144/430 (440) MHz FM DUAL BANDER

# TM-V71A/V71E

## SERVICE MANUAL

KENWOOD

Kenwood Corporation

© 2007-5 PRINTED IN JAPAN
B51-8791-00 (N) 289

**Photo is TM-V71A.**

## CONTENTS


**DISASSEMBLY FOR REPAIR .....2**
**CIRCUIT DESCRIPTION .....3**
**SEMICONDUCTOR DATA.....11**
**COMPONENTS DESCRIPTION.....14**
**TERMINAL FUNCTION .....19**
**PARTS LIST .....22**
**EXPLODED VIEW .....38**
**PACKING.....39**
**ADJUSTMENT .....40**
**PC BOARD**
**DISPLAY UNIT (X54-3590-00) .....60**
**TX-RX UNIT (X57-731X-XX) .....64**
**INTERCONNECTION DIAGRAM .....72**
**SCHEMATIC DIAGRAM .....74**
**BLOCK DIAGRAM .....86**
**LEVEL DIAGRAM .....88**
**OPTIONAL ACCESSORIES .....90**
**SPECIFICATIONS .....91**


This product complies with the **RoHS** directive for the European market.

LF

This product uses Lead Free solder.

## Document Copyrights

Copyright 2007 by Kenwood Corporation. All rights reserved.

No part of this manual may be reproduced, translated, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, for any purpose without the prior written permission of Kenwood.

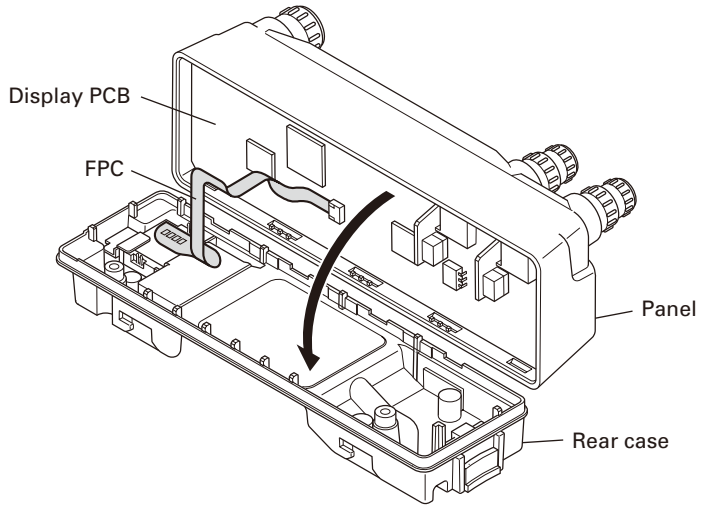

## Disclaimer

While every precaution has been taken in the preparation of this manual, Kenwood assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Kenwood reserves the right to make changes to any products herein at any time for improvement purposes.

# DISASSEMBLY FOR REPAIR

## Precautions for Disassembly

When removing the rear case from the panel, open the bottom side slowly so as not to stress the FPC, as the FPC on the rear case is connected with the connector of the display PCB.



# CIRCUIT DESCRIPTION

## 1. Frequency Configuration

The TM-V71A/V71E has an individual VCO and PLL unit for both band A and band B. Using these separate VCO and PLL circuits, it can receive 2 separate bands at the same time. You can also perform full-duplex operation.

The band A VCO is used for the following functions:

(i) VHF/UHF transmission

(ii) The first local oscillator for the band A (VHF) reception.

(iii) The first local oscillator for the band A (UHF) reception.

The band B VCO is used for the following functions:

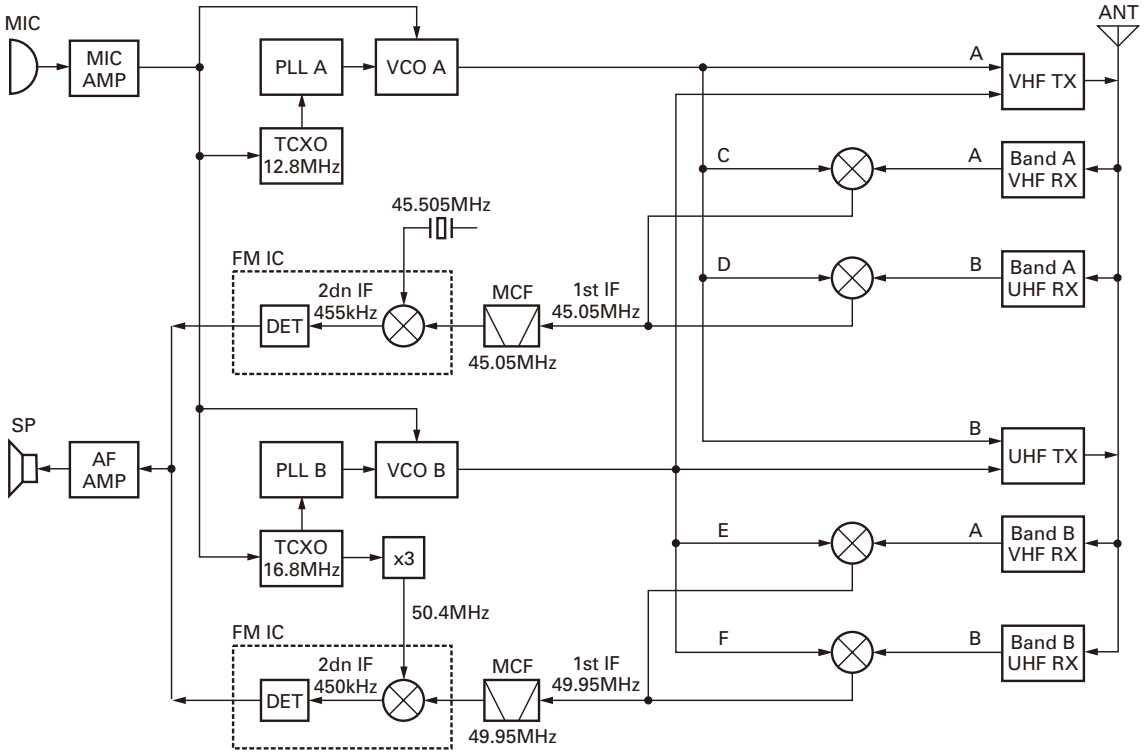
(i) VHF/UHF transmission

(ii) The first local oscillator for the band B (VHF) reception.

(iii) The first local oscillator for the band B (UHF) reception.

The PLL reference frequency is generated by a 12.8MHz (band A) and a 16.8MHz (band B) crystal oscillator connected to the band A and band B PLL ICs. This reference frequency is used for both PLL circuits. The 45.505MHz second local oscillator for band A is generated by the FM IC crystal oscillator circuit. The second local oscillator for the band B uses the tripled 16.8MHz reference oscillator frequency.

**Note:**
The PCB layout and the mounting parts are the same for the band A VCO (X57-731 B/6) and band B VCO (X57-731 C/6), although the PCB silk print is different.




| | K type | E type | M4 type |
|---|---|---|---|
| A | 144.000 ~147.995MHz | 144.000~145.995MHz | 144.000~145.995MHz |
| B | 438.000~449.995MHz | 430.000~439.995MHz | 430.000~439.995MHz |
| C | 189.050~193.045MHz | 189.050~191.045MHz | 189.050~191.045MHz |
| D | 392.950~404.945MHz | 384.950~394.945MHz | 384.950~394.945MHz |
| E | 193.950~197.945MHz | 193.950~195.945MHz | 193.950~195.945MHz |
| F | 388.050~400.045MHz | 380.050~390.045MHz | 380.050~390.045MHz |

**Fig. 1 Frequency configuration**

# CIRCUIT DESCRIPTION

## 2. Receiver System

### 2-1. Band A VHF Receiver Circuit

The incoming signal from the antenna passes through a filter circuit and goes to the RF amplifier (Q228). The amplified signal enters the band-pass filter. After the signal passes through the band-pass filter, it is amplified by another RF amplifier (Q227) and then passes through the band-pass filter before entering the mixer (Q226). The frequency of the signal is converted by the first local oscillator (Upper heterodyne) to generate a 45.05MHz first IF signal. The signal passes through the MCF (XF486), is amplified by the IF amplifier (Q495) and then enters the FM IC (IC486).

The signal is converted to the 455kHz second IF signal by the second local oscillator (Upper heterodyne). It is then detected to generate an audio signal.

### 2-2. Band B VHF Receiver Circuit

The incoming signal from the antenna passes through a filter circuit and goes to the RF amplifier (Q293). The amplified signal passes through the band-pass filter and is amplified by another RF amplifier (Q292). It then passes through the band-pass filter and goes to the mixer (Q291). The frequency of the signal is converted by the first local oscillator (Upper heterodyne) to generate a 49.95MHz first IF signal. The signal passes through the MCF (XF546), is amplified by the IF amplifier (Q551) and then enters the FM IC (IC546). The signal is then converted to the 450kHz second IF signal by the second local oscillator, which is tripled 16.8MHz (Upper heterodyne). It is then detected to generate an audio signal.

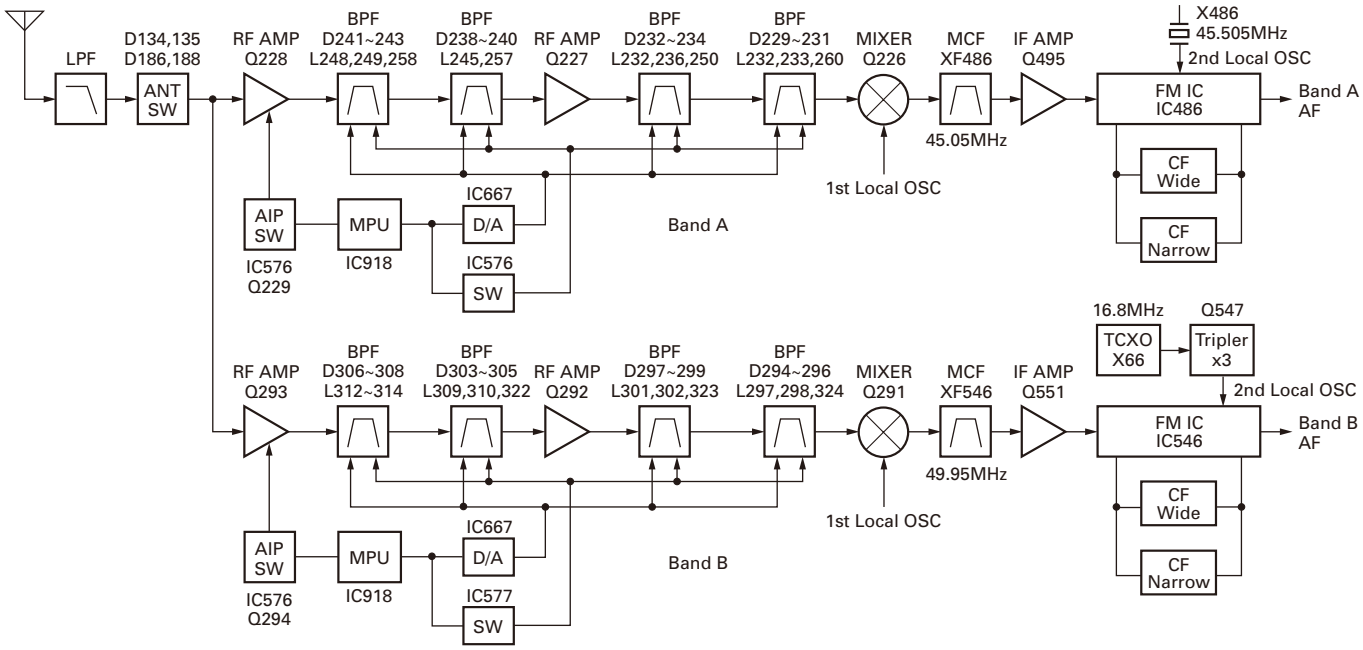



**Fig. 2 Band A and Band B VHF receiver circuit**

### 2-3. Band A UHF Receiver Circuit

The incoming signal from the antenna passes through a filter circuit and goes to the RF amplifier (Q363). The amplified signal enters the band-pass filter. After the signal passes through the band-pass filter, it is amplified by another RF amplifier (Q362) and then passes through the band-pass filter before entering the mixer (Q361). The frequency of the signal is converted by the first local oscillator (Lower heterodyne) to generate a 45.05MHz first IF signal. The signal passes through the MCF (XF486), is amplified by the IF amplifier (Q495) and then enters the FM IC (IC486). The signal is converted to the 455kHz second IF signal by the second local oscillator (Upper heterodyne). It is then detected to generate an audio signal.

### 2-4. Band B UHF Receiver Circuit

The incoming signal from the antenna passes through a filter circuit and goes to the RF amplifier (Q408). The amplified signal passes through the band-pass filter and is amplified by another RF amplifier (Q407). It then passes through the band-pass filter and goes to the mixer (Q406). The frequency of the signal is converted by the first local oscillator (Lower heterodyne) to generate a 49.95MHz first IF signal. The signal passes through the MCF (XF546), is amplified by the IF amplifier (Q551) and then enters the FM IC (IC546). The signal is then converted to the 450kHz second IF signal by the second local oscillator, which is tripled 16.8MHz (Upper heterodyne). It is then detected to generate an audio signal.

The VHF/ UHF band-pass filter is tuned to the desired frequency according to the BPF voltage output from the D/A IC (IC667), and is controlled by the MPU (IC918) and the varicap.

# CIRCUIT DESCRIPTION

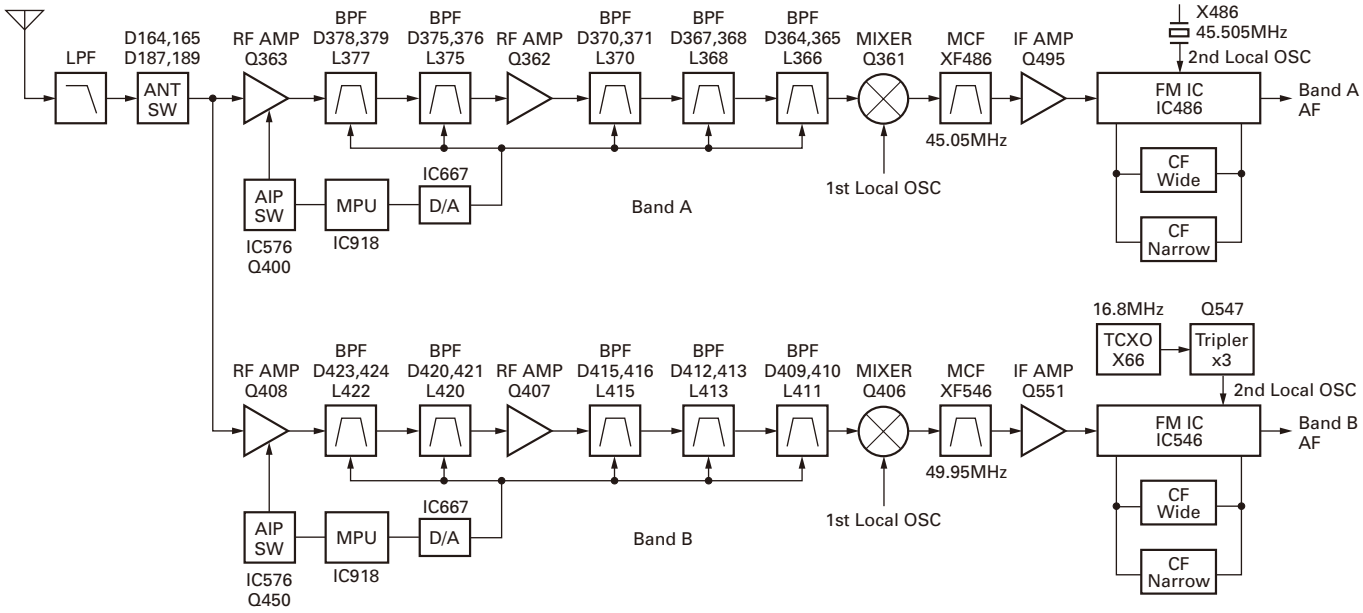



**Fig. 3 Band A and Band B UHF receiver circuit**

### 2-5. Audio Circuit

The detected band A audio signal is amplified by Q810 and de-emphasized by Q806. The band B audio signal is amplified by Q811 and de-emphasized by Q807. One of these audio signals is selected with a cross point switch (IC806). The signal passes through the electronic volume (IC804), is amplified by the AF amplifier (IC801), and is then fed to the speaker or the external speaker jack.

CTCSS and DCS signals that pass through the filter circuit (IC805) go to the MPU (IC918) for CTCSS and DCS decoding.

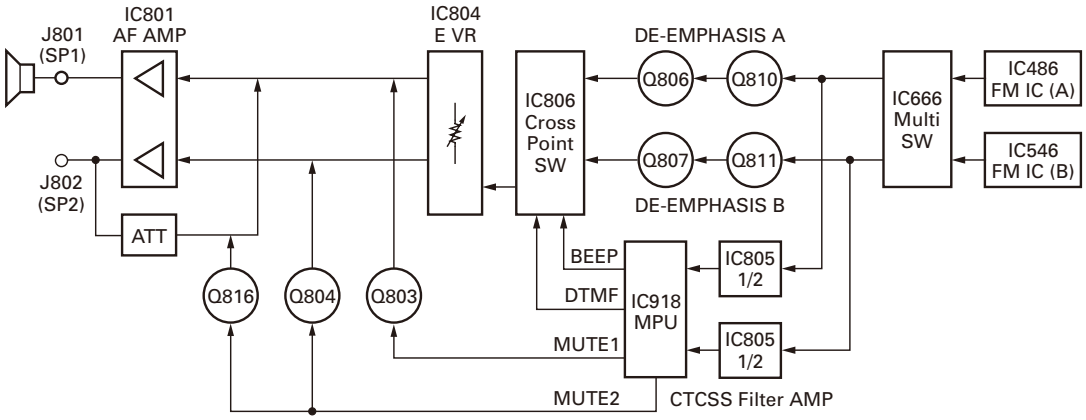



**Fig. 4 Audio circuit**

## 3. Transmitter System

### 3-1. Modulation Circuit

The audio modulation input from the microphone is amplified by IC802. After the DTMF signal and 1750Hz tone signal generated by the MPU are switched with IC806, they are mixed by IC803. After the signal amplified by IC802 is switched by IC806, it is amplifier by IC803. The signal is then pre-emphasized by Q805 and Q808, and its level is adjusted by IC804. The resulting signal goes to each of the band A and band B VCOs as a modulation signal. The TONE/ DCS signal generated by the MPU is fed to IC803. The signal amplified by IC803 is distributed and the level is adjusted by IC804. The modulating signal goes to each of the band A and band B VCOs and the reference oscillation circuit.

# CIRCUIT DESCRIPTION

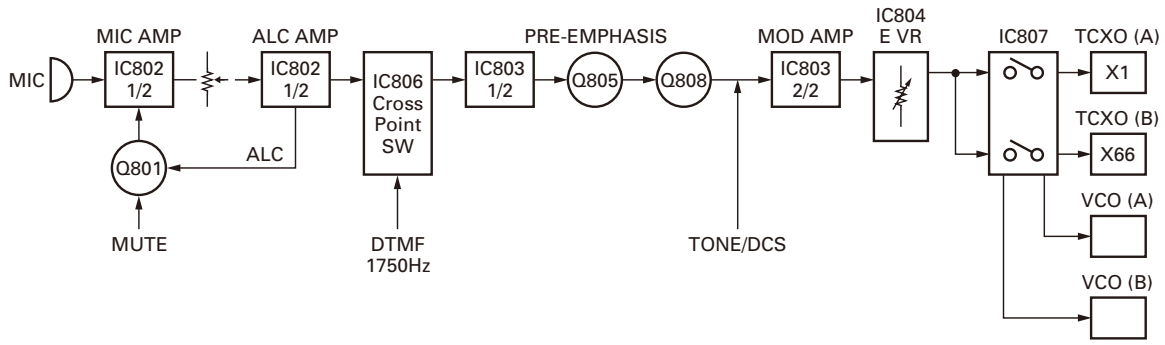



**Fig. 5 Modulation circuit**

### 3-2. Transmitter Circuit

The VHF VCO output is amplified by RF amplifier (Q644) and driver amplifier (Q131). It is further amplified to the final output by power module (IC131). The output signal passes through antenna switch (D134, D135) and a low-pass filter, and is then fed to the antenna.

The UHF VCO output is amplified by RF amplifier (Q161) and driver amplifier (Q162). It is further amplified to the final output by power module (IC161). The signal passes through antenna switch (D164, D165), and a low-pass and high-pass filter, and is then fed to the antenna.

### 3-3. APC Circuit

The Automatic transmission Power Control (APC) circuit has a differential amplifier (IC187) that compares the DC voltage generated by detecting part of the transmission output using diodes (D191, D192) with the reference voltage output from the D/A IC (IC667). The output signal is switched by IC186 and is fed to the power module of each VHF/UHF to keep transmission output constant.

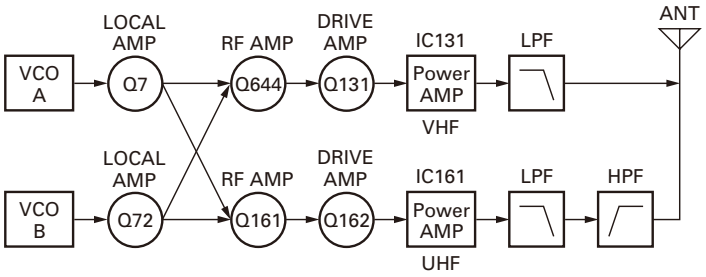



**Fig. 6 Transmitter circuit**

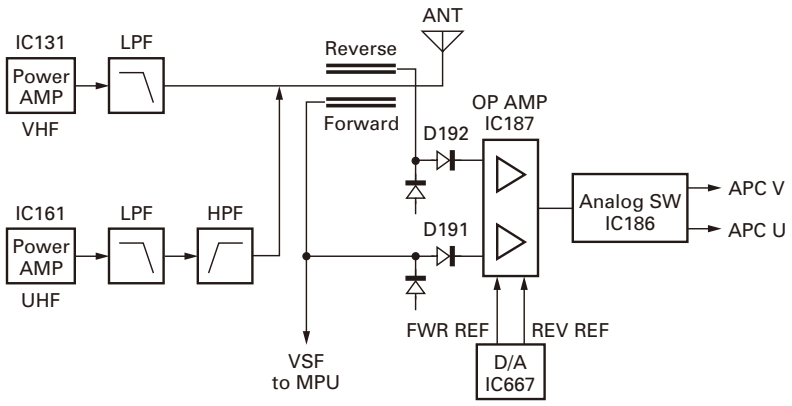



**Fig. 7 APC circuit**

# CIRCUIT DESCRIPTION

### 3-4. Overheating Protection Circuit

To protect thermal destruction of the power modules (IC131, IC161), the voltage of the thermistors (TH131, TH161) near the power modules (IC131, IC161) is monitored by the MPU (IC918). If their temperature becomes high, this circuit reduces the APC voltage to cool down the temperature.

## 4. PLL Circuit

### 4-1. Reference Oscillator Circuit

Band A divides 12.8MHz inside the PLL IC (IC1) or band B divides 16.8MHz inside the PLL IC (IC66) to generate a 5kHz or 6.25kHz reference frequency. The 16.8MHz signal on IC66 side is tripled by Q547 to obtain the second local oscillator for band B. The reference oscillation circuit is also modulated to improve the modulation characteristics of the DCS and 9600bps packet signal when it is transmitted.

### 4-2. Phase Comparator

Part of the band A VCO output is amplified by Q5 and goes to PLL IC (IC1). Also, a part of the band B VCO output is amplified by Q70 and goes to the PLL IC (IC66). The pulse-swallow type PLL IC divides the input VCO oscillator frequency using the data from the MPU (IC918). It compares its phase with that of the reference frequency to make the PLL synthesizer to generate the desired step.

### 4-3. Lock Voltage (VCO Control Voltage)

The phase differential comparator, output from the PLL IC, results in a phase difference pulse. As for the result of phase comparison with the PLL IC, a phase difference is output as a pulse. This pulse is amplified by a charge pump (Q2, Q3 or Q67, Q68) and the ripples are removed by a low-pass filter, then the signal is supplied as the oscillator frequency control voltage for each VCO.

### 4-4. Unlock Detection Circuit

When the PLL is unlocked, a low state voltage is output from the LD terminal (pin 8) of the PLL IC. This signal is monitored by the MPU (IC918) to control transmission/reception switching timing.

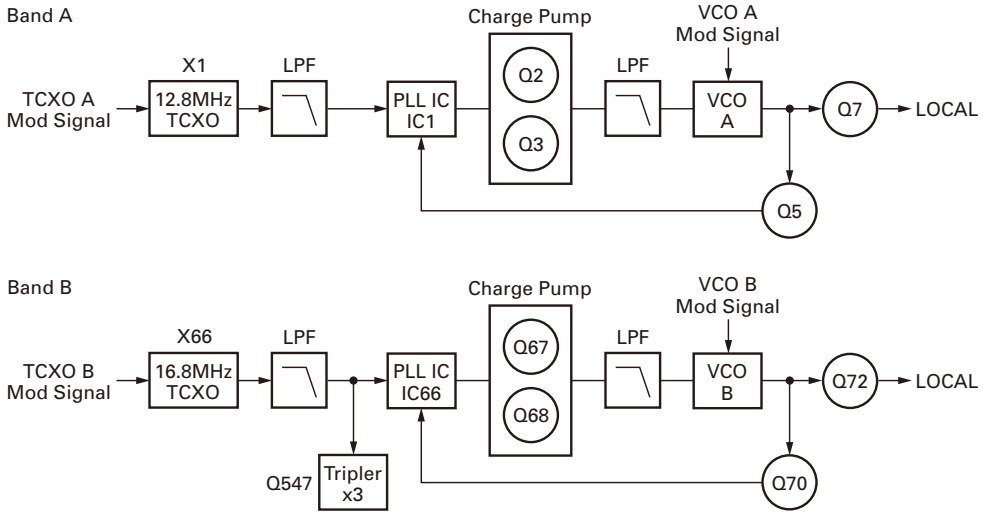



**Fig. 8 PLL circuit**

## 5. Power Supply Circuit

### 5-1. Microcomputers and Peripheral Circuits

#### ■ Reset and Backup Circuits

The MPU reset signal detects a rising edge of the M5 line voltage with the reset IC (IC920). When the voltage supplied to the transceiver decreases and the B line voltage falls below the detection voltage of the voltage detection IC (IC919), the MPU (IC918) detects it through the interrupt terminal, stores the data in the EEPROM (IC916), and shuts the power off.

### 5-2. Voltage Detection Processing

The MPU (IC918) monitors and process various voltage statuses at A/D ports of IC918.

The squelch voltage is input from the FM IC and a change in the noise voltage is detected to control squelch.

The S-meter voltage is input from the FM IC to control the S-meter display.

The thermistor voltage (temperature) is also detected through the A/D port.

# CIRCUIT DESCRIPTION

### 5-3. Serial Control

The MPU (IC918) controls the panel section (Display unit X54-359) through synchronous serial communications.

**Fig. 9 Structure of non-synchronized serial communication**

### 5-4. Narrow/ Wide Switching Circuit

On band A, the receiver bandwidth can be switched between narrow and wide by selecting IF ceramic filters CF487 (Narrow) and CF486 (Wide) with a switching circuit (Q486, Q487, D486, D487).

On band B, the receiver bandwidth can also be switched between narrow and wide by selecting IF ceramic filter CF547 (Narrow) and CF546 (Wide) with a switching circuit (Q546, Q548, D546, D547).

The transmitter deviation can be switched between narrow and wide by setting the electronic variable resistor (IC804) on the deviation adjustment point. It is controlled from the MPU (IC918).

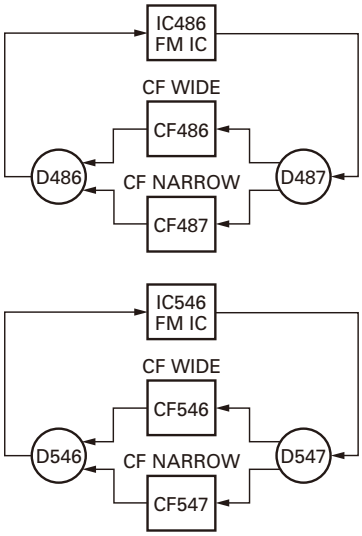



**Fig. 10 Narrow/ Wide switching circuit**

## 6. AF Signal System

### 6-1. Beep Circuit and Mute Circuit

A beep sound is generated by the MPU (IC918) and goes to cross point switch (IC806). This signal is switched by the cross point switch and is input to the electronic volume (IC804). While the beep signal is output from the MPU, audio signals for each band are muted by the cross point switch with the serial data from the MPU (IC918). The beep signal that has had its level adjusted by an electronic volume is input to AF amplifier (IC801).

### 6-2. Speaker Switching Circuit

There are two speaker jacks, J801 (SP1) and J802 (SP2). The AF signals can be output in various combinations matching the internal speakers. When an external speaker is not connected to J802 (SP2), the J802 signal is added to the AF amplifier input of SP1 via the ATT circuit, and is output through J801 (SP1). When an external speaker is connected to J802 (SP2), it is output separately from a speaker for A / B band. Crossing point switch connection can be switched by switching the menu between MODE 1 and 2, and the connection of SP1 and SP2.

The AF signal output combinations are shown in the table below.

| Mode | Speaker Setup | Band Output | | |
|---|---|---|---|---|
| | | Internal Speaker | External SP1 | External SP2 |
| MODE 1 | None | A, B | – | – |
| | SP1 only | x | A, B | – |
| | SP2 only | A | – | B |
| | SP1, SP2 | x | A | B |
| MODE 2 | None | A, B | – | – |
| | SP1 only | x | A, B | – |
| | SP2 only | B | – | A |
| | SP1, SP2 | x | B | A |

**Table 1 AF signal output combinations**

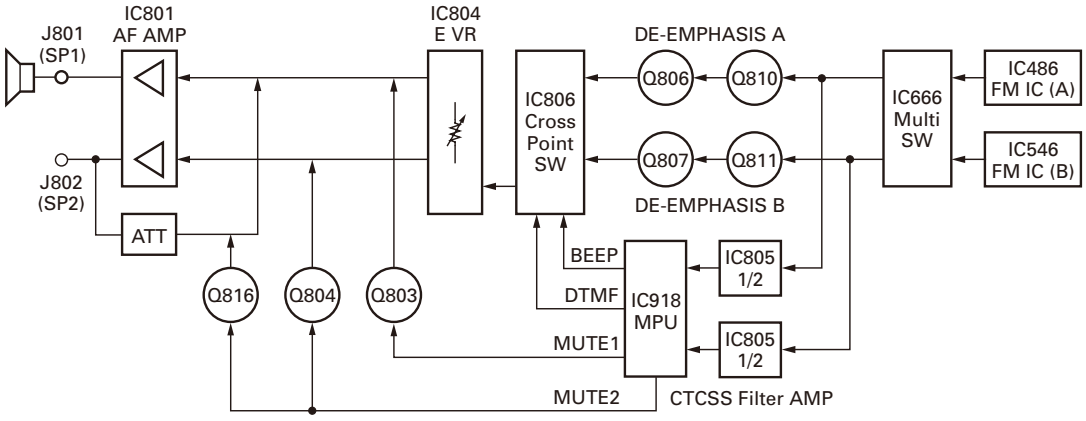



**Fig. 11 Beep circuit and mute circuit**

# CIRCUIT DESCRIPTION

### 6-3. Microphone Key Input

**■ When the MC-59 (Supplied microphone) is used**

The pulse is output from the CM terminal of the MPU to the microphone. The MPU judges which key was pressed from the number of pulses returned from the microphone.

**■ When the MC-45 (Optional microphone) is used**

The microphone UP/DOWN and function keys are connected to the microprocessor analog input. The voltage when a key is ON operates the corresponding function.

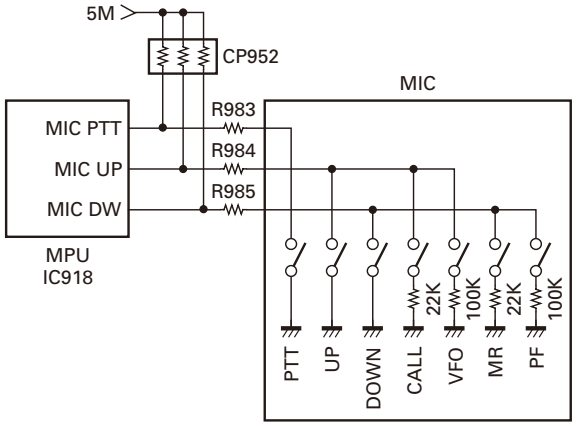



**Fig. 12 Microphone (MC-45) key input**

## 7. Data Terminal and Peripheral Circuits

J607 (Data terminal) is the data communications terminal on the rear of the transceiver. It handles transmission control, data input/ output, and squelch signals.

There are two data communications modes: 9600bps mode and 1200bps mode. 9600bps mode communications are GMSK and G3RUH packet communications. Unlike with 1200bps AFSK, with this type of high-speed modulation, frequency modulation is carried out after the digital base band signals (rectangular wave) are passed through a band limiting filter. For 9600bps GMSK for example, compared to 4800Hz signals (nearly sine wave signals passed through a filter), the signals have a hissing sound like digital modulation when listened to by ear. Different types of modulation, such as GMSK and G3RUH, are distinguished by the type of band limiting filter used.

| Pin No. | Pin name | Specification | | |
|---|---|---|---|---|
| 1 | PKD | bps switching | 1200bps | 9600bps |
| | | Modulation input | 40mVp-p | 2Vp-p |
| | | Frequency shift | 3±0.5kHz | 2.2±0.5kHz |
| 4 | PR9 | Output level 500mVp-p/10kΩ<br>Always output during reception | | |
| 5 | PR1 | Output level 500mVp-p/10kΩ<br>Not output when squelch off | | |

**Table 2 DATA terminal input/ output level**

### 7-1. Transmission Signals

Transmission modulation signals enter from PKD of the data terminals (J607). The path to the modulation depends on whether communications are set for 1200bps or 9600bps mode.

For 1200bps mode, the transmission modulation signals pass through the analog switch (IC803), and are input to IC801 (Pin 6). The signals pass through the pre-emphasis (Q801, Q802), are adjusted by the electronic volume, and are input to the VCO.

For 9600bps mode, the transmission modulation signals pass through IC803 and are amplified by the tone amp (IC802). Signals are then adjusted by the electronic volume, and are input to the VCO.

The frequency shift depends on the input signal level, so there is an amplitude limiting circuit (D702, D703) to hold the signal below 4 Vp-p to avoid extreme shifts. This circuit ensures that the PKD signal does not go above 4 Vp-p and there is no extreme frequency shift fluctuation.

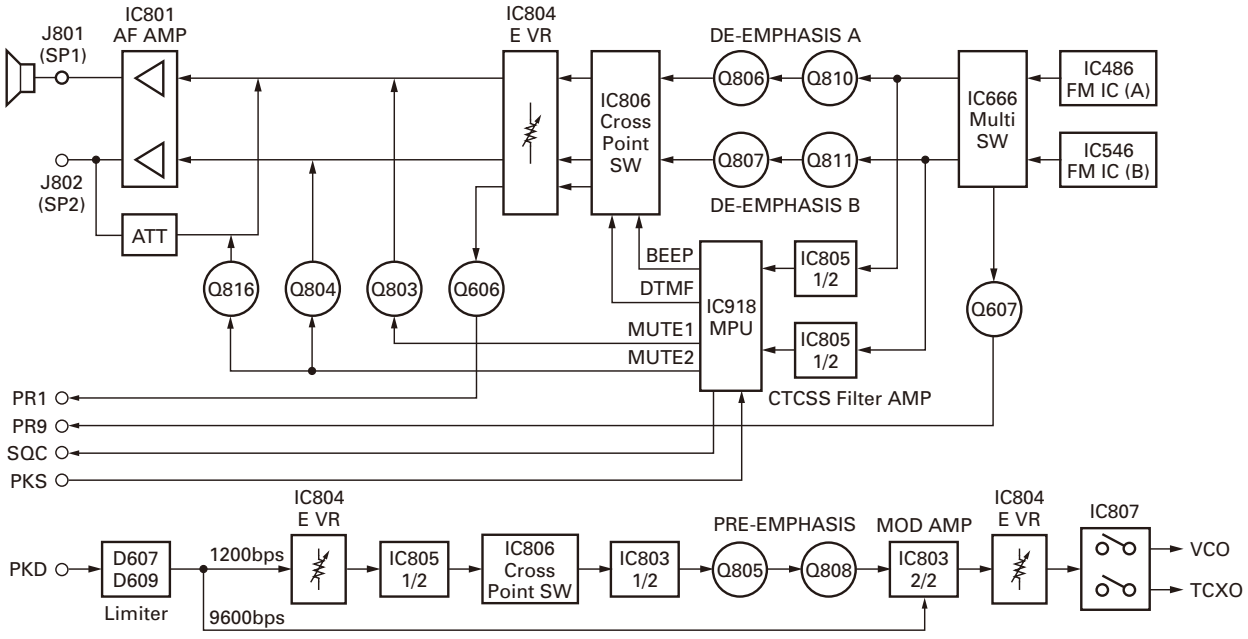



**Fig. 13 Transmission signals**

# CIRCUIT DESCRIPTION

### 7-2. Reception Signals

PR9 is the 9600bps data communications reception output. It sends the FM detection circuit output (RD signals) through a buffer amplifier (Q607). These signals are always output whether the squelch is open or closed.

PR1 is the 1200bps data communications reception output. It sends the FM detection circuit output (RA signals) through a buffer amplifier (Q606). Output is controlled with the cross point switch (IC806) according to whether squelch is open or closed.

PR1: The audio signal that was de-emphasised is switched by the cross point switch and passed through the electronic volume. The signal is then buffered by Q606 and is sent to the data output terminal. The PR1 signal is output when squelch is open.

PR9: The signal switched through IC666 is buffered by Q607 and is sent to the data output terminal.

### 7-3. Squelch Signal Output Circuit

The squelch circuits is input to the TNC to prevent conflicts from occurring between simultaneous receive mode and transmit mode traffic during packet communications (only during 1200bps). The SQC signal is output by the MPU (IC918).

The SQC output can be set to the following using the menu mode.

An initial value is Busy.TX. The logic of the output is Hi active. The logic of the output can change by MCP-2A.

| Menu No. | Display | SQC output type |
|---|---|---|
| 520 | SQC.SRC | OFF/BUSY/SQL/TX/BUSY.TX/SQL.TX |

**Table 3 SQC output setting**

## 8. Panel Section

The panel section controls serial communications with the main unit control section, the key input circuit, the display circuit, and the brightness circuit through the MPU (IC903).

### 8-1. Serial Communications Circuit

A buffer IC (IC901, IC902) is used in order to protect the MPU ports.

### 8-2. Key, Encoder, Volume Input Circuit

Circuits to operate the panel section keys are connected to each microprocessor port. The POWER key is pulled up and the other keys are pulled up within the MPU. Encoder operating circuits are connected to the MPU and the port is pulled up. The volume (VOL/SQ) divides the power supply voltage, reads the A/D port of the MPU, and transfers that data to the main unit.

### 8-3. Display Circuit

The MPU controls two LCD drivers (IC906, IC907). It displays it by connecting IC906 (4 common dots and 39 segment dots) and IC907 (4 common dots and 38 segment dots) with the LCD.

### 8-4. Brightness Circuit

The illumination color can be set to either amber or green. The PWM signal output from the MPU passes through LPF, is converted into the DC voltage, and controls the current that flows to the LED with the transistor. The duty of the PWM changes the LED brightness to one of eight levels or OFF.

