | LCD | HT-3404 | |
| MIC1 | EY0017 | MIC | OB-27P44 | |
| Q1 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q2 | XU0171 | Chip Transistor | XP1111-TX | |
| Q3 | XT0135 | Chip Transistor | 2SD2216R-TX | |
| Q4 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q5 | XE0038 | FET | 2SK2975-T11-A | |
| Q6 | XE0044 | FET | 2SK3074 TE12L | |
| Q7 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q8 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q9 | XU0063 | Chip Transistor | UN9211 TX | |
| Q10 | XU0172 | Chip Transistor | XP1501-TX | |
| Q11 | XU0172 | Chip Transistor | XP1501-TX | |
| Q12 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q13 | XU0172 | Chip Transistor | XP1501-TX | |
| Q14 | XU0063 | Chip Transistor | UN9211 TX | |
| Q15 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q16 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q17 | XE0040 | FET | 2SK882-GR-TE85L | |
| Q18 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q19 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q20 | XT0180 | Chip Transistor | 2SC5066FT-Y (TE85L) | |
| Q21 | XT0135 | Chip Transistor | 2SD2216R-TX | |
| Q22 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q23 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q24 | XU0197 | Chip Transistor | RN1111 (TE85L) | |
| Q25 | XT0170 | Chip Transistor | 2SB766A-TX | |
| Q26 | XT0170 | Chip Transistor | 2SB766A-TX | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-----------------|----------------|---------|
| Q27 | XT0170 | Chip Transistor | 2SB766A-TX | |
| Q28 | XU0188 | Chip Transistor | XP1116-TX | |
| Q29 | XU0172 | Chip Transistor | XP1501-TX | |
| Q30 | XU0171 | Chip Transistor | XP1111-TX | |
| Q31 | XU0171 | Chip Transistor | XP1111-TX | |
| Q32 | XU0172 | Chip Transistor | XP1501-TX | |
| Q33 | XU0092 | Chip Transistor | UN911H-TX | |
| Q35 | XU0092 | Chip Transistor | UN911H-TX | |
| Q36 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q37 | XU0192 | Chip Transistor | RN2107 TE85L | |
| Q38 | XT0135 | Chip Transistor | 2SD2216R-TX | |
| Q39 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q40 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q41 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q42 | XU0092 | Chip Transistor | UN911H-TX | |
| Q43 | XU0197 | Chip Transistor | RN1111 (TE85L) | |
| Q44 | XU0197 | Chip Transistor | RN1111 (TE85L) | 593MkII |
| Q45 | XU0197 | Chip Transistor | RN1111 (TE85L) | 593MkII |
| Q46 | XU0197 | Chip Transistor | RN1111 (TE85L) | |
| Q47 | XU0193 | Chip Transistor | RN1107 TE85L | |
| Q48 | XU0092 | Chip Transistor | UN911H-TX | |
| Q49 | XT0135 | Chip Transistor | 2SD2216R-TX | |
| Q50 | XU0063 | Chip Transistor | UN9211 TX | |
| Q921 | XT0170 | Chip Transistor | 2SB766A-TX | |
| R1 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R2 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R3 | RK3530 | Chip R. | ERJ2GEJ221X | |
| R4 | RK3532 | Chip R. | ERJ2GEJ331X | |
| R5 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R6 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R7 | RK3524 | Chip R. | ERJ2GEJ680X | |
| R9 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R10 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R11 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R12 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R13 | RK3522 | Chip R. | ERJ2GEJ470X | |
| R14 | RK3516 | Chip R. | ERJ2GEJ150X | |
| R15 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R16 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R17 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R18 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R19 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R20 | RK3518 | Chip R. | ERJ2GEJ220X | |
| R21 | RK3518 | Chip R. | ERJ2GEJ220X | |
| R22 | RK3561 | Chip R. | ERJ2GEJ823X | |
| R23 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R24 | RK3548 | Chip R. | ERJ2GEJ682X | |
| R25 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R26 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R27 | RK3536 | Chip R. | ERJ2GEJ681X | |
| R28 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R29 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R30 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R31 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R33 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R34 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R35 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R36 | RK3553 | Chip R. | ERJ2GEJ183X | |
| R37 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R38 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R39 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R41 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R41 | RK3548 | Chip R. | ERJ2GEJ682X | |
| R42 | RK3542 | Chip R. | ERJ2GEJ222X | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-------------|--------------|---------|
| R43 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R44 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R47 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R48 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R49 | RK3543 | Chip R. | ERJ2GEJ272X | |
| R50 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R51 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R52 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R53 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R55 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R56 | RK3547 | Chip R. | ERJ2GEJ562X | |
| R57 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R58 | RK3532 | Chip R. | ERJ2GEJ331X | |
| R59 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R60 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R61 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R62 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R63 | RK3551 | Chip R. | ERJ2GEJ123X | |
| R64 | RK3522 | Chip R. | ERJ2GEJ470X | |
| R65 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R66 | RK3566 | Chip R. | ERJ2GEJ224X | |
| R67 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R68 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R69 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R70 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R71 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R72 | RK3522 | Chip R. | ERJ2GEJ470X | |
| R73 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R74 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R75 | RK3518 | Chip R. | ERJ2GEJ220X | |
| R76 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R77 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R78 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R79 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R80 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R81 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R82 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R83 | RK3568 | Chip R. | ERJ2GEJ334X | |
| R84 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R85 | RK3539 | Chip R. | ERJ2GEJ122X | |
| R86 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R87 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R88 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R89 | RK3028 | Chip R. | MCR03EZJH151 | |