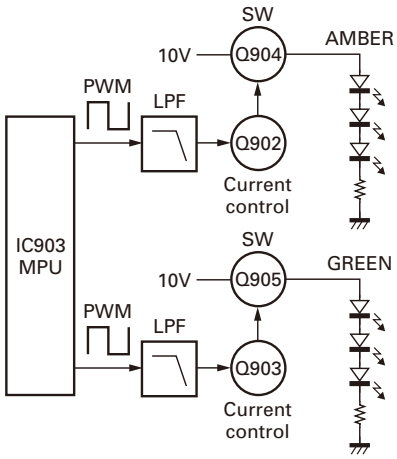



**Fig. 14 Brightness circuit**

# SEMICONDUCTOR DATA

## Main MPU: 3062LFGPUKBVB: K
## 3062LFGPUKBWB: E,M4
## (TX-RX (Control) unit (D/6) IC918)

| Pin No. | Port Name | I/O | Function |
|---|---|---|---|
| 1 | DTMF/1750 | O | DTMF/Side tone output (D/A) |
| 2 | TONE | O | CTCSS, DCS output (D/A) |
| 3 | AMP_STB | O | AF power amplifier standby switch<br>L: Standby |
| 4 | BSHIFT | O | Beat shift circuit control L: Normal |
| 5 | NC | - | Not used (GND) |
| 6 | BYTE | I | Not used (GND) |
| 7 | NC | - | Not used (5V) |
| 8,9 | NC | - | Not used (GND) |
| 10 | RESET | I | System reset |
| 11 | XOUT | O | System clock output (11.0592MHz) |
| 12 | VSS | I | GND |
| 13 | XIN | I | System clock input (11.0592MHz) |
| 14 | VCC1 | I | 5V power supply input |
| 15 | NMI | I | Not used (5V) |
| 16 | NC | - | Not used (Connect to RXD (PC)) |
| 17 | SIS | I | Start-up interruption from panel MPU (Connect to RXD (PNL)) |
| 18 | INT | I | Power supply voltage fall detection interrupt<br>( It is detected by approximately 8.8V.) |
| 19 | XSW_LD | O | Cross point switch LOAD |
| 20 | PKD96_MUTE | O | PKD 9600bps mute switch H: Mute |
| 21 | EEPCS | O | EEPROM chip select signal |
| 22 | EEPSO | I | EEPROM serial data input |
| 23 | MIC_MUTE2 | O | MIC mute (After passing the splatter filter.) H: Mute |
| 24 | EEPCK | O | EEPROM serial clock output |
| 25 | EEPSI | O | EEPROM serial data output |
| 26 | BEEP | O | Beep sound output |
| 27 | RXD (PNL) | I | UART data input from Panel |
| 28 | TXD (PNL) | O | UART data output to Panel |
| 29 | TR_DT | O | Data terminal (Serial-parallel, DAC, PLL, and VGS) for TX-RX unit |
| 30 | TR_CLK | O | CLK terminal (Serial-parallel, DAC, PLL, and VGS) for TX-RX unit |
| 31,32 | NC | - | Not used (GND) |
| 33 | TXD (PC) | O | UART data output to PC terminal |
| 34 | RXD (PC) | I | UART data input from PC terminal |
| 35 | PTT | I | [PTT] key input |
| 36 | PKS (PNL) | I | Internal TNC PKS input |
| 37 | SQC (PNL) | O | Internal TNC SQC output |
| 38 | CNT_DT | O | Serial data for DAC (M62364) and cross point switch |
| 39 | NC | - | Not used (GND) |
| 40 | CNT_CLK | O | Clock for DAC (M62364) and cross point switch |
| 41 | TCXO_B_MUTE | O | B band TCXO mute switch L: Mute |
| 42 | TCXO_A_MUTE | O | A band TCXO mute switch L: Mute |
| 43 | DA1_EN | O | Enable output for DAC (M62364) |
| 44 | NC | - | Not used (5V) |
| 45 | MIC_MUTE1 | O | MIC mute (Front of MIC amplifier)<br>H: Mute |
| 46~52 | SIM6~SIM0 | I | Type 6~Type 0 |
| 53 | B_PLLUL | I | Unlock detection for B band<br>H: Lock |
| 54 | A_PLLEN | O | PLL enable output for A band<br>H: Enable |
| 55 | A_PLLUL | I | Unlock detection for A band<br>H: Lock |
| 56 | B_PLLEN | O | PLL enable output for B band<br>H: Enable |
| 57 | 2099_EN | O | Enable output for serial-parallel conversion IC (BU2099FV) |
| 58 | DA2_EN | O | Enable output for external DAC (BH2228FV) |
| 59 | NC | - | Not used (GND) |
| 60 | VCC2 | I | 5V power supply input |
| 61 | NC | - | Not used (GND) |
| 62 | VSS2 | I | GND |
| 63 | VRST | O | VGS-1 RESET signal output |
| 64 | VEN | O | VGS-1 ENABLE signal output |
| 65 | VPLY | I | VGS-1 PLAY signal input |
| 66 | VBSY | I | VGS-1 BUSY signal input |
| 67 | VSF | I | Transmission protection A/D input (FWD side) |
| 68 | TEMP | I | Temperature protection A/D input |
| 69 | PKS (EXT) | I | PTT control terminal from mini DIN terminal (PKS) |
| 70 | SQC (EXT) | O | BUSY control terminal to mini DIN terminal (SQC) |
| 71 | CTS (PC) | I | PTT control terminal from PC terminal |
| 72 | RTS (PC) | O | BUSY control terminal to PC terminal |
| 73,74 | NC | - | Not used (5V) |
| 75 | SB_C | O | Main power switch of transceiver (SBSW) |

# SEMICONDUCTOR DATA

| Pin No. | Port Name | I/O | Function |
|---|---|---|---|
| 76 | PKD_SEL | O | PKD input switching (PKD (PNL) or PKD (EXT)) |
| 77 | VU_TX | O | L:VHF TX, H:UHF TX (V/U switching) H: Mute |
| 78 | CM | I | MIC key serial input terminal (for MC-59) |
| 79 | MIC_DW | I | MIC key (DOWN, MR, PF) input (for MC-45) |
| 80 | MIC_UP | I | MIC key (UP, CALL, VFO) input (for MC-45) |
| 81 | SQ_B | I | Noise level A/D input for B band |
| 82 | SQ_A | I | Noise level A/D input for A band |
| 83 | SM_B | I | S-meter level A/D input for B Band |
| 84 | SM_A | I | S-meter level A/D input for A Band |
| 85 | TOIN_B | I | B band (CTCSS, DCS, and WX) decoder A/D input |
| 86 | TOIN_A | I | A band (CTCSS, DCS, and WX) decoder A/D input |
| 87 | SCB_C | O | +B power switch for control unit (power supply for AF power amplifier) |
| 88 | S5M_C | O | Power switch for RS-232C driver |
| 89 | BATT | - | Not used |
| 90 | DTMFPD | O | Power down mode control terminal of the DTMF IC (Reset processing when the turning the transceiver power ON.) |
| 91 | DTMFDT | I | DTMF serial data input |
| 92 | DTMFCLK | O | DTMF clock |
| 93 | DTMFDET | I | DTMF data detection terminal |
| 94 | AVSS | I | GND |
| 95 | AF_CAL | I | Not used |
| 96 | VREF | I | Reference voltage |
| 97 | AVCC | I | Analog power supply |
| 98 | AF_MUTE2 | O | AF mute 2 (Front of AF power amplifier) L: Mute |
| 99 | AF MUTE1 | O | AF mute 1 (Front of AF power amplifier) L: Mute |
| 100 | AMP_MUTE | O | AF power amplifier mute switch H: Mute |

## Shift Register: BU2099FV (TX-RX unit (A/6) IC576)

| Pin No. | Port name | Pin name | I/O | Function | Active level |
|---|---|---|---|---|---|
| 6 | Q0 | WN_A | O | Wide/Narrow switching SW for A band | H (Narrow) / L (Wide) |
| 7 | Q1 | VU_SEL_A | O | VCO VHF/UHF select | H: VHF L: UHF |
| 8 | Q2 | 8TVA_C | O | 8V power supply control switch for A Band VHF TX | H |
| 9 | Q3 | 5RUA_C | O | 5V power supply switch for A Band UHF BPF | H |
| 10 | Q4 | VHF_AIP | O | AIP switch (A band/B band) | H |
| 11 | Q5 | FAN_C | O | FAN control switch | H |
| 12 | Q6 | SFT_A | O | VCO switching (A band) | H: Shift ON L: Shift OFF |
| 13 | Q7 | UHF_AIP | O | AIP switch (A band/B band) | H |
| 14 | Q8 | 8TUA_C | O | 8V power supply control switch for A band UHF TX | H |
| 15 | Q9 | 5RVA_C | O | 5V power supply switch for A band VHF BPF | H |
| 16 | Q10 | BP_SFT_A | O | BPF shift switch for A band | H |
| 17 | Q11 | 5RAM_C | O | 5V power supply switch (DET A switching SW) for A band AM | H (DET A) / L (AM) |

## Shift Register: BU2099FV (TX-RX unit (A/6) IC577)

| Pin No. | Port name | Pin name | I/O | Function | Active level |
|---|---|---|---|---|---|
| 6 | Q0 | WN_B | O | Wide/Narrow switching SW for B band | H (Narrow) / L (Wide) |
| 7 | Q1 | VU_SEL_B | O | VCO VHF/UHF select | H: VHF L: UHF |
| 8 | Q2 | 8TUB_C | O | 8V power supply control switch for B band UHF TX | H |
| 9 | Q3 | 5RUB_C | O | 5V power supply switch for B band UHF BPF | H |
| 10 | Q4 | PR9_SEL | O | PR9 output switching SW | H (DET_A) / L (DET_B) |
| 11 | Q5 | PR (PNL)_SEL | O | DET output switching SW to internal TNC | H (DET_A) / L (DET_B |
| 12 | Q6 | SFT_B | O | VCO switching (B band) | H: Shift ON L: Shift OFF |
| 13 | Q7 | 8TVB_C | O | 8V power supply control switch for B band VHF TX | H |
| 14 | Q8 | NC | - | Not used (5V) | H |
| 15 | Q9 | 5RVB_C | O | 5V power supply switch for B band VHF BPF | H |
| 16 | Q10 | 5R8B_C | O | 5V power supply switch for B band 800MHz BPF | H |
| 17 | Q11 | BP_SFT_B | O | BPF shift switch for B band | H |

# SEMICONDUCTOR DATA

## Electorical Volume IC: M62364FP-F (TX-RX (Control) unit (D/6) IC804)

| Pin No. | Pin name | Function |
|---|---|---|
| 1 | VIN1 | B band balance adjustment input |
| 2 | VOUT1 | B band balance adjustment output |
| 3 | VOUT2 | A band blance adjustment output |
| 4 | VIN2 | A band blance adjustment input |
| 9 | VIN3 | TX deviation adjustment input |
| 10 | VOUT3 | TX deviation adjustment output |
| 11 | VOUT4 | MIC sensitivity adjustment output |
| 12 | VIN4 | MIC sensitivity adjustment input |
| 13 | VIN5 | SP2 output VOL adjustment input |
| 14 | VOUT5 | SP2 output VOL adjustment output |
| 15 | VOUT6 | SP1 output VOL adjustment output |
| 16 | VIN6 | SP1 output VOL adjustment input |
| 21 | VIN7 | DATA terminal PR1 output level adjustment input |
| 22 | VOUT7 | DATA terminal PR1 output level adjustment output |
| 23 | VOUT8 | DATA terminal PKD input level adjustment output |
| 24 | VIN8 | DATA terminal PKD input level adjustment input |

## Cross Point Switch: BU8241FS (TX-RX (Control) unit (D/6) IC806)

| Pin No. | Pin name | Function |
|---|---|---|
| 5 | IN1 | A band RX audio input (De-emphasis circuit output) |
| 6 | IN2 | B band RX audio input (De-emphasis circuit output) |
| 7 | IN3 | DTMF (1750Hz tone) encode signal input from MPU |
| 8 | IN4 | Beep signal input from MPU |
| 9 | IN5 | MIC audio input (MIC amplifier and AGC output) |
| 10 | IN6 | PKD 1200bps data input and Audio input from PC |
| 11 | IN7 | RX audio input to internal TNC |
| 12 | IN8 | VGS-1 playing audio input |
| 13 | OUT8 | SP2 audio output VOL |
| 14 | OUT7 | SP1 audio output VOL |
| 15 | OUT6 | DATA terminal PR1 output<br>(Input to DAC for level adjustment) |
| 16 | OUT5 | VGS-1 recording audio output |
| 17 | OUT4 | Audio level detection output to MPU |
| 18 | OUT3 | RX audio output to DTMF IC |
| 19 | OUT2 | MIC audio output<br>(Limiter and Pre-emphasis circuit input) |
| 20 | OUT1 | RX audio output to internal TNC |

## Panel MPU: 3062LFGPUKBZA (Display unit IC903)

| Pin No. | Port Name | I/O | Function |
|---|---|---|---|
| 1 | KEY4 | I | [CALL] key input |
| 2 | KEY3 | I | [MHz] key input |
| 3 | NC | - | Not used (5V) |
| 4 | KEY2 | I | [MR] key input |
| 5 | KEY1 | I | [VFO] key input |
| 6 | BYTE | I | Not used (GND) |
| 7 | NC | - | Not used (GND) |
| 8 | ENC_B | I | Encoder 1 |
| 9 | NC | - | Not used (GND) |
| 10 | RESET | I | System reset |
| 11 | XOUT | O | System clock output (11.0592MHz) |
| 12 | VSS | I | GND |
| 13 | XIN | I | System clock input (11.0592MHz) |
| 14 | VCC | I | 5V power supply input |
| 15 | NMI | I | Not used (5V) |
| 16 | ENC_A | I | Encoder 2 (INT) |
| 17 | RXD_INT | I | RXD detection |
| 18 | POWER | I | Power switch detection interrupt |
| 19,20 | NC | - | Not used (GND) |
| 21 | LCD_CE_1 | O | LCD driver 1 CE |
| 22 | LCD_CLK_1 | O | LCD driver 1 CLK |
| 23 | LCD_DT_1 | O | LCD driver_1 data |
| 24 | AMBER | O | Dimmer output PWM (Amber) |
| 25 | NC | - | Not used (GND) |
| 26 | GREEN | O | Dimmer output PWM (Green) |
| 27 | PSW | O | 5V switch L: ON |
| 28 | NC | - | Not used (GND) |
| 29 | TXD | O | UART output to main MPU |
| 30 | RXD | I | UART input from main MPU |
| 31 | CLK | - | Not used (GND) |
| 32 | BUSY | - | Not used (5V) |
| 33~38 | NC | - | Not used (GND) |
| 39 | EMP | - | Not used (GND) |
| 40~43 | NC | - | Not used (GND) |
| 44 | CE | - | Not used (5V) |
| 45~59 | NC | - | Not used (GND) |
| 60 | VCC | I | 5V power supply input |
| 61 | NC | - | Not used (GND) |
| 62 | VSS | I | GND |

# SEMICONDUCTOR DATA

| Pin No. | Port Name | I/O | Function |
|---|---|---|---|
| 63~67 | NC | - | Not used (GND) |
| 68 | LCD_DT_2 | O | LCD driver 2 data |
| 69 | LCD_CLK_2 | O | LCD driver 2 CLK |
| 70 | LCD_CE_2 | O | LCD driver 2 CE |
| 71 | NC | - | Not used (5V) |
| 72 | KEY13 | I | [PM] key input |
| 73 | KEY12 | I | [Band SEL B] key input |
| 74 | KEY11 | I | [Band SEL A] key input |
| 75 | KEY10 | I | [PF2] key input |
| 76 | KEY9 | I | [PF1] key input |
| 77 | KEY8 | I | [LOW] key input |
| 78 | KEY7 | I | [REV] key input |

| Pin No. | Port Name | I/O | Function |
|---|---|---|---|
| 79~90 | NC | - | Not used (GND) |
| 91 | VOL_B | I | AF VOL (Band B) A/D input |
| 92 | VOL_A | I | AF VOL (Band A) A/D input |
| 93 | SQL_B | I | SQL (Band B) A/D input |
| 94 | AVSS | I | GND |
| 95 | SQL_A | I | SQL (Band A) A/D input |
| 96 | VREF | I | Reference voltage input |
| 97 | AVCC | I | Analog power supply input |
| 98 | NC | - | Not used (5V) |
| 99 | KEY6 | I | [TONE] key input |
| 100 | KEY5 | I | [F] key input |

# COMPONENTS DESCRIPTION

## DISPLAY UNIT (X54-3590-00)

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| IC901 | Buffer | RXD |
| IC902 | Buffer | TXD |
| IC903 | MPU | |
| IC904 | 5V AVR | 5V |
| IC905 | Reset IC | for MPU |
| IC906,907 | LCD driver | |
| Q901 | Switching | SW5V for LCD driver IC |
| Q902 | Switching | GR10V control |
| Q903 | Switching | AM10V control |
| Q904 | Switching | 10V for Green LED |
| Q905 | Switching | 10V for Amber LED |
| D901~921 | Switching | Protection from surge input |
| D922~951 | LED | Amber |
| D952~983 | LED | Green |
| D984~986 | LED | Amber |
| D987 | LED | Green |
| D988,989 | Varistor | Protection from surge input |

## TX-RX UNIT (X57-731X-XX)

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| IC1 | PLL IC | A band |
| IC66 | PLL IC | B band |
| IC131 | Power module | VHF |
| IC161 | Power module | UHF |
| IC186 | 2CH analog switch | APC voltage VHF/UHF select |
| IC187 | OP amplifier | for APC |
| IC486 | FM IC | A band |
| IC487 | OP amplifier | AGC amplifier |
| IC546 | FM IC | B band |
| IC576 | Shift register | Q0: Wide/Narrow select for A band<br>Q1: VU_Select for A band<br>Q2: 8TVA control<br>Q3: 5RUA control<br>Q4: VHF AIP control<br>Q5: FAN control<br>Q6: VCO shift for A band<br>Q7: UHF AIP control<br>Q8: 8TUA control<br>Q9: 5RVA control<br>Q10: VHF BPF control for A band<br>Q11: 5RAM control |

# COMPONENTS DESCRIPTION

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| IC577 | Shift register | Q0: Wide/Narrow select for B band<br>Q1: VU_Select for B band<br>Q2: 8TUB control<br>Q3: 5RUB control<br>Q4: PR9 select<br>Q5: PR for panel select<br>Q6: VCO shift for B band<br>Q7: 8TVB control<br>Q8: Not used<br>Q9: 5RVB control<br>Q10: 5R8B cintrol<br>Q11: VHF BPF control for B band |
| IC578 | 8V AVR | 8C |
| IC579 | 5V AVR | 5C |
| IC606 | RS-232C driver IC | RS-232C driver |
| IC666 | 4CH multiplexer | Detect signal line select |
| IC667 | D/A | Ao1: Forward Ref<br>Ao2: Reverse Ref<br>Ao3: BPF control for B band<br>Ao4: BPF control for B band<br>Ao5: TCXO reference voltage for B band<br>Ao6: TCXO reference voltage for A band |
| IC668 | Amplifier | LNA for 1.2G RX |
| IC801 | Audio amplifier | |
| IC802 | OP amplifier | MIC amplifier/ALC |
| IC803 | OP amplifier | Pre-emphasis/Modulation |
| IC804 | Electorical volume IC | Modulation line select |
| IC805 | 4CH OP amplifier | AV reference voltage/PKD amplifier/ LSD amplifier A/LSD amplifier B |
| IC806 | Cross point switch IC | Audio line select |
| IC807 | 2CH analog switch | Modulation line for TCXO select |
| IC916 | EEPROM | |
| IC917 | Multiplexer | PKD line select |
| IC918 | MPU | |
| IC919 | Reset IC | Backup signal |
| IC920 | Reset IC | Reset signal for MPU |
| IC921 | DTMF decoder | |
| IC951 | Buffer | Panel output line |
| IC952 | 10V AVR | PB |
| IC953 | 5V AVR | 5C |
| Q1 | Ripple filter | for A band charge pump |
| Q2,3 | Switching | A band charge pump |
| Q4 | Ripple filter | for A band VCO |
| Q5 | Amplifier | to f-in on PLL IC |
| Q6 | Switching | VHF/UHF selection for A band VCO (On when A band VHF is selected) |

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| Q7 | Amplifier | Local amplifier for A band |
| Q8 | Switching | A band PLL f-in filter select (On when B band VHF is selected) |
| Q9 | Switching | B band f-in VHF filter frequency shift |
| Q66 | Ripple filter | for B band charge pump |
| Q67,68 | Switching | B band charge pump |
| Q69 | Ripple filter | for A band VCO |
| Q70 | Amplifier | to f-in on PLL IC |
| Q71 | Switching | VHF/UHF selection for B band VCO (On when A band VHF is selected) |
| Q72 | Amplifier | Local amplifier for B band |
| Q73 | Switching | B band PLL f-in filter select (On when B band VHF is selected) |
| Q74 | Switching | A band f-in VHF filter frequency shift |
| Q131 | Amplifier | VHF TX drive amplifier |
| Q132 | Switching | Mute Vgg line for VHF power module |
| Q161 | Amplifier | UHF TX Pre-drive amplifier |
| Q162 | Amplifier | UHF TX drive amplifier |
| Q163 | Switching | Mute Vgg line for UHF power module |
| Q186 | Switching | VHF/UHF selection (On when VHF TX) |
| Q226 | Mixer | A band VHF RX |
| Q227 | Amplifier | A band VHF RX 2nd LNA |
| Q228 | Amplifier | A band VHF RX LNA |
| Q229 | Switching | Q228 gain drop (VHF AIP function) (On when VHF AIP ON) |
| Q291 | Mixer | B band VHF RX |
| Q292 | Amplifier | B band VHF RX 2nd LNA |
| Q293 | Amplifier | B band VHF RX LNA |
| Q294 | Switching | Q293 gain drop (VHF AIP function) (On when VHF AIP ON) |
| Q361 | Mixer | A band UHF RX |
| Q362 | Amplifier | A band UHF RX 2nd LNA |
| Q363 | Amplifier | A band UHF RX LNA |
| Q400 | Switching | Q363 gain drop (UHF AIP function) (On when UHF AIP ON) |
| Q406 | Mixer | B band UHF RX |
| Q407 | Amplifier | B band UHF RX 2nd LNA |
| Q408 | Amplifier | B band UHF RX LNA |
| Q450 | Switching | Q408 gain drop (UHF AIP function) (On when UHF AIP ON) |
| Q456 | Amplifier | Local amplifier for 1.2G RX |
| Q457 | Mixer | B band 1.2G RX |
| Q459 | Amplifier | B band 1.2G RX LNA |

# COMPONENTS DESCRIPTION

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| Q486 | Switching | Ceramic filter select (On when FM-Narrow is selected on A band) |
| Q487 | Switching | Ceramic filter select (On when FM-Wide is selected on A band) |
| Q488 | Switching | Squelch select (On when FM-Narrow is selected on A band) |
| Q489 | Amplifier | AM IF AGC amplifier |
| Q490 | Switching | AGC switch |
| Q491 | Amplifier | AM IF AGC amplifier |
| Q492 | Switching | AGC switch |
| Q493 | Amplifier | A band discriminator dump switch (On when FM-Wide is selected on A band) |
| Q494 | Amplifier | AM IF AGC amplifier |
| Q495 | Amplifier | A band 1st IF amplifier |
| Q496 | Switching | AGC voltage select (AM/FM) (On when FM is selected on A band) |
| Q546 | Switching | Ceramic filter select (On when FM-Narrow is selected on B band) |
| Q547 | Tripler | 16.8MHz×3 |
| Q548 | Switching | Ceramic filter select (On when FM-Wide is selected on B band) |
| Q549 | Switching | Squelch select (On when FM-Narrow is selected on B band) |
| Q550 | Switching | B band discriminator dump switch (On when FM-Wide is selected on B band) |
| Q551 | Amplifier | B band 1st IF amplifier |
| Q572 | Switching | Make BP_SFT_B signal |
| Q573 | Switching | Make BP_SFT_B_I signal |
| Q574 | Switching | Make BP_SFT_A signal |
| Q575 | Switching | Make BP_SFT_A_I signal |
| Q576 | Switching | Fan control (On when Fan turn) |
| Q578 | Switching | 5RVA switch (On when A band VHF is selected) |
| Q579 | Switching | 5RUA switch (On when A band UHF is selected) |
| Q580 | Switching | 5RAM switch (On when A band AM is selected) |
| Q582 | Switching | 5RVB switch (On when B band VHF is selected) |
| Q583 | Switching | 5RUB switch (On when B band UHF is selected) |
| Q584 | Switching | 5R8B switch (On when B band 1.2G is selected) |
| Q585 | Switching | 8TV switch (On when VHF TX) |
| Q586 | Switching | 8TU switch (On when UHF TX) |
| Q587 | Switching | 8TVA switch (On when A band VHF TX) |

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| Q588 | Switching | 8TUA switch (On when A band UHF TX) |
| Q589 | Switching | 8TVB switch (On when B band VHF TX) |
| Q590 | Switching | 8TUB switch (On when B band UHF TX) |
| Q591,592 | Switching | SB switch (On during transceiver power ON) |
| Q606 | Amplifier | PR1 amplifier in DATA terminal (J607) |
| Q607 | Amplifier | PR9 amplifier in DATA terminal (J607) |
| Q641 | Switching | FAN control switch |
| Q642 | Switching | IGN control switch |
| Q644 | Amplifier | VHF TX Pre-drive |
| Q701,702 | Switching | Shift VCO frequency range |
| Q703,704 | Switching | VCO select (VHF/UHF) |
| Q705 | Oscilator | VHF VCO |
| Q706 | Oscilator | UHF VCO |
| Q707 | Amplifier | RF amplifier |
| Q751,752 | Switching | Shift VCO frequency range |
| Q753,754 | Switching | VCO select (VHF/UHF) |
| Q755 | Oscilator | VHF VCO |
| Q756 | Oscilator | UHF VCO |
| Q757 | Amplifier | RF amplifier |
| Q801 | Amplifier | AGC control |
| Q802 | Switching | Audio amplifier (IC801) mute switch |
| Q803,804 | Switching | Audio line mute switch |
| Q805 | Active filter | for splatter filter |
| Q806 | Active filter | A band de-emphasis filter amplifier |
| Q807 | Active filter | B band de-emphasis filter amplifier |
| Q808 | Active filter | for splatter filter |
| Q809 | Switching | MIC mute |
| Q810 | Active filter | A band de-emphasis filter amplifier |
| Q811 | Active filter | B band de-emphasis filter amplifier |
| Q812 | Switching | PKD 9600bps mute switch |
| Q816 | Switching | Audio line mute switch |
| Q817 | Switching | TCXO modulation level change (On when UHF TX) |
| Q916,917 | Switching | Crystal oscillator frequency shift switch |
| Q918 | Switching | Over voltage protection switch |
| Q951 | Switching | SCB switch |
| Q952 | Switching | S5M switch |
| Q953 | Switching | SCB switch |
| Q954 | Switching | S5M switch |
| Q955 | Switching | PR1 amplifier for Panel |

# COMPONENTS DESCRIPTION

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| D1 | Reverse current prevention | A band PLL unlock signal |
| D2 | Voltage shift | A band charge pump |
| D3,4 | Switching | Speed up switch for ripple filter |
| D5,6 | Switching | Speed up switch for Loop filter |
| D10~13 | Switching | VHF/UHF BPF select |
| D14,18 | Switching | RF switch (On when A band VHF TX) |
| D15 | Switching | RF switch (On when A band UHF) |
| D16 | Switching | RF switch (On when A band VHF RX) |
| D17 | Switching | RF switch (On when A band UHF RX) |
| D19 | Switching | RF switch (On when A band UHF TX) |
| D20,21 | Switching | VHF BPF shift |
| D22 | Switching | RF switch (On when B band VHF TX) |
| D23 | Switching | RF switch (On when B band UHF) |
| D24 | Switching | RF switch (On when B band VHF RX) |
| D25 | Switching | RF switch (On when B band UHF RX) |
| D26 | Switching | RF switch (On when B band VHF TX) |
| D27 | Switching | RF switch (On when B band UHF TX) |
| D28 | Switching | Line mute (On when B band UHF TX) |
| D29 | Switching | Line mute (On when A band UHF TX) |
| D30~33 | Switching | VHF/UHF BPF select |
| D34,35 | Switching | VHF BPF shift |
| D66 | Switching | B band PLL unlock signal |
| D67 | Voltage shift | B band charge pump |
| D68,69 | Switching | Speed up switch for ripple filter |
| D70,71 | Switching | Speed up switch for Loop filter |
| D130 | Switching | RF switch (On when A band VHF TX) |
| D131 | Switching | RF switch (On when B band VHF TX) |
| D132 | Temperature compensation | for VHF drive circuit |
| D133 | 5.1V Zener diode | Over voltage prevention |
| D134,135 | Switching | VHF TX RF switch |
| D136 | Temperature compensation | for thermal protection circuit |
| D160 | Switching | RF switch (On when A band UHF TX) |
| D161 | Switching | RF switch (On when B band UHF TX) |
| D162 | Temperature compensation | for UHF drive circuit |
| D163 | 5.1V Zener diode | Over voltage prevention |
| D164,165 | Switching | UHF TX RF switch |
| D166 | Temperature compensation | for thermal protection circuit |

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| D186 | Switching | RF switch |
| D187 | Switching | RF switch |
| D188 | Switching | RF switch |
| D189 | Switching | RF switch |
| D190 | Reverse current prevention | APC circuit |
| D191 | Rectification | Forward voltage for APC circuit |
| D192 | Rectification | Reverse voltage for APC circuit |
| D193 | 5.1V Zener diode | Over voltage prevention |
| D226 | Switching | IF switch (On when A band VHF RX) |
| D227 | Switching | Local signal switch (On when A band VHF RX) |
| D229 | Switching | BPF frequency shift |
| D230,231 | Varicap | Tune the A band VHF BPF |
| D232 | Switching | BPF frequency shift |
| D233,234 | Varicap | Tune the A band VHF BPF |
| D238 | Switching | BPF frequency shift |
| D239,240 | Varicap | Tune the A band VHF BPF |
| D241 | Switching | BPF frequency shift |
| D242,243 | Varicap | Tune the A band VHF BPF |
| D291 | Switching | IF switch (On when B band VHF RX) |
| D292 | Switching | Local signal switch (On when B band VHF RX) |
| D294 | Switching | BPF frequency shift |
| D295,296 | Varicap | Tune the B band VHF BPF |
| D297 | Switching | BPF frequency shift |
| D298,299 | Varicap | Tune the B band VHF BPF |
| D303 | Switching | BPF frequency shift |
| D304,305 | Varicap | Tune the B band VHF BPF |
| D306 | Switching | BPF frequency shift |
| D307,308 | Varicap | Tune the B band VHF BPF |
| D356 | Switching | RF mute |
| D357,358 | Limiter | VHF RF limiter |
| D361 | Switching | IF switch (On when A band UHF RX) |
| D362,363 | Switching | Local signal switch (On when A band UHF RX) |
| D364,365 | Varicap | Tune the A band UHF BPF |
| D367,368 | Varicap | Tune the A band UHF BPF |
| D370,371 | Varicap | Tune the A band UHF BPF |
| D375,376 | Varicap | Tune the A band UHF BPF |
| D377~379 | Varicap | Tune the A band UHF BPF |
| D406 | Switching | IF switch (on when B band UHF RX) |

# COMPONENTS DESCRIPTION

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| D407,408 | Switching | Local signal switch (on when B band UHF RX) |
| D409,410 | Varicap | Tune the B band UHF BPF |
| D412,413 | Varicap | Tune the B band UHF BPF |
| D415,416 | Varicap | Tune the B band UHF BPF |
| D419~421 | Varicap | Tune the B band UHF BPF |
| D423,424 | Varicap | Tune the B band UHF BPF |
| D451 | Switching | RF mute |
| D456 | Switching | IF switch (on when 1.2G RX) |
| D457 | Switching | Local signal switch (on when 1.2G RX) |
| D486,487 | Switching | A band RX ceramic filter select |
| D488 | Detection | AM AGC voltage detection |
| D489 | Detection | AM detection |
| D546,547 | Switching | B band RX ceramic filter select |
| D576 | Reverse current prevention | 5RA output |
| D578 | Reverse current prevention | 5RB output |
| D580 | Reverse current prevention | 5RB output |
| D582 | Reverse current prevention | 8TV control for A band |
| D583 | Reverse current prevention | 8TV control for B band |
| D584 | Reverse current prevention | 8TU control |
| D606 | Reverse current prevention | for alignment |
| D607 | Limiter | Prevention from over level input |
| D608 | Reverse current prevention | for alignment |

| Ref. No. | Use / Function | Operation / Condition / Compatibility |
|---|---|---|
| D609 | Limiter | Prevention from over level input |
| D610,611 | Switching | Protection from surge input |
| D612 | Surge absorber | Protection from surge input |
| D701 | Switching | UHF VCO shift |
| D703 | Varicap | UHF VCO tune |
| D704 | Varicap | VHF VCO tune |
| D705 | Varicap | UHF VCO tune |
| D707 | Varicap | VHF VCO tune |
| D708 | Switching | VHF VCO shift |
| D709 | Varicap | for VHF VCO modulation |
| D710 | Varicap | for UHF VCO modulation |
| D751 | Switching | UHF VCO shift |
| D753 | Varicap | UHF VCO tune |
| D754 | Varicap | VHF VCO tune |
| D755 | Varicap | UHF VCO tune |
| D757 | Varicap | VHF VCO tune |
| D758 | Switching | VHF VCO shift |
| D759 | Varicap | for VHF VCO modulation |
| D760 | Varicap | for UHF VCO modulation |
| D801,802 | Switching | MIC mute |
| D916 | 18V Zener diode | Over voltage prevention |
| D951~953 | Limiter | Protection from surge input |
| D954 | Reverse current prevention | 8C |
| D955 | 5.1V Zener diode | Over voltage prevention |
| D956 | Poly-switch | Current limit |
| D957 | Reverse current prevention | 5M |

# TERMINAL FUNCTION

## DISPLAY UNIT (X54-3590-00)

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| **CN902** | | | |
| 1 | GND | - | GND |
| 2 | SW5V | I | Switched 5V |
| 3 | KEY11 | O | Volume key signal (A band) |
| 4 | VOL_A | O | AF volume voltage (A band) |
| 5 | SQL_A | O | SQL volume voltage (A band) |
| **CN903** | | | |
| 1 | GND | - | GND |
| 2 | SW5V | O | Switched 5V |
| 3 | KEY11 | I | Volume key signal (A band) |
| 4 | VOL_A | I | AF volume voltage (A band) |
| 5 | SQL_A | I | SQL volume voltage (A band) |
| **CN904** | | | |
| 1 | GND | - | GND |
| 2 | SW5V | I | Switched 5V |
| 3 | KEY12 | O | Volume key signal (B band) |
| 4 | VOL_B | O | AF volume voltage (B band) |
| 5 | SQL_B | O | SQL volume voltage (B band) |
| **CN905** | | | |
| 1 | GND | - | GND |
| 2 | SW5V | O | Switched 5V |
| 3 | KEY12 | I | Volume key signal (B band) |
| 4 | VOL_B | I | AF volume voltage (B band) |
| 5 | SQL_B | I | SQL volume voltage (B band) |
| **CN912 (to TX-RX (CONTROL) unit D/6)** | | | |
| 1 | PB | I | 10V for Display unit |
| 2 | PB | I | 10V for Display unit |
| 3 | GND | - | GND |
| 4 | GND | - | GND |
| 5 | RXD | I | Serial signal input (from main MPU) |
| 6 | TXD | O | Serial signal output (to main MPU) |

## TX-RX UNIT (X57-731X-XX) (A/6): TX-RX Section

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| **CN641 (for FAN)** | | | |
| 1 | SB | O | FAN 1+ |
| 2 | FAN_C | I | FAN 1- |
| **CN642 (for VGS-1)** | | | |
| 1 | VBSY | I | VGS-1 busy signal |
| 2 | VPLY | I | VGS-1 play signal |
| 3 | SO | - | No connection |
| 4 | DATA | O | Data signal output for VGS-1 |
| 5 | CLK | O | CLK for VGS-1 |
| 6 | VEN | O | Enable signal for VGS-1 |
| 7 | USEL | - | No connection |
| 8 | VRST | O | VGS-1 reset signal |
| 9 | DGND | - | DGND |
| 10 | AGND | - | GND |
| 11 | VAI | I | VGS-1 audio input |
| 12 | VAO | O | VGS-1 audio output |
| 13 | AGND | - | GND |
| 14 | 5C | O | Switched 5V for VGS-1 |
| 15~26 | NC | - | No connection |
| **CN676 (to TX-RX (CONTROL) unit D/6)** | | | |
| 1 | GND | - | GND |
| 2 | CB | O | B |
| **CN677 (to TX-RX (CONTROL) unit D/6)** | | | |
| 1 | S5M | I | Switched 5V for RS-232C driver (IC606) |
| 2 | NC | - | No connection |
| 3 | 8C | O | Switched 8V |
| 4 | NC | - | No connection |
| 5 | 5C | O | Switched 5V |
| 6 | NC | - | No connection |
| 7 | SB_C | I | SB control signal |
| 8 | ILLM | O | Illumination signal |
| 9 | IGN | O | Ignition signal |
| 10 | TXD (PC) | I | TXD input for PC |
| 11 | RXD (PC) | O | RXD output from PC |
| 12 | RTS (PC) | I | RTS input for PC |
| 13 | CTS (PC) | O | CTS output from PC |
| 14 | SQC (EXT) | O | SQC signal output |
| 15 | PKS (EXT) | O | PKS signal output |
| 16 | PKD (EXT) | I | PKD signal input |
| 17 | PR1 (EXT) | I | PR1 signal input |
| 18 | GND | - | GND |
| 19 | SM_A | O | A band S-meter voltage output |
| 20 | SQ_A | O | A band SQL voltage output |
| 21 | VSF | O | VSF voltage output |
| 22 | TEMP | O | Thermistor voltage output |
| 23 | SM_B | O | B band S-meter voltage output |
| 24 | SQ_B | O | B band SQL voltage output |

# TERMINAL FUNCTION

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| 25 | GND | - | GND |
| 26 | DET_A | O | A band detect signal output |
| 27 | PR (PNL) | O | PR detect signal output for panel |
| 28 | DET_B | O | B band detect signal output |
| 29 | GND | - | GND |
| 30 | VBSY | I | VGS-1 busy signal |
| 31 | VPLY | I | VGS-1 play signal |
| 32 | VEN | I | Enable signal for VGS-1 |
| 33 | VRST | I | VGS-1 reset signal |
| 34 | DA2_EN | I | Enable signal for D/A IC (IC667) |
| 35 | 2099_EN | I | Enable signal for shift register (IC576) |
| 36 | TR_CLK | I | Clock |
| 37 | TR_DT | I | Data |
| 38 | B_PLLEN | I | Enable signal for B band PLL (IC66) |
| 39 | A_PLLUL | O | Unlock signal from A band PLL (IC1) |
| 40 | A_PLLEN | I | Enable signal for A band PLL (IC1) |
| 41 | B_PLLUL | O | Unlock signal from B band PLL (IC66) |
| 42 | VGSPLAY | O | Audio output from VGS-1 |
| 43 | TCXO_A | I | Modulation signal for A band TCXO |
| 44 | VCO_B | I | Modulation signal for B band VCO |
| 45 | VCO_A | I | Modulation signal for A band VCO |
| 46 | TCXO_B | I | Modulation signal for B band TCXO |
| 47 | VGSREC | I | Audio input (VGS-1) |
| 48 | SIM0 | O | Type |
| 49 | SIM1 | O | Type |
| 50 | SIM2 | O | Type |
| **J606 (8-pin mini DIN: PC terminal)** | | | |
| 1 | RTS | O | Request to send |
| 2 | CTS | I | Clear to send |
| 3 | TXD | O | Transmit data |
| 4 | GND | - | GND |
| 5 | RXD | I | Receive data |
| 6 | NC | - | No connection |
| 7 | NC | - | No connection |
| 8 | NC | - | No connection |
| **J607 (6-pin Mini DIN: DATA terminal)** | | | |
| 1 | PKD | I | Packet data input |
| 2 | GND | - | GND |
| 3 | PKS | I | Packet standby |
| 4 | PR9 | O | Output of detected 9600bps data |
| 5 | PR1 | O | Output of detected 1200bps data |
| 6 | SQC | O | Squelch control output |

## TX-RX UNIT (X57-731X-XX) (B,E/6): VCO A Section

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| **CN701** | | | |
| 1 | SHIFT | I | VCO shift signal |
| 2 | V/U | I | VHF VCO/UHF VCO select signal |
| 3 | CV | I | VCO control voltage |
| 4 | MOD | I | Modulation signal input |
| **CN702** | | | |
| 1 | OUT | O | Oscillation signal output |
| 2 | E | - | GND |
| 3 | 8C | I | 8V for VCO |

## TX-RX UNIT (X57-731X-XX) (C,F/6): VCO B Section

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| **CN751** | | | |
| 1 | SHIFT | I | VCO shift signal |
| 2 | V/U | I | VHF VCO/UHF VCO select signal |
| 3 | CV | I | VCO control voltage |
| 4 | MOD | I | Modulation signal input |
| **CN752** | | | |
| 1 | OUT | O | Oscillation signal output |
| 2 | E | - | GND |
| 3 | 8C | I | 8V for VCO |

## TX-RX UNIT (X57-731X-XX) (D/6): CONTROL Section

| Pin No. | Name | I/O | Function |
|---|---|---|---|
| **CN960 (to TX-RX unit A/6)** | | | |
| 1 | SIM2 | I | Type |
| 2 | SIM1 | I | Type |
| 3 | SIM0 | I | Type |
| 4 | VGSREC | O | Audio output (VGS-1) |
| 5 | TCXO_B | O | Modulation signal for B band TCXO |
| 6 | VCO_A | O | Modulation signal for A band VCO |
| 7 | VCO_B | O | Modulation signal for B band VCO |
| 8 | TCXO_A | O | Modulation signal for A band TCXO |
| 9 | VGSPLAY | I | Audio input from VGS-1 |
| 10 | B_PLLUL | I | Unlock signal from B band PLL (IC66) |
| 11 | A_PLLEN | O | Enable signal for A band PLL (IC1) |
| 12 | A_PLLUL | I | Unlock signal from A band PLL (IC1) |

# TERMINAL FUNCTION

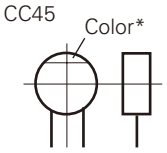
| Pin No. | Name | I/O | Function |
|---|---|---|---|
| 13 | B_PLLEN | O | Enable signal for B band PLL (IC66) |
| 14 | TR_DT | O | Data |
| 15 | TR_CLK | O | Clock |
| 16 | 2099_EN | O | Enable signal for shift register (IC576) |
| 17 | DA2_EN | O | Enable signal for D/A IC (IC667) |
| 18 | VRST | O | VGS-1 reset signal |
| 19 | VEN | O | Enable signal for VGS-1 |
| 20 | VPLY | O | VGS-1 play signal |
| 21 | VBSY | O | VGS-1 busy signal |
| 22 | GND | - | GND |
| 23 | DET_B | I | B band detect signal input |
| 24 | PR (PNL) | I | PR1 detect signal input for panel |
| 25 | DET_A | I | A band detect signal input |
| 26 | GND | - | GND |
| 27 | SQ_B | I | B band SQL voltage |
| 28 | SM_B | I | B band S-meter voltage |
| 29 | TEMP | I | Thermistor voltage input |
| 30 | VSF | I | VSF voltage input |
| 31 | SQ_A | I | A band SQL voltage input |
| 32 | SM_A | I | A band S-meter voltage input |
| 33 | GND | - | GND |
| 34 | PR1 (EXT) | O | PR1 signal output |
| 35 | PKD (EXT) | O | PKD signal output |
| 36 | PKS (EXT) | I | PKS signal input |
| 37 | SQC (EXT) | I | SQC signal input |
| 38 | CTS (PC) | I | CTS input for PC |
| 39 | RTS (PC) | O | RTS output from PC |
| 40 | RXD (PC) | I | RXD input for PC |
| 41 | TXD (PC) | O | TXD output to PC |
| 42 | IGN | I | Ignition signal |
| 43 | ILLM | I | Illumination signal |
| 44 | SB_C | O | SB control signal |
| 45 | NC | - | No connection |
| 46 | 5C | I | Switched 5V |
| 47 | NC | - | No connection |
| 48 | 8C | I | Switched 8V |
| 49 | NC | - | No connection |
| 50 | S5M | O | Switched 5V for RS-232C driver (IC606) |
| **CN961 (to TX-RX unit A/6 and INT. SP)** | | | |
| 1 | CB | I | B |
| 2 | GND | - | GND |
| 3 | GND | - | GND |
| 4 | INTSP | O | Audio signal output to internal speaker |
| **J801 (EXT.SP1 jack)** | | | |
| 1 | AF1 | O | External speaker 1 AF output |
| 2 | GND | - | GND |
| **J802 (EXT.SP2 jack)** | | | |
| 1 | AF2 | O | External speaker 2 AF output |
| 2 | GND | - | GND |
| **J951 (MIC jack)** | | | |
| 1 | MBL/UP | I | A/D input |
| 2 | 8C | O | Switched 8V for MIC |
| 3 | GND | - | GND |
| 4 | PTT | I | MIC standby signal (PTT) |
| 5 | ME | - | MIC GND |
| 6 | MIC | I | MIC signal input |
| 7 | NC | - | No connection |
| 8 | CM/DWN | I | MIC data detection/ A/D input |
| **J952 (Panel jack)** | | | |
| 1 | PR | O | TNC data output |
| 2 | PB | O | Switched 10V |
| 3 | GND | - | GND |
| 4 | TXD | O | Serial data output |
| 5 | PKS | I | Data standby control signal |
| 6 | PKD | I | TNC data input |
| 7 | RXD | I | Serial data input |
| 8 | SQC | O | Squelch control signal |

# PARTS LIST

## CAPACITORS

| C C | 4 5 | T H | 1 H | 2 2 0 | J |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, etc.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance




**• Capacitor value**

010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001μF
103 = 0.01μF

2 2 0 = 22pF
0 = Multiplier
2 = 2nd number
2 = 1st number

**• Temperature coefficient**

| 1st Word | C | L | P | R | S | T | U |
|---|---|---|---|---|---|---|---|
| Color* | Black | Red | Orange | Yellow | Green | Blue | Violet |
| ppm/°C | 0 | –80 | –150 | –220 | –330 | –470 | –750 |

| 2nd Word | G | H | J | K | L |
|---|---|---|---|---|---|
| ppm/°C | ±30 | ±60 | ±120 | ±250 | ±500 |

Example : CC45TH = –470±60ppm/°C

**• Tolerance (More than 10pF)**

| Code | C | D | G | J | K | M | X | Z | P | No code |
|---|---|---|---|---|---|---|---|---|---|---|
| (%) | ±0.25 | ±0.5 | ±2 | ±5 | ±10 | ±20 | +40<br>–20 | +80<br>–20 | +100<br>–0 | More than 10μF : –10~+50<br>Less than 4.7μF : –10~+75 |

**(Less than 10pF)**

| Code | B | C | D | F | G |
|---|---|---|---|---|---|
| (pF) | ±0.1 | ±0.25 | ±0.5 | ±1 | ±2 |

**• Voltage rating**

| 2nd word / 1st word | A | B | C | D | E | F | G | H | J | K | V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.0 | 1.25 | 1.6 | 2.0 | 2.5 | 3.15 | 4.0 | 5.0 | 6.3 | 8.0 | – |
| 1 | 10 | 12.5 | 16 | 20 | 25 | 31.5 | 40 | 50 | 63 | 80 | 35 |
| 2 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | – |
| 3 | 1000 | 1250 | 1600 | 2000 | 2500 | 2150 | 4000 | 5000 | 6300 | 8000 | – |

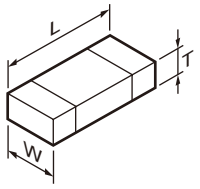
**• Chip capacitors**

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7
(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7
(Chip) (B, F)

Refer to the table above.
1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

**• Dimension**




**Chip capacitor**

| Code | L | W | T |
|---|---|---|---|
| Empty | 5.6±0.5 | 5.0±0.5 | Less than 2.0 |
| A | 4.5±0.5 | 3.2±0.4 | Less than 2.0 |
| B | 4.5±0.5 | 2.0±0.3 | Less than 2.0 |
| C | 4.5±0.5 | 1.25±0.2 | Less than 1.25 |
| D | 3.2±0.4 | 2.5±0.3 | Less than 1.5 |
| E | 3.2±0.2 | 1.6±0.2 | Less than 1.25 |
| F | 2.0±0.3 | 1.25±0.2 | Less than 1.25 |
| G | 1.6±0.2 | 0.8±0.2 | Less than 1.0 |
| H | 1.0±0.05 | 0.5±0.05 | 0.5±0.05 |

## RESISTORS

**• Chip resistor (Carbon)**

(EX) R D 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7
(Chip) (B, F)

**• Carbon resistor (Normal type)**

(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Rating wattage
6 = Value
7 = Tolerance

**Chip resistor**

| Code | L | W | T |
|---|---|---|---|
| E | 3.2±0.2 | 1.6±0.2 | 1.0 |
| F | 2.0±0.3 | 1.25±0.2 | 1.0 |
| G | 1.6±0.2 | 0.8±0.2 | 0.5±0.1 |
| H | 1.0±0.05 | 0.5±0.05 | 0.35±0.05 |

**• Rating wattage**

| Code | Wattage | Code | Wattage | Code | Wattage |
|---|---|---|---|---|---|
| 1J | 1/16W | 2C | 1/6W | 3A | 1W |
| 2A | 1/10W | 2E | 1/4W | 3D | 2W |
| 2B | 1/8W | 2H | 1/2W | | |

# PARTS LIST

✻ New Parts. ⚠indicates safety critical components.
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

**L** : Scandinavia **K** : USA **P** : Canada
**Y** : PX (Far East, Hawaii) **T** : England **E** : Europe
**Y** : AAFES (Europe) **X** : Australia **M** : Other Areas

**TM-V71A/V71E (Y51-513X-XX)**
**DISPLAY UNIT (X54-3590-00)**

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| **TM-V71A/V71E** | | | | | |
| 1 | 1B | ✻ | A01-2206-02 | METALLIC CABINET | |
| 2 | 3B | ✻ | A22-2521-02 | SUB PANEL | |
| 3 | 2A | ✻ | A62-1135-03 | PANEL (DISPLAY) | |
| 4 | 2A | ✻ | A82-0068-01 | REAR PANEL (DISPLAY) | |
| 6 | 2A | ✻ | B10-2775-12 | FRONT GLASS (DISPLAY) | |
| 7 | 2A | ✻ | B11-1839-03 | ILLUMINATION GUIDE (DISPLAY) | |
| 8 | 2A | ✻ | B38-0921-05 | LCD (DISPLAY) | |
| 9 | 1C | ✻ | B62-1926-00 | INSTRUCTION MANUAL (ENG) | |
| 10 | 1C | ✻ | B62-1927-00 | INSTRUCTION MANUAL (SPA/FRA) | K,E |
| 11 | 1C | ✻ | B62-1929-00 | INSTRUCTION MANUAL (ITA/GER/DUT) | E |
| 12 | 1C | ✻ | B62-1932-00 | INSTRUCTION MANUAL (CHINESE) | M4 |
| 14 | 3B | | E04-0167-15 | RF COAXIAL RECEPTACLE (M) | K,M4 |
| 15 | 3B | | E04-0170-15 | RF COAXIAL RECEPTACLE (N) | E |
| 16 | 2A | ✻ | E29-1216-05 | INTER CONNECTOR (DISPLAY) | |
| 17 | 2C | ✻ | E30-3452-05 | DC CORD ACCESSORY | E |
| 18 | 3B | ✻ | E30-3453-05 | DC CORD | E |
| 19 | 3A | ✻ | E30-7580-05 | MODULAR CABLE (110mm) | |
| 20 | 2C | ✻ | E30-7628-05 | DC CORD ACCESSORY | K,M4 |
| 21 | 3B | ✻ | E30-7642-05 | DC CORD | K,M4 |
| 22 | 1B | ✻ | E37-1291-05 | LEAD WIRE WITH CONNECTOR (SP) | |
| 23 | 2A | | E58-0457-05 | MODULAR JACK (DISPLAY) | |
| 26 | 3B | ✻ | F07-1916-05 | COVER (FANMOTOR) | |
| 27 | 3B | ✻ | F09-0489-05 | FANMOTOR | |
| 28 | 2B | ✻ | F10-3072-03 | SHIELDING COVER (POWER MODULE) | |
| 29 | 3A | ✻ | F15-1014-04 | SHIELDING PLATE (DISPLAY) | |
| 30 | 2C | | F51-0079-05 | FUSE (6X30,15A) ACCESSORY | K,M4 |
| 31 | 2C | | F52-0024-05 | FUSE (BLADE,15A) ACCESSORY | E |
| 33 | 2B | ✻ | G01-4554-04 | COIL SPRING (DISPLAY) | |
| 34 | 1B | ✻ | G13-2153-04 | CONDUCTIVE CUSHION (SP COVER) | |
| 35 | 2A | ✻ | G13-2198-14 | CUSHION (DISPLAY) | |
| 37 | 2C | | J19-1584-15 | HOLDER (MIC HOOK) | K |
| 38 | 1B | ✻ | J19-5500-04 | HOLDER (SP) | |
| 39 | 2A | ✻ | J21-8554-12 | MOUNTING HARDWARE (LCD) | |
| 40 | 2A | ✻ | J21-8558-03 | MOUNTING HARDWARE (MODULAR JACK) | |
| 41 | 1D | | J29-0628-33 | BRACKET ACCESSORY | |
| 42 | 2A | ✻ | J82-0112-05 | FPC (MODULAR JACK) | |
| 43 | 2B | ✻ | J82-0113-05 | FPC (TXRX-CONT) | |
| 45 | 2A | ✻ | K29-9376-03 | KNOB (ENC) | |
| 46 | 2A | ✻ | K29-9377-03 | KNOB (VOL) | |
| 47 | 1A | ✻ | K29-9378-03 | BUTTON KNOB (VFO,MR) | |
| 48 | 2A | ✻ | K29-9379-03 | BUTTON KNOB (POWER,PM) | |
| 49 | 2A | ✻ | K29-9380-03 | KNOB (SQL) | |
| 50 | 1A | ✻ | K29-9381-02 | BUTTON KNOB (7KEYS) | |
| 51 | 2B | ✻ | K29-9382-03 | LEVER KNOB (DISPLAY) | |
| A | 3B | ✻ | N09-6548-05 | SEMS SCREW (FANMOTOR) | |
| B | 2A | ✻ | N14-0830-04 | CIRCULAR NUT (VOL) | |
| C | 1B | | N33-2606-43 | OVAL HEAD MACHINE SCREW (CASE) | |
| D | 2B | | N67-3008-48 | PAN HEAD SEMS SCREW (PM,AMP,AVR) | |
| E | 2A,2B | ✻ | N80-2012-43 | PAN HEAD TAPTITE SCREW (REAR PANEL) | |
| F | 2A | ✻ | N80-2606-48 | PAN HEAD TAPTITE SCREW (MODULAR JACK) | |
| G | 2B,3B | | N87-2606-48 | BRAZIER HEAD TAPTITE SCREW (PCB,ANT) | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| H | 3A,3B | ✻ | N89-2606-43 | BINDING HEAD TAPTITE SCREW (SUB PANEL) | |
| 53 | 2C | | N99-0331-15 | SCREW SET ACCESSORY | |
| 55 | 1B | | T07-0368-15 | SPEAKER | |
| 56 | 2C | ✻ | T91-0657-15 | MICROPHONE ACCESSORY | |
| **DISPLAY UNIT (X54-3590-00)** | | | | | |
| D922-951 | | ✻ | B30-2290-05 | LED (G/Y) | |
| D952-983 | | ✻ | B30-2293-05 | LED (YG) | |
| D984-986 | | ✻ | B30-2290-05 | LED (G/Y) | |
| D987 | | ✻ | B30-2293-05 | LED (YG) | |
| C901,902 | | | CK73HB1H472K | CHIP C 4700PF K | |
| C903 | | | CK73GB1A105K | CHIP C 1.0UF K | |
| C904 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C907 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C911,912 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C913 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C914 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C915 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C916 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C917-921 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C922 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C924 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C925 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C926,927 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C928 | | | CK73HB1H471K | CHIP C 470PF K | |
| C929 | | | CK73GB1A105K | CHIP C 1.0UF K | |
| C930 | | | CK73HB1H681K | CHIP C 680PF K | |
| C934 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C936 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C937,938 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C939 | | | CK73HB1H471K | CHIP C 470PF K | |
| C940 | | | CK73GB1A105K | CHIP C 1.0UF K | |
| C941 | | | CK73HB1H681K | CHIP C 680PF K | |
| C942,943 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C945,946 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C947-951 | | | CC73GCH1H471J | CHIP C 470PF J | |
| C952-957 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C958-961 | | | CK73HB1H471K | CHIP C 470PF K | |
| C962 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C966 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C968-971 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| CN902 | | | E40-6710-05 | PIN ASSY | |
| CN903 | | | E40-6708-05 | PIN ASSY | |
| CN904 | | | E40-6710-05 | PIN ASSY | |
| CN905 | | | E40-6708-05 | PIN ASSY | |
| CN912 | | ✻ | E41-2833-05 | FLAT CABLE CONNECTOR | |
| L901 | | | L92-0138-05 | CHIP FERRITE | |
| L906 | | | L92-0138-05 | CHIP FERRITE | |
| X901 | | ✻ | L78-1426-05 | RESONATOR (11.0592MHZ) | |
| CP901 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP902 | | | RK75HA1J472J | CHIP-COM 4.7K J 1/16W | |

# PARTS LIST

**DISPLAY UNIT (X54-3590-00)**
**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| CP905 | | | RK75HA1J473J | CHIP-COM 47K J 1/16W | |
| CP906,907 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP908 | | | RK74HB1J473J | CHIP-COM 47K J 1/16W | |
| CP909-912 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP913 | | | RK74HB1J473J | CHIP-COM 47K J 1/16W | |
| R901 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R902 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R903 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R904 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R905 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R906 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R907 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R908 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R909 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R912,913 | | | RK73GB2A392J | CHIP R 3.9K J 1/10W | |
| R914,915 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R924 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R925 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R926 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R927 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R928 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R929 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R930 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R931 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R932 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R933 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R934 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R935 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R936 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R937 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R938 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R939 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R940 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R941 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R942 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R943 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| R944-949 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R950 | | | RK73GB2A472J | CHIP R 4.7K J 1/10W | |
| R952,953 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R954 | | | RK73GB2A472J | CHIP R 4.7K J 1/10W | |
| R955 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R956 | | | RK73FB2B271J | CHIP R 270 J 1/8W | |
| R957 | | | RK73FB2B331J | CHIP R 330 J 1/8W | |
| VR901,902 | | | R31-0629-15 | VARIABLE RESISTOR | |
| S902-912 | | | S70-0439-15 | TACT SWITCH | |
| D901-909 | | | DA221 | DIODE | |
| D911-921 | | | DA221 | DIODE | |
| D988,989 | | | AVRM1608080MAA | VARISTOR | |
| IC901,902 | | | TC4S81F-F | MOS-IC | |
| IC903 | | ✻ | 3062LFGPUKBZA | MICROPROCESSOR IC | |
| IC904 | | ✻ | TA4805BF | MOS-IC | |
| IC905 | | | BD4840FVE | MOS-IC | |
| IC906,907 | | | PT6554LQ | MOS-IC | |
| Q901 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q902,903 | | | 2SC4617(R) | TRANSISTOR | |
| Q904,905 | | | 12A02CH | TRANSISTOR | |
| S901 | | | W02-3704-05 | ENCODER | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| **TX-RX UNIT (X57-731X-XX) 0-11: K 0-21: M4 2-71: E** | | | | | |
| C1 | | | CK73HB1H471K | CHIP C 470PF K | |
| C2 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C3 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C4,5 | | | CK73GB1H104K | CHIP C 0.10UF K | |
| C6 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C7 | | | CK73HB1H471K | CHIP C 470PF K | |
| C9 | | | CK73HB1H471K | CHIP C 470PF K | |
| C10 | | | CK73GB1H104K | CHIP C 0.10UF K | |
| C11 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C12 | | ✻ | CS77CB21A220M | CHIP TNTL 22UF 10WV | |
| C13 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C14 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C15,16 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C17 | | | CK73GB1C473K | CHIP C 0.047UF K | |
| C18 | | | CS77AA1VR47M | CHIP TNTL 0.47UF 35WV | |
| C19 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C20 | | | CS77AA1A100M | CHIP TNTL 10UF 10WV | |
| C21,22 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C23 | | | CS77CA1VR22M | CHIP TNTL 0.22UF 35WV | |
| C24 | | ✻ | CS77CB21A220M | CHIP TNTL 22UF 10WV | |
| C25 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C26 | | | CK73HB1H471K | CHIP C 470PF K | |
| C27 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C28 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C29 | | | CK73GB1A105K | CHIP C 1.0UF K | |
| C30 | | | CC73HCH1H040B | CHIP C 4.0PF B | |
| C31 | | | CC73HCH1H270G | CHIP C 27PF G | |
| C32 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C33 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C34 | | | CC73HCH1H120G | CHIP C 12PF G | |
| C35 | | | CC73HCH1H150G | CHIP C 15PF G | |
| C36-39 | | | CK73HB1H471K | CHIP C 470PF K | |
| C40 | | | CC73HCH1H040B | CHIP C 4.0PF B | |
| C41 | | | CC73HCH1H1R5B | CHIP C 1.5PF B | |
| C42-44 | | | CK73HB1H471K | CHIP C 470PF K | |
| C45 | | | CC73HCH1H150G | CHIP C 15PF G | |
| C46 | | | CC73HCH1H010B | CHIP C 1.0PF B | |
| C47 | | | CC73HCH1H150G | CHIP C 15PF G | |
| C49,50 | | | CK73HB1H471K | CHIP C 470PF K | |
| C51 | | | CC73HCH1H030B | CHIP C 3.0PF B | |
| C52 | | | CC73HCH1H150G | CHIP C 15PF G | |
| C53 | | | CK73HB1H471K | CHIP C 470PF K | |
| C54 | | | CC73HCH1H270G | CHIP C 27PF G | |
| C55 | | | CC73HCH1H030B | CHIP C 3.0PF B | |
| C56,57 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C58 | | | CC73HCH1H070B | CHIP C 7.0PF B | |
| C59 | | | CC73HCH1H020B | CHIP C 2.0PF B | |
| C60 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C61,62 | | | CK73HB1H471K | CHIP C 470PF K | |
| C63 | | | CC73HCH1H040B | CHIP C 4.0PF B | |
| C64,65 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C66 | | | CK73HB1H471K | CHIP C 470PF K | |
| C67 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C68 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C69,70 | | | CK73GB1H104K | CHIP C 0.10UF K | |
| C71 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C72 | | | CK73HB1H471K | CHIP C 470PF K | |
| C74 | | | CK73HB1H471K | CHIP C 470PF K | |

# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C75 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C76,77 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C78 | | * | CS77CB21A220M | CHIP TNTL | 22UF | 10WV | |
| C79 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C80 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C81,82 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C83 | | | CK73GB1C473K | CHIP C | 0.047UF | K | |
| C84 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C85 | | | CS77AA1VR47M | CHIP TNTL | 0.47UF | 35WV | |
| C86 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C87,88 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C89 | | | CS77CA1VR22M | CHIP TNTL | 0.22UF | 35WV | |
| C90 | | * | CS77CB21A220M | CHIP TNTL | 22UF | 10WV | |
| C91 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C92 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C93 | | | CC73HCH1H100B | CHIP C | 10PF | B | |
| C94 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C95 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C96 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C97 | | | CC73HCH1H270G | CHIP C | 27PF | G | |
| C98 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C99 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C100 | | | CC73HCH1H120G | CHIP C | 12PF | G | |
| C101 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C102-105 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C106 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C107 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C108-110 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C111 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C112 | | | CC73HCH1H010B | CHIP C | 1.0PF | B | |
| C113-117 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C119,120 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C121,122 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C123 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C124 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C125 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C126 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C127,128 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C129,130 | | | CC73HCH1H100B | CHIP C | 10PF | B | |
| C131-133 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C134 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C135 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C136 | | | CK73FB1A475K | CHIP C | 4.7UF | K | |
| C137-139 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C141 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C142 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C143 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C144 | | | C93-0562-05 | CHIP C | 15PF | J | |
| C145 | | | CK73GB1H103K | CHIP C | 0.010UF | K | |
| C146 | | | CK73EB1E225K | CHIP C | 2.2UF | K | |
| C149 | | | C93-0554-05 | CHIP C | 4.0PF | C | |
| C150 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C151 | | | C93-0562-05 | CHIP C | 15PF | J | |
| C152 | | | CK73GB1H103K | CHIP C | 0.010UF | K | |
| C153 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C154,155 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C156 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C157-160 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C161,162 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C163 | | | CK73HB1H102K | CHIP C | 1000PF | K | |

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C164 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C165 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C166 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C167 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C168 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C169 | | | CK73FB1A475K | CHIP C | 4.7UF | K | |
| C170 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C171 | | | CC73GCH1H100D | CHIP C | 10PF | D | |
| C172 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C173 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C174 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C175 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C176 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C177 | | | CK73GB1H103K | CHIP C | 0.010UF | K | |
| C178 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C179 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C180 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C181 | | | CK73GB1H103K | CHIP C | 0.010UF | K | |
| C182 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C183,184 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C185 | | | C93-0551-05 | CHIP C | 1.5PF | C | |
| C186 | | | C93-0552-05 | CHIP C | 2.0PF | C | |
| C188 | | | CC73FCH1H220J | CHIP C | 22PF | J | |
| C189 | | | CC73FCH1H070B | CHIP C | 7.0PF | B | |
| C190 | | | C93-0554-05 | CHIP C | 4.0PF | C | K,M4 |
| C190 | | | C93-0555-05 | CHIP C | 5.0PF | C | E |
| C191 | | | C93-0603-05 | CHIP C | 1000PF | K | |
| C192 | | | C93-0556-05 | CHIP C | 6.0PF | D | |
| C193 | | | C93-0562-05 | CHIP C | 15PF | J | |
| C194 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C195 | | | C93-0554-05 | CHIP C | 4.0PF | C | |
| C196 | | | CC73FCH1HR75B | CHIP C | 0.75PF | B | |
| C197 | | | C93-0562-05 | CHIP C | 15PF | J | |
| C198 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C199 | | | C93-0552-05 | CHIP C | 2.0PF | C | |
| C200 | | | CC73GCH1HR75B | CHIP C | 0.75PF | B | |
| C201 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C202-207 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C208 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C209 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C210 | | | CK73HB1C223K | CHIP C | 0.022UF | K | |
| C211 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C212 | | | CK73HB1C223K | CHIP C | 0.022UF | K | |
| C213-215 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C216 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C217 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C218,219 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C220-222 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C223 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C224 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C225 | | | C93-0555-05 | CHIP C | 5.0PF | C | |
| C226 | | | C93-0553-05 | CHIP C | 3.0PF | C | |
| C227 | | | CC73GCH1H3R5B | CHIP C | 3.5PF | B | |
| C228 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C229 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C230 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C231,232 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C233 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C234 | | | CC73HCH1H110G | CHIP C | 11PF | G | |
| C235 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C236 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C237 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C239-245 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C246 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C247-252 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C253,254 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C255-257 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C259-261 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C262 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C263-269 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C270 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C271-274 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C275 | | | CC73HCH1H270G | CHIP C | 27PF | G | |
| C276 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C279-281 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C283-288 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C292 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C293 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C294 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C295 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C296,297 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C298 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C299 | | | CC73HCH1H110G | CHIP C | 11PF | G | |
| C300 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C301 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C302 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C303 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C305-310 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C311 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C312-316 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C317 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C321,322 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C324-327 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C329-335 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C337-342 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C343,344 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C346,347 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C349-354 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C355 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C356 | | | CC73HCH1H820J | CHIP C | 82PF | J | |
| C357 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C358 | | | CC73HCH1H181J | CHIP C | 180PF | J | |
| C359 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C360 | | | CC73HCH1H060B | CHIP C | 6.0PF | B | |
| C361 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C363 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C364 | | | CC73HCH1H100B | CHIP C | 10PF | B | |
| C365 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C366 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C367 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C368 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C369 | | | CC73HCH1H180G | CHIP C | 18PF | G | |
| C370 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C371,372 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C373 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C375 | | | CC73HCH1H120G | CHIP C | 12PF | G | |
| C376 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C378 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C379 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C380-382 | | | CK73HB1H471K | CHIP C | 470PF | K | |

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C383 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C384-388 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C389 | | | CC73HCH1H060B | CHIP C | 6.0PF | B | |
| C390 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C391,392 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C393 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C394 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C395 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C396-398 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C399 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C400-405 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C406 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C407 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C408 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C409 | | | CC73HCH1H100B | CHIP C | 10PF | B | |
| C410 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C411 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C413 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C414 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C415 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C416,417 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C418 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C419 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C420 | | | CC73HCH1H120G | CHIP C | 12PF | G | |
| C421 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C422 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C423 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C425-427 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C428 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C429-433 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C434 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C435 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C436-438 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C439 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C440-442 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C443 | | | CC73HCH1H060B | CHIP C | 6.0PF | B | |
| C444-448 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C449 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C450 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C452 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C455 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C457 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C458 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C459 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C460,461 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C462 | | | CC73HCH1H020B | CHIP C | 2.0PF | B | |
| C463 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C464 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C465 | | | CK73HB1H222K | CHIP C | 2200PF | K | |
| C466-469 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C470 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C471 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C472 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C473 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C474 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C475 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C476 | | | CC73HCH1H820J | CHIP C | 82PF | J | |
| C477 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C478 | | | CC73HCH1H100B | CHIP C | 10PF | B | |
| C480 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |

# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C486 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C487 | | | CK73HB1H391K | CHIP C | 390PF | K | |
| C488 | | | CK73HB1H392K | CHIP C | 3900PF | K | |
| C489 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C491 | | | CC73HCH1H180G | CHIP C | 18PF | G | |
| C493 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C494 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C495 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C496 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C497 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C498 | | | CC73HCH1H820J | CHIP C | 82PF | J | |
| C499-501 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C502 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C503,504 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C505 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C507 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C509 | | | CC73HCH1H560J | CHIP C | 56PF | J | |
| C511 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C512,513 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C514 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C515,516 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C518 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C519 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C521-525 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C527,528 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C531-534 | | | CK73GB0J475K | CHIP C | 4.7UF | K | |
| C538 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C539 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C540 | | | C93-0570-05 | CHIP C | 68PF | J | |
| C541 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C542 | | | CC73HCH1H090B | CHIP C | 9.0PF | B | |
| C544 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C545 | | | CK73HB1C223K | CHIP C | 0.022UF | K | |
| C546 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C548 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C549 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C551 | | | CC73HCH1H090B | CHIP C | 9.0PF | B | |
| C552 | | | CK73HB1H391K | CHIP C | 390PF | K | |
| C553 | | | CK73HB1H392K | CHIP C | 3900PF | K | |
| C554 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C555 | | | C93-0555-05 | CHIP C | 5.0PF | C | |
| C556 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C557 | | ✻ | CC73HCH1H910J | CHIP C | 91PF | J | |
| C558,559 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C560 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C561 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C562 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C563 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C565 | | | CC73HCH1H150G | CHIP C | 15PF | G | |
| C567-574 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C576,577 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C579-581 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C583-592 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C593 | | | C93-0555-05 | CHIP C | 5.0PF | C | |
| C594,595 | | | CE32CL1C470M | CHIP EL | 47UF | 16WV | |
| C596 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C597 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C598,599 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C600 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C601 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C602,603 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C604 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C605 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C606 | | | CK73GB0J475K | CHIP C | 4.7UF | K | |
| C607 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C608 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C609 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C610 | | | CC73HCH1H121J | CHIP C | 120PF | J | |
| C611,612 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C613 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C614 | | | CK73HB1A473K | CHIP C | 0.047UF | K | |
| C615,616 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C617 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C618 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C619 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C620 | | ✻ | CD04AZ1E471M | ELECTRO | 470UF | 25WV | |
| C621-624 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C625,626 | | ✻ | CD04AZ1E471M | ELECTRO | 470UF | 25WV | |
| C627-634 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C642 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C643,644 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C645,646 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C647 | | | CK73GB1H471K | CHIP C | 470PF | K | |
| C649,650 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C651 | | | CE32CL1C470M | CHIP EL | 47UF | 16WV | |
| C652 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C653 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C655 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C656 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C659 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C660 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C661 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C662 | | | CK73GB1H103K | CHIP C | 0.010UF | K | |
| C664 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C665 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C666,667 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C668 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C669 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C670 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C671 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C672 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C673 | | | CC73HCH1H270G | CHIP C | 27PF | G | |
| C674 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C675,676 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C677-686 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C687 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C689 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C690 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C693 | | | CC73HCH1H1R5B | CHIP C | 1.5PF | B | |
| C694 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C697 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C698 | | | CC73HCH1H270G | CHIP C | 27PF | G | |
| C699 | | | CC73HCH1H070B | CHIP C | 7.0PF | B | |
| C701,702 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C704 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C708 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C710,711 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C712 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C713,714 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C715 | | | CK73HB1H471K | CHIP C | 470PF | K | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C716 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C717 | | | CC73HCH1H390J | CHIP C | 39PF | J | |
| C718 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C719 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C720,721 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C722 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C723 | | | CC73HCH1H060B | CHIP C | 6.0PF | B | |
| C724 | | | CC73HCH1H120G | CHIP C | 12PF | G | |
| C725 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C727 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C728 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C729,730 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C731,732 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C733 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C734 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C735 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C736 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C751,752 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C754 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C758 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C760,761 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C762 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C763,764 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C765 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C766 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C767 | | | CC73HCH1H390J | CHIP C | 39PF | J | |
| C768 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C769 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C770,771 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C772 | | | CC73HCH1H030B | CHIP C | 3.0PF | B | |
| C773 | | | CC73HCH1H060B | CHIP C | 6.0PF | B | |
| C774 | | | CC73HCH1H120G | CHIP C | 12PF | G | |
| C775 | | | CC73HCH1H040B | CHIP C | 4.0PF | B | |
| C777 | | | CC73HCH1H050B | CHIP C | 5.0PF | B | |
| C778 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C779,780 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C781,782 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C783 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C784 | | | CK73HB1H471K | CHIP C | 470PF | K | |
| C785 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C786 | | | CC73HCH1H0R5B | CHIP C | 0.5PF | B | |
| C803,804 | | ✻ | CE32BF1E331M | CHIP EL | 330UF | 25WV | |
| C805 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C806,807 | | ✻ | CE32BF1E331M | CHIP EL | 330UF | 25WV | |
| C808 | | | CK73GB0J475K | CHIP C | 4.7UF | K | |
| C809 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C810 | | | CE32CL1C470M | CHIP EL | 47UF | 16WV | |
| C811 | | ✻ | CS77CA1A4R7M | CHIP TNTL | 4.7UF | 10WV | |
| C812 | | | CK73HB1A473K | CHIP C | 0.047UF | K | |
| C813 | | | C92-0661-05 | CHIP TNTL | 2.2UF | 10WV | |
| C814 | | | CK73HB1H561K | CHIP C | 560PF | K | |
| C815 | | | CK73HB1A393K | CHIP C | 0.039UF | K | |
| C816 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C817 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C818 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C819 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C820 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C821,822 | | | CK73GB1C474K | CHIP C | 0.47UF | K | |
| C823,824 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C825 | | | CC73HCH1H121J | CHIP C | 120PF | J | |

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C826 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C827 | | | CK73HB1H272K | CHIP C | 2700PF | K | |
| C828,829 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C830 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C831 | | | CK73HB1H332K | CHIP C | 3300PF | K | |
| C832 | | | CK73HB1H561K | CHIP C | 560PF | K | |
| C833 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C834-837 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C838 | | | CK73HB1C822K | CHIP C | 8200PF | K | |
| C839 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C840,841 | | ✻ | CS77CA1A4R7M | CHIP TNTL | 4.7UF | 10WV | |
| C842 | | | CK73HB1H332K | CHIP C | 3300PF | K | |
| C843 | | | CC73HCH1H221J | CHIP C | 220PF | J | |
| C844 | | | CK73HB1H561K | CHIP C | 560PF | K | |
| C845,846 | | | CK73HB1H472K | CHIP C | 4700PF | K | |
| C847 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C848 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C849,850 | | | CK73HB1H472K | CHIP C | 4700PF | K | |
| C851 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C852 | | | CK73HB1A473K | CHIP C | 0.047UF | K | |
| C853 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C854 | | | CK73HB1A473K | CHIP C | 0.047UF | K | |
| C855 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C856 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C857 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C858 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C859 | | | CK73HB1H122K | CHIP C | 1200PF | K | |
| C860 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C861 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C862 | | | CK73HB1H122K | CHIP C | 1200PF | K | |
| C863,864 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C865 | | ✻ | CS77CA1A4R7M | CHIP TNTL | 4.7UF | 10WV | |
| C866,867 | | | CK73HB1E562K | CHIP C | 5600PF | K | |
| C868 | | | CC73HCH1H221J | CHIP C | 220PF | J | |
| C869 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C870 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C872 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C873 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C874 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C875,876 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C877 | | | CK73HB1H561K | CHIP C | 560PF | K | |
| C878 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C879,880 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C881 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C882 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| C883 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C884 | | | CK73HB1H472K | CHIP C | 4700PF | K | |
| C885 | | | CK73HB1H561K | CHIP C | 560PF | K | |
| C887 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C889 | | | CK73HB1H681K | CHIP C | 680PF | K | |
| C891 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C892 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C893 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C894 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C895-906 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C907,908 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C909 | | | CS77AA1A100M | CHIP TNTL | 10UF | 10WV | |
| C910 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C914 | | | CK73HB1E682K | CHIP C | 6800PF | K | |
| C915 | | | CK73HB1C822K | CHIP C | 8200PF | K | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | | | Destination |
|---|---|---|---|---|---|---|---|
| C916 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C917,918 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C919-922 | | | CC73HCH1H220G | CHIP C | 22PF | G | |
| C923 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C924 | | | CC73HCH1H101J | CHIP C | 100PF | J | |
| C926 | | | CK73HB1H681K | CHIP C | 680PF | K | |
| C928 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C929 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C930,931 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C932 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C933 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C934 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C935-937 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C938,939 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C941 | | | CK73HB1H472K | CHIP C | 4700PF | K | |
| C943 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C944 | | | CK73HB0J105K | CHIP C | 1.0UF | K | |
| C945 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C946 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C947 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C948 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C949 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C950 | | | CK73GB1C473K | CHIP C | 0.047UF | K | |
| C951 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C952 | | | CK73GB1A105K | CHIP C | 1.0UF | K | |
| C953 | | | CK73GB0J475K | CHIP C | 4.7UF | K | |
| C954 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C955 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C957 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C958 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C960 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C962 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C963 | | | CE32CL1C470M | CHIP EL | 47UF | 16WV | |
| C964 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C966 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C967-969 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C970 | | ✻ | CE32BF1E331M | CHIP EL | 330UF | 25WV | |
| C971 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C972 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C973 | | ✻ | CE32BC1D220M | CHIP EL | 22UF | 20WV | |
| C974 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C975 | | | CK73GB1H104K | CHIP C | 0.10UF | K | |
| C976 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C977 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C978 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C979 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C980 | | | CK73GB1E105K | CHIP C | 1.0UF | K | |
| C981 | | | CK73GB1C474K | CHIP C | 0.47UF | K | |
| C982 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C983 | | | CK73GB1H102K | CHIP C | 1000PF | K | |
| C984,985 | | | CK73HB1H102K | CHIP C | 1000PF | K | |
| C986 | | | CK73HB1E103K | CHIP C | 0.010UF | K | |
| C988 | | | CK73HB1A104K | CHIP C | 0.10UF | K | |
| C991 | | | CC73HCH1H470J | CHIP C | 47PF | J | |
| CN641 | | | E40-6525-05 | PIN ASSY | | | |
| CN642 | | | E40-6389-05 | PIN ASSY | | | |
| CN676 | | | E40-6525-05 | PIN ASSY | | | |
| CN677 | | ✻ | E40-6745-05 | FLAT CABLE CONNECTOR | | | |
| CN701 | | ✻ | E40-6771-05 | PIN ASSY | | | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| CN702 | | ✻ | E40-6770-05 | PIN ASSY | |
| CN751 | | ✻ | E40-6771-05 | PIN ASSY | |
| CN752 | | ✻ | E40-6770-05 | PIN ASSY | |
| CN960 | | ✻ | E40-6745-05 | FLAT CABLE CONNECTOR | |
| CN961 | | | E40-6527-05 | PIN ASSY | |
| J606 | | | E56-0411-05 | DIN SOCKET | |
| J607 | | | E56-0405-05 | DIN SOCKET | |
| J801,802 | | | E11-0425-05 | 3.5D PHONE JACK(3P) | |
| J951 | | ✻ | E58-0523-05 | MODULAR JACK | |
| J952 | | | E58-0527-05 | MODULAR JACK | |
| W601 | | ✻ | E37-1403-05 | PROCESSED LEAD WIRE | K,M4 |
| 101 | 2B | ✻ | F10-3082-04 | SHIELDING CASE | |
| F576,577 | | | F53-0392-05 | FUSE (3A) | |
| F641 | | | F53-0128-05 | FUSE (0.5A) | |
| F951 | | ✻ | F53-0323-05 | FUSE (2A) | |
| CD486 | | | L79-1701-05 | TUNING COIL | |
| CD546 | | | L79-1582-05 | TUNING COIL | |
| CF486 | | ✻ | L72-1035-05 | CERAMIC FILTER | |
| CF487 | | ✻ | L72-1036-05 | CERAMIC FILTER | |
| CF546 | | ✻ | L72-1034-05 | CERAMIC FILTER | |
| CF547 | | | L72-0999-05 | CERAMIC FILTER | |
| L2 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L10 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| L11 | | | L40-2275-92 | SMALL FIXED INDUCTOR (22NH) | |
| L12 | | | L40-8265-92 | SMALL FIXED INDUCTOR (8.2NH) | |
| L13 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| L14 | | | L40-2275-92 | SMALL FIXED INDUCTOR (22NH) | |
| L15 | | | L40-8265-92 | SMALL FIXED INDUCTOR (8.2NH) | |
| L16,17 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | |
| L19-22 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | |
| L67 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L131 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | |
| L132 | | | L92-0443-05 | CHIP FERRITE | |
| L133 | | | L34-0742-05 | AIR-CORE COIL | |
| L135 | | | L34-0742-05 | AIR-CORE COIL | |
| L136 | | ✻ | L34-4865-05 | AIR-CORE COIL | |
| L161,162 | | | L40-2275-92 | SMALL FIXED INDUCTOR (22NH) | |
| L163 | | | L92-0443-05 | CHIP FERRITE | |
| L164 | | | L34-0742-05 | AIR-CORE COIL | |
| L165 | | ✻ | L34-4811-05 | AIR-CORE COIL | |
| L166 | | | L34-1239-05 | AIR-CORE COIL | |
| L186 | | | L34-0894-05 | AIR-CORE COIL | |
| L187 | | | L34-1185-05 | AIR-CORE COIL | |
| L188 | | ✻ | L34-4811-05 | AIR-CORE COIL | |
| L189 | | | L34-1228-05 | AIR-CORE COIL | |
| L190 | | | L41-3378-03 | SMALL FIXED INDUCTOR (33NH) | |
| L191 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L192 | | ✻ | L34-4810-05 | AIR-CORE COIL | |
| L193 | | ✻ | L34-4811-05 | AIR-CORE COIL | |
| L194 | | | L34-1052-05 | AIR-CORE COIL | |
| L195 | | ✻ | L34-4864-05 | AIR-CORE COIL | |
| L196 | | ✻ | L34-4811-05 | AIR-CORE COIL | |
| L197 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| L198 | | ✻ | L34-4874-05 | AIR-CORE COIL | |
| L227,228 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L229,230 | | | L41-5685-14 | SMALL FIXED INDUCTOR (560NH) | |
| L231 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L232 | | ✻ | L41-1188-03 | SMALL FIXED INDUCTOR (110NH) | |
| L233 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| L234 | | ✻ | L41-3385-14 | SMALL FIXED INDUCTOR (330NH) | |
| L236,237 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L242 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L244 | | ✻ | L41-1088-03 | SMALL FIXED INDUCTOR (100NH) | |
| L245 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L246 | | | L41-3988-14 | SMALL FIXED INDUCTOR (390NH) | |
| L248,249 | | | L41-6878-03 | SMALL FIXED INDUCTOR (68NH) | |
| L254 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L255 | | | L41-5685-14 | SMALL FIXED INDUCTOR (560NH) | |
| L256 | | ✻ | L41-3388-03 | SMALL FIXED INDUCTOR (330NH) | |
| L257 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L258 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L259,260 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L292,293 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L294,295 | | | L41-4785-14 | SMALL FIXED INDUCTOR (470NH) | |
| L296 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L297 | | ✻ | L41-1188-03 | SMALL FIXED INDUCTOR (110NH) | |
| L298 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L299 | | ✻ | L41-3385-14 | SMALL FIXED INDUCTOR (330NH) | |
| L301,302 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L307 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L308 | | | L41-5685-14 | SMALL FIXED INDUCTOR (560NH) | |
| L309 | | ✻ | L41-1088-03 | SMALL FIXED INDUCTOR (100NH) | |
| L310 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L311 | | | L41-3988-14 | SMALL FIXED INDUCTOR (390NH) | |
| L312 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L313,314 | | | L41-6878-03 | SMALL FIXED INDUCTOR (68NH) | |
| L319 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L320 | | | L41-5685-14 | SMALL FIXED INDUCTOR (560NH) | |
| L321 | | ✻ | L41-3388-03 | SMALL FIXED INDUCTOR (330NH) | |
| L322-324 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L356 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L357 | | | L41-3988-14 | SMALL FIXED INDUCTOR (390NH) | |
| L358 | | | L41-5678-03 | SMALL FIXED INDUCTOR (56NH) | |
| L359 | | ✻ | L41-3385-14 | SMALL FIXED INDUCTOR (330NH) | |
| L361 | | | L40-1275-92 | SMALL FIXED INDUCTOR (12NH) | |
| L362 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| L363 | | | L41-1585-14 | SMALL FIXED INDUCTOR (150NH) | |
| L364 | | | L41-4785-14 | SMALL FIXED INDUCTOR (470NH) | |
| L365 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L366 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L368 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L370 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L371 | | | L40-1091-86 | SMALL FIXED INDUCTOR (1.0UH) | |
| L372 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L375 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L376 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L377 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L378 | | | L40-1091-86 | SMALL FIXED INDUCTOR (1.0UH) | |
| L379 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L380 | | ✻ | L41-4378-03 | SMALL FIXED INDUCTOR (43NH) | |
| L406 | | | L40-1275-92 | SMALL FIXED INDUCTOR (12NH) | |
| L407 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| L408 | | | L41-1585-14 | SMALL FIXED INDUCTOR (150NH) | |
| L409 | | | L41-4785-14 | SMALL FIXED INDUCTOR (470NH) | |
| L410 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | |
| L411 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L413 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L415 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L416 | | | L40-1091-86 | SMALL FIXED INDUCTOR (1.0UH) | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| L417 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L419 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L420 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L421 | | | L40-1075-92 | SMALL FIXED INDUCTOR (10NH) | |
| L422 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L423 | | | L40-1091-86 | SMALL FIXED INDUCTOR (1.0UH) | |
| L424 | | | L41-2288-03 | SMALL FIXED INDUCTOR (220NH) | |
| L425 | | ✻ | L41-4378-03 | SMALL FIXED INDUCTOR (43NH) | |
| L451 | | ✻ | L41-1278-03 | SMALL FIXED INDUCTOR (12NH) | |
| L452 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L454 | | | L41-1578-03 | SMALL FIXED INDUCTOR (15NH) | |
| L457,458 | | | L40-6865-92 | SMALL FIXED INDUCTOR (6.8NH) | |
| L460,461 | | | L41-8285-14 | SMALL FIXED INDUCTOR (820NH) | |
| L462 | | | L40-4781-86 | SMALL FIXED INDUCTOR (0.47UH) | |
| L465 | | | L40-2263-92 | SMALL FIXED INDUCTOR (2.2NH) | |
| L468 | | | L40-1075-92 | SMALL FIXED INDUCTOR (10NH) | |
| L500 | | | L40-4781-86 | SMALL FIXED INDUCTOR (0.47UH) | |
| L501 | | ✻ | L40-3981-86 | SMALL FIXED INDUCTOR (0.39UH) | |
| L546,547 | | ✻ | L41-3385-14 | SMALL FIXED INDUCTOR (330NH) | |
| L606 | | | L40-3381-86 | SMALL FIXED INDUCTOR (0.33UH) | |
| L607,608 | | | L41-3988-14 | SMALL FIXED INDUCTOR (390NH) | |
| L613,614 | | | L41-2785-14 | SMALL FIXED INDUCTOR (270NH) | |
| L617,618 | | | L41-2785-14 | SMALL FIXED INDUCTOR (270NH) | |
| L621 | | | L41-5685-14 | SMALL FIXED INDUCTOR (560NH) | |
| L622 | | | L40-8265-57 | SMALL FIXED INDUCTOR (8.2NH) | |
| L623 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | |
| L624,625 | | | L40-1085-57 | SMALL FIXED INDUCTOR (100NH) | |
| L626 | | ✻ | L40-5663-57 | SMALL FIXED INDUCTOR (5.6NH) | |
| L641,642 | | | L92-0443-05 | CHIP FERRITE | |
| L701,702 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L703 | | ✻ | L41-1278-08 | SMALL FIXED INDUCTOR (12NH) | |
| L704,705 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L706 | | | L41-3378-08 | SMALL FIXED INDUCTOR (33NH) | |
| L707 | | | L41-2278-08 | SMALL FIXED INDUCTOR (22NH) | |
| L708 | | | L41-1878-08 | SMALL FIXED INDUCTOR (18NH) | |
| L709 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L710,711 | | ✻ | L41-1095-14 | SMALL FIXED INDUCTOR (1.0UH) | |
| L712 | | | L40-1585-92 | SMALL FIXED INDUCTOR (150NH) | |
| L751,752 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L753 | | ✻ | L41-1278-08 | SMALL FIXED INDUCTOR (12NH) | |
| L754,755 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L756 | | | L41-3378-08 | SMALL FIXED INDUCTOR (33NH) | |
| L757 | | | L41-2278-08 | SMALL FIXED INDUCTOR (22NH) | |
| L758 | | | L41-1878-08 | SMALL FIXED INDUCTOR (18NH) | |
| L759 | | | L41-1098-08 | SMALL FIXED INDUCTOR (1.0UH) | |
| L760,761 | | ✻ | L41-1095-14 | SMALL FIXED INDUCTOR (1.0UH) | |
| L762 | | | L40-1585-92 | SMALL FIXED INDUCTOR (150NH) | |
| L916,917 | | | L92-0443-05 | CHIP FERRITE | |
| L921,922 | | ✻ | L41-3385-14 | SMALL FIXED INDUCTOR (330NH) | |
| L951,952 | | | L92-0443-05 | CHIP FERRITE | |
| X1 | | ✻ | L77-3018-05 | TCXO (12.8MHZ) | |
| X66 | | ✻ | L77-3017-05 | TCXO (16.8MHZ) | |
| X486 | | ✻ | L77-3021-05 | CRYSTAL RESONATOR (45.505MHZ) | |
| X916 | | ✻ | L77-3022-05 | CRYSTAL RESONATOR (11.0592MHZ) | |
| X917 | | | L78-0459-05 | RESONATOR (4.19MHZ) | |
| XF486 | | ✻ | L71-0642-05 | MCF (45.05MHZ) | |
| XF546 | | ✻ | L71-0641-05 | MCF (49.95MHZ) | |
| CP1 | | | RK75HA1J103J | CHIP-COM 10K J 1/16W | |
| CP66 | | | RK75HA1J103J | CHIP-COM 10K J 1/16W | |

# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| CP576 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP577-579 | | | RK74HB1J472J | CHIP-COM 4.7K J 1/16W | |
| CP606 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP666 | | | RK75HA1J472J | CHIP-COM 4.7K J 1/16W | |
| CP667 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP801 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP802 | | | RK74HB1J473J | CHIP-COM 47K J 1/16W | |
| CP803 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP916 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP917,918 | | | RK75HA1J102J | CHIP-COM 1.0K J 1/16W | |
| CP919 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP920,921 | | | RK74HB1J473J | CHIP-COM 47K J 1/16W | |
| CP922 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP923 | | | RK75HA1J102J | CHIP-COM 1.0K J 1/16W | |
| CP924 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP925 | | | RK75HA1J102J | CHIP-COM 1.0K J 1/16W | |
| CP926 | | | RK74HB1J102J | CHIP-COM 1.0K J 1/16W | |
| CP951 | | | RK75HA1J473J | CHIP-COM 47K J 1/16W | |
| CP952 | | | RK74HB1J473J | CHIP-COM 47K J 1/16W | |
| R1,2 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R3 | | | RK73HH1J333D | CHIP R 33K D 1/16 | |
| R4 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R7 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R8 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R9 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R11 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R12 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R13 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R14 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R15 | | ✻ | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R16 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R17 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R18 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R19 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R20 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | |
| R21 | | | RK73HB1J391J | CHIP R 390 J 1/16W | |
| R22 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R23,24 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R25 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R26 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R27 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R28 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R29 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R30 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R31 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R32 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R33 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R35 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R36 | | ✻ | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R37 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R38 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R39 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R40 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R41 | | | RK73HB1J180J | CHIP R 18 J 1/16W | |
| R42 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R43 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R46 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R48 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R50 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R53 | | | RK73HB1J560J | CHIP R 56 J 1/16W | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| R54,55 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R56,57 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R58 | | | RK73HB1J560J | CHIP R 56 J 1/16W | |
| R59 | | | RK73HB1J4R7J | CHIP R 4.7 J 1/16W | |
| R60,61 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R64,65 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R66,67 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R68 | | | RK73HH1J333D | CHIP R 33K D 1/16W | |
| R69 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R72 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R73 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R74 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R76 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R77 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R78 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R79 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R80 | | ✻ | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R81 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R82 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R83 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R84 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R85 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | |
| R86 | | | RK73HB1J391J | CHIP R 390 J 1/16W | |
| R87 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R88,89 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R90 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R91 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R92 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R93 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R94 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R95 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R96 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R97 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R98 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R100 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R101 | | ✻ | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R102 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R103 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R104 | | | RK73HB1J180J | CHIP R 18 J 1/16W | |
| R105 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R106 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R107-113 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R114 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R115 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R116,117 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R118,119 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R120 | | | RK73HB1J4R7J | CHIP R 4.7 J 1/16W | |
| R121,122 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R123-125 | | | RK73FB2B000J | CHIP R 0.0 J 1/8W | |
| R129-132 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R133 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R134,135 | | | RK73GB2A100J | CHIP R 10 J 1/10W | |
| R136 | | | RK73GB2A222J | CHIP R 2.2K J 1/10W | |
| R137 | | | RK73GB2A470J | CHIP R 47 J 1/10W | |
| R138 | | | RK73GB2A271J | CHIP R 270 J 1/10W | |
| R139 | | | RK73GB2A180J | CHIP R 18 J 1/10W | |
| R140 | | | RK73GB2A271J | CHIP R 270 J 1/10W | |
| R141 | | | RN73GH1J103D | CHIP R 10K D 1/16W | |
| R142 | | | RK73PB2H101J | CHIP R 100 J 1/2W | |
| R147 | | | RK73EB2E000J | CHIP R 0.0 J 1/4W | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| R161 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R162 | | | RK73HB1J122J | CHIP R 1.2K J 1/16W | |
| R163 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R164 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R165 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R166 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R167 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R168,169 | | | RK73GB2A100J | CHIP R 10 J 1/10W | |
| R170 | | | RK73GB2A222J | CHIP R 2.2K J 1/10W | |
| R171 | | | RK73GB2A470J | CHIP R 47 J 1/10W | |
| R172 | | | RK73GB2A271J | CHIP R 270 J 1/10W | |
| R173 | | | RK73GB2A180J | CHIP R 18 J 1/10W | |
| R174 | | | RK73GB2A271J | CHIP R 270 J 1/10W | |
| R175 | | | RN73GH1J103D | CHIP R 10K D 1/16W | |
| R176 | | | RK73PB2H101J | CHIP R 100 J 1/2W | |
| R186 | | | RK73GB2A470J | CHIP R 47 J 1/10W | |
| R187 | | | RK73HB1J392J | CHIP R 3.9K J 1/16W | |
| R188 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R189 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R190 | | | RK73HB1J394J | CHIP R 390K J 1/16W | |
| R191 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R192 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R194 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R195,196 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R197 | | | RK73GB2A820J | CHIP R 82 J 1/10W | |
| R198,199 | | | RK73GB2A101J | CHIP R 100 J 1/10W | |
| R200 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R201 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R202 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R203 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R204 | | | RK73GB2A820J | CHIP R 82 J 1/10W | |
| R208 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R209 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R211 | | | R92-3616-05 | CARBON RESISTOR (0 OHM) | |
| R212 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R213 | | | RK73GB2A562J | CHIP R 5.6K J 1/10W | |
| R226 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R227 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R228 | | | RK73HB1J270J | CHIP R 27 J 1/16W | |
| R229 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R230 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R231-234 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R235 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R236,237 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R238 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R239 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R240,241 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R242 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R243 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R244 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R251 | | | RK73HB1J151J | CHIP R 150 J 1/16W | |
| R252 | | | RK73HB1J120J | CHIP R 12 J 1/16W | |
| R253 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R255 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R256 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R257 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R258,259 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R260 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R261 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R262,263 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| R264 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R265 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R266 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R273 | | | RK73HB1J271J | CHIP R 270 J 1/16W | |
| R274 | | | RK73HB1J390J | CHIP R 39 J 1/16W | |
| R275,276 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R277 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R278 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R291 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R292 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R293 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R294 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R295 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R296-299 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R300 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R301,302 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R303 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R304 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R305,306 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R307 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R308 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R316 | | | RK73HB1J151J | CHIP R 150 J 1/16W | |
| R317 | | | RK73HB1J120J | CHIP R 12 J 1/16W | |
| R318 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R319 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R320 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R321 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R322 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R323,324 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R325 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R326 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R327,328 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R329 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R330 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R331,332 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R333 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R338 | | | RK73HB1J271J | CHIP R 270 J 1/16W | |
| R339 | | | RK73HB1J390J | CHIP R 39 J 1/16W | |
| R340 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R341 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R342 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R343 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R344 | | | RK73HB1J270J | CHIP R 27 J 1/16W | |
| R345 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R360 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R361 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R362 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R363 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R365 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R366 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R367 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R368 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R369 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R370,371 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R372 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R374 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R375 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R376 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | |
| R377 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R378 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |

# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | | | | Destination |
|---|---|---|---|---|---|---|---|---|
| R380 | | | RK73HB1J391J | CHIP R | 390 | J | 1/16W | |
| R381 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R382 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R384 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R385 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R386 | | | RK73HB1J100J | CHIP R | 10 | J | 1/16W | |
| R389 | | | RK73HB1J100J | CHIP R | 10 | J | 1/16W | |
| R390 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R391,392 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R393 | | | RK73HB1J561J | CHIP R | 560 | J | 1/16W | |
| R394 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R396 | | | RK73HB1J471J | CHIP R | 470 | J | 1/16W | |
| R397 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R398,399 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R400 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R401 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R405 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R406 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R407 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |
| R408 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R410 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R411 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R412 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R413 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R414 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R415,416 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R417 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R418 | | | RK73HB1J152J | CHIP R | 1.5K | J | 1/16W | |
| R419 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R420 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R422 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R423 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R425 | | | RK73HB1J391J | CHIP R | 390 | J | 1/16W | |
| R426 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R427 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R428 | | | RK73HB1J564J | CHIP R | 560K | J | 1/16W | |
| R429 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R430 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R431,432 | | | RK73HB1J100J | CHIP R | 10 | J | 1/16W | |
| R435 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R436,437 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R438 | | | RK73HB1J561J | CHIP R | 560 | J | 1/16W | |
| R439 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R441 | | | RK73HB1J471J | CHIP R | 470 | J | 1/16W | |
| R442 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R443 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R444 | | | RK73HB1J564J | CHIP R | 560K | J | 1/16W | |
| R445 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R446 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R447 | | | RK73HB1J823J | CHIP R | 82K | J | 1/16W | |
| R457 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |
| R459 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R460 | | | RK73HB1J154J | CHIP R | 150K | J | 1/16W | |
| R461 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R462 | | | RK73HB1J221J | CHIP R | 220 | J | 1/16W | |
| R464 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R465 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R466 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R467 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R468 | | | RK73HB1J393J | CHIP R | 39K | J | 1/16W | |

| Ref. No. | Address | New parts | Parts No. | Description | | | | Destination |
|---|---|---|---|---|---|---|---|---|
| R470 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R474 | | | RK73HB1J222J | CHIP R | 2.2K | J | 1/16W | |
| R475 | | | RK73HB1J100J | CHIP R | 10 | J | 1/16W | |
| R477 | | | RK73HB1J220J | CHIP R | 22 | J | 1/16W | |
| R478 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R479 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R480 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R481,482 | | | RK73HB1J470J | CHIP R | 47 | J | 1/16W | |
| R483,484 | | | RK73HB1J151J | CHIP R | 150 | J | 1/16W | |
| R486-490 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R491,492 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R494 | | | RK73HB1J220J | CHIP R | 22 | J | 1/16W | |
| R495 | | | RK73HB1J820J | CHIP R | 82 | J | 1/16W | |
| R496 | | * | RK73HB1J472J | CHIP R | 4.7K | J | 1/16W | |
| R497 | | | RK73HB1J562J | CHIP R | 5.6K | J | 1/16W | |
| R498 | | | RK73HB1J124J | CHIP R | 120K | J | 1/16W | |
| R499 | | | RK73HB1J562J | CHIP R | 5.6K | J | 1/16W | |
| R500 | | | RK73HB1J124J | CHIP R | 120K | J | 1/16W | |
| R501 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |
| R502 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R504 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R505 | | | RK73HB1J334J | CHIP R | 330K | J | 1/16W | |
| R506 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R507 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R508 | | | RK73HB1J561J | CHIP R | 560 | J | 1/16W | |
| R510 | | | RK73HB1J334J | CHIP R | 330K | J | 1/16W | |
| R511 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R512 | | | RK73HB1J182J | CHIP R | 1.8K | J | 1/16W | |
| R513 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R514 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R515 | | | RK73HB1J561J | CHIP R | 560 | J | 1/16W | |
| R516 | | | RK73HB1J272J | CHIP R | 2.7K | J | 1/16W | |
| R518,519 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R521 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R522 | | | RK73HB1J221J | CHIP R | 220 | J | 1/16W | |
| R523 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R524 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R525 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R526 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R527 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R529 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R531,532 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R533 | | | RK73HB1J391J | CHIP R | 390 | J | 1/16W | |
| R534 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R536 | | | RK73HB1J821J | CHIP R | 820 | J | 1/16W | |
| R537 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R538 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R539 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R540 | | | RK73HB1J183J | CHIP R | 18K | J | 1/16W | |
| R541 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R543 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R544,545 | | | RK73HB1J470J | CHIP R | 47 | J | 1/16W | |
| R546 | | | RK73HB1J152J | CHIP R | 1.5K | J | 1/16W | |
| R547 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R548 | | | RK73HB1J474J | CHIP R | 470K | J | 1/16W | |
| R549 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R550-553 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R554,555 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R556 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R557 | | | RK73HB1J820J | CHIP R | 82 | J | 1/16W | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | | | | Destination |
|---|---|---|---|---|---|---|---|---|
| R558 | | | RK73HB1J220J | CHIP R | 22 | J | 1/16W | |
| R559,560 | | | RK73HB1J124J | CHIP R | 120K | J | 1/16W | |
| R561 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |
| R562 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R564 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R565 | | | RK73HB1J182J | CHIP R | 1.8K | J | 1/16W | |
| R566 | | | RK73HB1J222J | CHIP R | 2.2K | J | 1/16W | |
| R567 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R568 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R569 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R570 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R572 | | | RK73HB1J391J | CHIP R | 390 | J | 1/16W | |
| R573 | | | RK73HB1J821J | CHIP R | 820 | J | 1/16W | |
| R574 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R575 | | * | RK73HB1J472J | CHIP R | 4.7K | J | 1/16W | |
| R576,577 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R578,579 | | | RK73HB1J182J | CHIP R | 1.8K | J | 1/16W | |
| R580 | | * | RK73EB2E102J | CHIP R | 1.0K | J | 1/4W | |
| R581 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R582 | | * | RK73EB2E102J | CHIP R | 1.0K | J | 1/4W | |
| R583,584 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R587 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R588-591 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R606 | | | RK73HB1J562J | CHIP R | 5.6K | J | 1/16W | |
| R608 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R611,612 | | | RK73HB1J224J | CHIP R | 220K | J | 1/16W | |
| R615 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R616 | | * | RK73HB1J472J | CHIP R | 4.7K | J | 1/16W | |
| R617,618 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R619 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R620 | | | RK73GB2A100J | CHIP R | 10 | J | 1/10W | |
| R621-623 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R624 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R625 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R626,627 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R635,636 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R641 | | * | RK73EB2E105J | CHIP R | 1.0M | J | 1/4W | |
| R644 | | | RK73EB2E104J | CHIP R | 100K | J | 1/4W | |
| R646 | | | RK73RB2H220J | CHIP R | 22 | J | 1/2W | |
| R647 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R648 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R649 | | | RK73HB1J154J | CHIP R | 150K | J | 1/16W | |
| R650,651 | | | RK73HB1J223J | CHIP R | 22K | J | 1/16W | |
| R652 | | | RK73HB1J222J | CHIP R | 2.2K | J | 1/16W | |
| R654 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | K |
| R656 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | K,M4 |
| R657 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R658 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | E |
| R659 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R663,664 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R665 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R672 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R684 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |
| R685 | | | RK73HB1J221J | CHIP R | 220 | J | 1/16W | |
| R689 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R690 | | | RK73HB1J682J | CHIP R | 6.8K | J | 1/16W | |
| R691 | | | RK73HB1J122J | CHIP R | 1.2K | J | 1/16W | |
| R692 | | | RK73HB1J470J | CHIP R | 47 | J | 1/16W | |
| R693 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R695 | | | RK73HB1J332J | CHIP R | 3.3K | J | 1/16W | |

| Ref. No. | Address | New parts | Parts No. | Description | | | | Destination |
|---|---|---|---|---|---|---|---|---|
| R696 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R697 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R701,702 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R703 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R704 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R705 | | | RK73HB1J474J | CHIP R | 470K | J | 1/16W | |
| R706,707 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R708,709 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R710 | | | RK73HB1J474J | CHIP R | 470K | J | 1/16W | |
| R711 | | | RK73FB2B000J | CHIP R | 0.0 | J | 1/8W | |
| R713 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R714 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R715,716 | | | RK73HB1J222J | CHIP R | 2.2K | J | 1/16W | |
| R717 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R720 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R721,722 | | | RK73HB1J681J | CHIP R | 680 | J | 1/16W | |
| R723 | | | RK73HB1J331J | CHIP R | 330 | J | 1/16W | |
| R724 | | | RK73HB1J151J | CHIP R | 150 | J | 1/16W | |
| R725 | | | RK73HB1J470J | CHIP R | 47 | J | 1/16W | |
| R726 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R727 | | | RK73HB1J392J | CHIP R | 3.9K | J | 1/16W | |
| R728 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R730 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R751,752 | | | RK73HB1J000J | CHIP R | 0.0 | J | 1/16W | |
| R753 | | | RK73HB1J102J | CHIP R | 1.0K | J | 1/16W | |
| R754 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R755 | | | RK73HB1J474J | CHIP R | 470K | J | 1/16W | |
| R756,757 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R758,759 | | | RK73HB1J153J | CHIP R | 15K | J | 1/16W | |
| R760 | | | RK73HB1J474J | CHIP R | 470K | J | 1/16W | |
| R761 | | | RK73FB2B000J | CHIP R | 0.0 | J | 1/8W | |
| R763 | | | RK73HB1J104J | CHIP R | 100K | J | 1/16W | |
| R764 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R765,766 | | | RK73HB1J222J | CHIP R | 2.2K | J | 1/16W | |
| R767 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R770 | | | RK73GB2A000J | CHIP R | 0.0 | J | 1/10W | |
| R771,772 | | | RK73HB1J681J | CHIP R | 680 | J | 1/16W | |
| R773 | | | RK73HB1J331J | CHIP R | 330 | J | 1/16W | |
| R774 | | | RK73HB1J151J | CHIP R | 150 | J | 1/16W | |
| R775 | | | RK73HB1J470J | CHIP R | 47 | J | 1/16W | |
| R776 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R777 | | | RK73HB1J392J | CHIP R | 3.9K | J | 1/16W | |
| R778 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R780 | | | RK73HB1J330J | CHIP R | 33 | J | 1/16W | |
| R803 | | | RK73GB2A104J | CHIP R | 100K | J | 1/10W | |
| R804 | | | RK73GB2A222J | CHIP R | 2.2K | J | 1/10W | |
| R805 | | | RK73HB1J563J | CHIP R | 56K | J | 1/16W | |
| R806 | | | RK73HB1J821J | CHIP R | 820 | J | 1/16W | |
| R809 | | | RK73HB1J101J | CHIP R | 100 | J | 1/16W | |
| R810 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R811 | | | RK73HB1J105J | CHIP R | 1.0M | J | 1/16W | |
| R812 | | | RK73GB2A391J | CHIP R | 390 | J | 1/10W | |
| R813 | | * | RK73HB1J472J | CHIP R | 4.7K | J | 1/16W | |
| R814,815 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R816 | | | RK73HB1J562J | CHIP R | 5.6K | J | 1/16W | |
| R817,818 | | | RK73HB1J333J | CHIP R | 33K | J | 1/16W | |
| R819 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R820,821 | | | RK73HB1J103J | CHIP R | 10K | J | 1/16W | |
| R822 | | | RK73HB1J473J | CHIP R | 47K | J | 1/16W | |
| R823 | | | RK73HB1J152J | CHIP R | 1.5K | J | 1/16W | |

# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| R825 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R826 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R827 | | * | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R828 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R829 | | | RK73GB2A185J | CHIP R 1.8M J 1/10W | |
| R830 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R831 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R832,833 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R836,837 | | * | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R838 | | | RK73HB1J392J | CHIP R 3.9K J 1/16W | |
| R839,840 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R841 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R842 | | * | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R843 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R844 | | * | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R845,846 | | | RK73HB1J684J | CHIP R 680K J 1/16W | |
| R847 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R848 | | | RK73GB2A185J | CHIP R 1.8M J 1/10W | |
| R849,850 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R851 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R852 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R853 | | | RK73GB2A185J | CHIP R 1.8M J 1/10W | |
| R854,855 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R856 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R857 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R858 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R859 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R860 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R861,862 | | | RK73HB1J824J | CHIP R 820K J 1/16W | |
| R863 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R866-868 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R869 | | | RK73HB1J563J | CHIP R 56K J 1/16W | |
| R870 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R871 | | | RK73GB2A185J | CHIP R 1.8M J 1/10W | |
| R872 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R874 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R875,876 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| R877 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R878,879 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R880 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R882 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R883 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R884 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| R885 | | | RK73HB1J394J | CHIP R 390K J 1/16W | |
| R886,887 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R888 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| R889,890 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R891 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R892 | | | RK73HB1J563J | CHIP R 56K J 1/16W | |
| R906 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R908-910 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R911 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R912,913 | | | RK73HB1J562J | CHIP R 5.6K J 1/16W | |
| R916 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R917,918 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R919 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R920 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R921-923 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R924 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R925 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| R927 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R928 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R930 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R931 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R932 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R934-939 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R940 | | | RK73GB2A821J | CHIP R 820 J 1/10W | |
| R942,943 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R944 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| R945 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R946 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R950 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R951,952 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R953 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R954,955 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R956 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R957-963 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R965 | | | RK73FB2B122J | CHIP R 1.2K J 1/8W | |
| R967 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | M4 |
| R968 | | | RK73FB2B122J | CHIP R 1.2K J 1/8W | |
| R969 | | | RK73EB2E000J | CHIP R 0.0 J 1/4W | |
| R971 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | E |
| R979 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R980 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R981 | | | RK73FB2B330J | CHIP R 33 J 1/8W | |
| R982 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R983 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R984 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R985,986 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R987 | | | RK73EB2E000J | CHIP R 0.0 J 1/4W | |
| R990 | | * | RK73EB2E102J | CHIP R 1.0K J 1/4W | |
| R991 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R992 | | | RK73HB1J274J | CHIP R 270K J 1/16W | |
| R993 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R994 | | * | RK73EB2E102J | CHIP R 1.0K J 1/4W | |
| R995 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R996 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R997 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| R998,999 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| D1 | | | 1SS400 | DIODE | |
| D2 | | | DA221 | DIODE | |
| D3,4 | | | 1SS400 | DIODE | |
| D5,6 | | | MA2S077-F | DIODE | |
| D10-13 | | | HSC277 | DIODE | |
| D14-19 | | | HVC131 | DIODE | |
| D20,21 | | | HSC277 | DIODE | |
| D22-29 | | | HVC131 | DIODE | |
| D30-35 | | | HSC277 | DIODE | |
| D66 | | | 1SS400 | DIODE | |
| D67 | | | DA221 | DIODE | |
| D68,69 | | | 1SS400 | DIODE | |
| D70,71 | | | MA2S077-F | DIODE | |
| D130,131 | | | HVC131 | DIODE | |
| D132 | | | 1SS355 | DIODE | |
| D133 | | | EDZ5.1B | ZENER DIODE | |
| D134,135 | | | L407CDB | DIODE (50V/1W) | |
| D136 | | | 1SS355 | DIODE | |
| D160,161 | | | HVC131 | DIODE | |
| D162 | | | 1SS355 | DIODE | |

# PARTS LIST

**TX-RX UNIT (X57-731X-XX)**

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| D163 | | | EDZ5.1B | ZENER DIODE | |
| D164,165 | | | L407CDB | DIODE (50V/1W) | |
| D166 | | | 1SS355 | DIODE | |
| D186,187 | | | MA4PH633 | DIODE | |
| D188,189 | | | HVU131-E | DIODE | |
| D190 | | | 1SS400 | DIODE | |
| D191,192 | | | MA3J742 | DIODE | |
| D193 | | | EDZ5.1B | ZENER DIODE | |
| D226,227 | | | HSC277 | DIODE | |
| D229 | | | HSC277 | DIODE | |
| D230,231 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D232 | | | HSC277 | DIODE | |
| D233,234 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D238 | | | HSC277 | DIODE | |
| D239,240 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D241 | | | HSC277 | DIODE | |
| D242,243 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D291,292 | | | HSC277 | DIODE | |
| D294 | | | HSC277 | DIODE | |
| D295,296 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D297 | | | HSC277 | DIODE | |
| D298,299 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D303 | | | HSC277 | DIODE | |
| D304,305 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D306 | | | HSC277 | DIODE | |
| D307,308 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D356 | | | HVC131 | DIODE | |
| D357,358 | | | MA3J742 | DIODE | |
| D361-363 | | | HSC277 | DIODE | |
| D364,365 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D367,368 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D370,371 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D375,376 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D377 | | ✻ | BBY53-05W | VARIABLE CAPACITANCE DIODE | |
| D378,379 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D406-408 | | | HSC277 | DIODE | |
| D409,410 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D412,413 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D415,416 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D419 | | ✻ | BBY53-05W | VARIABLE CAPACITANCE DIODE | |
| D420,421 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D423,424 | | | BBY65-02V | VARIABLE CAPACITANCE DIODE | |
| D451 | | | HVC131 | DIODE | |
| D456 | | | HSC277 | DIODE | |
| D457 | | | HVC131 | DIODE | |
| D486,487 | | | DAN235E | DIODE | |
| D488 | | | RB706F-40 | DIODE | |
| D489 | | | HSC277 | DIODE | |
| D546,547 | | | DAN235E | DIODE | |
| D576 | | | DAN222 | DIODE | |
| D578 | | | 1SS400 | DIODE | |
| D580 | | | DAN222 | DIODE | |
| D582,583 | | | DAN222 | DIODE | |
| D584 | | | DAP202K | DIODE | |
| D606 | | | 1SS400 | DIODE | |
| D607 | | | DA221 | DIODE | |
| D608 | | | 1SS400 | DIODE | |
| D609 | | | DA221 | DIODE | |
| D610,611 | | | DSM3MA1-RPB | DIODE | |
| D612 | | | 22ZR-10D | SURGE ABSORBER | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| D701 | | | HSC277 | DIODE | |
| D703-705 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D707 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D708 | | | HSC277 | DIODE | |
| D709 | | | 1SV323F | VARIABLE CAPACITANCE DIODE | |
| D710 | | | 1SV278F | VARIABLE CAPACITANCE DIODE | |
| D751 | | | HSC277 | DIODE | |
| D753-755 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D757 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| D758 | | | HSC277 | DIODE | |
| D759 | | | 1SV323F | VARIABLE CAPACITANCE DIODE | |
| D760 | | | 1SV278F | VARIABLE CAPACITANCE DIODE | |
| D801 | | | DAN222 | DIODE | |
| D802 | | | 1SS372F | DIODE | |
| D916 | | | 02DZ18F-X,Y | ZENER DIODE | |
| D951-953 | | | DA221 | DIODE | |
| D954 | | | 1SS355 | DIODE | |
| D955 | | | EDZ5.1B | ZENER DIODE | |
| D956 | | | MINISMDC110F16 | VARISTOR | |
| D957 | | | 1SR154-400 | DIODE | |
| IC1 | | | MB15A02PFV2E1 | MOS-IC | |
| IC66 | | | MB15A02PFV2E1 | MOS-IC | |
| IC131 | 2B | | RA60H13171123 | MOS-IC | |
| IC161 | 2B | | RA60H40471101 | MOS-IC | |
| IC186 | | | TC7W66FK-F | MOS-IC | |
| IC187 | | | NJM2904V-ZB | MOS-IC | |
| IC486 | | | TA31136FNG | MOS-IC | |
| IC487 | | | TC75W51FUF | MOS-IC | |
| IC546 | | | TA31136FNG | MOS-IC | |
| IC576,577 | | | BU2099FV | MOS-IC | |
| IC578 | 2B | | KIA7808API | MOS-IC | |
| IC579 | | | TA7805FQ | MOS-IC | |
| IC606 | | | ADM202EARUZ | MOS-IC | |
| IC666 | | | BU4053BCFV | MOS-IC | |
| IC667 | | ✻ | BH2228FV | MOS-IC | |
| IC668 | | ✻ | TA4002F-F | BI-POLAR IC | |
| IC801 | 2B | ✻ | LA4629 | MOS-IC | |
| IC802,803 | | | NJM2100V-ZB | MOS-IC | |
| IC804 | | | M62364FP-F | MOS-IC | |
| IC805 | | ✻ | NJM2112V-ZB | MOS-IC | |
| IC806 | | | BU8241FS | MOS-IC | |
| IC807 | | | TC7W66FK-F | MOS-IC | |
| IC916 | | ✻ | AT25256A10TU27 | ROM IC | |
| IC917 | | | TC4W53FU-F | MOS-IC | |
| IC918 | | ✻ | 3062LFGPUKBVB | MICROPROCESSOR IC | K |
| IC918 | | ✻ | 3062LFGPUKBWB | MICROPROCESSOR IC | E,M4 |
| IC919,920 | | | BD4840FVE | MOS-IC | |
| IC921 | | | LC73881M-E | MOS-IC | |
| IC951 | | | TC74HC4050AFT | MOS-IC | |
| IC952 | 3B | ✻ | BAJ0CC0T | BI-POLAR IC | |
| IC953 | | | TA7805FQ | MOS-IC | |
| Q1 | | | 2SC4617(R) | TRANSISTOR | |
| Q2 | | | 2SA1774(R) | TRANSISTOR | |
| Q3,4 | | | 2SC4617(R) | TRANSISTOR | |
| Q5 | | | 2SC5636 | TRANSISTOR | |
| Q6 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q7 | | | 2SC5636 | TRANSISTOR | |
| Q8,9 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q66 | | | 2SC4617(R) | TRANSISTOR | |
| Q67 | | | 2SA1774(R) | TRANSISTOR | |

**If a part reference number is listed in a shaded box, that part does not come with the PCB.**

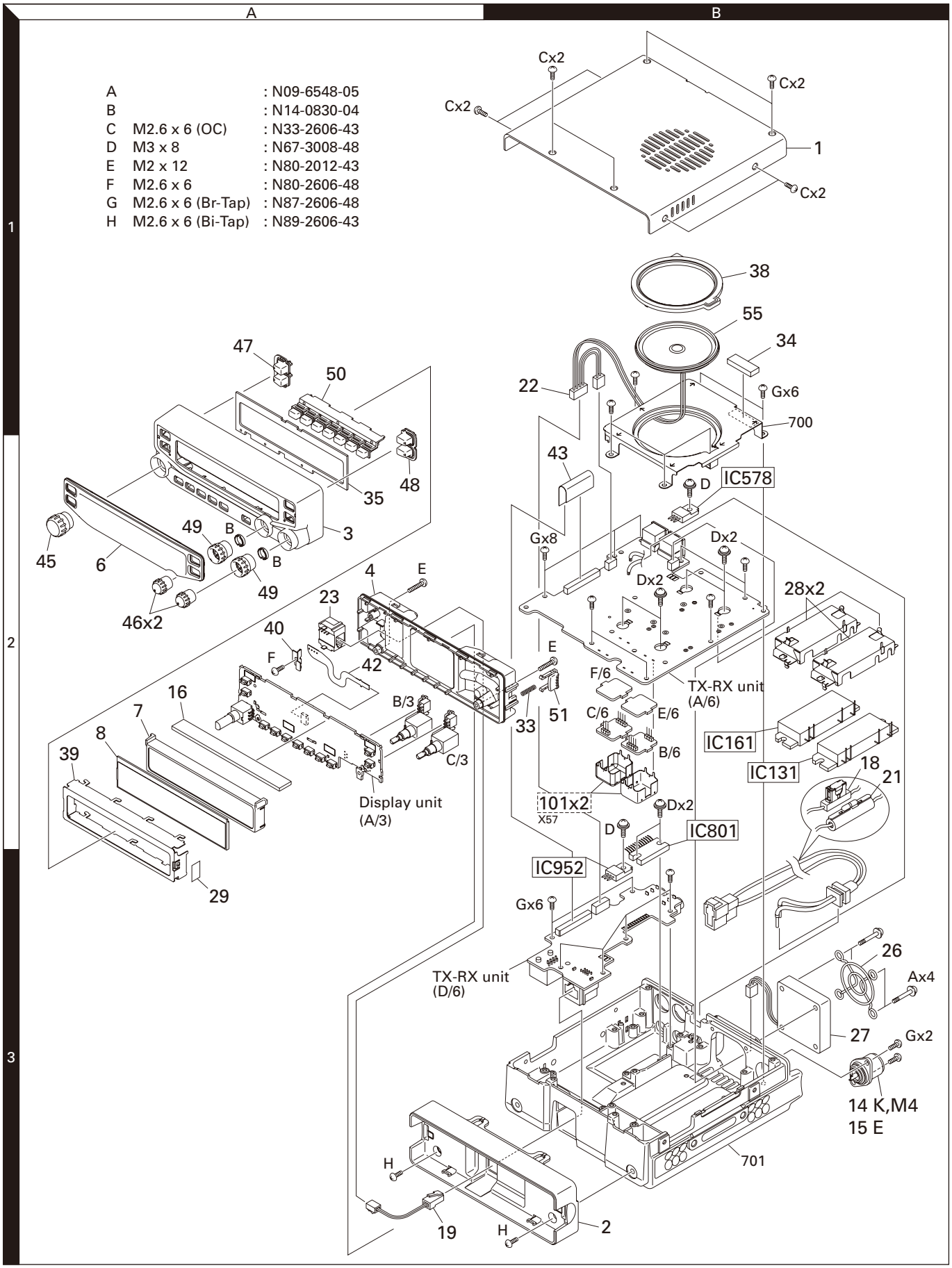
# PARTS LIST

TX-RX UNIT (X57-731X-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| Q68,69 | | | 2SC4617(R) | TRANSISTOR | |
| Q70 | | | 2SC5636 | TRANSISTOR | |
| Q71 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q72 | | | 2SC5636 | TRANSISTOR | |
| Q73,74 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q131 | | | 2SC3357-A(RF) | TRANSISTOR | |
| Q132 | | | 2SK1830F | FET | |
| Q161 | | | 2SC3356-A(R24) | TRANSISTOR | |
| Q162 | | | 2SC3357-A(RF) | TRANSISTOR | |
| Q163 | | | 2SK1830F | FET | |
| Q186 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q226,227 | | | 3SK294-FP | FET | |
| Q228 | | | 3SK318 | FET | |
| Q229 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q291,292 | | | 3SK294-FP | FET | |
| Q293 | | | 3SK318 | FET | |
| Q294 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q361 | | | 3SK294-FP | FET | |
| Q362,363 | | | 3SK318 | FET | |
| Q400 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q406 | | | 3SK294-FP | FET | |
| Q407,408 | | | 3SK318 | FET | |
| Q450 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q456 | | | 2SC5636 | TRANSISTOR | |
| Q457 | | | 3SK318 | FET | |
| Q459 | | | 2SC5066-F(O) | TRANSISTOR | |
| Q486-488 | | | 2SK1830F | FET | |
| Q489 | | | 2SC4617(R) | TRANSISTOR | |
| Q490 | | | 2SK1830F | FET | |
| Q491 | | | 2SC4617(R) | TRANSISTOR | |
| Q492 | | | 2SK1830F | FET | |
| Q493 | | | DTA114EUA | DIGITAL TRANSISTOR | |
| Q494 | | | 2SC4617(R) | TRANSISTOR | |
| Q495 | | | 2SC5636 | TRANSISTOR | |
| Q496 | | | 2SK1830F | FET | |
| Q546 | | | 2SK1830F | FET | |
| Q547 | | | 2SC4649(N,P) | TRANSISTOR | |
| Q548,549 | | | 2SK1830F | FET | |
| Q550 | | | DTA114EUA | DIGITAL TRANSISTOR | |
| Q551 | | | 2SC5636 | TRANSISTOR | |
| Q572 | | | DTA114EE | DIGITAL TRANSISTOR | |
| Q573 | | | 2SK1830F | FET | |
| Q574 | | | DTA114EE | DIGITAL TRANSISTOR | |
| Q575 | | | 2SK1830F | FET | |
| Q576 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q578-580 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q582-584 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q585,586 | | | 12A02CH | TRANSISTOR | |
| Q587-590 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q591 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q592 | | | CPH6122 | TRANSISTOR | |
| Q606,607 | | | 2SC4617(R) | TRANSISTOR | |
| Q641 | | | 2SC4617(R) | TRANSISTOR | |
| Q642 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q644 | | | 2SC3356-A(R24) | TRANSISTOR | |
| Q701,702 | | | DTC114YE | DIGITAL TRANSISTOR | |
| Q703 | | ✻ | SSM6L05FU-F | FET | |
| Q704 | | | 2SJ347F | FET | |
| Q705,706 | | | 2SK508NV(K52) | FET | |
| Q707 | | | 2SC5108(Y)F | TRANSISTOR | |
| Q751,752 | | | DTC114YE | DIGITAL TRANSISTOR | |
| Q753 | | ✻ | SSM6L05FU-F | FET | |
| Q754 | | | 2SJ347F | FET | |
| Q755,756 | | | 2SK508NV(K52) | FET | |
| Q757 | | | 2SC5108(Y)F | TRANSISTOR | |
| Q801 | | | 2SC4919 | TRANSISTOR | |
| Q802 | | | KRC102S-P | DIGITAL TRANSISTOR | |
| Q803,804 | | | DTC363EU | DIGITAL TRANSISTOR | |
| Q805 | | | 2SC4617(S) | TRANSISTOR | |
| Q806,807 | | | 2SC4617(R) | TRANSISTOR | |
| Q808 | | | 2SC4617(S) | TRANSISTOR | |
| Q809 | | | 2SK1830F | FET | |
| Q810,811 | | | 2SC4617(R) | TRANSISTOR | |
| Q812 | | | 2SK1830F | FET | |
| Q816 | | | DTC363EU | DIGITAL TRANSISTOR | |
| Q817 | | | 2SK1824-A | FET | |
| Q916-918 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q951,952 | | | DTC144EE | DIGITAL TRANSISTOR | |
| Q953 | | | CPH6122 | TRANSISTOR | |
| Q954 | | | DTA123JUA | DIGITAL TRANSISTOR | |
| Q955 | | | 2SC4617(R) | TRANSISTOR | |
| TH102,103 | | | NCP18XH103J0S | THERMISTOR | |
| TH131 | | ✻ | NCP18XH103F0S | THERMISTOR | |
| TH161 | | ✻ | NCP18XH103F0S | THERMISTOR | |
| TH485,486 | | | NCP18XQ102J0S | THERMISTOR | |
| TH545,546 | | | NCP18XQ102J0S | THERMISTOR | |
| - | | ✻ | X57-7310-61 | VCO PCB (SERVICE) | |