| R90 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R91 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R92 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R94 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R95 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R96 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R97 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R98 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R99 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R100 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R101 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R102 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R103 | RK3552 | Chip R. | ERJ2GEJ153X | |
| R104 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R105 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R106 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R107 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R108 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R109 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R110 | RK3554 | Chip R. | ERJ2GEJ223X | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-------------|--------------|---------|
| R111 | RK3554 | Chip R. | ERJ2GEJ223X | E |
| R112 | RK3539 | Chip R. | ERJ2GEJ122X | |
| R113 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R114 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R115 | RK3058 | Chip R. | MCR03EZHJ473 | |
| R116 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R117 | RK3058 | Chip R. | MCR03EZHJ473 | |
| R118 | RK0002 | Chip R. | ERJ6GEYJ120V | |
| R120 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R121 | RK3564 | Chip R. | ERJ2GEJ154X | |
| R122 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R124 | RK3552 | Chip R. | ERJ2GEJ153X | |
| R125 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R126 | RK3548 | Chip R. | ERJ2GEJ682X | |
| R127 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R128 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R129 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R130 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R131 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R132 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R133 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R134 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R135 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R136 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R137 | RK3540 | Chip R. | ERJ2GEJ152X | |
| R138 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R139 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R140 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R141 | RK3555 | Chip R. | ERJ2GEJ273X | |
| R142 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R143 | RK3551 | Chip R. | ERJ2GEJ123X | |
| R144 | RK3551 | Chip R. | ERJ2GEJ123X | |
| R145 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R146 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R147 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R148 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R149 | RK3548 | Chip R. | ERJ2GEJ682X | |
| R150 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R151 | RK3561 | Chip R. | ERJ2GEJ823X | |
| R153 | RK3552 | Chip R. | ERJ2GEJ153X | |
| R154 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R155 | RK3557 | Chip R. | ERJ2GEJ393X | |
| R156 | RK3522 | Chip R. | ERJ2GEJ470X | |
| R157 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R158 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R159 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R160 | RK3542 | Chip R. | ERJ2GEJ222X | |
| R161 | RK3532 | Chip R. | ERJ2GEJ331X | |
| R162 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R163 | RK3561 | Chip R. | ERJ2GEJ823X | |
| R164 | RK3522 | Chip R. | ERJ2GEJ470X | |
| R165 | RK3559 | Chip R. | ERJ2GEJ563X | |
| R166 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R167 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R168 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R169 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R170 | RK3563 | Chip R. | ERJ2GEJ124X | |
| R171 | RK3526 | Chip R. | ERJ2GEJ101X | |
| R172 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R173 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R174 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R175 | RK3546 | Chip R. | ERJ2GEJ472X | |
| R176 | RK3559 | Chip R. | ERJ2GEJ563X | |
| R177 | RK3563 | Chip R. | ERJ2GEJ124X | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-------------|--------------|--------------------|
| R178 | RK3552 | Chip R. | ERJ2GEJ153X | 593MkII 593MkII |
| R179 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R180 | RK3566 | Chip R. | ERJ2GEJ224X | |
| R181 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R182 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R183 | RK3556 | Chip R. | ERJ2GEJ333X | |
| R184 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R185 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R186 | RK3514 | Chip R. | ERJ2GEJ100X | |
| R187 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R188 | RK3572 | Chip R. | ERJ2GEJ684X | |
| R189 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R190 | RK3560 | Chip R. | ERJ2GEJ683X | |
| R191 | RK3567 | Chip R. | ERJ2GEJ274X | |
| R192 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R193 | RK3553 | Chip R. | ERJ2GEJ183X | |
| R194 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R195 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R197 | RK1018 | Chip R. | ERJ8GEYJ101V | |
| R198 | RK3566 | Chip R. | ERJ2GEJ224X | |
| R199 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R202 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R203 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R204 | RK3565 | Chip R. | ERJ2GEJ184X | |
| R206 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R207 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R208 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R210 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R211 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R212 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R213 | RK3532 | Chip R. | ERJ2GEJ331X | |
| R214 | RK3536 | Chip R. | ERJ2GEJ681X | |
| R215 | RK3567 | Chip R. | ERJ2GEJ274X | |
| R216 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R217 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R218 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R219 | RK3566 | Chip R. | ERJ2GEJ224X | |
| R220 | RK3574 | Chip R. | ERJ2GEJ105X | |
| R221 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R222 | RK3569 | Chip R. | ERJ2GEJ394X | |
| R223 | RK3536 | Chip R. | ERJ2GEJ681X | |
| R224 | RK3536 | Chip R. | ERJ2GEJ681X | |
| R225 | RK3536 | Chip R. | ERJ2GEJ681X | |
| R226 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R227 | RK3569 | Chip R. | ERJ2GEJ394X | |
| R228 | RK3556 | Chip R. | ERJ2GEJ333X | |
| R229 | RK3552 | Chip R. | ERJ2GEJ153X | |
| R230 | RK3534 | Chip R. | ERJ2GEJ471X | |
| R231 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R232 | RK3557 | Chip R. | ERJ2GEJ393X | |
| R233 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R234 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R235 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R236 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R237 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R238 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R239 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R240 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R241 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R242 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R243 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R244 | RK3554 | Chip R. | ERJ2GEJ223X | |
| R245 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R246 | RK3538 | Chip R. | ERJ2GEJ102X | |

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|----------------|--------------------|---------|
| R247 | RK3526 | Chip R. | ERJ2GEJ101X | 593MkII |
| R248 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R250 | RK3558 | Chip R. | ERJ2GEJ473X | |
| R251 | RK3034 | Chip R. | MCR03EZJ471 | |
| R252 | RK3544 | Chip R. | ERJ2GEJ332X | |
| R253 | RK3552 | Chip R. | ERJ2GEJ153X | |
| R921 | RK3562 | Chip R. | ERJ2GEJ104X | |
| R932 | RK3532 | Chip R. | ERJ2GEJ331X | |
| R933 | RK3566 | Chip R. | ERJ2GEJ224X | |
| R934 | RK3568 | Chip R. | ERJ2GEJ334X | |
| R935 | RK3538 | Chip R. | ERJ2GEJ102X | |
| R952 | RK3501 | Chip R. | ERJ2GE0R00X | |
| R953 | RK3501 | Chip R. | ERJ2GE0R00X | |
| R954 | RK3550 | Chip R. | ERJ2GEJ103X | |
| R955 | RK3501 | Chip R. | ERJ2GE0R00X | |
| SW17 | UU0030 | Switch | EVQPJ005Q | |
| SW18 | UU0030 | Switch | EVQPJ005Q | |
| U931 | XQ0155 | TCXO | TTS14V19.80MHz | |
| VR1 | RH0144 | Variable R. | MVR22HXBRN223 | |
| VR2 | RH0144 | Variable R. | MVR22HXBRN223 | |
| VR3 | RH0144 | Variable R. | MVR22HXBRN223 | |
| VR4 | RH0144 | Variable R. | MVR22HXBRN223 | |
| VR931 | RH0148 | Variable R. | MVR22HXBRN104 | |
| W3 | MACLH2GG | Wire | #30AH1-025-H1 | |
| W4 | MRCXH5AA | Wire | #28R02-55-02 | |
| X2 | XK0004 | Discriminator | CDBM450C24 | |
| X3 | XQ0131 | Crystal | CSA310 3.686400MHZ | |
| XF1 | XF0039 | Crystal Filter | DSF753SB D39115GQ1 | |