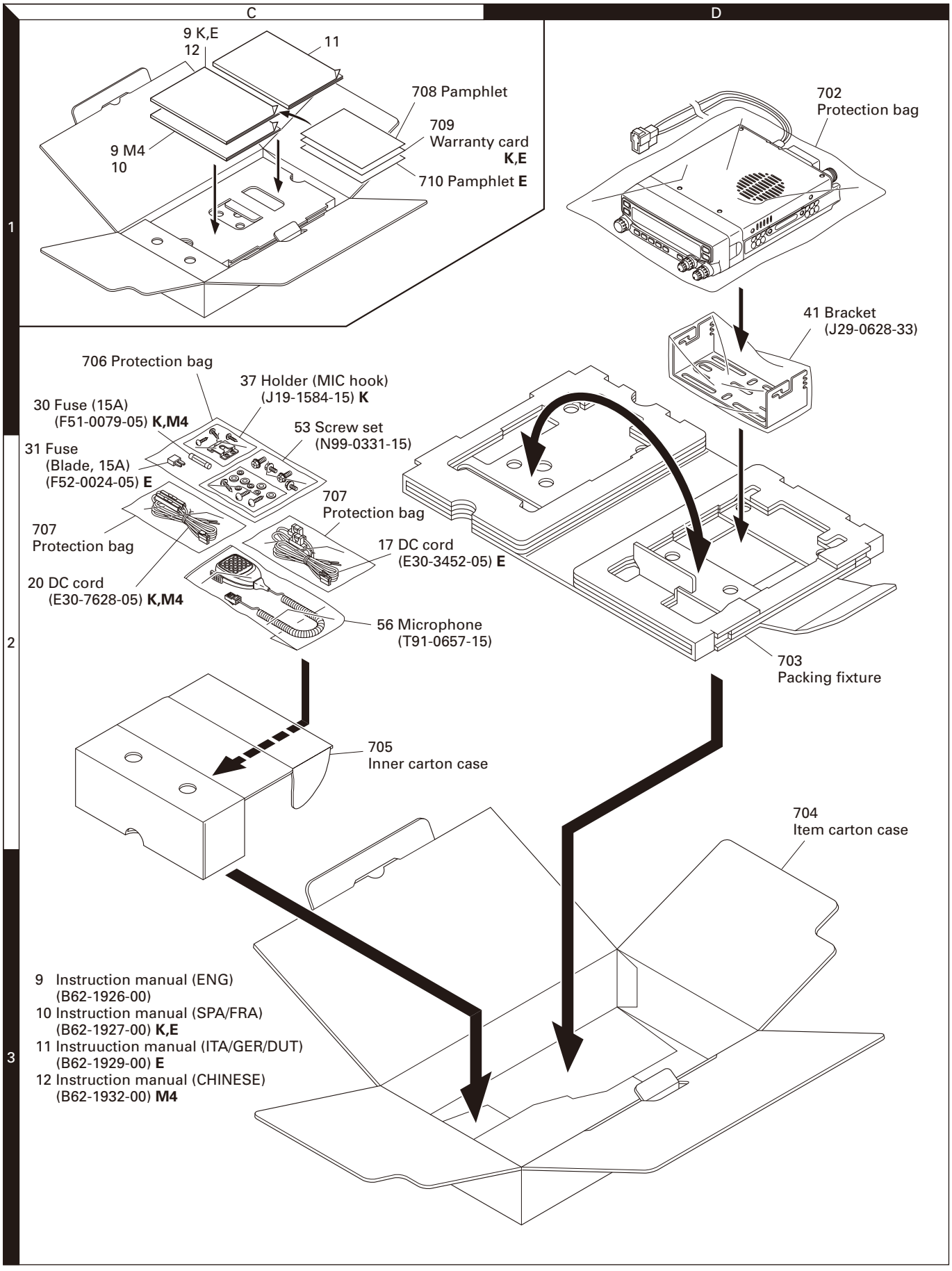
# EXPLODED VIEW

| | | |
|---|---|---|
| A | | : N09-6548-05 |
| B | | : N14-0830-04 |
| C | M2.6 x 6 (OC) | : N33-2606-43 |
| D | M3 x 8 | : N67-3008-48 |
| E | M2 x 12 | : N80-2012-43 |
| F | M2.6 x 6 | : N80-2606-48 |
| G | M2.6 x 6 (Br-Tap) | : N87-2606-48 |
| H | M2.6 x 6 (Bi-Tap) | : N89-2606-43 |




**Parts with the exploded numbers larger than 700 are not supplied.**
**If a part reference number is listed in a box on the exploded view of the PCB, that part does not come with the PCB. These parts must be ordered separately.**

# PACKING




**Parts with the exploded numbers larger than 700 are not supplied.**

# ADJUSTMENT

## Measuring Equipment for Alignment

**1. Digital voltmeter (D.V.M)**
Input impedance: High

**2. RF valve voltmeter (RF V.M)**
Input impedance: 1MΩ or more, 2pF or less
Voltage range: Full scale=10mV to 300V
Measureable frequency range: Up to 450MHz

**3. Frequency counter (f.counter)**
Input sensitivity: About 50mV
Measureable frequency: 450MHz or more

**4. DC power supply**
Voltage: Variable in the range 10 to 17V
Current: 13A or more

**5. Power meter**
Measurement power: 60W, 30W, 10W
Impedance: 50Ω
Measurable frequency: 450MHz

**6. AF valve voltmeter (AF V.M)**
Input impedance: 1MΩ or more
Voltage rane: Full scale=1mV to 30V
Measurable frequency range: 50H to 10kHz

**7. AF generator (AG)**
Output frequency: 100Hz to 10kHz
Output voltage: 0.5mV to 1V

**8. Line detector**
Measurable frequency: 450MHz

**9. Spectrum analyzer**
Measurable frequency: 450MHz

**10. Directional coupler**

**11. Oscilloscope**
High sensitivity with horizontal input terminal

**12. Standard signal generator (SSG)**
The standard signal generator must be able to generate the 1GHz band frequencies and bary the amplitude and frequency.
Output: –133dBm to greater than –13dBm

**13. Dummy load (for AF)**
8Ω, about 5W

**14. Noise generator**
The noise generator must be able to generate noise similar to ignition noise containing high-frequency components of 450MHz or more.

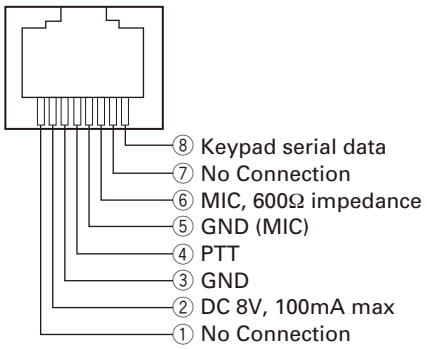
**15. Sweep generator**
The sweep generator must be able to sweep the 144 and 430MHz bands.

**16. Tracking generator**

## Preparation

- Set the controls and switches to the positions listed below unless otherwise specified.

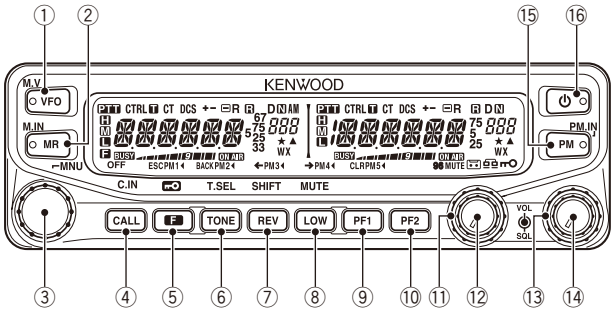
| | |
|---|---|
| BAND SEL/ VOL (Band A) control | Fully counterclockwise |
| BAND SEL/ VOL (Band B) control | Fully counterclockwise |
| SQL (Band A) control | Fully counterclockwise |
| SQL (Band B) control | Fully counterclockwise |
| Power switch | OFF |




**Microphone socket**
**(as viewed from the front of the transceiver)**

- To protect the signal generator, never connect the microphone to the microphone socket when the receiver section is adjusted.
- Before the power cordd is connected, make sure the power switch is off.
- Without specification of SSG, standard modulation is applied (MOD: 1kHz, DEV: ±3kHz, AF output: 0.63V/8Ω)

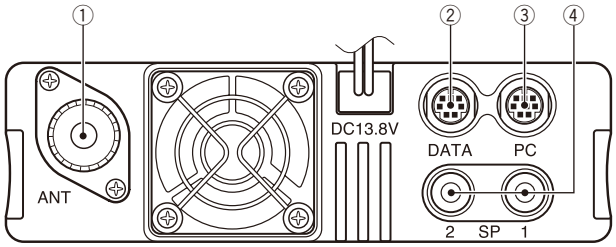
### ■ Front panel




① VFO
② MR
③ Tuning control
④ CALL
⑤ F
⑥ TONE
⑦ REV
⑧ LOW
⑨ PF1
⑩ PF2
⑪ SQL (Band A)
⑫ BAND SEL/ VOL (Band A)
⑬ SQL (Band B)
⑭ BAND SEL/ VOL (Band B)
⑮ PM
⑯ Power switch

# ADJUSTMENT

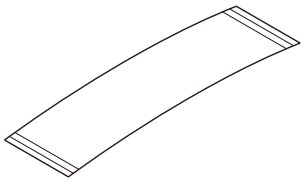
## ■ Rear panel



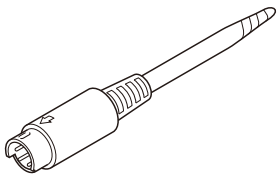

① ANT
② DATA
③ PC
④ SP (SP1/SP2)

## Service Jig

A. Flat cable (50-pin) (E37-1407-08), about 10cm



B. Data terminal short plug (W05-0611-00)

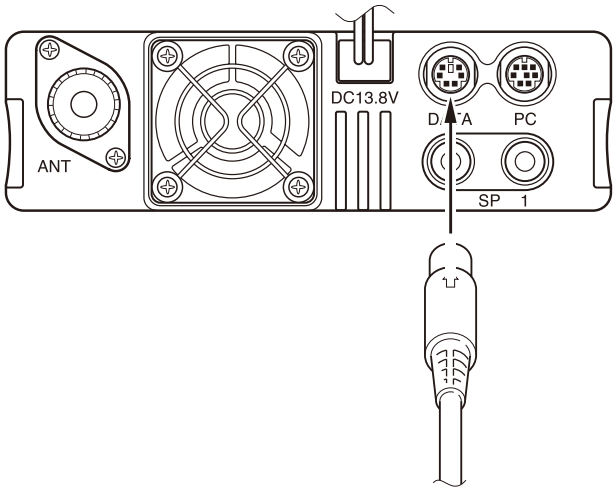


### ■ About the flat cable (50-pin) of about 10cm

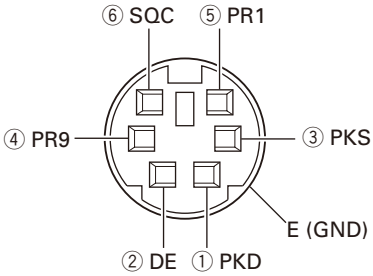
To connect the TX-RX unit (X57-731 A/6) connector (CN677) to the TX-RX (Control section) unit (X57-731 D/6) connector (CN960) while in servicing, you can use the 50-pin flat cable (E37-1407-08).

### ■ How to use the data terminal short plug

Insert the adjustment jig (W05-0611-00) into the DATA connector located on the rear panel of the transceiver.




### ■ DATA connector pin assignment




Terminals ③ and ⑥ are short circuited.

③ PKS (SEND switch for DATA terminal)
Connect PTT output. If PKS is set to "GND", data are sent and the microphone will be mute.

⑥ SQC (Squelch control output)
Thiis outputs squelch control output.

## EchoLink Operation Check Method

You can confirm whether EchoLink operates normally by performing the following three operation checks.

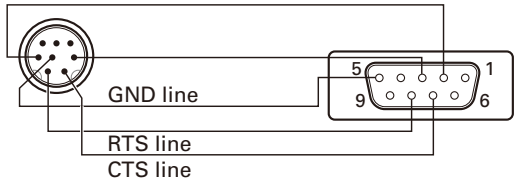
1. Squelch signal operation check
2. PTT signal operation check
3. Voice operation check

### ■ Operation procedure

1) Connect the serial communications cable (8-pin mini DIN terminal and D-SUB terminal) of the PG-5H (PC interface cable kit) to the PC terminal on the rear of the transceiver.
2) Turn the transceiver power ON while pressing the [PF2] key, to enter the EchoLink Sysop mode.
3) Check the squelch signal operation.
   ① The squelch signal is output from pin 1 of the transceiver PC terminal or pin 8 of the PG-5H D-SUB terminal (RTS). Check the voltage of the RTS line with a digital voltmeter.

| Terminal name | PC terminal of the transceiver | D-SUB terminal of PG-5H |
|---|---|---|
| RTS | pin 1 | pin 8 |
| CTS | pin 2 | pin 7 |

PG-5H
Serial communications cable pin configuration



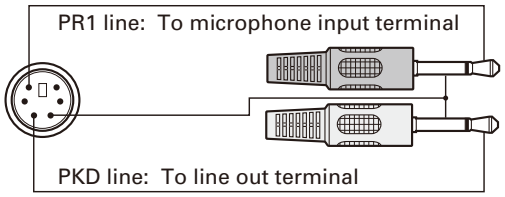

   ② When you open and close the transceiver squelch, check that the voltage of the RTS line increases and decreases.

(Reference voltage value of RTS line)
Voltage when squelch is closed: 10 V
Voltage when squelch is opened : -10 V

# ADJUSTMENT

4) Check the PTT signal operation.
   ① Input 5 to 10 V to pin 2 of the transceiver PC terminal or pin 7 of the PG-5H D-SUB terminal (CTS).
   ② Ensure that the transceiver becomes the transmission state.
5) Check the voice operation.
   ① Connect the data communications cable (6-pin mini DIN terminal and pink/ green pin) of the PG-5H (Interface cable kit) to the DATA terminal on the rear of the transceiver.
   ② Input a 1kHz/ 150 mV AF signal from AG to the green pin of the data communication cable (PKD line).
   Confirm the modulation of 2 to 4 kHz deviation hangs when transmitting by PTT operation as stated in step 4), above.
   ③ Input a standard modulation signal of -47dBm (MOD: 1kHz, DEV: 3kHz, and AF output: 0.63V/8Ω) from SSG to the transceiver.
   Check that a 1kHz tone of 3 to 15 mV is output from the pink pin (PR1 line) of the data communication cable.

PG-5H
Data communications cable pin configuration




## Adjustment Mode

This mode is used to replace or readjust IC916 (EEPROM). In Adjustment Mode, the transceiver can be adjusted using its panel keys.

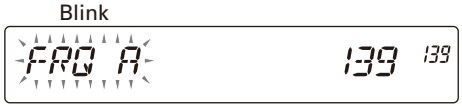
### ■ Adjustment Items

1. Frequency (Band A)
2. Frequency (Band B)
3. High power (144MHz band, 430MHz band)
4. Mid power (144MHz band, 430MHz band)
5. Low power (144MHz band, 430MHz band)
6. SWR protection (144MHz band, 430MHz band)
7. DCS balance (Band A) (144MHz band, 430MHz band)
8. DCS balance (Band B) (144MHz band, 430MHz band)
9. MAX deviation (Band A) (144MHz band, 430MHz band)
10. MAX deviation (Band B) (144MHz band, 430MHz band)
11. CTCSS deviation (Band A) (144MHz band, 430MHz band)
12. CTCSS deviation (Band B) (144MHz band, 430MHz band)
13. DCS deviation (Band A) (144MHz band, 430MHz band)
14. DCS deviation (Band B) (144MHz band, 430MHz band)
15. BPF RSSI (Band A) (144MHz band, 200MHz band, 430MHz band)*1
16. BPF RSSI (Band B) (144MHz band, 200MHz band, 430MHz band)*1
17. Squelch threshold (Band A) (144MHz band, 200MHz band, 300MHz band, 430MHz band)
18. Squelch threshold (Band B) (144MHz band, 200MHz band, 300MHz band, 430MHz band, 1.2GHz band)
19. Squelch tight (Band A) (144MHz band, 200MHz band, 300MHz band, 430MHz band)
20. Squelch tight (Band B) (144MHz band, 200MHz band, 300MHz band, 430MHz band, 1.2GHz band)
21. S-meter S1 (Band A) (144MHz band, 200MHz band, 300MHz band, 430MHz band)
22. S-meter S1 (Band B) (144MHz band, 200MHz band, 300MHz band, 430MHz band, 1.2GHz band)
23. S-meter full scale (Band A) (144MHz band, 200MHz band, 300MHz band, 430MHz band)
24. S-meter full scale (Band B) (144MHz band, 200MHz band, 300MHz band, 430MHz band, 1.2GHz band)

*1: Adjust 3 points (Low, Center, High) for the 144MHz band and the 200MHz band.
Adjust 5 points (Low, Low', Center, High', High) for the 430MHz band.

### ■ How to enter the adjustment mode

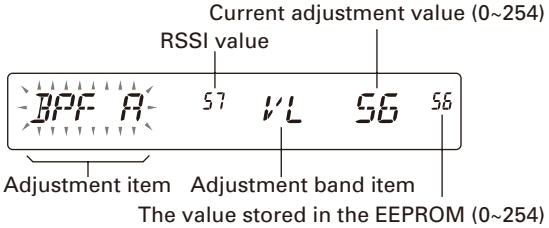
1. Turn the transceiver power OFF and insert the adjustment jig (W05-0611-00) into the DATA terminal located on the rear panel of the transceiver.
2. Turn the transceiver power ON while pressing the [CALL] and [F] keys to enter adjustment mode.
3. The adjustment item "FRQ A" of the Band A frequency is displayed when entering the adjustment mode.




**Note:**

- To exit the Adjustment Mode, turn the transceiver power OFF.
- When the adjustment mode is activated, the transceiver automatically sets the frequency as shown in "The frequency that is set to the transceiver" table, on pages 44 to 46.

### ■ LCD display in the adjustment mode



# ADJUSTMENT

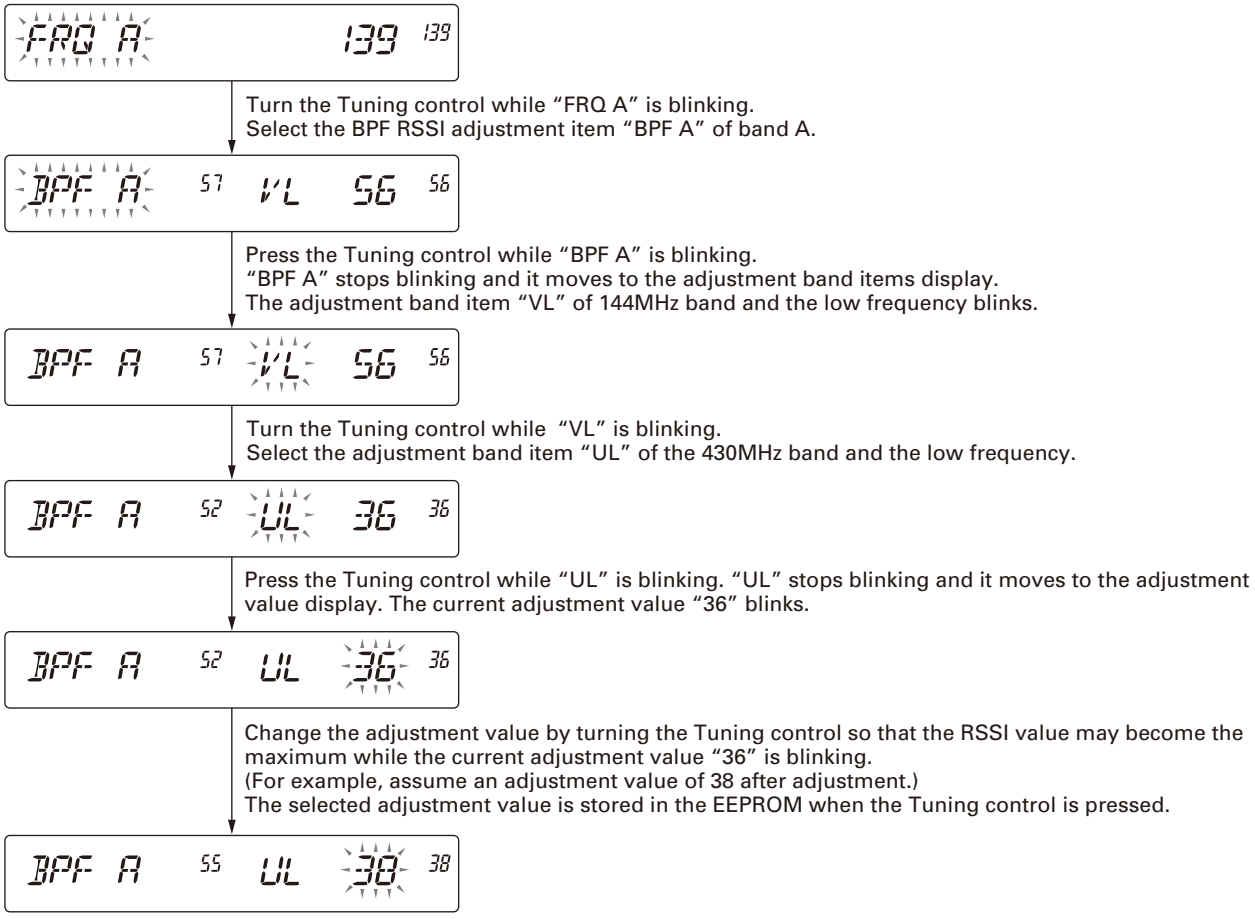
## ■ Panel key operation in the adjustment mode

| Key name | | Function |
|---|---|---|
| Tuning control | (Turn) | Changes the adjustment item or adjustment band item. Increase or decrease the adjustment values (00~254). |
| | (Press) | Movement from the adjustment item display to the adjustment band item display or movement from the adjustment band item display to the adjustment value dispaly. (Forward)<br>Write adjustment values. |
| [CALL] | | Movement from the adjustment value display to the adjustment band item display or movement from the adjustment band item display to the adjustment item display. (Back) |
| [VFO],[MR],[F],[TONE],[REV],[LOW],[PF1],[PF2],[PM] | | Unused |
| Microphone key | | |
| [PTT] | | Transmit. (Only the adjustment item of the transmitter section can be used.) |

## ■ Example of the adjustment mode operation procedure

The operating procedure when the BPF RSSI of band A (430MHz band, low frequency) is adjusted is described as follows.

The adjustment item "FRQ A" of the band A frequency is displayed when entering the adjustment mode according to the operating procedure of "How to enter the adjustment mode" described on page 42.



# ADJUSTMENT

## ■ Adjustment item, adjustment band item, display and the frequency that is set to the transceiver

| No. | Adjustment item | Adjustment band item | Display | | The frequency that is set to the transceiver | | Signaling |
|---|---|---|---|---|---|---|---|
| | | | Adjustment item | Adjustment band item | K type | E, M4 types | |
| 1 | Frequency (Band A) | - | FRQ A | - | 444.100MHz | 435.100MHz | |
| 2 | Frequency (Band B) | - | FRQ B | - | 444.100MHz | 435.100MHz | |
| 3 | High power | 144MHz band | HPWR | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | HPWR | U | 444.100MHz | 435.100MHz | |
| 4 | Mid power | 144MHz band | MPWR | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | MPWR | U | 444.100MHz | 435.100MHz | |
| 5 | Low power | 144MHz band | LPWR | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | LPWR | U | 444.100MHz | 435.100MHz | |
| 6 | SWR protection | 144MHz band | SWR | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | SWR | U | 444.100MHz | 435.100MHz | |
| 7 | DCS balance *1 (Band A) | 144MHz band, Low frequency | BAL A | VL | 136.100MHz | 136.100MHz | 50Hz |
| | | 144MHz band, Center frequency | BAL A | VC | 146.100MHz | 145.100MHz | |
| | | 144MHz band, High frequency | BAL A | VH | 173.900MHz | 173.900MHz | |
| | | 430MHz band, Low frequency | BAL A | UL | 400.100MHz | 400.100MHz | |
| | | 430MHz band, Center frequency | BAL A | UC | 444.100MHz | 435.100MHz | |
| | | 430MHz band, High frequency | BAL A | UH | 469.900MHz | 469.900MHz | |
| 8 | DCS balance *1 (Band B) | 144MHz band, Low frequency | BAL B | VL | 136.100MHz | 136.100MHz | 50Hz |
| | | 144MHz band, Center frequency | BAL B | VC | 146.100MHz | 145.100MHz | |
| | | 144MHz band, High frequency | BAL B | VH | 173.900MHz | 173.900MHz | |
| | | 430MHz band, Low frequency | BAL B | UL | 400.100MHz | 400.100MHz | |
| | | 430MHz band, Center frequency | BAL B | UC | 444.100MHz | 435.100MHz | |
| | | 430MHz band, High frequency | BAL B | UH | 469.900MHz | 469.900MHz | |
| 9 | MAX deviation (Band A) | 144MHz band | DEV A | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | DEV A | U | 444.100MHz | 435.100MHz | |
| 10 | MAX deviation (Band B) | 144MHz band | DEV B | V | 146.100MHz | 145.100MHz | |
| | | 430MHz band | DEV B | U | 444.100MHz | 435.100MHz | |
| 11 | CTCSS deviation (Band A) | 144MHz band | CT A | V | 146.100MHz | 145.100MHz | CTCSS: 91.5Hz |
| | | 430MHz band | CT A | U | 444.100MHz | 435.100MHz | |
| 12 | CTCSS deviation (Band B) | 144MHz band | CT B | V | 146.100MHz | 145.100MHz | CTCSS: 91.5Hz |
| | | 430MHz band | CT B | U | 444.100MHz | 435.100MHz | |
| 13 | DCS deviation (Band A) | 144MHz band | DCS A | V | 146.100MHz | 145.100MHz | DCS: 023N |
| | | 430MHz band | DCS A | U | 444.100MHz | 435.100MHz | |
| 14 | DCS deviation (Band B) | 144MHz band | DCS B | V | 146.100MHz | 145.100MHz | DCS: 023N |
| | | 430MHz band | DCS B | U | 444.100MHz | 435.100MHz | |

*1: The DCS balance adjustment can adjust only the center frequency.

# ADJUSTMENT

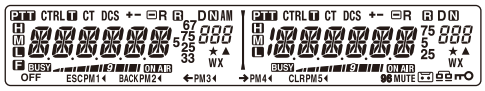
| No. | Adjustment item | Adjustment band item | Display | | The frequency that is set to the transceiver | | Signaling |
|---|---|---|---|---|---|---|---|
| | | | Adjustment item | Adjustment band item | K type | E, M4 types | |
| 15 | BPF RSSI (Band A) | 144MHz band, Low frequency | BPF A | VL | 118.050MHz | 118.050MHz | |
| | | 144MHz band, Center frequency | BPF A | VC | 145.050MHz | 145.050MHz | |
| | | 144MHz band, High frequency | BPF A | VH | 199.950MHz | 199.950MHz | |
| | | 200MHz band, Low frequency | BPF A | 2L | 220.050MHz | 220.050MHz | |
| | | 200MHz band, Center frequency | BPF A | 2C | 250.050MHz | 250.050MHz | |
| | | 200MHz band, High frequency | BPF A | 2H | 279.950MHz | 279.950MHz | |
| | | 430MHz band, Low frequency | BPF A | UL | 300.050MHz | 300.050MHz | |
| | | 430MHz band, Low' frequency | BPF A | ULD | 350.050MHz | 350.050MHz | |
| | | 430MHz band, Center frequency | BPF A | UC | 400.050MHz | 400.050MHz | |
| | | 430MHz band, High' frequency | BPF A | UHD | 440.050MHz | 440.050MHz | |
| | | 430MHz band, High frequency | BPF A | UH | 500.050MHz | 500.050MHz | |
| 16 | BPF RSSI (Band B) | 144MHz band, Low frequency | BPF B | VL | 118.050MHz | 118.050MHz | |
| | | 144MHz band, Center frequency | BPF B | VC | 145.050MHz | 145.050MHz | |
| | | 144MHz band, High frequency | BPF B | VH | 199.950MHz | 199.950MHz | |
| | | 200MHz band, Low frequency | BPF B | 2L | 220.050MHz | 220.050MHz | |
| | | 200MHz band, Center frequency | BPF B | 2C | 250.050MHz | 250.050MHz | |
| | | 200MHz band, High frequency | BPF B | 2H | 279.950MHz | 279.950MHz | |
| | | 430MHz band, Low frequency | BPF B | UL | 300.050MHz | 300.050MHz | |
| | | 430MHz band, Low' frequency | BPF B | ULD | 350.050MHz | 350.050MHz | |
| | | 430MHz band, Center frequency | BPF B | UC | 400.050MHz | 400.050MHz | |
| | | 430MHz band, High' frequency | BPF B | UHD | 440.050MHz | 440.050MHz | |
| | | 430MHz band, High frequency | BPF B | UH | 500.050MHz | 500.050MHz | |
| 17 | Squelch threshold (Band A) | 144MHz band | SQ1 A | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SQ1 A | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SQ1 A | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SQ1 A | U | 440.050MHz | 440.050MHz | |
| 18 | Squelch threshold (Band B) | 144MHz band | SQ1 B | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SQ1 B | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SQ1 B | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SQ1 B | U | 440.050MHz | 440.050MHz | |
| | | 1.2GHz band | SQ1 B | 8 | 1270.050MHz | 1270.050MHz | |
| 19 | Squelch tight (Band A) | 144MHz band | SQT A | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SQT A | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SQT A | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SQT A | U | 440.050MHz | 440.050MHz | |

# ADJUSTMENT

| No. | Adjustment item | Adjustment band item | Display | | The frequency that is set to the transceiver | | Signaling |
|---|---|---|---|---|---|---|---|
| | | | Adjustment item | Adjustment band item | K type | E, M4 types | |
| 20 | Squelch tight (Band B) | 144MHz band | SQT B | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SQT B | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SQT B | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SQT B | U | 440.050MHz | 440.050MHz | |
| | | 1.2GHz band | SQT B | 8 | 1270.050MHz | 1270.050MHz | |
| 21 | S-meter S1 (Band A) | 144MHz band | SM1 A | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SM1 A | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SM1 A | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SM1 A | U | 440.050MHz | 440.050MHz | |
| 22 | S-meter S1 (Band B) | 144MHz band | SM1 B | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SM1 B | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SM1 B | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SM1 B | U | 440.050MHz | 440.050MHz | |
| | | 1.2GHz band | SM1 B | 8 | 1270.050MHz | 1270.050MHz | |
| 23 | S-meter full scale (Band A) | 144MHz band | SM7 A | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SM7 A | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SM7 A | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SM7 A | U | 440.050MHz | 440.050MHz | |
| 24 | S-meter full scale (Band B) | 144MHz band | SM7 B | V | 145.050MHz | 145.050MHz | |
| | | 200MHz band | SM7 B | 2 | 220.050MHz | 220.050MHz | |
| | | 300MHz band | SM7 B | 3 | 350.050MHz | 350.050MHz | |
| | | 430MHz band | SM7 B | U | 440.050MHz | 440.050MHz | |
| | | 1.2GHz band | SM7 B | 8 | 1270.050MHz | 1270.050MHz | |

# ADJUSTMENT

## Common Section

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1.Setting | 1) Power supply voltage<br>DC power supply terminal<br>: 13.8V | | | | | | | |
| 2. All LCD segments light check and full reset | 1) All LCD segments light check<br>Turn the transceiver power ON by pressing the power switch while [F] key is pressed. While the [F] key is pressed, all LCD segments light.<br>2) Full reset<br>After confirming that all LCD segments have lighted described in the step 1 above, release the [F] key.<br>Select reset type "FULL" by tunring the Tuning control when the reset confirmation message appears.<br>Press the Tuning control to set the reset type.<br>Press the Tuning control again to perform the full reset.<br>**Note**<br>When you do not want to remove data such as memory channel data, save the data using the MCP-2A (Memory control program) before performing the full reset, then write the data to the transceiver after performing the adjustment. | | | | | | Confirm that all LCD segments light.<br>  | |

## Transmitter Section (Refer to the table on pages 44 to 46 for the frequencies which will apply in the adjustment mode.)

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1. Frequency (Band A) Adjust | 1) Adj item: [FRQ A]<br>Adjust: [∗∗∗]<br>2) PTT: ON | f. counter | Rear panel | ANT | Front panel | Tuning control | Write | 435.100MHz±100Hz **E,M4**<br>444.100MHz±100Hz **K** |
| 2. Frequency (Band B) Adjust | 1) Adj item: [FRQ B]<br>Adjust: [∗∗∗]<br>2) PTT: ON | | | | | | | |
| 3. High power Adjust<br>• 144MHz band | 1) Adj item: [HPWR V]<br>Adjust: [∗∗∗]<br>2) PTT: ON | Power meter | | | | | Write | 50W±1W |
| • 430MHz band | 3) Adj item: [HPWR U]<br>Adjust: [∗∗∗]<br>4) PTT: ON | | | | | | | 48W±1W |
| 4. Mid power Adjust<br>• 144MHz band | 1) Adj item: [MPWR V]<br>Adjust: [∗∗∗]<br>2) PTT: ON | | | | | | Write | 12W±1W **K,E**<br>22.5W±1W **M4** |
| • 430MHz band | 3) Adj item: [MPWR U]<br>Adjust: [∗∗∗]<br>4) PTT: ON | | | | | | | |
| 5. Low power Adjust<br>• 144MHz band | 1) Adj item: [LPWR V]<br>Adjust: [∗∗∗]<br>2) PTT: ON | | | | | | Write | 5W±1W |
| • 430MHz band | 3) Adj item: [LPWR U]<br>Adjust: [∗∗∗]<br>4) PTT: ON | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 6. SWR protection Adjust<br>• 144MHz band | 1) Adj item: [SWR V]<br>Adjust: [***]<br>2) PTT: ON | Power meter | Rear panel | ANT | Front panel | Tuning control | Set the following adjustment values to the transceiver by turning the Tuning control.<br>Adjustment value: 66 | |
| • 430MHz band | 3) Adj item: [SWR U]<br>Adjust: [***]<br>4) PTT: ON | | | | | | Adjustment value: 120 | |
| 7. DCS balance (Band A) Adjust<br>• 144MHz band | 1) Adj item: [BAL A VC]<br>Adjust: [***]<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | Linear detector<br>Oscilloscope | | | | | By turning the Tuning control, adjust the modulation wave until it becomes the square wave. | |
| • 430MHz band | 3) Adj item: [BAL A UC]<br>Adjust: [***]<br>4) PTT: ON | | | | | | | |
| 8. DCS balance (Band B) Adjust<br>• 144MHz band | 1) Adj item: [BAL B VC]<br>Adjust: [***]<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | | | | | | | |
| • 430MHz band | 3) Adj item: [BAL B UC]<br>Adjust: [***]<br>4) PTT: ON | | | | | | | |
| 9. MAX deviation (Band A) Adjust<br>• 144MHz band | 1) Adj item: [DEV A V]<br>Adjust: [***]<br>AG: 1kHz/50mV **K,M4**<br>AG: 1kHz/20mV **E**<br>Detector: +P, –P<br>LPF: 15kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | Linear detector<br>Oscilloscope<br>AG<br>AF V.M | | ANT<br>MIC | | | Write | 4.2kHz±0.1kHz (According to the larger +P, –P) |
| • 430MHz band | 3) Adj item: [DEV A U]<br>Adjust: [***]<br>4) PTT: ON | | | | | | | |
| 10. MAX deviation (Band B) Adjust<br>• 144MHz band | 1) Adj item: [DEV B V]<br>Adjust: [***]<br>AG: 1kHz/50mV **K,M4**<br>AG: 1kHz/20mV **E**<br>Detector: +P, –P<br>LPF: 15kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | | | | | | | |
| • 430MHz band | 3) Adj item: [DEV B U]<br>Adjust: [***]<br>4) PTT: ON | | | | | | | |

**Note:**
**Do not repeatedly adjust the SWR protection adjustment; adjust it only once when you replace the EEPROM.**

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 11. CTCSS deviation (Band A) Adjust<br>• 144MHz band | 1) Adj item: [CT A V]<br>Adjust: [∗∗∗]<br>Detector: P-P/2<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>PTT:ON | Linear detector<br>Oscilloscope | Rear panel | ANT | Front panel | Tuning control | Write | 0.75kHz±0.05kHz |
| • 430MHz band | 2) Adj item: [CT A U]<br>Adjust: [∗∗∗]<br>PTT: ON | | | | | | | |
| 12. CTCSS deviation (Band B) Adjust<br>• 144MHz band | 1) Adj item: [CT B V]<br>Adjust: [∗∗∗]<br>Detector: P-P/2<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>PTT: ON | | | | | | | |
| • 430MHz band | 2) Adj item: [CT B U]<br>Adjust: [∗∗∗]<br>PTT: ON | | | | | | | |
| 13. DCS deviation (Band A) Adjust<br>• 144MHz band | 1) Adj item: [DCS A V]<br>Adjust: [∗∗∗]<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>PTT: ON | | | | | | Write | 0.75kHz±0.05kHz |
| • 430MHz band | 2) Adj item: [DCS A V]<br>Adjust: [∗∗∗]<br>PTT: ON | | | | | | | |
| 14. DCS deviation (Band B) Adjust<br>• 144MHz band | 1) Adj item: [DCS B V]<br>Adjust: [∗∗∗]<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>PTT: ON | | | | | | | |
| • 430MHz band | 2) Adj item: [DCS B U]<br>Adjust: [∗∗∗]<br>PTT: ON | | | | | | | |
| 15. High power Check<br>• Band A | 1) Frequency: 144.000MHz<br>2) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>3) PTT: ON | Power meter<br>Ammeter | | | | | Check | 47~53W<br>12A or less |
| | 4) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>5) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>6) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>7) PTT: ON | | | | | | | 45~51W<br>12A or less |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| • Band B | 8) Frequency: 144.000MHz<br>9) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>10) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>11) PTT: ON | Power meter<br>Ammeter | Rear panel | ANT | | | Check | 47~53W<br>12A or less |
| | 12) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>13) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>14) PTT: ON | | | | | | | 45~51W<br>12A or less |
| 16. Mid power Check<br>• Band A | 1) Frequency: 144.000MHz<br>2) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>3) PTT: ON | | | | | | Check | **K,E:** 11~13W, 5A or less<br>**M4:** 20.5~24.5W, 8A or less |
| | 4) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>5) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>6) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>7) PTT: ON | | | | | | | **K,E:** 11~13W, 6A or less<br>**M4:** 20.5~24.5W, 8A or less |
| • Band B | 8) Frequency: 144.000MHz<br>9) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>10) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>11) PTT: ON | | | | | | Check | **K,E:** 11~13W, 5A or less<br>**M4:** 20.5~24.5W, 8A or less |
| | 12) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>13) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>14) PTT: ON | | | | | | | **K,E:** 11~13W, 6A or less<br>**M4:** 20.5~24.5W, 8A or less |
| 17. Low power Check<br>• Band A | 1) Frequency: 144.000MHz<br>2) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>3) PTT: ON | | | | | | Check | 4~6W<br>3.5A or less |
| | 4) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>5) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>6) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>7) PTT: ON | | | | | | | 4~6W<br>4.5A or less |
| • Band B | 8) Frequency: 144.000MHz<br>9) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>10) Frequency: 145.990MHz **E,M4**<br>Frequency: 147.990MHz **K**<br>11) PTT: ON | | | | | | Check | 4~6W<br>3.5A or less |
| | 12) Frequency: 430.000MHz **E,M4**<br>Frequency: 438.000MHz **K**<br>13) Frequency: 439.990MHz **E,M4**<br>Frequency: 449.990MHz **K**<br>14) PTT: ON | | | | | | | 4~6W<br>4.5A or less |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 18. MIC sensitivity Check<br>• Band A | 1) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>AG: 1kHz/5mV **K,M4**<br>AG: 1kHz/2mV **E**<br>Detector: P-P/2<br>LPF: 15kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | Linear detector<br>Oscilloscope<br>AG<br>AF V.M | Rear panel | ANT<br>MIC | | | Check | ±2.34~4.17kHz **K,M4**<br>±2.38~4.05kHz **E** |
| | 3) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>4) PTT: ON | | | | | | | |
| • Band B | 5) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>AG: 1kHz/5mV **K,M4**<br>AG: 1kHz/2mV **E**<br>Detector: P-P/2<br>LPF: 15kHz<br>HPF: OFF<br>De-emphasis: OFF<br>6) PTT: ON | | | | | | Check | ±2.34~4.17kHz **K,M4**<br>±2.38~4.05kHz **E** |
| | 7) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>8) PTT: ON | | | | | | | |
| 19. CTCSS deviation Check<br>• Band A | 1) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>Detector: P-P/2<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | Linear detector<br>Oscilloscope | | ANT | | | Check | 0.65~0.85kHz |
| | 3) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>4) PTT: ON | | | | | | | |
| • Band B | 5) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>Detector: P-P/2<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>6) PTT: ON | | | | | | | |
| | 7) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>8) PTT: ON | | | | | | | |
| 20. DCS deviation Check<br>• Band A | 1) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>2) PTT: ON | | | | | | Check | 0.65~0.85kHz |
| | 3) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>4) PTT: ON | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| • Band B | 5) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>Detector: +P HOLD<br>LPF: 3kHz<br>HPF: OFF<br>De-emphasis: OFF<br>6) PTT: ON | Linear detector<br>Oscilloscope | Rear panel | ANT | | | Check | 0.65~0.85kHz |
| | 7) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>8) PTT: ON | | | | | | | |
| 21 .Protection Check<br>• Band A | TX Power: High<br>ANT: Short circuit and Open<br>1) Frequency: 145.000MHz **E,M4**<br>Frequency: 146.000MHz **K**<br>2) PTT: ON | Ammeter | | | | | Check | 12A or less |
| • Band B | 3) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>4) PTT: ON | | | | | | | |