Packing Parts

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|-------------------|--------------------|---------|
| | EG0043 | NiMH-Battery | EBP50N | |
| | EW0019A | Wall charger 120V | EDC-93 | T |
| | EW0020A | Wall charger 230V | EDC-94 | E |
| | EA0098 | | ANTENNA | |
| | #G0862 | | BELT CLIP | |
| | PS0432 | | INSTRUCTION MANUAL | 593MkII |
| | PS0433 | | INSTRUCTION MANUAL | 596MkII |
| | PH0013 | | WARRANTY | T |
| | DS0446 | | SPEC. SHEET | |
| | PR0478 | | CE LABEL | E |
| | PK0098 | | CIRCUIT DIAGRAM | |
| | PR0452 | | FCC HOME USE LABEL | T |
| | PR0447 | | FCC LABEL | T |
| | HU0178 | | INNER | |
| | HU0181 | | INNER A | |
| | HM0215 | | CARTON 10 | |
| | HU0170 | | INNER 10 | |
| | HK0541 | | PACKAGE | 593MkII |
| | HK0512A | | PACKAGE | 596MkII |
| | HP0031 | | PROTECTION BAG | |
| | PR0514 | | E-10x49 LABEL | |

Mechanical Parts

| Ref. No. | Parts No. | Description | Parts Name | Version |
|----------|-----------|----------------|----------------------|---------|
| | UR0019 | Rotary Encoder | RH70N00E20 (RY-6320) | |
| | FG0274 | | DC CAP | |
| | AN0012 | Nut | RND N7X0.75 BR/B.ZN | |
| | UE0441 | | ANT CONNECTER | |
| | KZ0133A | | FRONT PANEL 596 | |
| | YX0024 | | LCD TAPE DJ195 | |
| | FM0178 | | PIN DJ195 | |
| | AK0001Z | | BT 3P 2X4 NIC | |
| | AF0029 | | XQN2+C9FN | |
| | AF0031 | | 0PH 2+5 FE/N3 | |
| | AF0020Z | | 1P 2X3 NIC | |
| | DP0150 | | LCD PANEL 530 | |
| | FG0306 | | KL7022A-POWER RUBBER | |
| | FG0290 | | KL6767-PTT DJ195 | |
| | FM0179 | | ANTENNA EARTH DJ195 | |
| | FM0187 | | REAR PANEL DJ196 | |
| | FG0289 | | TERMINAL RUBBER 195 | |
| | ES0024 | Speaker | 36-8BB-21 | |
| | FG0286 | | KL6766-JACK CAPDJ195 | |
| | TW0020 | | W.PROOF A XH720 | |
| | NK0068 | | DIAL KNOB DJ195 | |
| | SS0097 | | CHASSIS DJ596 | |
| | FF0029 | | CLOTH 4.0X22 | |
| W1 | MACL07AA | Wire | #30A02-070-02 | |
| W2 | MPCL07AA | Wire | #30P02-070-02 | |

ADJUSTMENT

1) Required Test Equipment

The following items are required to adjust radio parameters.

1. Regulated Power supply

| | |
|-----------------|-------------|
| Supply voltage: | 5 to 14 VDC |
| Current: | 3A or more |

2. Digital Multimeter

| | |
|-------------------|------------------|
| Voltage range: | FS = Approx. 20V |
| Current: | 10A or more |
| Input resistance: | High impedance |

3. Oscilloscope

| | |
|-----------------------|-----------------|
| Measurable frequency: | Audio Frequency |
|-----------------------|-----------------|

4. Audio Dummy Load

| | |
|--------------|---------------------|
| Impedance: | 8 Ω |
| Dissipation: | 1W or more |
| Jack: | 3.5mm \varnothing |

5. SSG

| | |
|-------------------|---|
| Output frequency: | 500MHz or more |
| Output level: | -20dB μ /0.1 μ V to 120dB μ /1V |
| Modulation: | FM |

6. Spectrum Analyzer

| | |
|------------------|--------------------|
| Measuring range: | Up to 2GHz or more |
|------------------|--------------------|

7. Power meter

| | |
|-----------------------|--------------------------|
| Measurable frequency: | Up to 500MHz |
| Impedance: | 50 Ω , unbalanced |
| Measuring range: | 0.1W to 10W |

8. Audio Voltmeter

| | |
|-----------------------|--------------|
| Measurable frequency: | Up to 100kHz |
| Sensitivity: | 1mV to 10V |

9. Audio Generator

| | |
|-------------------|---------------------------|
| Output frequency: | 67Hz to 10kHz |
| Output impedance: | 600 Ω , unbalanced |

10. Distortion Meter/SINAD Meter

| | |
|-----------------------|------------|
| Measurable frequency: | 1kHz |
| Input level: | Up to 40dB |
| Distortion level: | 1% to 100% |

11.Frequency Counter

| | |
|-----------------------|-----------------------|
| Measurable frequency: | Up to 500MHz |
| Measurable stability: | Approx. ± 0.1 ppm |

12.Linear Detector

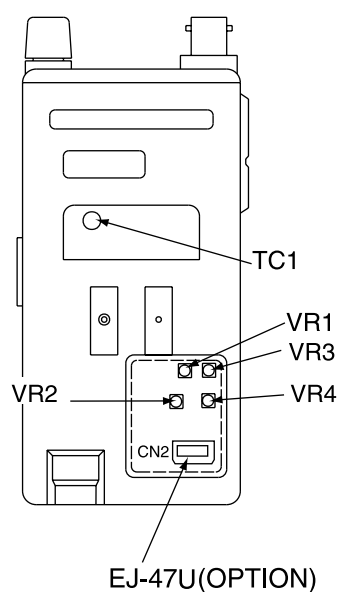
| | |
|-----------------------|---------------|
| Measurable frequency: | Up to 500MHz |
| Characteristics: | Flat |
| CN: | 60 dB or more |

Note

- Standard modulation: 1kHz \pm 3.5kHz /DEV
- Reference sensitivity: 12dB SINAD
- Specified audio output level: 200mW at 8 Ω
- Standard audio output level: 50mW at 8 Ω
- Use an RF cable (3D2W:1m) for test equipment.
- Attach a fuse to the RF indicated by EMF.
- All SSG outputs are indicated by EMF.
- Supply voltage for the transceiver: 13.8VDC

2) Entering and Releasing the Adjustment Mode

The DJ-593/596MkII does not require a serviceworker to manipulate the components on the printed-circuit board, except the trimmer when adjusting reference frequency and deviation. Most of the adjustments for the transceiver are made by using the keys on it while the unit is in the adjustment mode. Because the adjustment mode temporarily uses the channels, frequency must be set on each channel before adjustments can be made. For instructions on how to program the channels, see the "DJ-593/596MkII INSTRUCTION MANUAL" which came with the product. In consideration of the radio environment, the frequency on each channel must be near the value (+/-1MHz) listed in the table below. To enter the adjustment mode, set key lock and input 490217. Decimal point at 100MHz and 10MHz appears in LCD. (To release the mode, same manner to enter the adjustment mode.)



Channel frequency used in the adjustment mode

| Memory Channel | Channel Function | Frequency (MHz) | |
|----------------|-----------------------------------|-----------------|-----|
| | | T | E |
| 1 | Reference frequency | 445 | 435 |
| 2 | UHF high-power | 445 | 435 |
| 3 | UHF low-power | 445 | 435 |
| 4 | VHF high-power | 145 | 145 |
| 5 | VHF low-power | 145 | 145 |
| 6 | VHF minimum frequency sensitivity | 136 | 136 |
| 7 | VHF medium frequency sensitivity | 145 | 145 |
| 8 | VHF maximum frequency sensitivity | 173 | 173 |
| 9 | UHF minimum frequency sensitivity | 410 | 410 |
| 10 | UHF medium frequency sensitivity | 445 | 435 |
| 11 | UHF maximum frequency sensitivity | 490 | 490 |
| 12 | VHF S-meter (1) | 145 | 145 |
| 13 | VHF S-meter (FULL) | 145 | 145 |
| 14 | UHF S-meter (1) | 445 | 435 |
| 15 | UHF S-meter (FULL) | 445 | 435 |
| 16 | VHF wide deviation | 145 | 145 |
| 17 | VHF narrow deviation | 145 | 145 |
| 18 | UHF wide deviation | 445 | 435 |
| 19 | UHF narrow deviation | 445 | 435 |

Reference frequency adjustment

1. In the adjustment mode, select channel 1 by rotating the main tuning dial.
2. Press the **(PTT)** key to start transmission.
3. Rotate TC1 on the main board until the value on the frequency counter matches the one displayed on the LCD.

UHF high-power adjustment

1. In the adjustment mode, select channel 2 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 4.5W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the high power setting.

UHF low-power adjustment

1. In the adjustment mode, select channel 3 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 0.8W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the low power setting.

VHF high-power adjustment

1. In the adjustment mode, select channel 4 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 4.5W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the high power setting.

VHF low-power

1. In the adjustment mode, select channel 5 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 0.8W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the low power setting.

VHF minimum frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 6 by rotating the main tuning dial.
2. Set the minimum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

VHF medium frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 7 by rotating the main tuning dial.
2. Set the medium frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

VHF maximum frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 8 by rotating the main tuning dial.
2. Set the maximum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

UHF minimum frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 9 by rotating the main tuning dial.
2. Set the minimum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

UHF medium frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 10 by rotating the main tuning dial.
2. Set the medium frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

UHF maximum frequency sensitivity adjustment

See “Note on adjusting the sensitivity” later in this section.

1. In the adjustment mode, select channel 11 by rotating the main tuning dial.
2. Set the maximum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

VHF S-meter (1) adjustment

1. In the adjustment mode, select channel 12 by rotating the main tuning dial.
The S-meter will show a single circle (●)
2. Enter “0” dB μ (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key The transceiver beeps indicating the new setting has been stored successfully.

VHF S-meter (FULL) adjustment

1. In the adjustment mode, select channel 13 by rotating the main tuning dial.
The S-meter will show all circles (●●●●●●)
2. Enter "+20" dB μ (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key. The transceiver beeps indicating the new setting has been stored successfully.

UHF S-meter (1) adjustment

1. In the adjustment mode, select channel 14 by rotating the main tuning dial.
The S-meter will show a single circle (●)
2. Enter "0" dB μ (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key . The transceiver beeps indicating the new setting has been stored successfully.

UHF S-meter (FULL) adjustment

1. In the adjustment mode, select channel 15 by rotating the main tuning dial.
The S-meter will show all circles (●●●●●●)
2. Enter "+20" dB μ (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key. The transceiver beeps indicating the new setting has been stored successfully.

VHF wide deviation adjustment

1. In the adjustment mode, select channel 16 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR1 on the printed-circuit board of the transceiver until the deviation is set to 4.5kHz.