## Reciever Section (Refer to the table on pages 44 to 46 for the frequencies which will apply in the adjustment mode.)

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1. BPF RSSI (Band A) Adjust<br>• 144MHz band | 1) Adj item: [BPF A VL] → [BPF A VC] → [BPF A VH]<br>Adjust: [***]<br>SSG output: –100dBm (2.24µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | SSG<br>Oscilloscope<br>Distortion meter<br>AF V.M<br>Dummy load | Rear panel | ANT<br>EXT.SP | Front panel | Tuning control | Turn the Tuning control until the maximum RSSI value will appear on the LCD. When the same RSSI value remains while it is being adjusted, set the adjustment value to the center value.<br>For example, set the adjustment value to 38 for the values listed below. | |
| • 200MHz band | 2) Adj item: [BPF A 2L]<br>Adjust: [***]<br>SSG output: –100dBm (2.24µV)<br>3) Adj item: [BPF A 2C]<br>Adjust: [***]<br>SSG output: –90dBm (7.08µV)<br>4) Adj item: [BPF A 2H]<br>Adjust: [***]<br>SSG output: –80dBm (22.4µV) | | | | | | | |
| • 430MHz band | 5) Adj item: [BPF A UL]<br>Adjust: [***]<br>SSG output: –90dBm (7.08µV)<br>6) Adj item: [BPF A ULD] → [BPF A UC] → [BPF A UHD] → [BPF A UH]<br>Adjust: [***]<br>SSG output: –100dBm (2.24µV) | | | | | | | |

| RSSI value | Adjustment value |
|---|---|
| 54 | 35 |
| 55 | 36 |
| 55 | 37 |
| 55 | 38 |
| 55 | 39 |
| 55 | 40 |
| 54 | 41 |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 2. BPF RSSI (Band B) Adjust<br>• 144MHz band | 1) Adj item: [BPF B VL] → [BPF B VC] → [BPF B VH]<br>Adjust: [∗∗∗]<br>SSG output: –100dBm (2.24µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | SSG<br>Oscilloscope<br>Distortion meter<br>AF V.M<br>Dummy load | Rear panel | ANT<br>EXT.SP | Front panel | Tuning control | Turn the Tuning control until the maximum RSSI value will appear on the LCD. When the same RSSI value remains while it is being adjusted, set the adjustment value to the center value.<br>For example, set the adjustment value to 38 for the values listed below.<br>RSSI value / Adjustment value<br>54 / 35<br>55 / 36<br>55 / 37<br>55 / 38<br>55 / 39<br>55 / 40<br>54 / 41 | |
| • 200MHz band | 2) Adj item: [BPF B 2L]<br>Adjust: [∗∗∗]<br>SSG output: –100dBm (2.24µV)<br>3) Adj item: [BPF B 2C]<br>Adjust: [∗∗∗]<br>SSG output: –90dBm (7.08µV)<br>4) Adj item: [BPF B 2H]<br>Adjust: [∗∗∗]<br>SSG output: –80dBm (22.4µV) | | | | | | | |
| • 430MHz band | 5) Adj item: [BPF B UL]<br>Adjust: [∗∗∗]<br>SSG output: –90dBm (7.08µV)<br>6) Adj item: [BPF B ULD] → [BPF A UC] → [BPF A UHD] → [BPF A UH]<br>Adjust: [∗∗∗]<br>SSG output: –100dBm (2.24µV) | | | | | | | |
| 3. Squelch threshold (Band A) Writing<br>• 144MHz band | 1) Adj item: [SQ1 A V]<br>Adjust: [∗∗∗]<br>SSG output: –128dBm (0.089µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | SSG | | ANT | | | Write | |
| • 200MHz band | 2) Adj item: [SQ1 A 2]<br>Adjust: [∗∗∗]<br>SSG output: –117dBm (0.32µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SQ1 A 3]<br>Adjust: [∗∗∗]<br>SSG output: –117dBm (0.32µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SQ1 A U]<br>Adjust: [∗∗∗]<br>SSG output: –128dBm (0.089µV) | | | | | | | |
| 4. Squelch threshold (Band B) Writing<br>• 144MHz band | 1) Adj item: [SQ1 B V]<br>Adjust: [∗∗∗]<br>SSG output: –128dBm (0.089µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | | | | | | | |
| • 200MHz band | 2) Adj item: [SQ1 B 2]<br>Adjust: [∗∗∗]<br>SSG output: –117dBm (0.32µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SQ1 B 3]<br>Adjust: [∗∗∗]<br>SSG output: –117dBm (0.32µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SQ1 B U]<br>Adjust: [∗∗∗]<br>SSG output: –128dBm (0.089µV) | | | | | | | |
| • 1.2GHz band | 5) Adj item: [SQ1 B 8]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 5. Squelch tight (Band A) Writing<br>• 144MHz band | 1) Adj item: [SQT A V]<br>Adjust: [∗∗∗]<br>SSG output: –119dBm (0.25µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | SSG | Rear panel | ANT | Front panel | Tuning control | Write | |
| • 200MHz band | 2) Adj item: [SQT A 2]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SQT A 3]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SQT A U]<br>Adjust: [∗∗∗]<br>SSG output: –119dBm (0.25µV) | | | | | | | |
| 6. Squelch tight (Band B) Writing<br>• 144MHz band | 1) Adj item: [SQT B V]<br>Adjust: [∗∗∗]<br>SSG output: –119dBm (0.25µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | | | | | | | |
| • 200MHz band | 2) Adj item: [SQT B 2]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SQT B 3]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SQT B U]<br>Adjust: [∗∗∗]<br>SSG output: –119dBm (0.25µV) | | | | | | | |
| • 1.2GHz band | 5) Adj item: [SQT B 8]<br>Adjust: [∗∗∗]<br>SSG output: –98dBm (2.82µV) | | | | | | | |
| 7. S-meter S1 (Band A) Writing<br>• 144MHz band | 1) Adj item: [SM1 A V]<br>Adjust: [∗∗∗]<br>SSG output: –118dBm (0.28µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | | | | | | | |
| • 200MHz band | 2) Adj item: [SM1 A 2]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SM1 A 3]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SM1 A U]<br>Adjust: [∗∗∗]<br>SSG output: –118dBm (0.28µV) | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 8 .S-meter S1 (Band B) Writing<br>• 144MHz band | 1) Adj item: [SM1 B V]<br>Adjust: [∗∗∗]<br>SSG output: –118dBm (0.28µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | SSG | Rear panel | ANT | Front panel | Tuning control | Write | |
| • 200MHz band | 2) Adj item: [SM1 B 2]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SM1 B 3]<br>Adjust: [∗∗∗]<br>SSG output: –108dBm (0.89µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SM1 B U]<br>Adjust: [∗∗∗]<br>SSG output: –118dBm (0.28µV) | | | | | | | |
| • 1.2GHz band | 5) Adj item: [SM1 B 8]<br>Adjust: [∗∗∗]<br>SSG output: –98dBm (2.82µV) | | | | | | | |
| 9. S-meter full scale (Band A) Writing<br>• 144MHz band | 1) Adj item: [SM7 A V]<br>Adjust: [∗∗∗]<br>SSG output: –96dBm (3.54µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | | | | | | | |
| • 200MHz band | 2) Adj item: [SM7 A 2]<br>Adjust: [∗∗∗]<br>SSG output: –86dBm (11µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SM7 A 3]<br>Adjust: [∗∗∗]<br>SSG output: –86dBm (11µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SM7 A U]<br>Adjust: [∗∗∗]<br>SSG output: –96dBm (3.54µV) | | | | | | | |
| 10. S-meter full scale (Band B) Writing<br>• 144MHz band | 1) Adj item: [SM7 B V]<br>Adjust: [∗∗∗]<br>SSG output: –96dBm (3.54µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz | | | | | | | |
| • 200MHz band | 2) Adj item: [SM7 B 2]<br>Adjust: [∗∗∗]<br>SSG output: –86dBm (11µV) | | | | | | | |
| • 300MHz band | 3) Adj item: [SM7 B 3]<br>Adjust: [∗∗∗]<br>SSG output: –86dBm (11µV) | | | | | | | |
| • 430MHz band | 4) Adj item: [SM7 B U]<br>Adjust: [∗∗∗]<br>SSG output: –96dBm (3.54µV) | | | | | | | |
| • 1.2GHz band | 5) Adj item: [SM7 B 8]<br>Adjust: [∗∗∗]<br>SSG output: –76dBm (35.4µV) | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 11. AF distortion Check<br>• Band A | 1) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –53dBm (501µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 1V/8Ω | SSG<br>Oscilloscope<br>Distortion meter<br>AF V.M<br>Dummy load | Rear panel | ANT<br>EXT.SP | | | Check | 4% or less |
| • Band B | 2) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –53dBm (501µV)<br>AF output: 1V/8Ω | | | | | | | |
| 12. Sensitivity Check<br>• Band A (Wide) | 1) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω<br>2) Frequency:144.250MHz<br>SSG output: –122dBm (0.178µV)<br>3) Frequency: 145.750MHz **E,M4**<br>Frequency: 147.750MHz **K**<br>SSG output: –122dBm (0.178µV)<br>4) Frequency: 430.250MHz **E,M4**<br>Frequency: 438.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>5) Frequency: 435.250MHz **E,M4**<br>Frequency: 444.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>6) Frequency: 439.750MHz **E,M4**<br>Frequency: 449.750MHz **K**<br>SSG output: –122dBm (0.178µV)<br>7) Frequency: 136.050MHz **K,E**<br>SSG output: –115dBm (0.4µV)<br>8) Frequency: 160.050MHz **K,E**<br>SSG output: –115dBm (0.4µV)<br>9) Frequency: 225.050MHz **K,E**<br>SSG output: –110dBm (0.707µV)<br>10) Frequency: 382.050MHz **K,E**<br>SSG output: –110dBm (0.707µV)<br>11) Frequency: 400.050MHz **K,E**<br>SSG output: –118dBm (0.28µV)<br>12) Frequency: 460.050MHz **K,E**<br>SSG output: –100dBm (2.24µV)<br>13) Frequency: 520.050MHz **K,E**<br>SSG output: –100dBm (2.24µV) | | | | | | Check | 12dB SINAD or more |
| • Band A (Narrow) | 14) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –120dBm (0.22µV)<br>SSG MOD: 1kHz<br>SSG DEV: 1.5kHz<br>AF output: 0.63V/8Ω<br>15) Frequency: 435.250MHz **E,M4**<br>Frequency: 444.250MHz **K**<br>SSG output: –120dBm (0.22µV) | | | | | | | |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| • Band B (Wide) | 16) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω<br>17) Frequency:144.250MHz<br>SSG output: –122dBm (0.178µV)<br>18) Frequency: 145.750MHz **E,M4**<br>Frequency: 147.750MHz **K**<br>SSG output: –122dBm (0.178µV)<br>19) Frequency: 430.250MHz **E,M4**<br>Frequency: 438.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>20) Frequency: 435.250MHz **E,M4**<br>Frequency: 444.250MHz **K**<br>SSG output: –122dBm (0.178µV)<br>21) Frequency: 439.750MHz **E,M4**<br>Frequency: 449.750MHz **K**<br>SSG output: –122dBm (0.178µV)<br>22) Frequency: 136.050MHz **K,E**<br>SSG output: –115dBm (0.4µV)<br>23) Frequency: 160.050MHz **K,E**<br>SSG output: –115dBm (0.4µV)<br>24) Frequency: 225.050MHz **K,E**<br>SSG output: –110dBm (0.707µV)<br>25) Frequency: 382.050MHz **K,E**<br>SSG output: –110dBm (0.707µV)<br>26) Frequency: 400.050MHz **K,E**<br>SSG output: –118dBm (0.28µV)<br>27) Frequency: 460.050MHz **K,E**<br>SSG output: –100dBm (2.24µV)<br>28) Frequency: 520.050MHz **K,E**<br>SSG output: –100dBm (2.24µV)<br>29) Frequency: 859.900MHz **K,E**<br>SSG output: –90dBm (7.08µV)<br>30) Frequency: 1270.050MHz **K,E**<br>SSG output: –100dBm (2.24µV) | SSG<br>DVM<br>Oscilloscope<br>AF V.M | Rear panel | ANT<br>EXT.SP | | | Check | 12dB SINAD or more |
| • Band B (Narrow) | 31) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –120dBm (0.22µV)<br>SSG MOD: 1kHz<br>SSG DEV: 1.5kHz<br>AF output: 0.63V/8Ω<br>32) Frequency: 435.250MHz **E,M4**<br>Frequency:444.250MHz **K**<br>SSG output: –120dBm (0.22µV) | | | | | | | |
| 13. Hum and Noise Check<br>• Band A | 1) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –53dBm (501µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 1V/8Ω<br>AF V.M: 0dB | SSG<br>Oscilloscope<br>Distortion meter<br>AF V.M<br>Dummy load | | | | | | |
| | 2) SSG DEV: OFF | | | | | | Check | –43dB or less |

# ADJUSTMENT

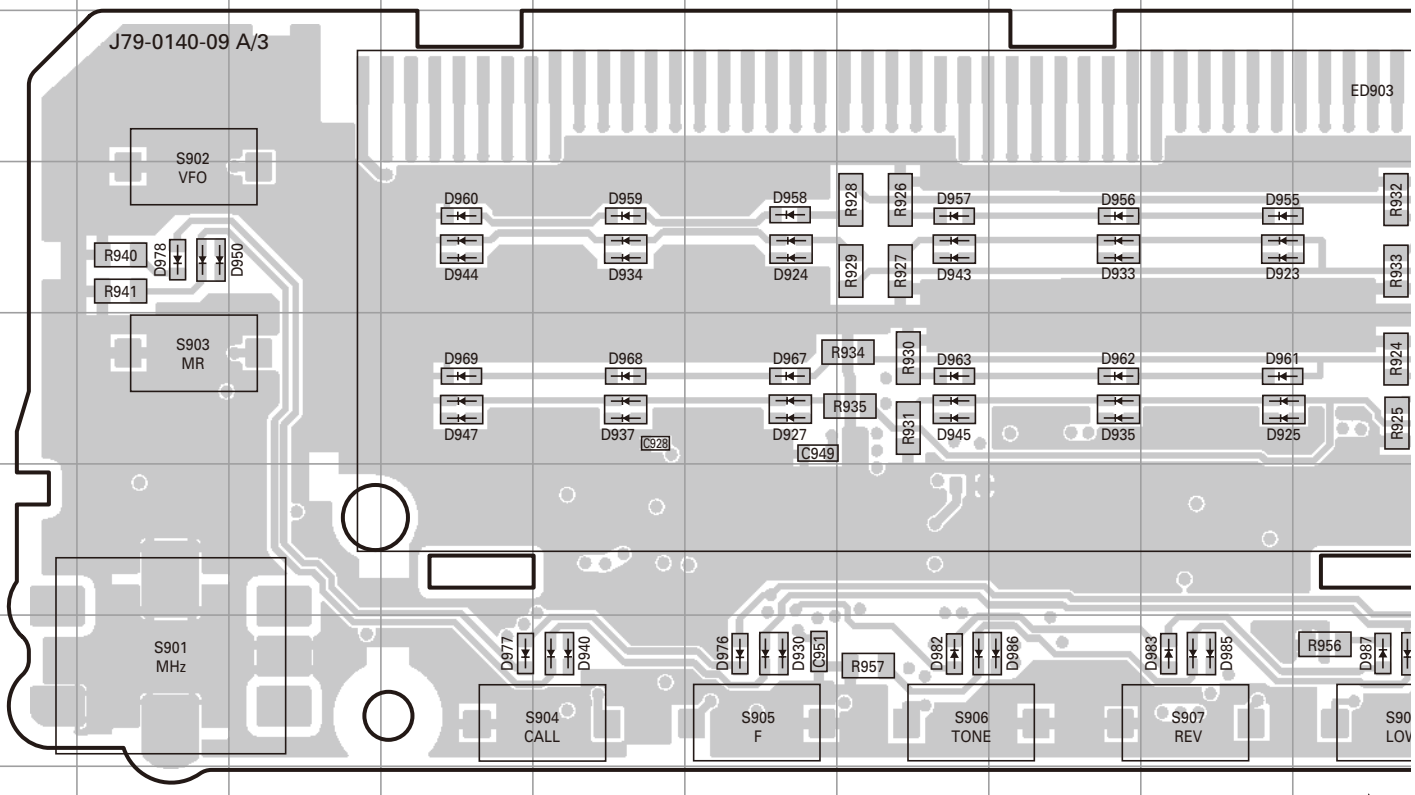
| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| | 3) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>SSG output: –53dBm (501µV)<br>AF V.M: 0dB | SSG<br>Oscilloscope<br>Distortion meter<br>AF V.M<br>Dummy load | | | | | | |
| | 4) SSG DEV: OFF | | | | | | Check | –43dB or less |
| • Band B | 5) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: –53dBm (501µV)<br>AF V.M: 0dB | | | | | | | |
| | 6) SSG DEV: OFF | | | | | | Check | –43dB or less |
| | 7) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>SSG output: –53dBm (501µV)<br>AF V.M: 0dB | | | | | | | |
| | 8) SSG DEV: OFF | | | | | | Check | –43dB or less |
| 14. Squelch Check Band A<br>• 144MHz band | 1) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: OFF<br>Set to the point where noise will be muted by turning the SQL knob (Band A). | SSG<br>Oscilloscope | Rear panel | ANT<br>EXT.SP | | | Check | SQL knob (Band A) position: 8:00~11:00<br>BUSY icon disappear. |
| | 2) SSG output: –126dBm (0.11µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω | | | | | | | Squelch open.<br>BUSY icon appears and S-meter display does not appear. |
| • 430MHz band | 3) Frequency: 435.250MHz **E,M4**<br>Frequency: 444.250MHz **K**<br>SSG output: OFF<br>Set to the point where noise will be muted by turning the SQL knob (Band A). | | | | | | | SQL knob (Band A) position: 8:00~11:00<br>BUSY lights off |
| | 4) SSG output: –126dBm (0.11µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω | | | | | | | Squelch open.<br>BUSY icon appears and S-meter display does not appear |
| Band B<br>• 144MHz band | 5) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG output: OFF<br>Set to the point where noise will be muted by turning the SQL knob (Band B). | | | | | | | SQL knob (Band B) position: 8:00~11:00<br>BUSY icon disappear. |
| | 6) SSG output: –126dBm (0.11µV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω | | | | | | | Squelch open.<br>BUSY icon appears and S-meter display does not appear |

# ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| • 430MHz band | 7) Frequency: 435.250MHz **E,M4**<br>Frequency: 444.250MHz **K**<br>SSG output: OFF<br>Set to the point where noise will be muted by turning the SQL knob (Band B). | SSG<br>Oscilloscope | Rear panel | ANT<br>EXT.SP | | | Check | SQL knob (Band B) position: 8:00~11:00<br>BUSY icon disappear. |
| | 8) SSG output: –126dBm (0.11μV)<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>AF output: 0.63V/8Ω | | | | | | | Squelch open.<br>BUSY icon appears and S-meter display does not appear. |
| 15. S-meter Check<br>Band A<br>• 144MHz band<br>S1 | 1) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>SSG output<br>: –118dBm (0.28μV)±3dB | SSG | Rear panel | ANT | | | Check | One segment in S-meter lights. |
| • 144MHz band<br>Full scale | SSG output<br>: –96dBm (3.54μV)±3dB | | | | | | | All segments in S-meter light. |
| • 430MHz band<br>S1 | 2) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>SSG output<br>: –118dBm (0.28μV)±3dB | | | | | | | One segment in S-meter lights. |
| • 430MHz band<br>Full scale | SSG output<br>: –96dBm (3.54μV)±3dB | | | | | | | All segments in S-meter light. |
| Band B<br>• 144MHz band<br>S1 | 3) Frequency: 145.250MHz **E,M4**<br>Frequency: 146.250MHz **K**<br>SSG MOD: 1kHz<br>SSG DEV: 3kHz<br>SSG output<br>: –118dBm (0.28μV)±3dB | | | | | | | One segment in S-meter lights. |
| • 144MHz band<br>Full scale | SSG output<br>: –96dBm (3.54μV)±3dB | | | | | | | All segments in S-meter light. |
| • 430MHz band<br>S1 | 4) Frequency: 435.000MHz **E,M4**<br>Frequency: 444.000MHz **K**<br>SSG output<br>: –118dBm (0.28μV)±3dB | | | | | | | One segment in S-meter lights. |
| • 430MHz band<br>Full scale | SSG output<br>: –96dBm (3.54μV)±3dB | | | | | | | All segments in S-meter light. |

# TM-V71A/V71E PC BOARD

## DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Component side view (J79-0140-09)



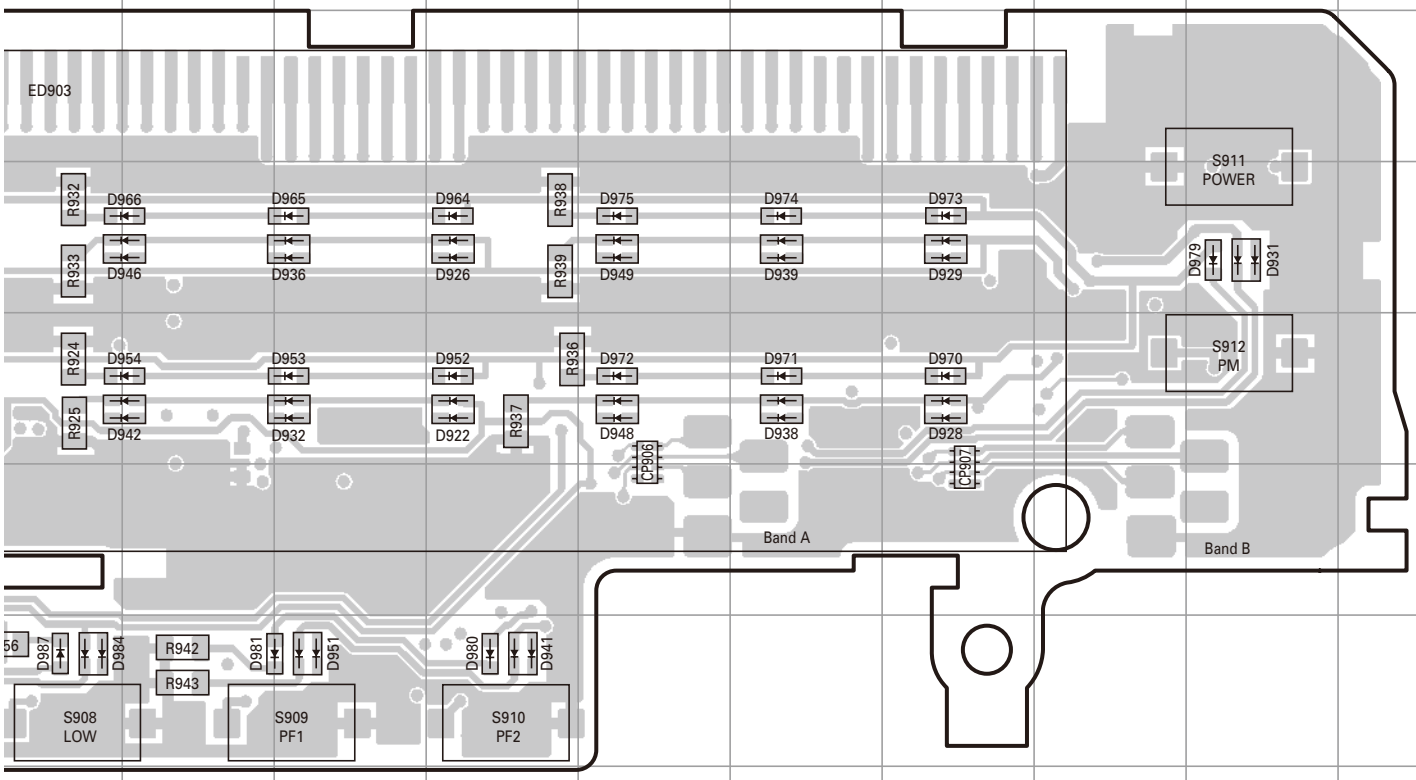

Component side

| | |
|---|---|
| Layer 1 | |
| Layer 2 | |
| Layer 3 | |
| Layer 4 | |

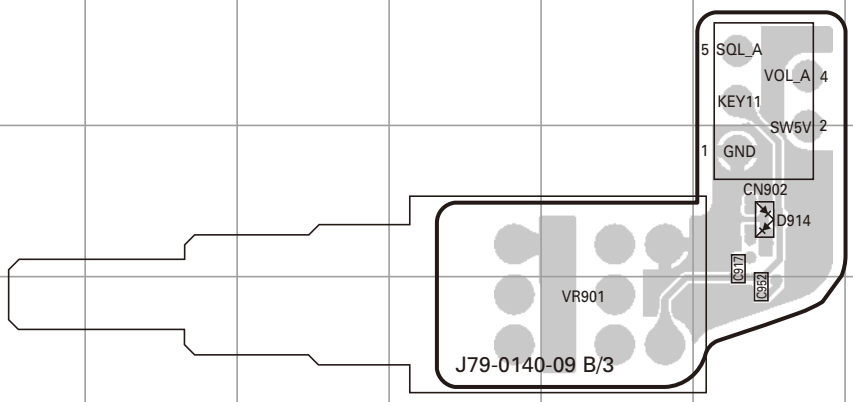
Foil side

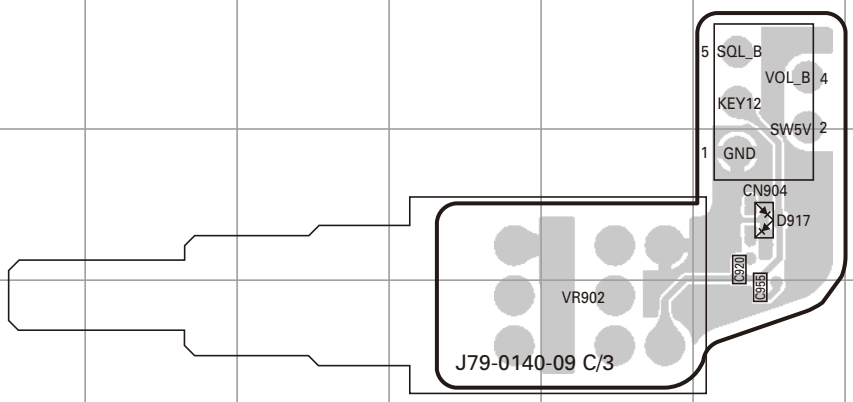
| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|---|---|
| D914 | 9R | D937 | 5E | D954 | 5K | D971 | 5O |
| D917 | 12R | D938 | 5O | D955 | 4I | D972 | 5N |
| D922 | 5M | D939 | 4O | D956 | 4H | D973 | 4P |
| D923 | 4I | D940 | 7E | D957 | 4G | D974 | 4O |
| D924 | 4F | D941 | 7M | D958 | 4F | D975 | 4N |
| D925 | 5I | D942 | 5K | D959 | 4E | D976 | 7F |
| D926 | 4M | D943 | 4G | D960 | 4D | D977 | 7D |
| D927 | 5F | D944 | 4D | D961 | 5I | D978 | 4B |
| D928 | 5P | D945 | 5G | D962 | 5H | D979 | 4R |
| D929 | 4P | D946 | 4K | D963 | 5G | D980 | 7M |
| D930 | 7F | D947 | 5D | D964 | 4M | D981 | 7K |
| D931 | 4R | D948 | 5N | D965 | 4L | D982 | 7G |
| D932 | 5L | D949 | 4N | D966 | 4K | D983 | 7I |
| D933 | 4H | D950 | 4B | D967 | 5F | D984 | 7J |
| D934 | 4E | D951 | 7L | D968 | 5E | D985 | 7I |
| D935 | 5H | D952 | 5M | D969 | 5D | D986 | 7H |
| D936 | 4L | D953 | 5L | D970 | 5P | D987 | 7J |

## ▼ DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Component side view (J79-0140-09)



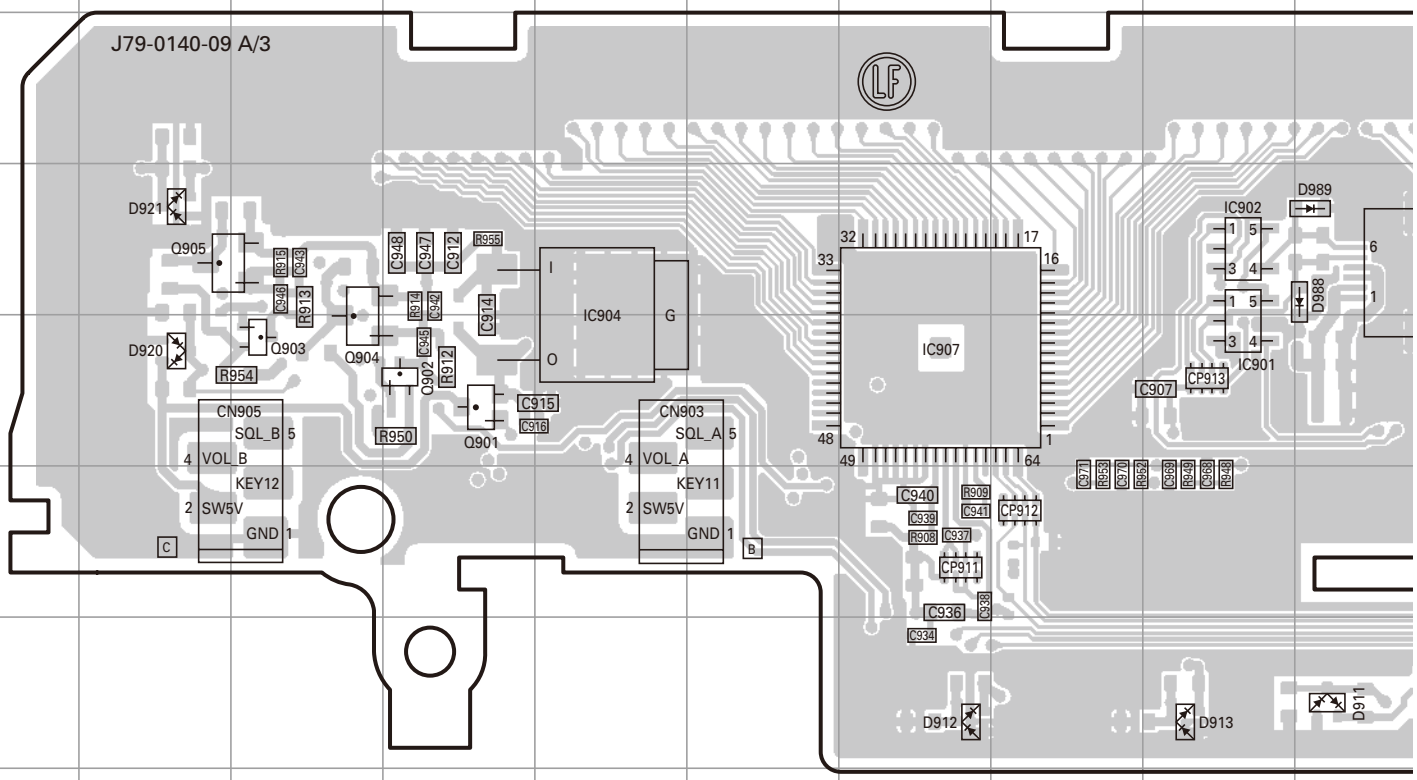

▲

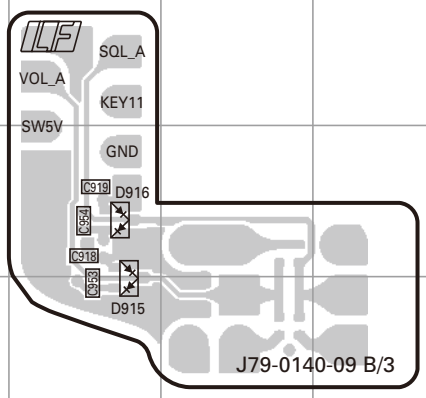


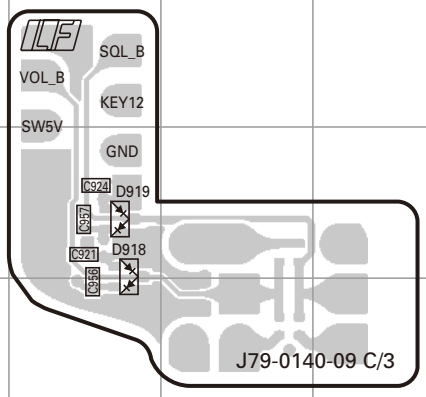



# TM-V71A/V71E PC BOARD

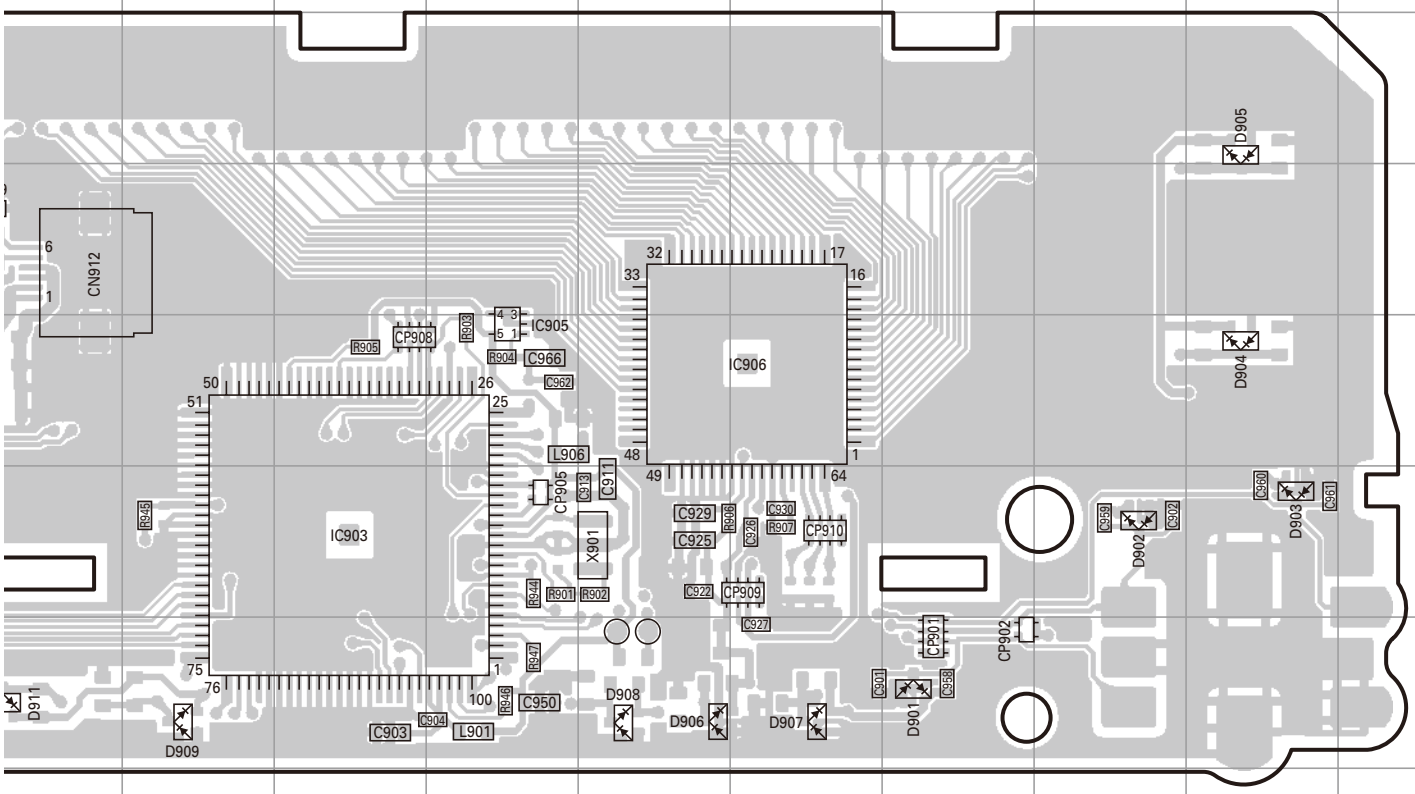
## DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Foil side view (J79-0140-09)



## DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Foil side view (J79-0140-09)



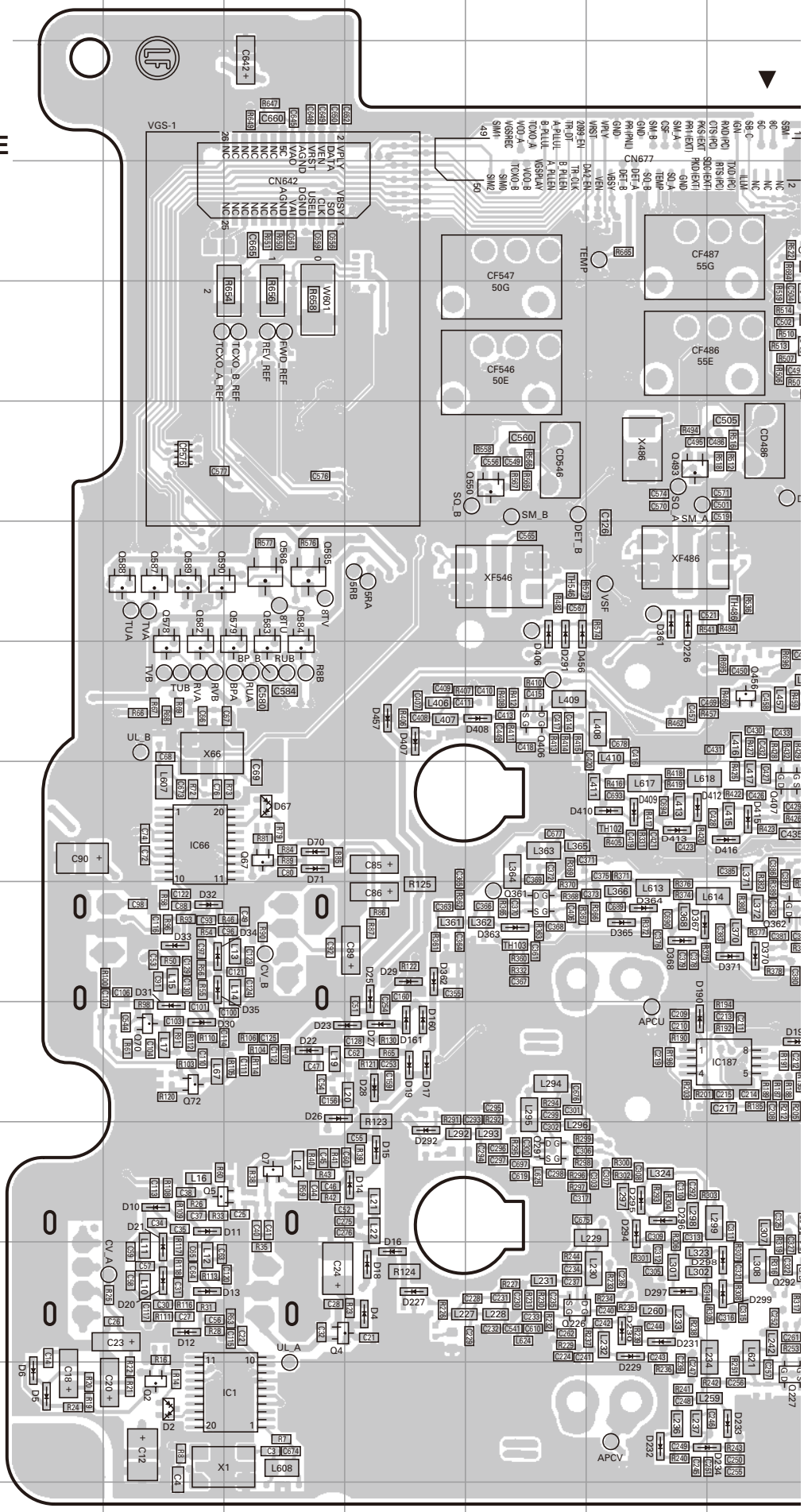

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|
| IC901 | 5I | Q905 | 4B | D912 | 7G |
| IC902 | 4I | D901 | 7P | D913 | 7I |
| IC903 | 6L | D902 | 6Q | D915 | 10B |
| IC904 | 4E | D903 | 6R | D916 | 9B |
| IC905 | 5M | D904 | 5R | D918 | 12B |
| IC906 | 5O | D905 | 3R | D919 | 12B |
| IC907 | 5G | D906 | 7N | D920 | 5B |
| Q901 | 5D | D907 | 7O | D921 | 4B |
| Q902 | 5D | D908 | 7N | D988 | 4J |
| Q903 | 5C | D909 | 7K | D989 | 4H |
| Q904 | 5C | D911 | 7J | | |