VHF narrow deviation adjustment

1. In the adjustment mode, select channel 17 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR2 on the printed-circuit board of the transceiver until the deviation is set to 2.2kHz.

UHF wide deviation adjustment

1. In the adjustment mode, select channel 18 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR3 on the printed-circuit board of the transceiver until the deviation is set to 4.5kHz.

UHF narrow deviation adjustment

1. In the adjustment mode, select channel 19 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR4 on the printed-circuit board of the transceiver until the deviation is set to 2.2kHz.

Channel frequency used in the test mode

| Memory Channel | Channel Function | Frequency (MHz) | |
|----------------|--------------------------|-----------------|-----|
| | | T | E |
| 20 | DTMF (1) | 145 | 145 |
| 21 | DTMF (D) | 145 | 145 |
| 22 | Tone 67Hz | 145 | 145 |
| 23 | Tone 88.5Hz | 145 | 145 |
| 24 | Tone 250.3Hz | 145 | 145 |
| 25 | DCS code 255 | 145 | 145 |
| 26 | Tone Burst test | 145 | 145 |
| 27 | Digital mode deviation * | 145 | 145 |

* : Required if EJ-47U is installed.

DTMF (1) test

This function is only for checking the DTMF code, not adjusting it.

1. In the adjustment mode, select channel 20 by rotating the main tuning dial.
2. Press the **(PTT)** key. DTMF code "1" is automatically sent and you will hear the monitoring tone from the speaker.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.1 to 3.7kHz range.

DTMF (D) test

1. In the adjustment mode, select channel 21 by rotating the main tuning dial.
2. Press the **(PTT)** key. DTMF code "D" is automatically sent and you will hear the monitoring tone from the speaker.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.1 to 3.7kHz range.

Tone 67Hz test

This function is only for checking the tone encoder, not adjusting it.

1. In the adjustment mode, select channel 22 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 67Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

Tone 88.5Hz test

1. In the adjustment mode, select channel 23 by rotating the main tuning dial.
2. Press the **(PTT)** key. An 88.5Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

Tone 250.3Hz test

1. In the adjustment mode, select channel 24 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 250.3Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

DCS code 255 test

This function is only for checking the DCS code encoder, not adjusting it.

1. In the adjustment mode, select channel 25 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 255 DCS code is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.5 to 1.5kHz range.

Tone Burst test

This function is only for checking the tone burst, not adjusting it.

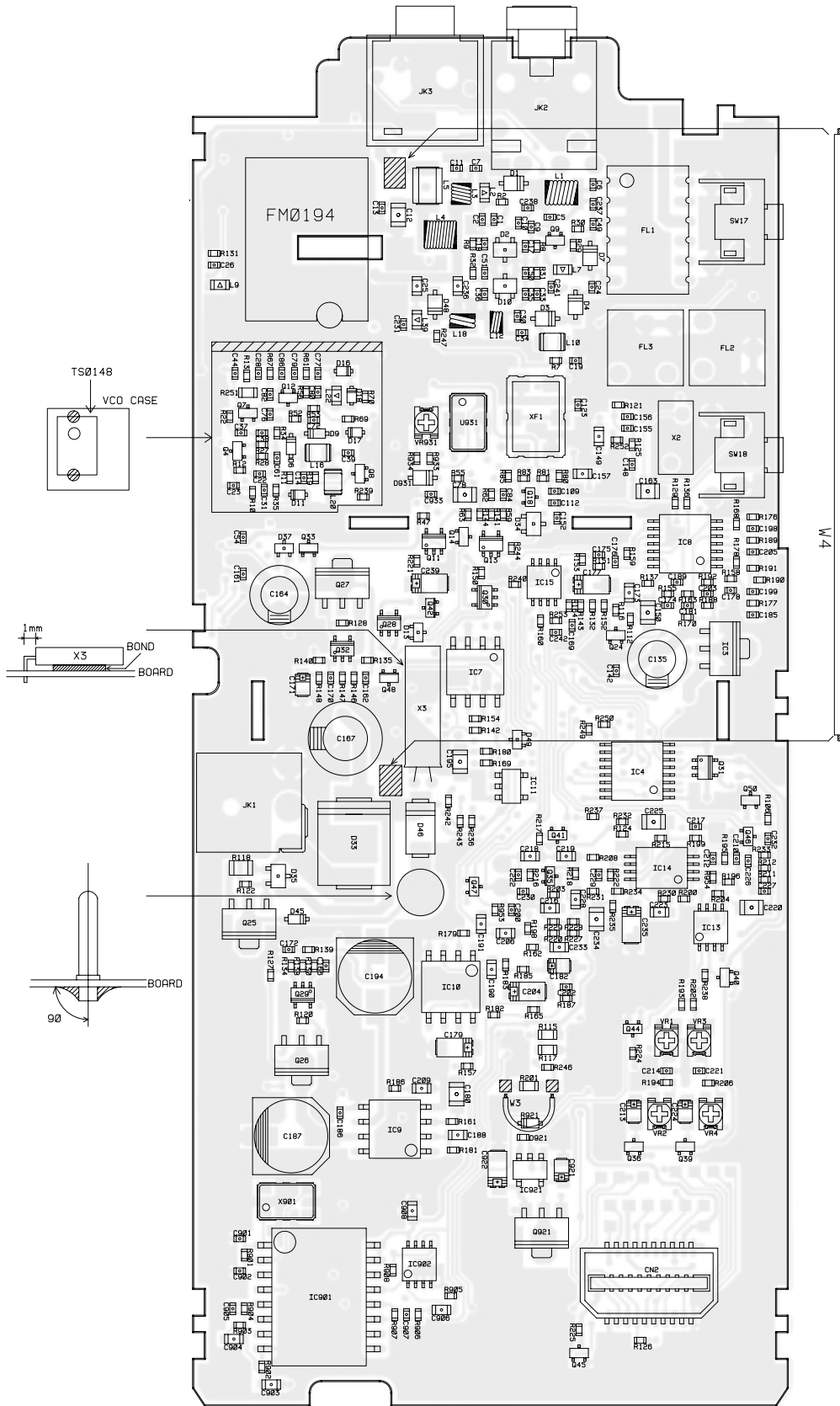
1. In the adjustment mode, select channel 26 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 1750Hz tone burst is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.3 to 3.7kHz range.

Digital mode deviation test (Optional EJ-47U required)

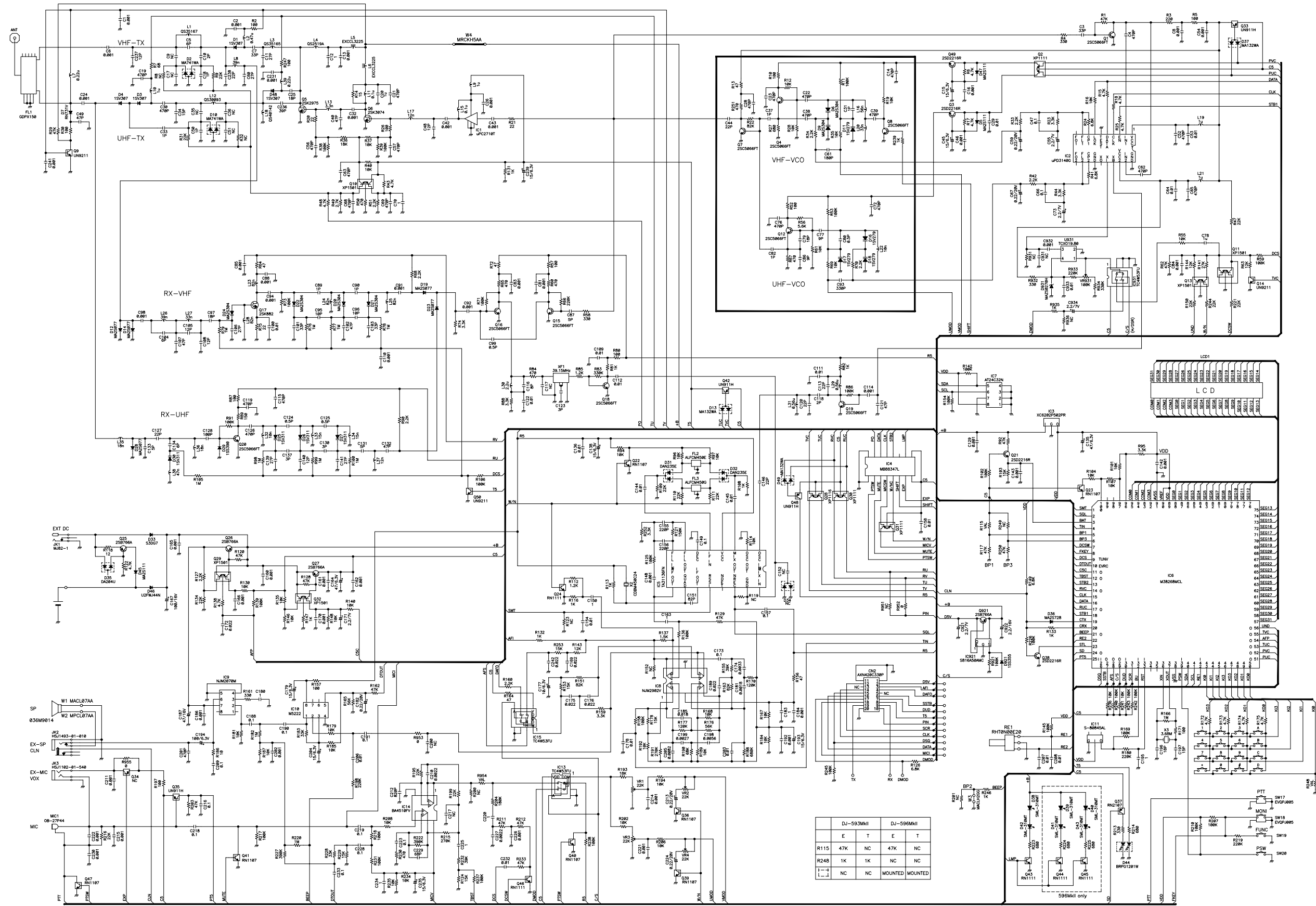
This function is only for checking the digital mode deviation, not adjusting it.