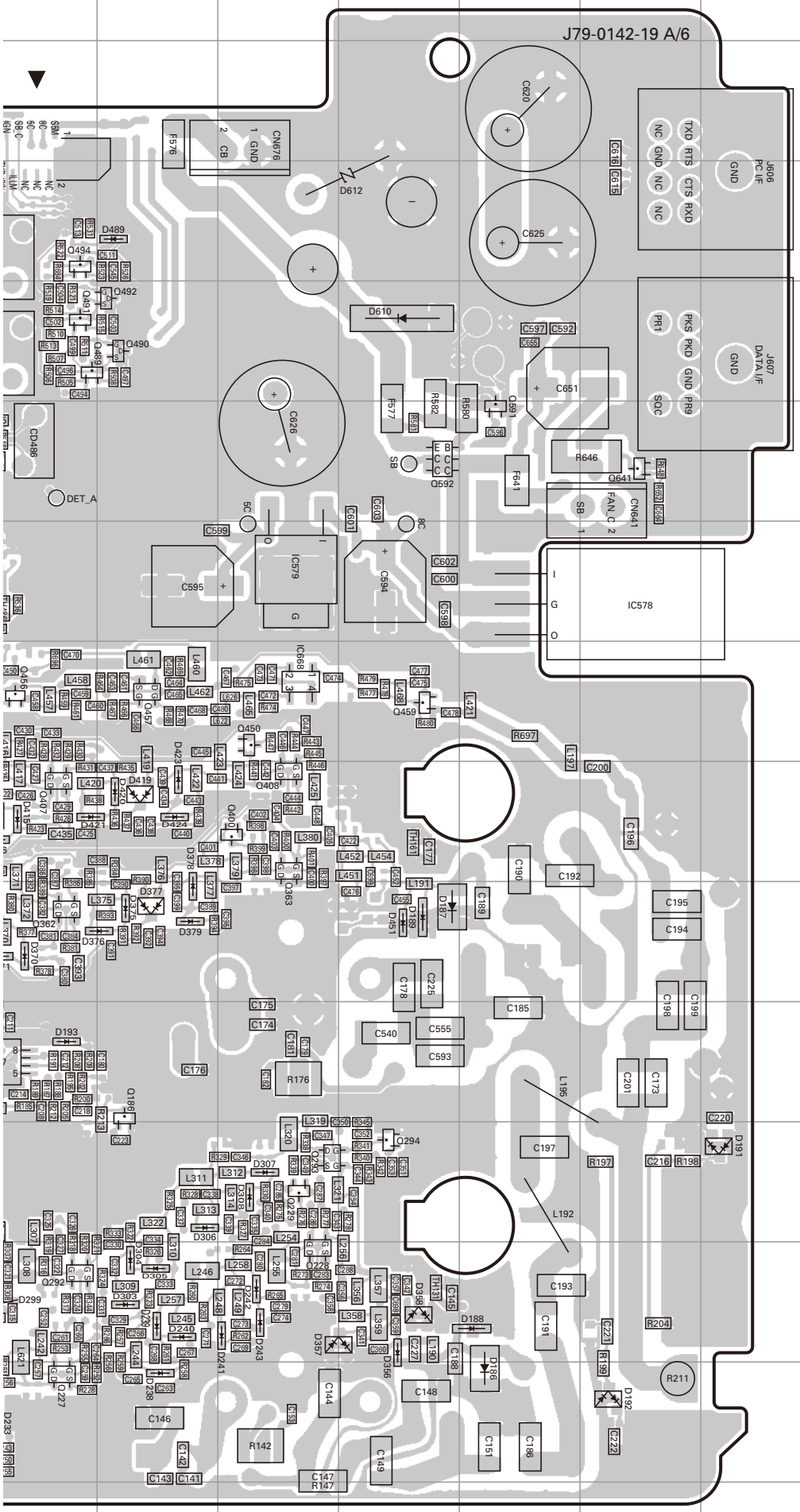
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

# TM-V71A/V71E PC BOARD

**TX-RX UNIT**
**(X57-731X-XX)(A/6):**
**TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Component side view**
**(J79-0142-19 A/6)**

| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| IC1 | 13F | Q585 | 6F |
| IC66 | 8E | Q586 | 6F |
| IC187 | 10J | Q587 | 6E |
| IC579 | 6L | Q588 | 6E |
| IC578 | 6O | Q589 | 6E |
| IC668 | 7L | Q590 | 6E |
| Q2 | 13E | Q591 | 5N |
| Q4 | 12F | Q592 | 5M |
| Q5 | 11E | Q641 | 5O |
| Q7 | 11F | D2 | 13E |
| Q67 | 8F | D4 | 12G |
| Q70 | 10E | D5 | 13D |
| Q72 | 10E | D6 | 13D |
| Q186 | 10K | D10 | 11E |
| Q226 | 12H | D11 | 11E |
| Q227 | 13J | D12 | 12E |
| Q228 | 12L | D13 | 12E |
| Q229 | 11L | D14 | 11G |
| Q291 | 11H | D15 | 11G |
| Q292 | 12J | D16 | 12G |
| Q293 | 11L | D17 | 10G |
| Q294 | 11M | D18 | 12G |
| Q361 | 9H | D19 | 10G |
| Q362 | 9J | D20 | 12E |
| Q363 | 8L | D21 | 12E |
| Q400 | 8L | D22 | 10F |
| Q406 | 7H | D23 | 10G |
| Q407 | 8J | D25 | 9G |
| Q408 | 8L | D26 | 10F |
| Q450 | 7L | D27 | 10G |
| Q456 | 7J | D28 | 10G |
| Q457 | 7K | D29 | 9G |
| Q459 | 7M | D30 | 10E |
| Q489 | 4J | D31 | 10E |
| Q490 | 4K | D32 | 9E |
| Q491 | 4J | D33 | 9E |
| Q492 | 4K | D34 | 9E |
| Q493 | 5I | D35 | 9E |
| Q494 | 3J | D67 | 8F |
| Q550 | 5H | D70 | 8F |
| Q578 | 7E | D71 | 8F |
| Q579 | 7F | D160 | 10G |
| Q582 | 7E | D161 | 10G |
| Q583 | 7F | D186 | 13N |
| Q584 | 7F | D187 | 9M |






**TX-RX UNIT**
**(X57-731X-XX)(A/6):**
**TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Component side view**
**(J79-0142-19 A/6)**

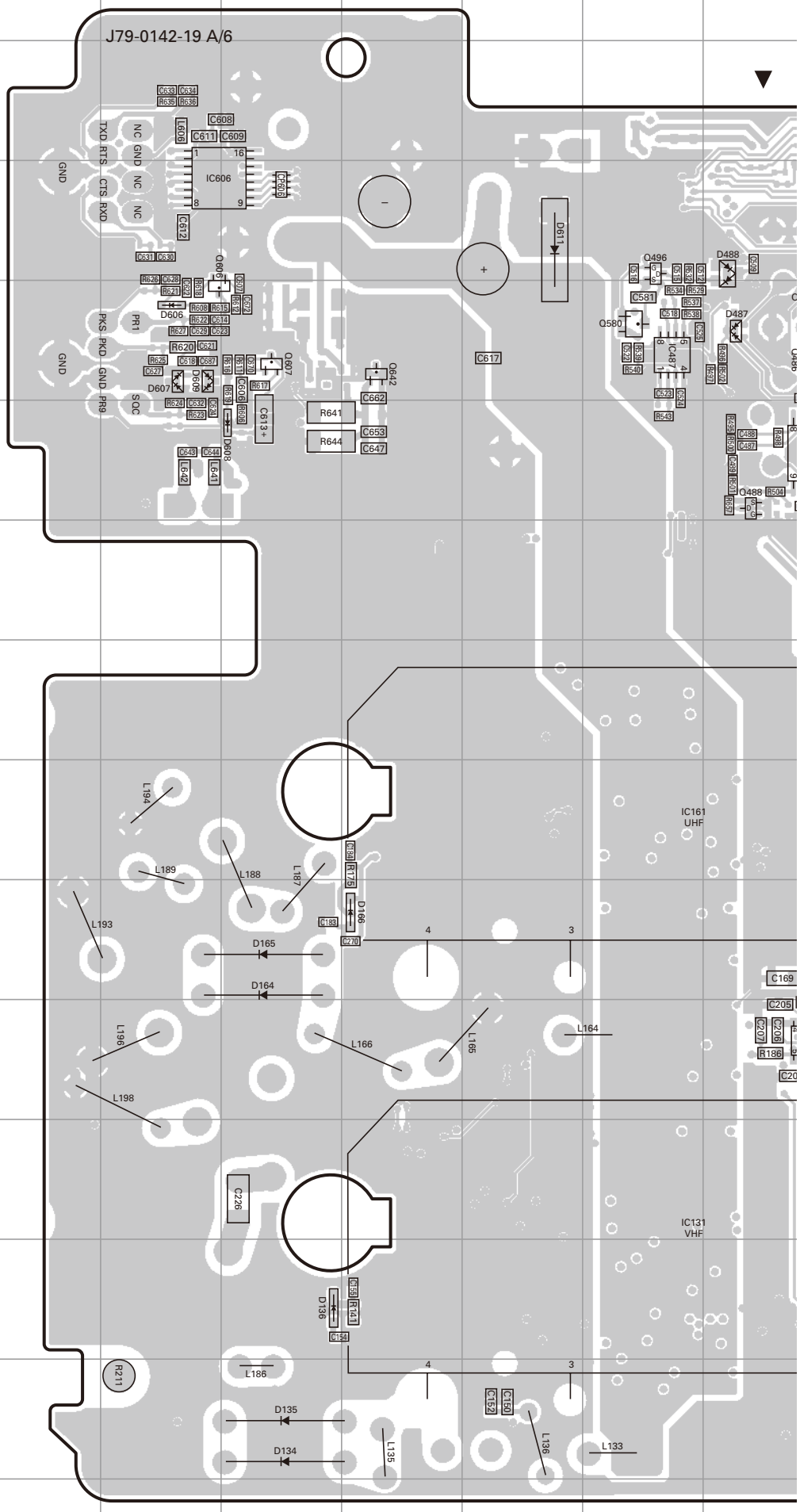
| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| D188 | 12N | D358 | 12M |
| D189 | 9M | D361 | 6I |
| D190 | 10I | D362 | 9G |
| D191 | 11P | D363 | 9H |
| D192 | 13O | D364 | 9I |
| D193 | 10J | D365 | 9I |
| D226 | 6I | D367 | 9I |
| D227 | 12G | D368 | 9I |
| D229 | 12I | D370 | 9J |
| D230 | 12I | D371 | 9J |
| D231 | 12I | D375 | 9K |
| D232 | 13I | D376 | 9K |
| D233 | 13J | D377 | 9K |
| D234 | 13J | D378 | 9K |
| D238 | 13K | D379 | 9K |
| D239 | 12K | D406 | 6H |
| D240 | 12K | D407 | 7G |
| D241 | 12L | D408 | 7H |
| D242 | 12L | D409 | 8I |
| D243 | 12L | D410 | 8I |
| D291 | 6H | D412 | 8I |
| D292 | 11G | D413 | 8I |
| D294 | 11I | D415 | 8J |
| D295 | 11I | D416 | 8J |
| D296 | 11I | D419 | 8K |
| D297 | 12I | D420 | 8K |
| D298 | 12J | D421 | 8J |
| D299 | 12J | D423 | 8K |
| D303 | 12K | D424 | 8K |
| D304 | 12K | D451 | 9M |
| D305 | 12K | D456 | 6H |
| D306 | 11K | D457 | 7G |
| D307 | 11L | D489 | 3K |
| D308 | 11L | D610 | 4M |
| D356 | 12M | D612 | 3M |
| D357 | 12L | | |

Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

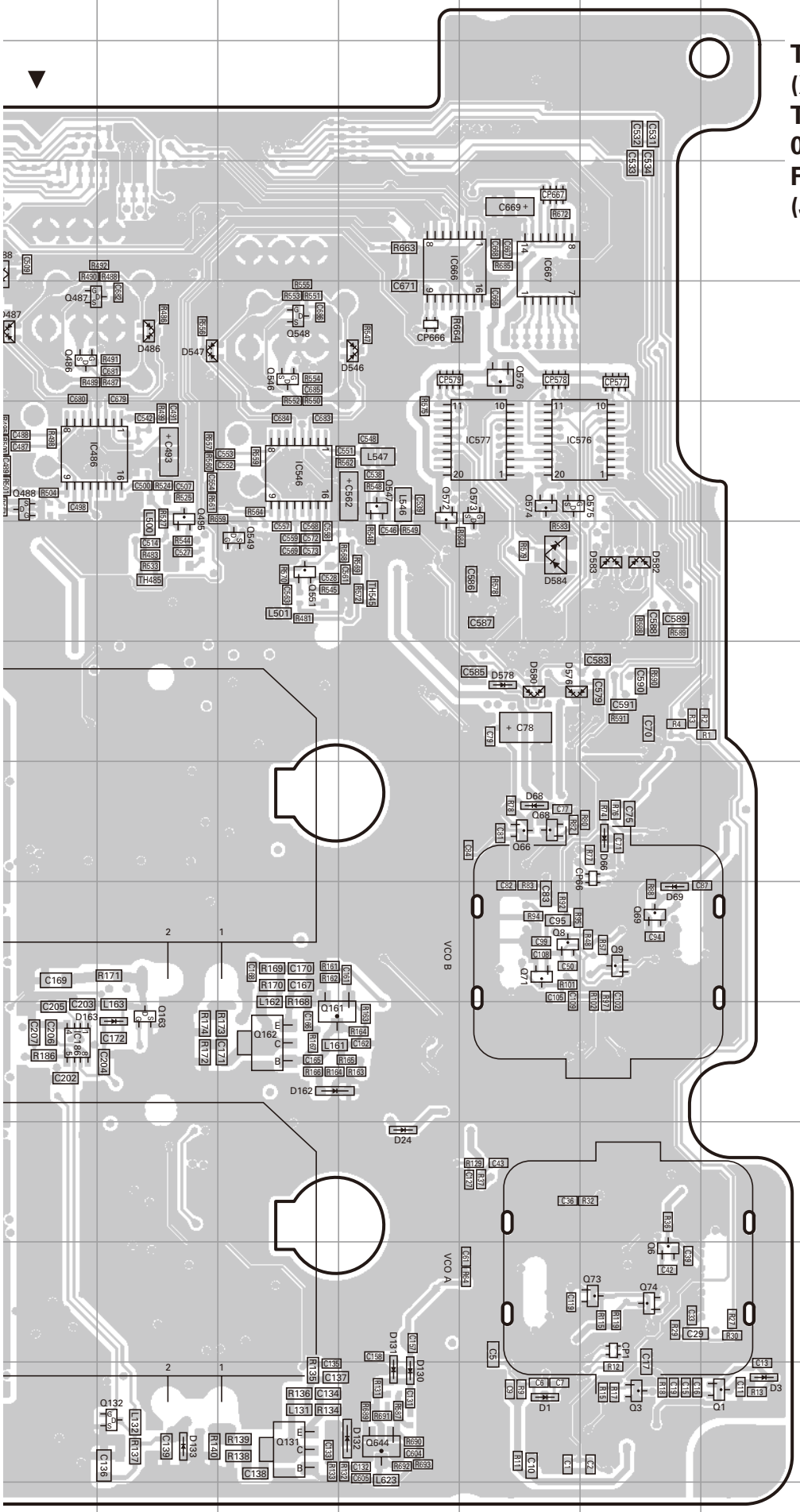
# TM-V71A/V71E PC BOARD

**TX-RX UNIT**
**(X57-731X-XX)(A/6):**
**TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Foil side view**
**(J79-0142-19 A/6)**

| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| IC131 | 11I | Q576 | 4N |
| IC161 | 8I | Q580 | 4I |
| IC186 | 10J | Q606 | 4E |
| IC486 | 5J | Q607 | 4F |
| IC487 | 4I | Q642 | 4G |
| IC546 | 5L | Q644 | 13M |
| IC576 | 5O | D1 | 13N |
| IC577 | 5N | D3 | 13P |
| IC606 | 3E | D24 | 11M |
| IC666 | 3M | D66 | 8O |
| IC667 | 3N | D68 | 8N |
| Q1 | 13P | D69 | 9O |
| Q3 | 13O | D130 | 13M |
| Q6 | 12O | D131 | 13M |
| Q8 | 9N | D132 | 13M |
| Q9 | 9O | D133 | 13K |
| Q66 | 8N | D134 | 13F |
| Q68 | 8N | D135 | 13F |
| Q69 | 9O | D136 | 12F |
| Q71 | 9N | D162 | 10L |
| Q73 | 12O | D163 | 10K |
| Q74 | 12O | D164 | 9F |
| Q131 | 13L | D165 | 9F |
| Q132 | 13K | D166 | 9G |
| Q161 | 10L | D486 | 4K |
| Q162 | 10L | D487 | 4J |
| Q163 | 10K | D488 | 3J |
| Q486 | 4J | D546 | 4M |
| Q487 | 4J | D547 | 4K |
| Q488 | 5J | D576 | 7N |
| Q495 | 5K | D578 | 7N |
| Q496 | 3I | D580 | 7N |
| Q546 | 4L | D582 | 6O |
| Q547 | 5M | D583 | 6O |
| Q548 | 4L | D584 | 6N |
| Q549 | 6L | D606 | 4E |
| Q551 | 6L | D607 | 4E |
| Q572 | 5M | D608 | 5F |
| Q573 | 5N | D609 | 4E |
| Q574 | 5N | D611 | 3H |
| Q575 | 5N | | |



**TX-RX UNIT**
**(X57-731X-XX)(A/6):**
**TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Foil side view**
**(J79-0142-19 A/6)**

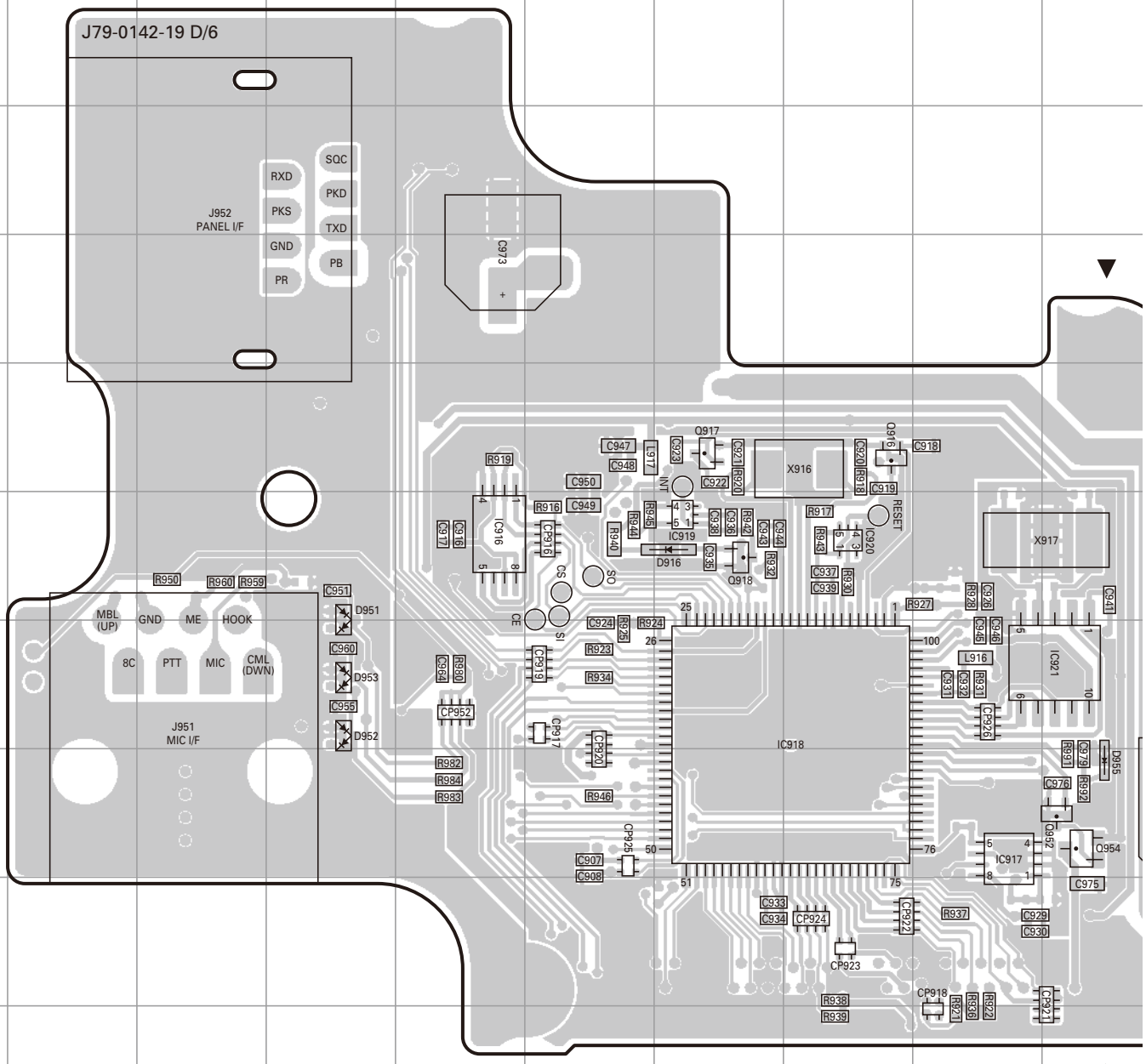



Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

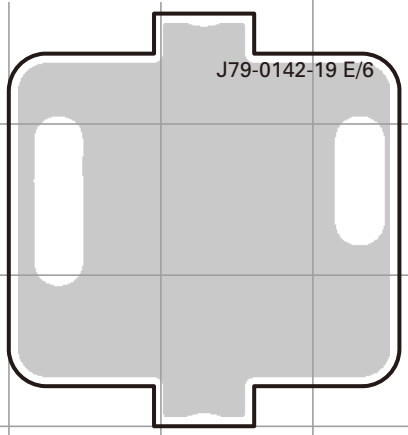
# TM-V71A/V71E PC BOARD

## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION

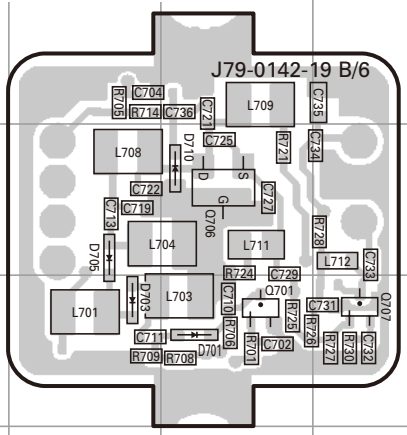
**0-11 : K 0-21 : M4 2-71 : E Component side view (J79-0142-19 D/6)**



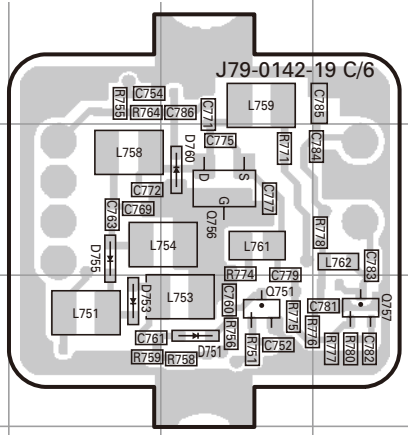

## TX-RX UNIT (E/6) : VCO A SECTION




## TX-RX UNIT (B/6) : VCO A SECTION

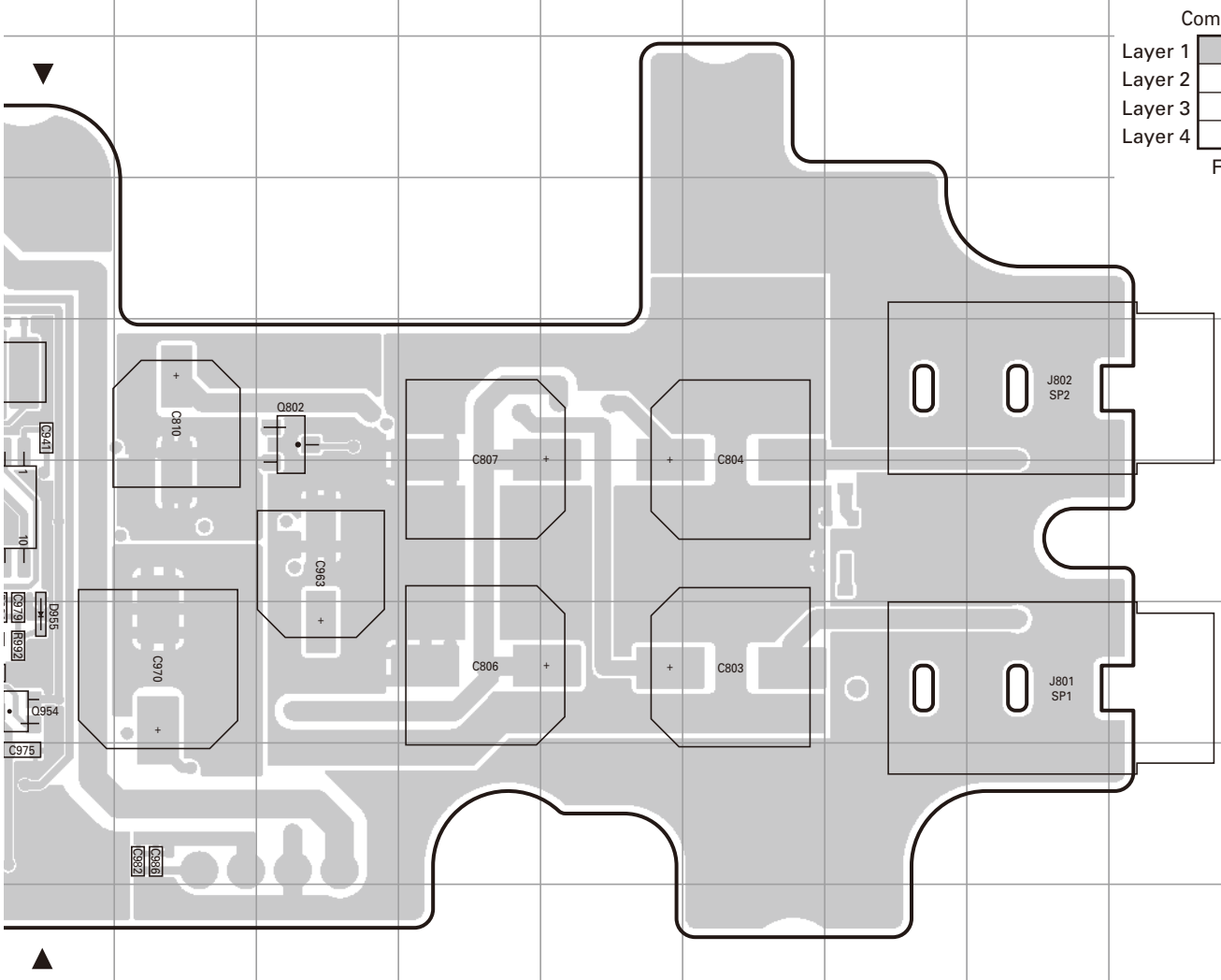



## TX-RX UNIT (C/6) : VCO B SECTION

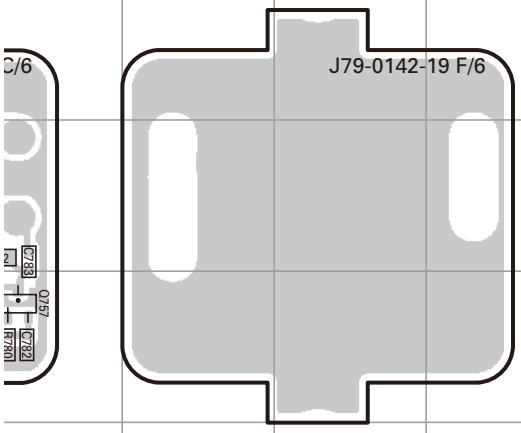


## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION

**0-11 : K 0-21 : M4 2-71 : E Component side view (J79-0142-19 D/6)**




## TX-RX UNIT (F/6) : VCO B SECTION



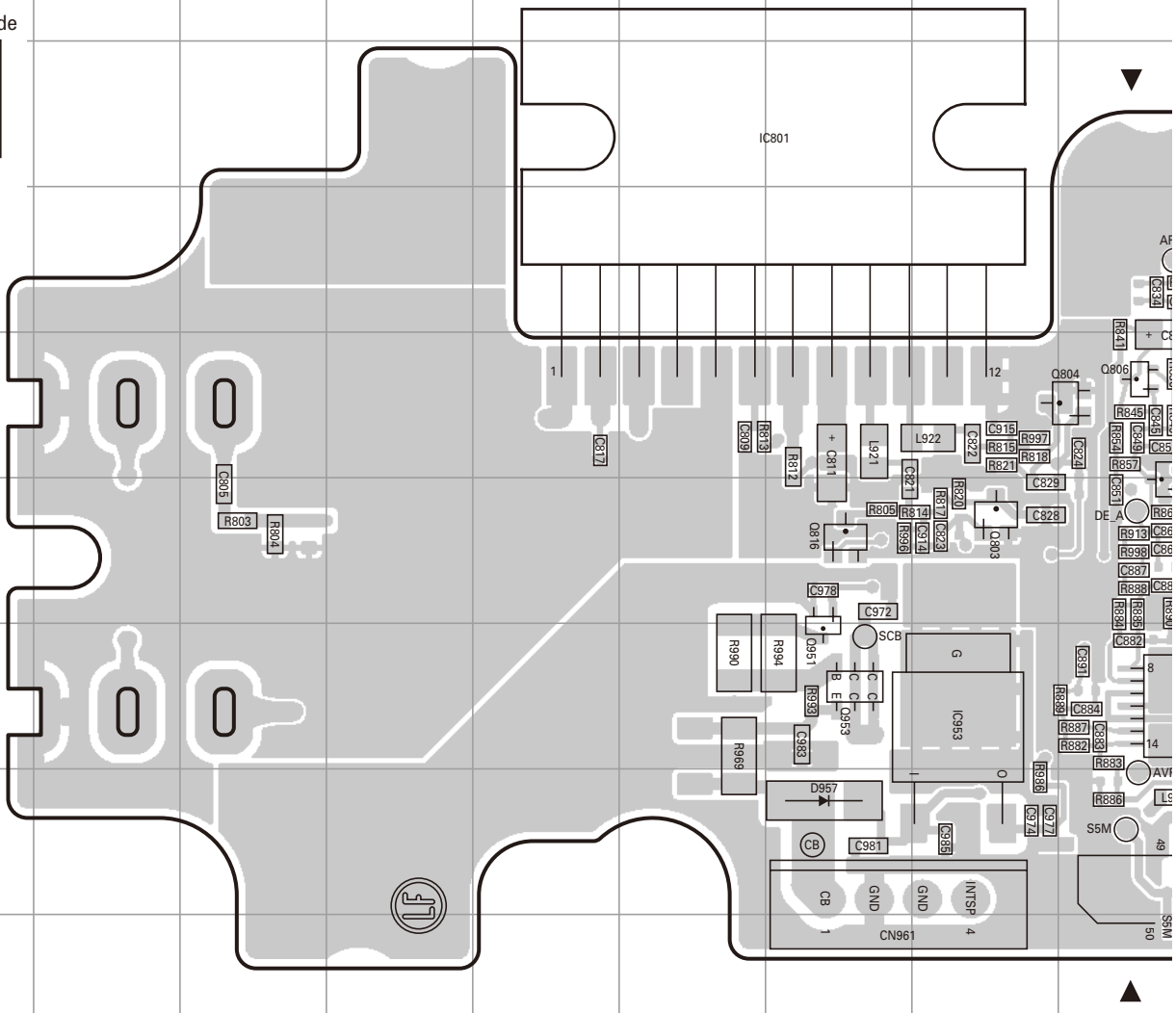

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|
| IC916 | 6E | Q757 | 13J | D751 | 13I |
| IC917 | 8I | Q802 | 6L | D753 | 13H |
| IC918 | 7H | Q916 | 5H | D755 | 12H |
| IC919 | 6G | Q917 | 5G | D760 | 12I |
| IC920 | 6H | Q918 | 6G | D916 | 6G |
| IC921 | 7J | Q952 | 8J | D951 | 6D |
| Q701 | 13F | Q954 | 8J | D952 | 7D |
| Q706 | 12F | D701 | 13F | D953 | 7D |
| Q707 | 13G | D703 | 13E | D955 | 8J |
| Q751 | 13I | D705 | 12E | | |
| Q756 | 12I | D710 | 12F | | |

# TM-V71A/V71E PC BOARD

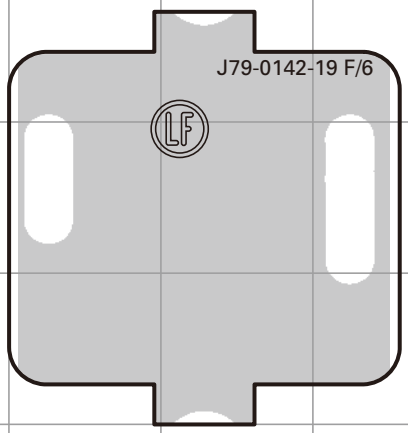
## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION

**0-11 : K  0-21 : M4  2-71 : E  Foil side view (J79-0142-19 D/6)**

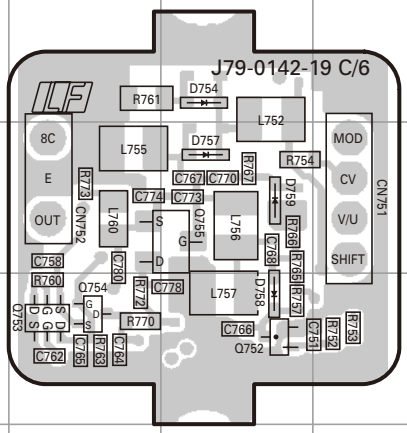
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side



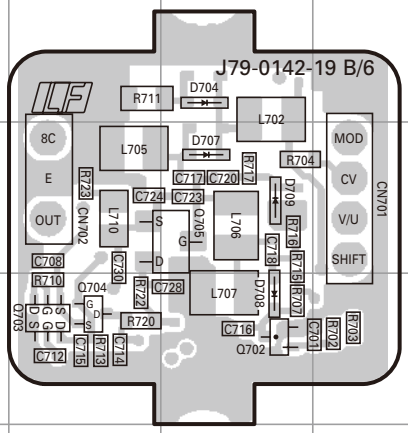

## TX-RX UNIT (F/6) : VCO B SECTION




## TX-RX UNIT (C/6) : VCO B SECTION

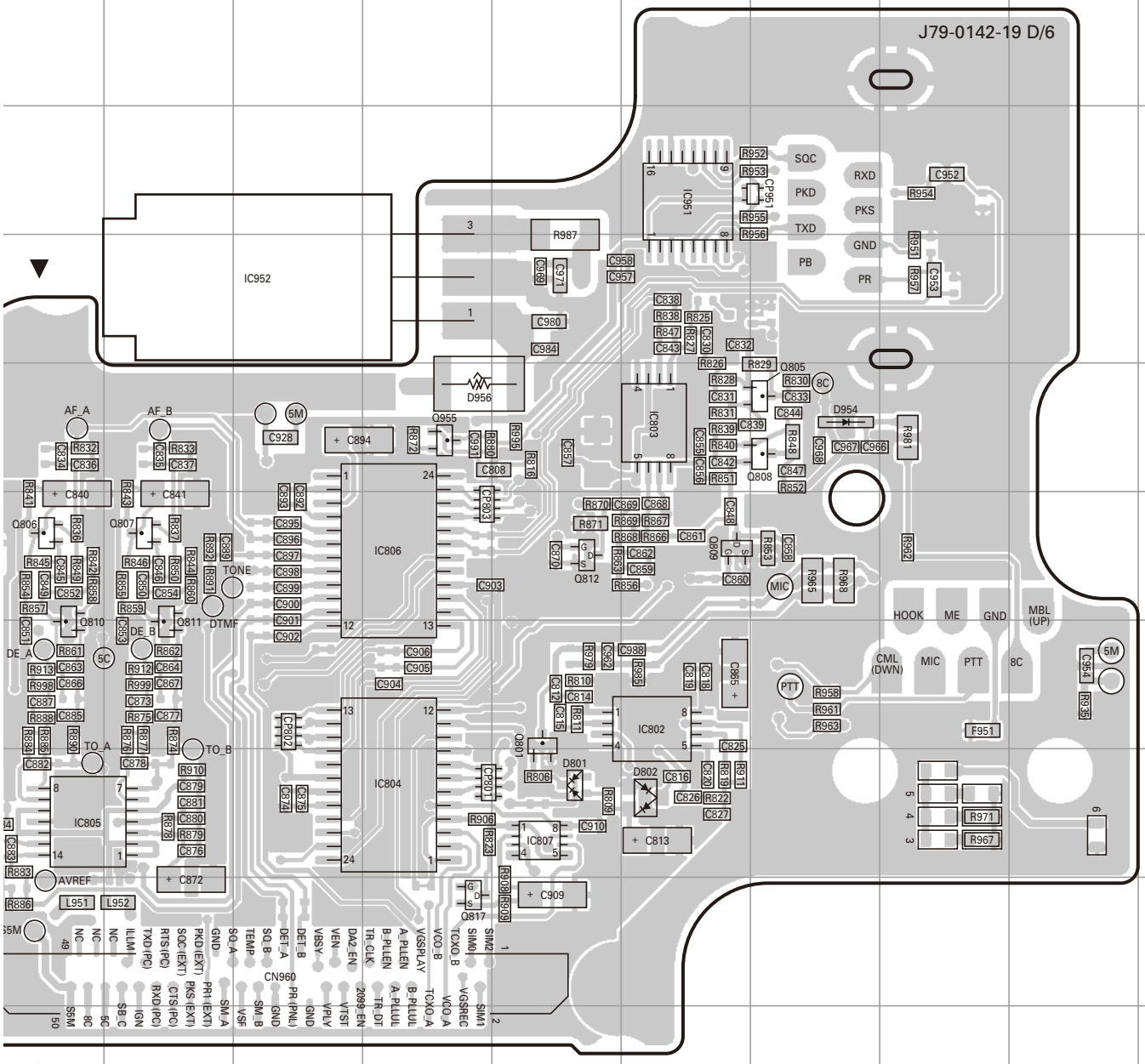



## TX-RX UNIT (B/6) : VCO A SECTION

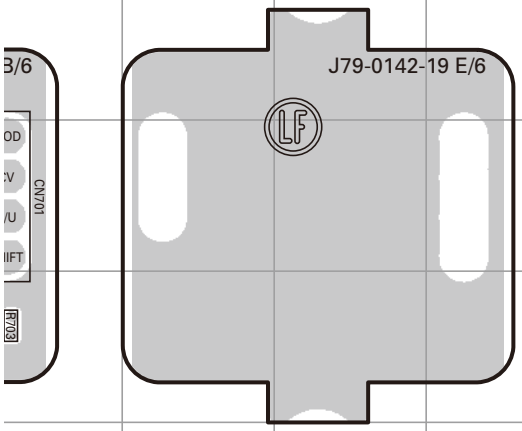


# PC BOARD TM-V71A/V71E

## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION
## 0-11 : K 0-21 : M4 2-71 : E Foil side view (J79-0142-19 D/6)

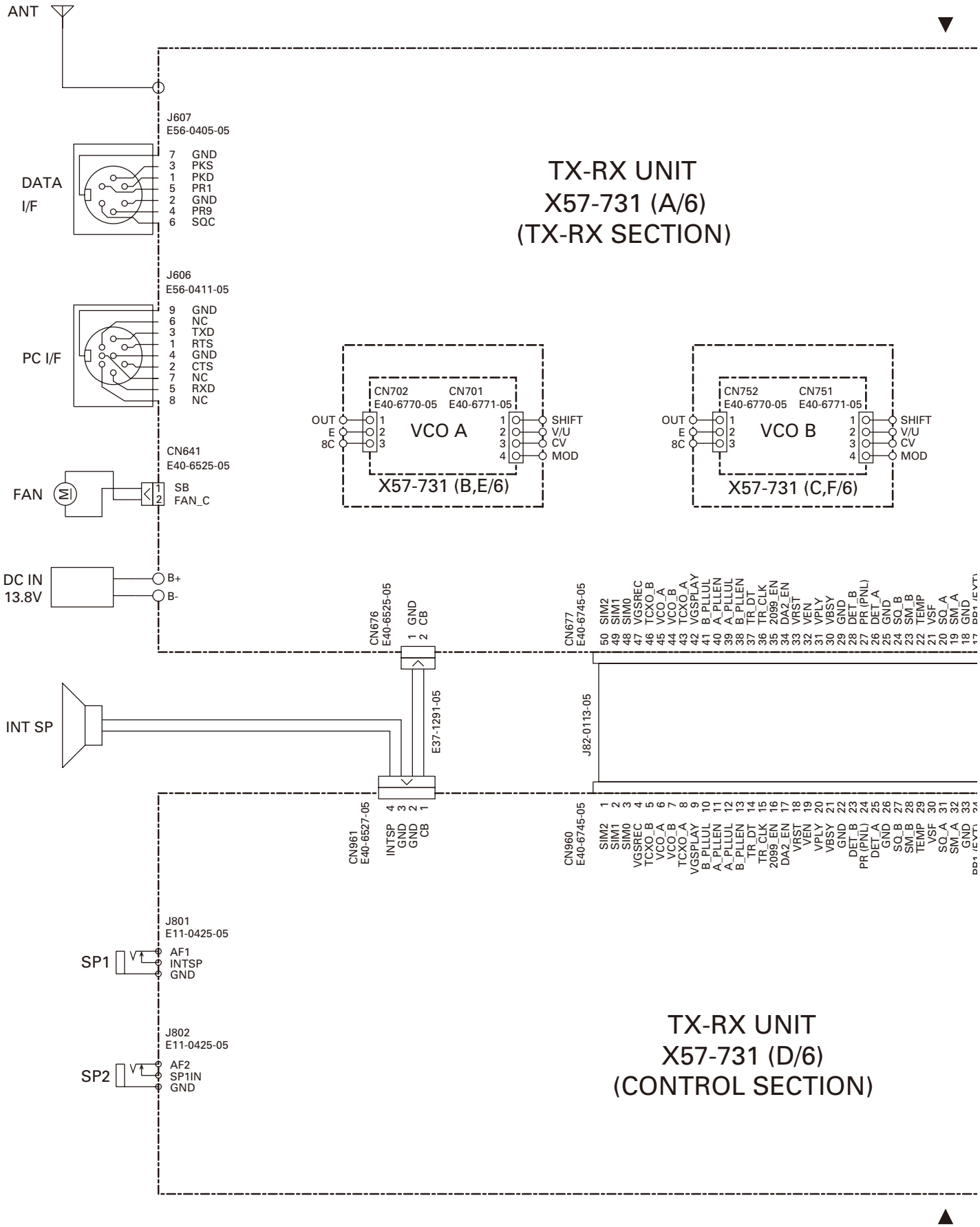



## TX-RX UNIT (E/6) : VCO A SECTION

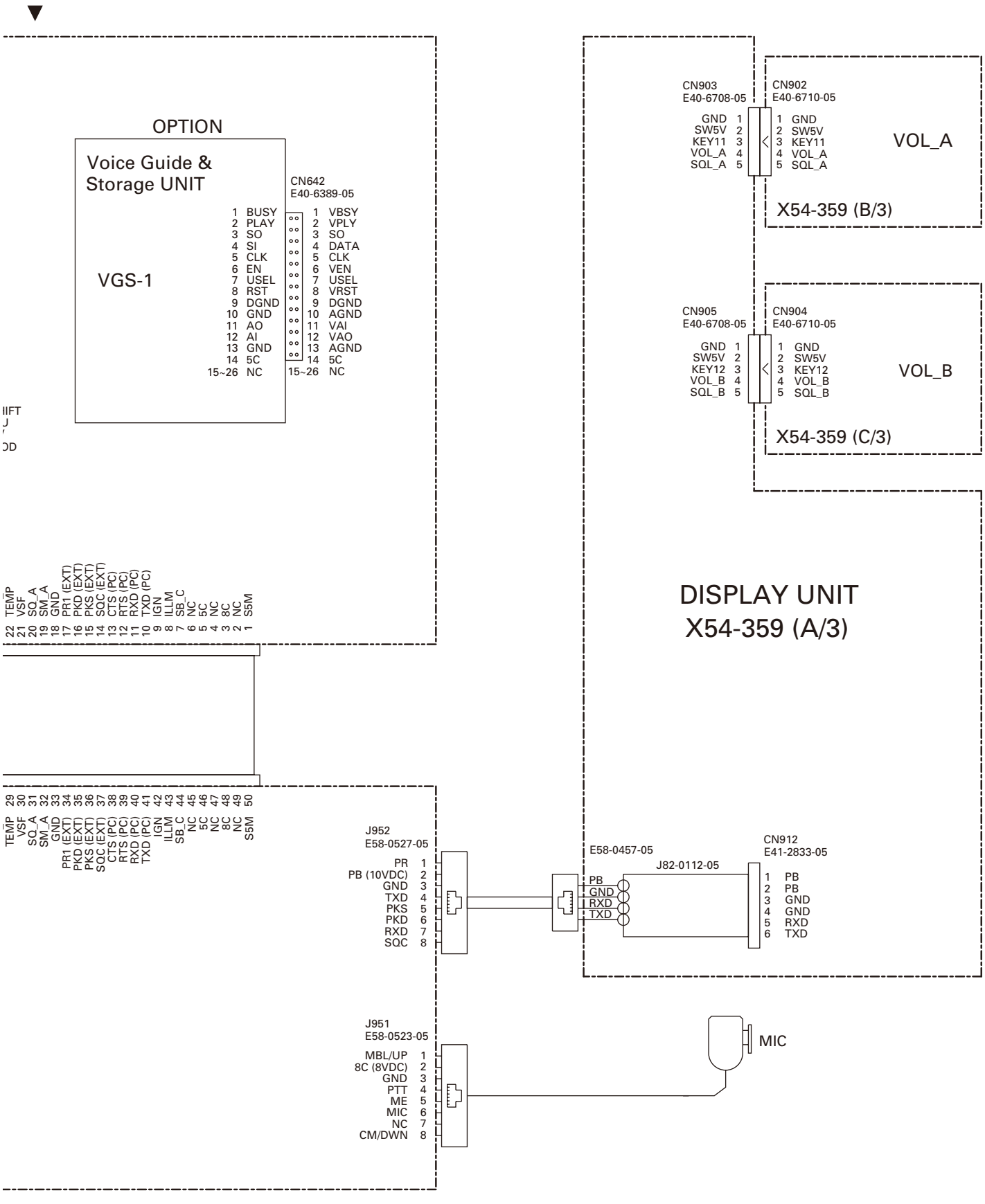



| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|---|---|
| IC801 | 4H | Q704 | 13H | Q808 | 5P | D708 | 13I |
| IC802 | 7O | Q705 | 12I | Q809 | 6O | D709 | 12I |
| IC803 | 5O | Q752 | 13F | Q810 | 7J | D754 | 11F |
| IC804 | 8M | Q753 | 13E | Q811 | 7K | D757 | 12F |
| IC805 | 8J | Q754 | 13E | Q812 | 6N | D758 | 13F |
| IC806 | 6M | Q755 | 12F | Q816 | 7H | D759 | 12F |
| IC807 | 8N | Q801 | 7N | Q817 | 9M | D801 | 8N |
| IC951 | 3O | Q803 | 7I | Q951 | 8H | D802 | 8O |
| IC952 | 4L | Q804 | 6J | Q953 | 8H | D954 | 5P |
| IC953 | 8I | Q805 | 5P | Q955 | 5M | D956 | 5M |
| Q702 | 13I | Q806 | 6J | D704 | 11I | D957 | 9H |
| Q703 | 13H | Q807 | 6K | D707 | 12I | | |