1. In the adjustment mode, select channel 27 by rotating the main tuning dial.
2. Press the **(PTT)** key. A digital code "000000" is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.8 to 3.7kHz range.

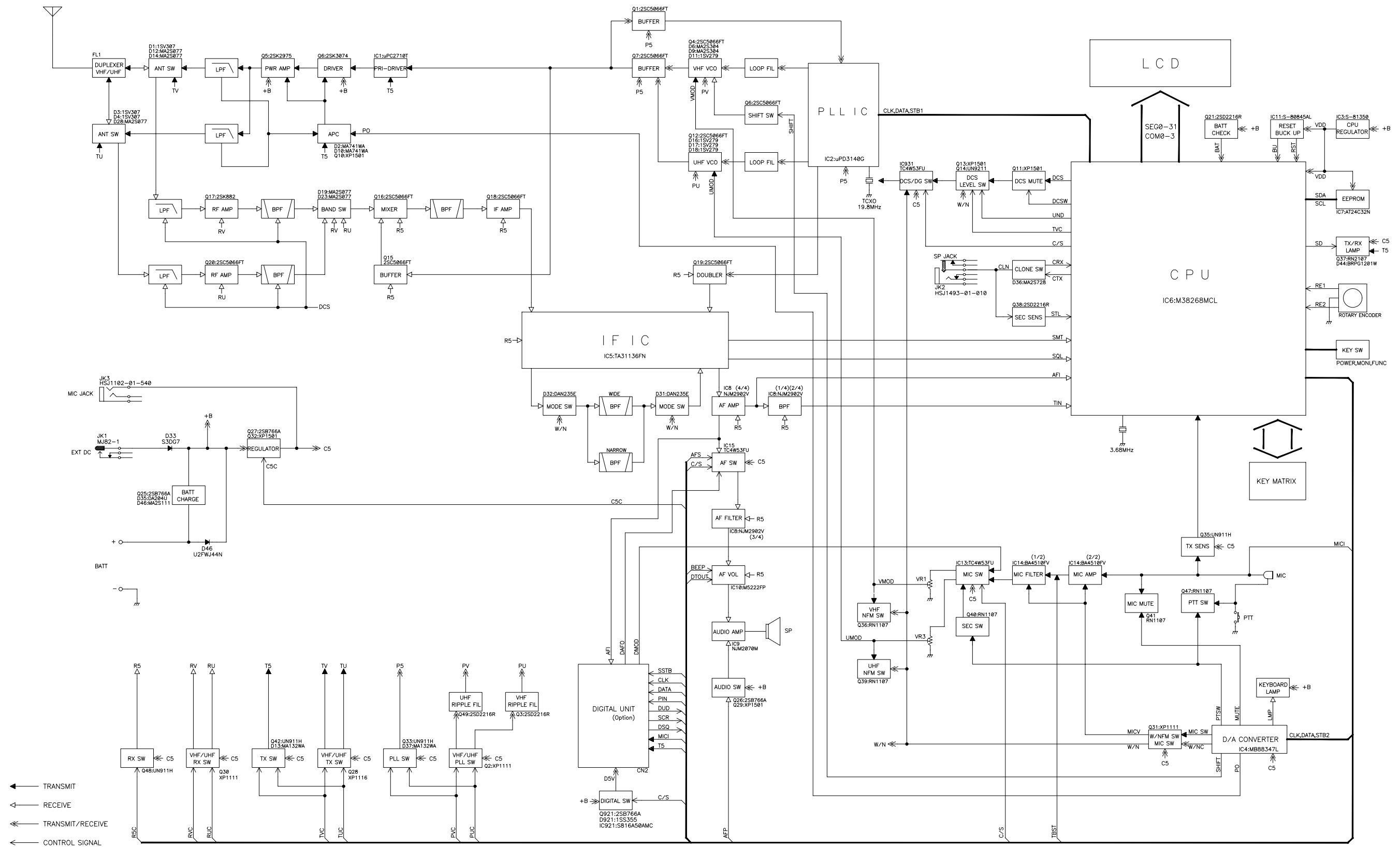
MAIN SIDE B



SCHEMATIC DIAGRAM DJ-593/596MkII



BLOCK DIAGRAM DJ-593/596MkII



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