# INTERCONNECTION DIAGRAM

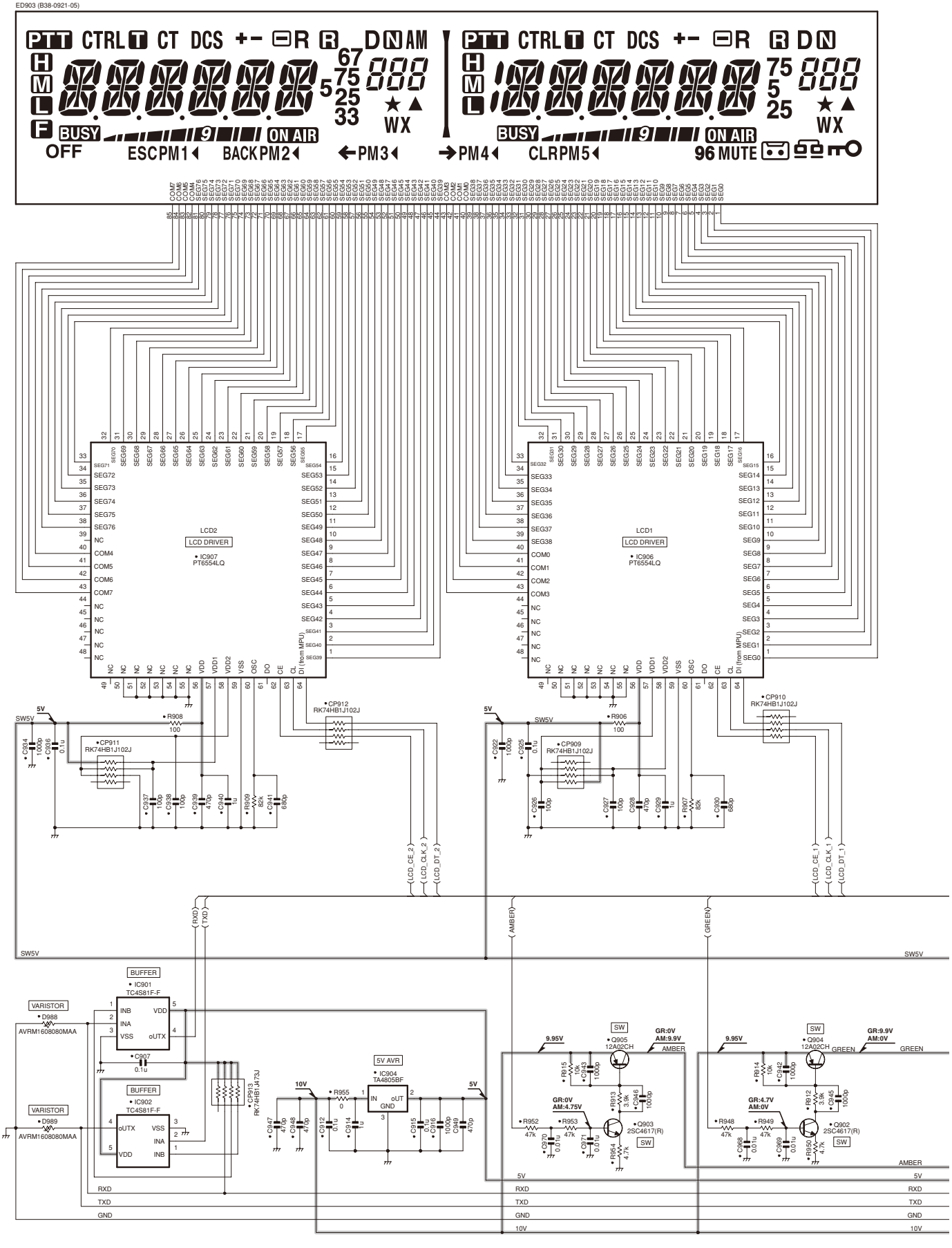


# INTERCONNECTION DIAGRAM

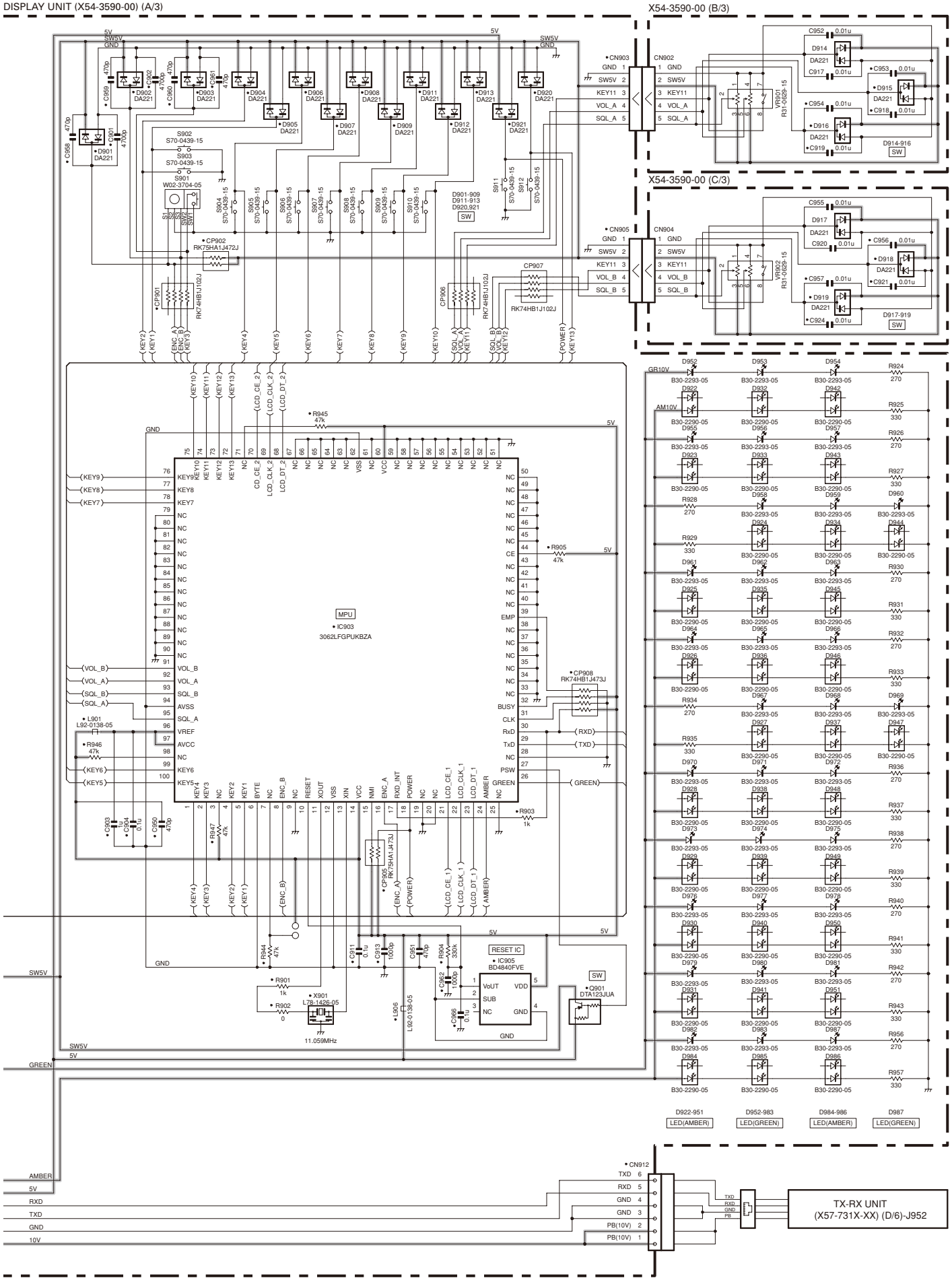


# TM-V71A/V71E SCHEMATIC DIAGRAM

DISPLAY UNIT (X54-3590-00) (A/3)



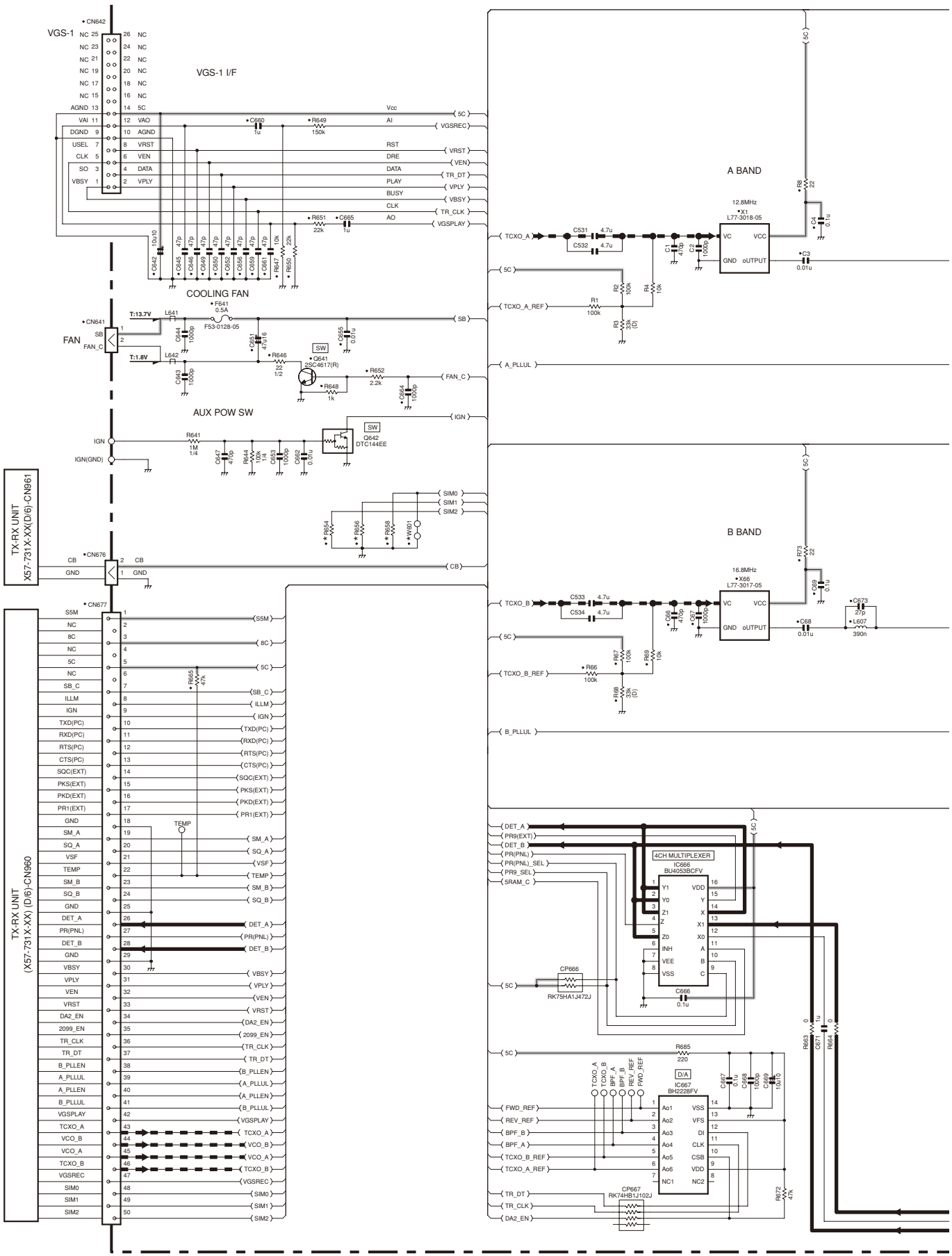
# SCHEMATIC DIAGRAM TM-V71A/V71E




**Note : The components marked with a dot (•) are parts of layer 1.**

# TM-V71A/V71E SCHEMATIC DIAGRAM

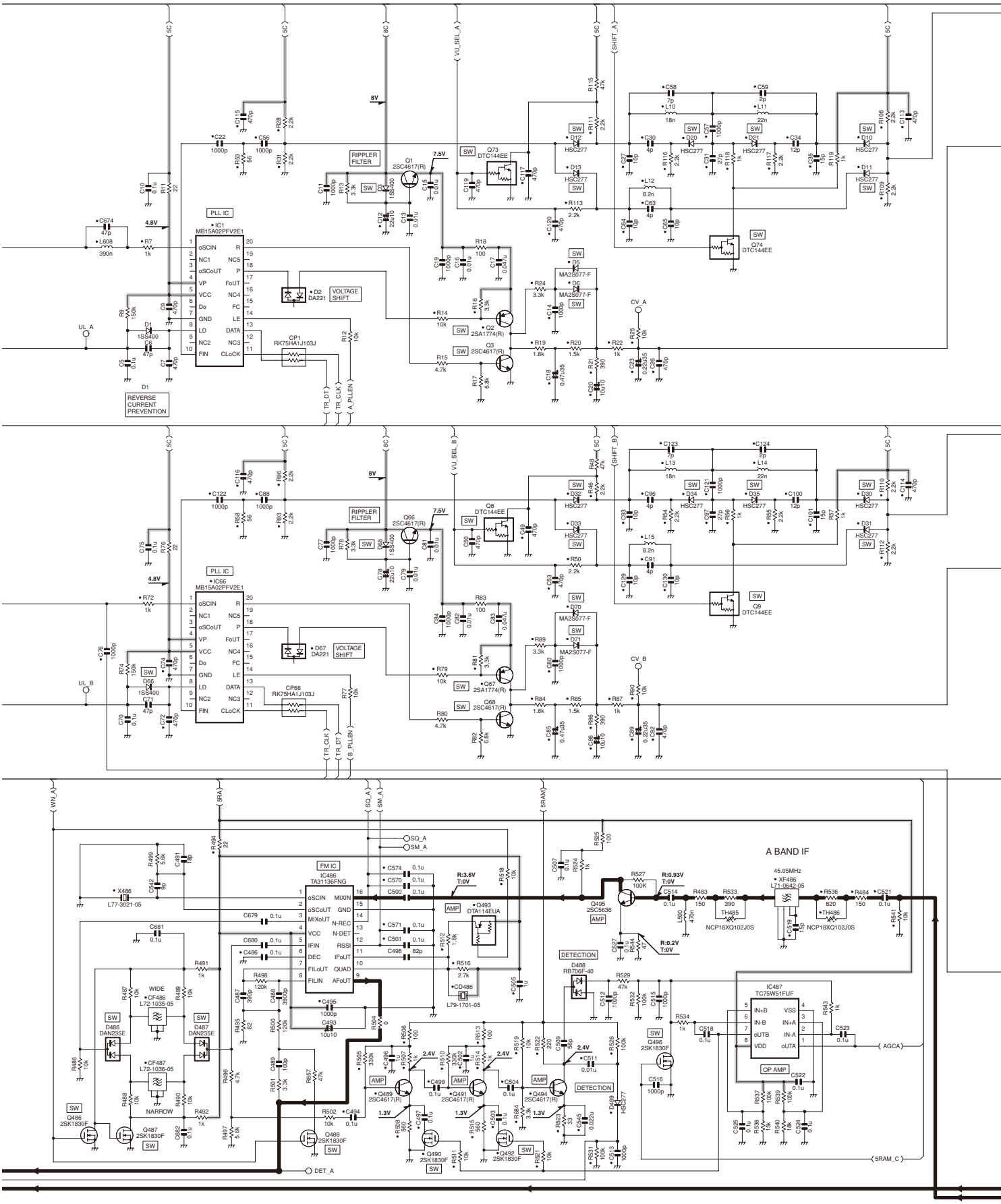
TX-RX UNIT (X57-731X-XX) (A/6): TX-RX SECTION




| X57-731X-XX | | R654 | R656 | R658 | W601 |
|---|---|---|---|---|---|
| 0-11 | K | 0 | 0 | NO | YES |
| 2-71 | E | NO | NO | 0 | NO |
| 0-21 | M4 | NO | 0 | NO | YES |

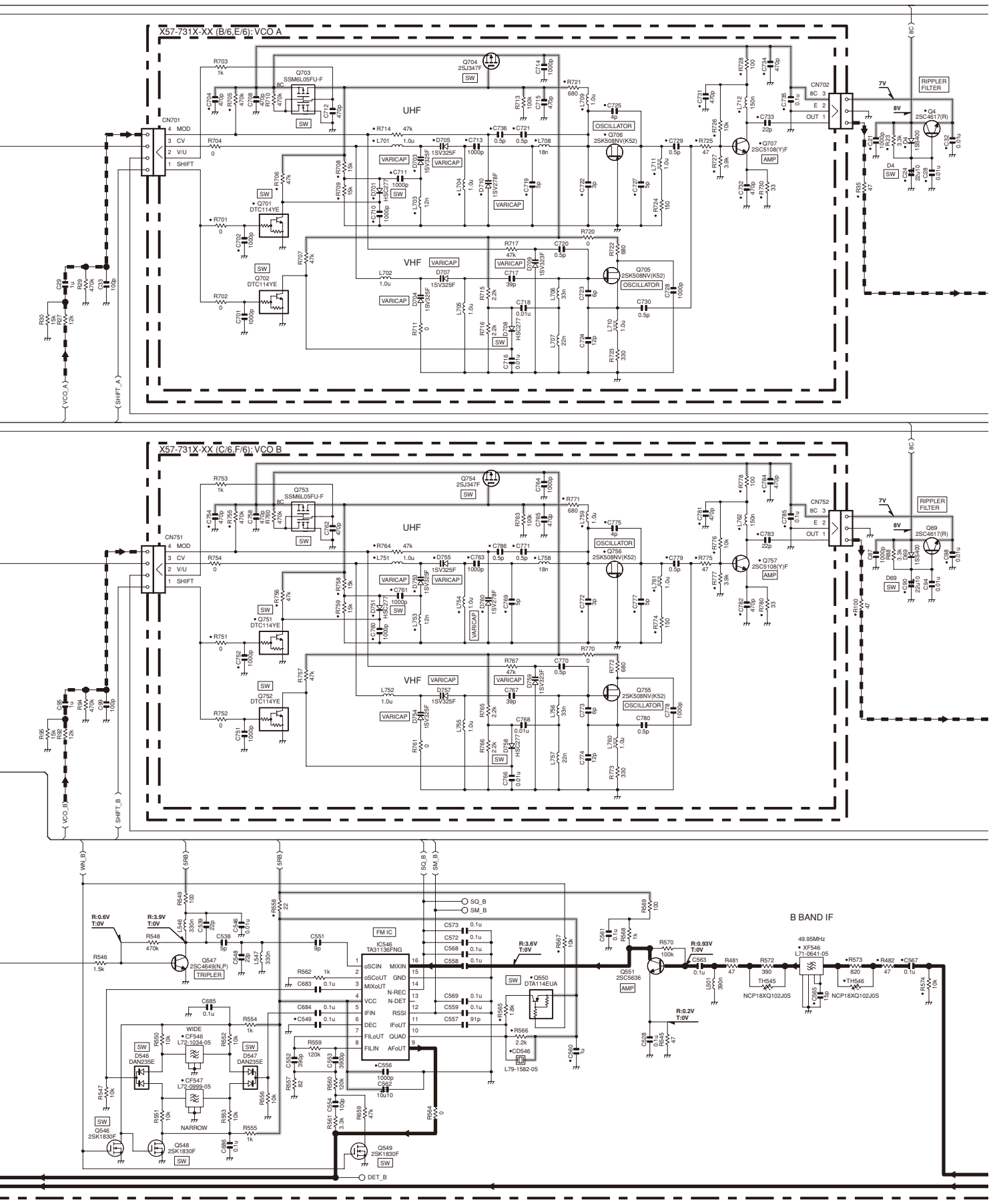
# SCHEMATIC DIAGRAM TM-V71A/V71E

TX-RX UNIT (X57-731X-XX) (A/6): TX-RX SECTION



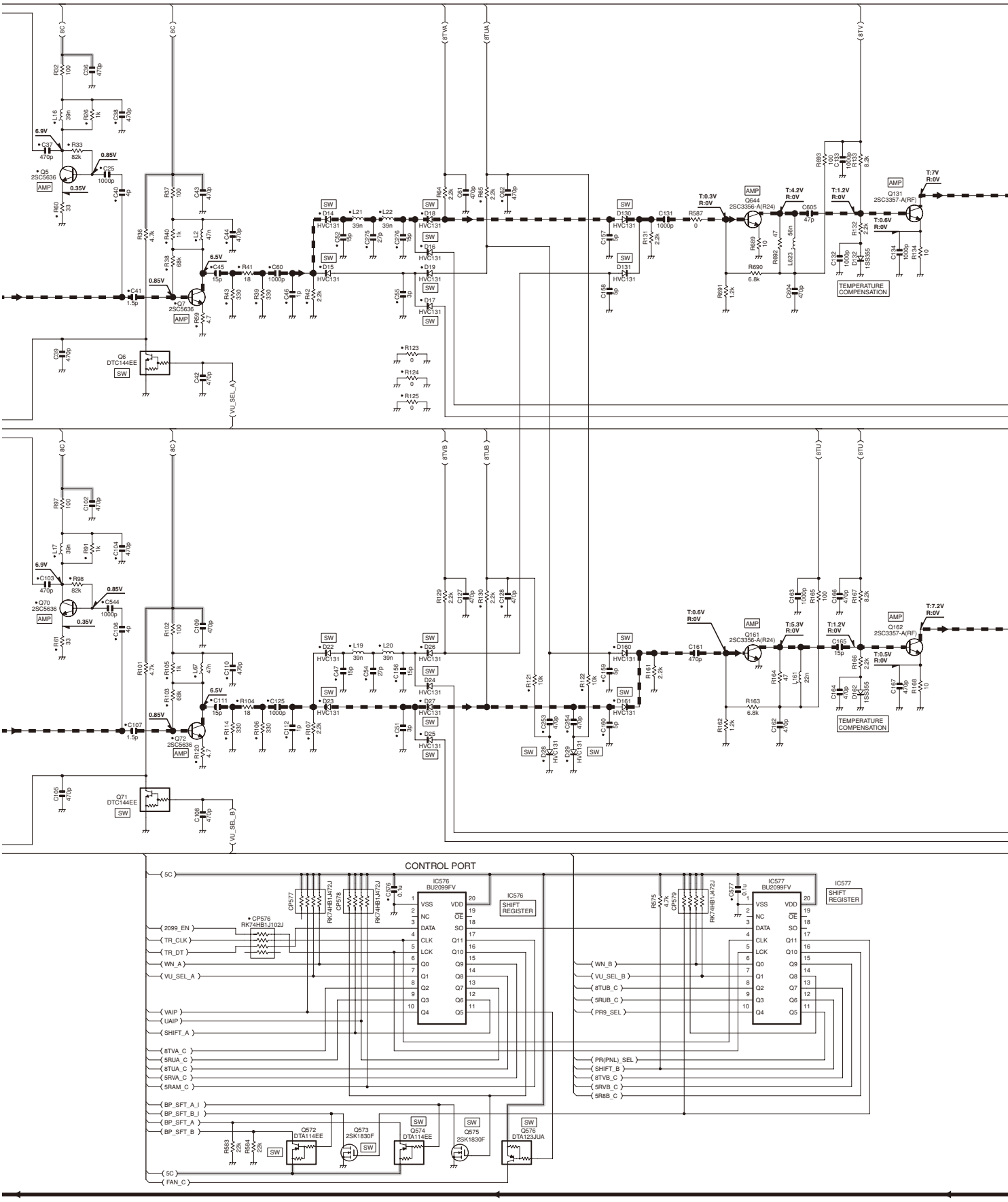
# TM-V71A/V71E SCHEMATIC DIAGRAM





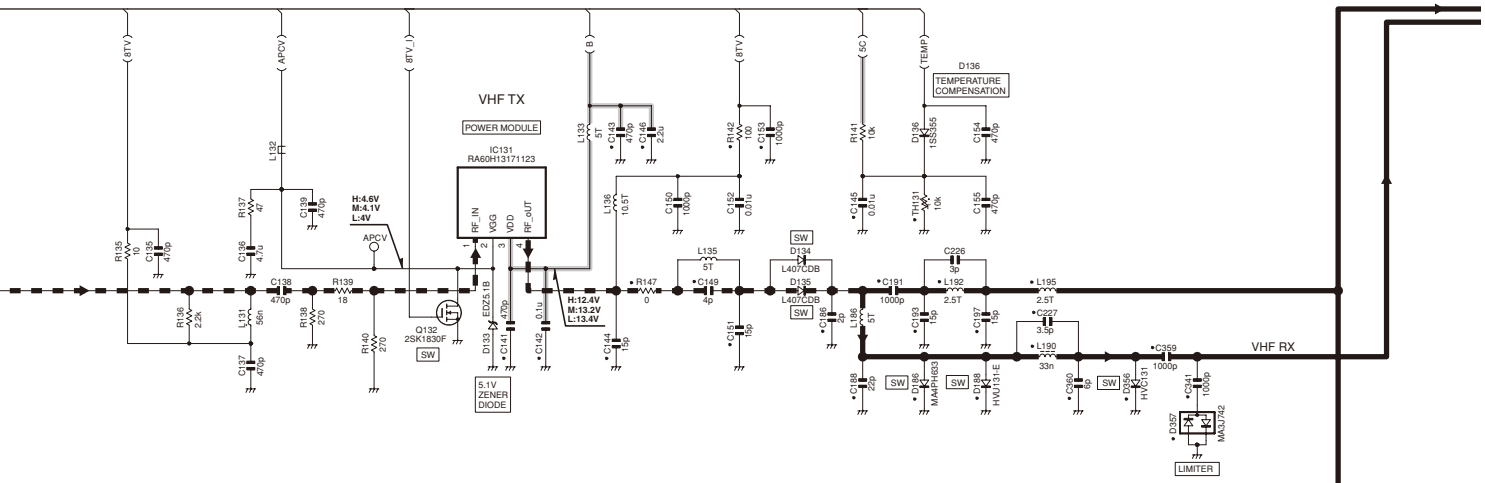
# SCHEMATIC DIAGRAM TM-V71A/V71E

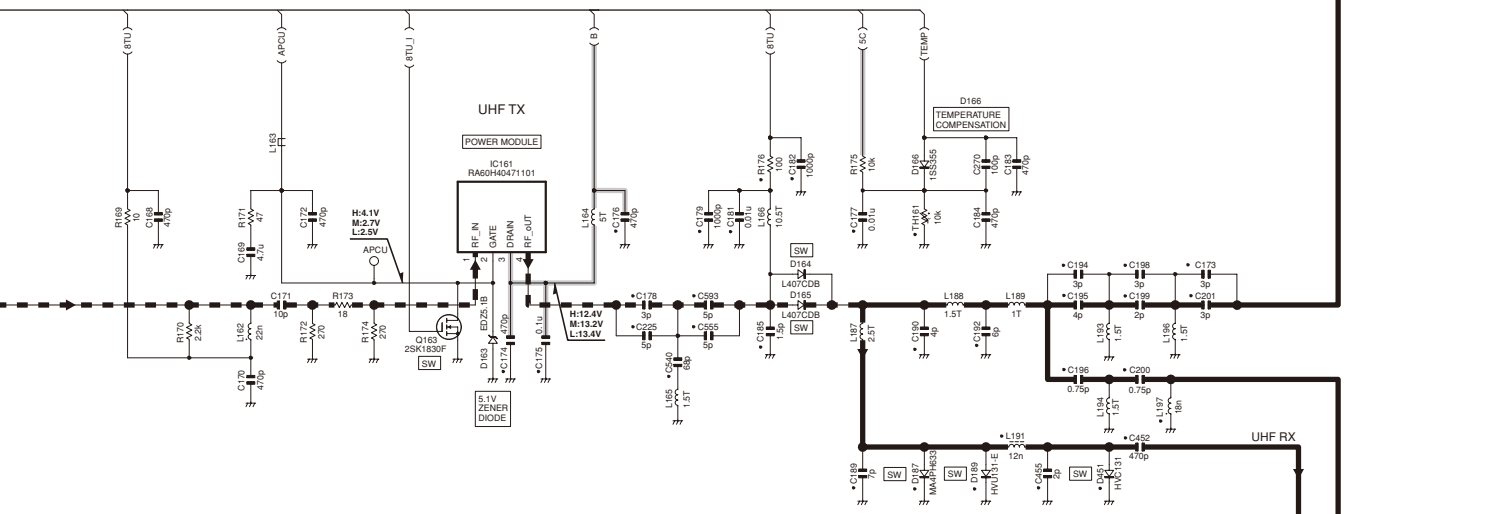
TX-RX UNIT (X57-731X-XX) (A/6): TX-RX SECTION

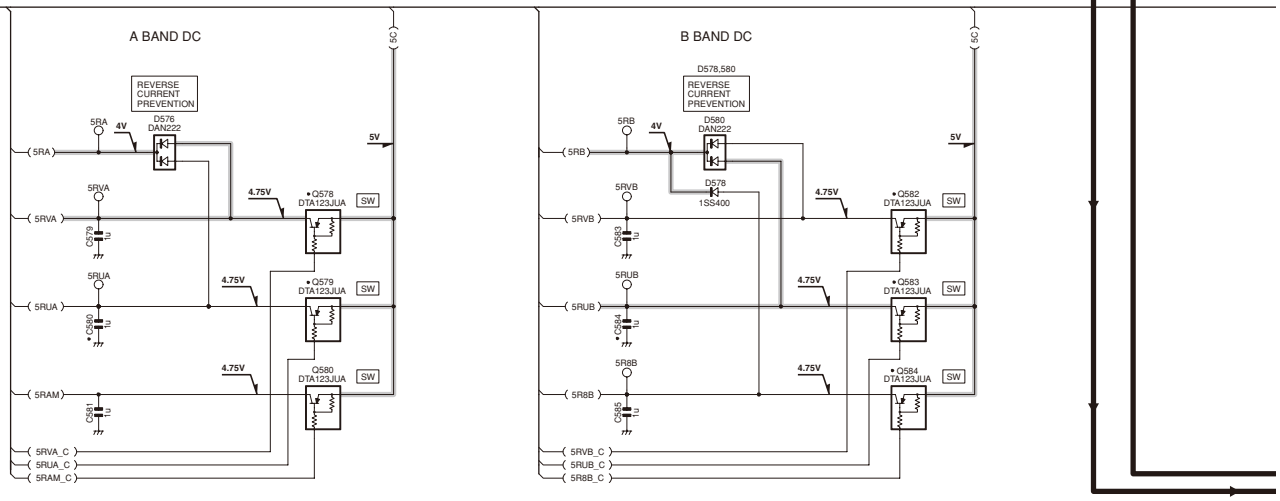


# TM-V71A/V71E SCHEMATIC DIAGRAM



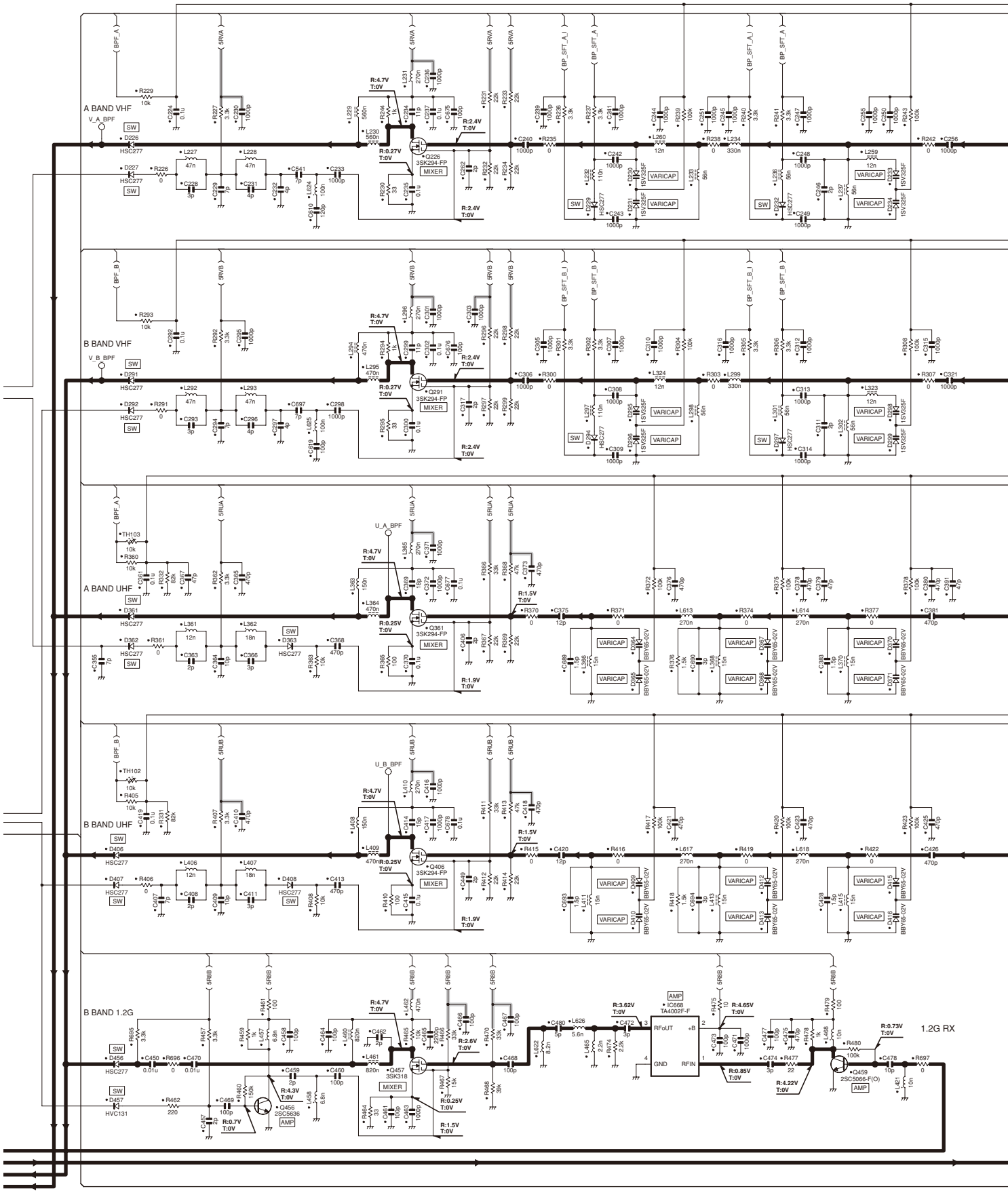


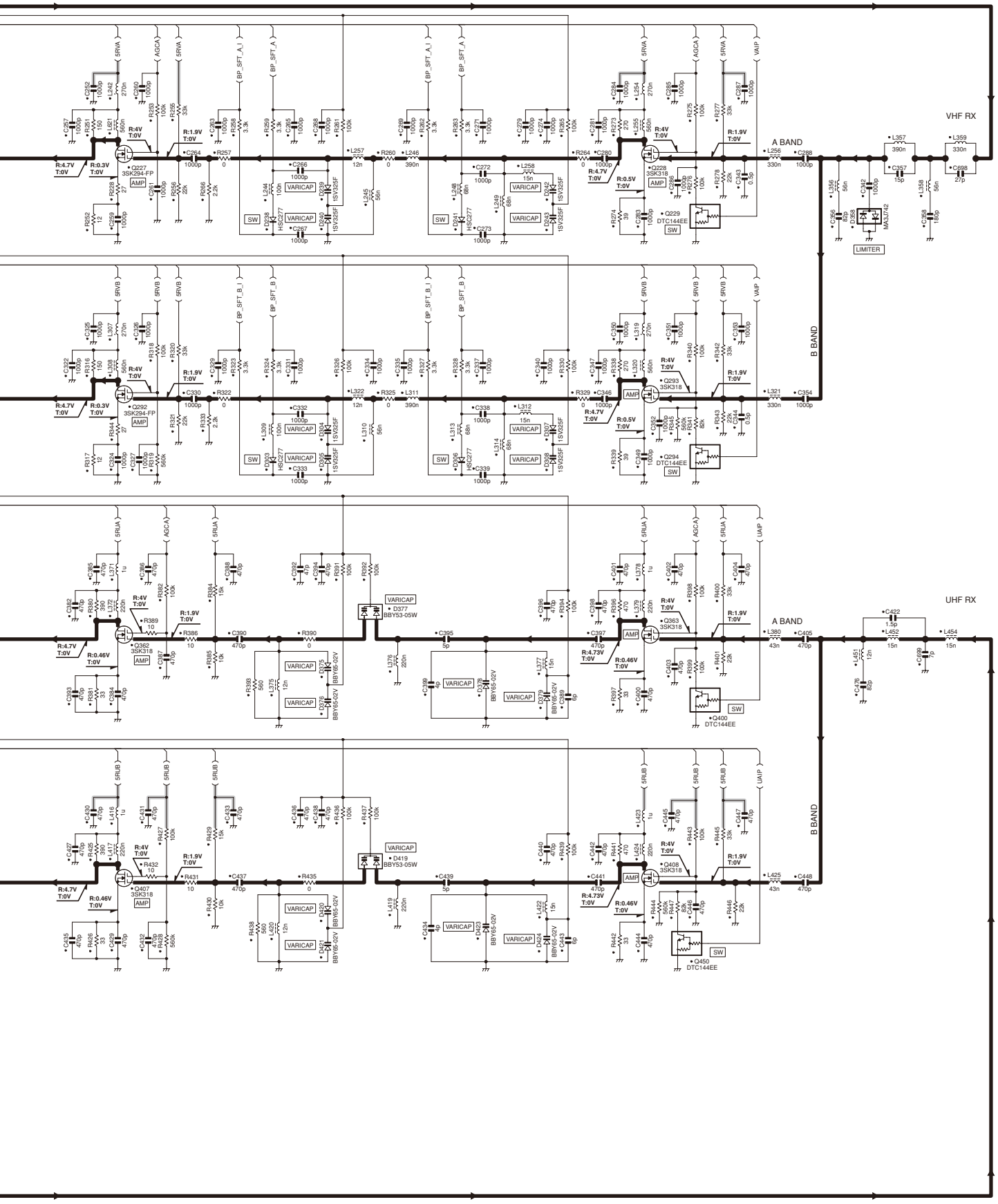
# SCHEMATIC DIAGRAM TM-V71A/V71E

TX-RX UNIT (X57-731X-XX) (A/6): TX-RX SECTION



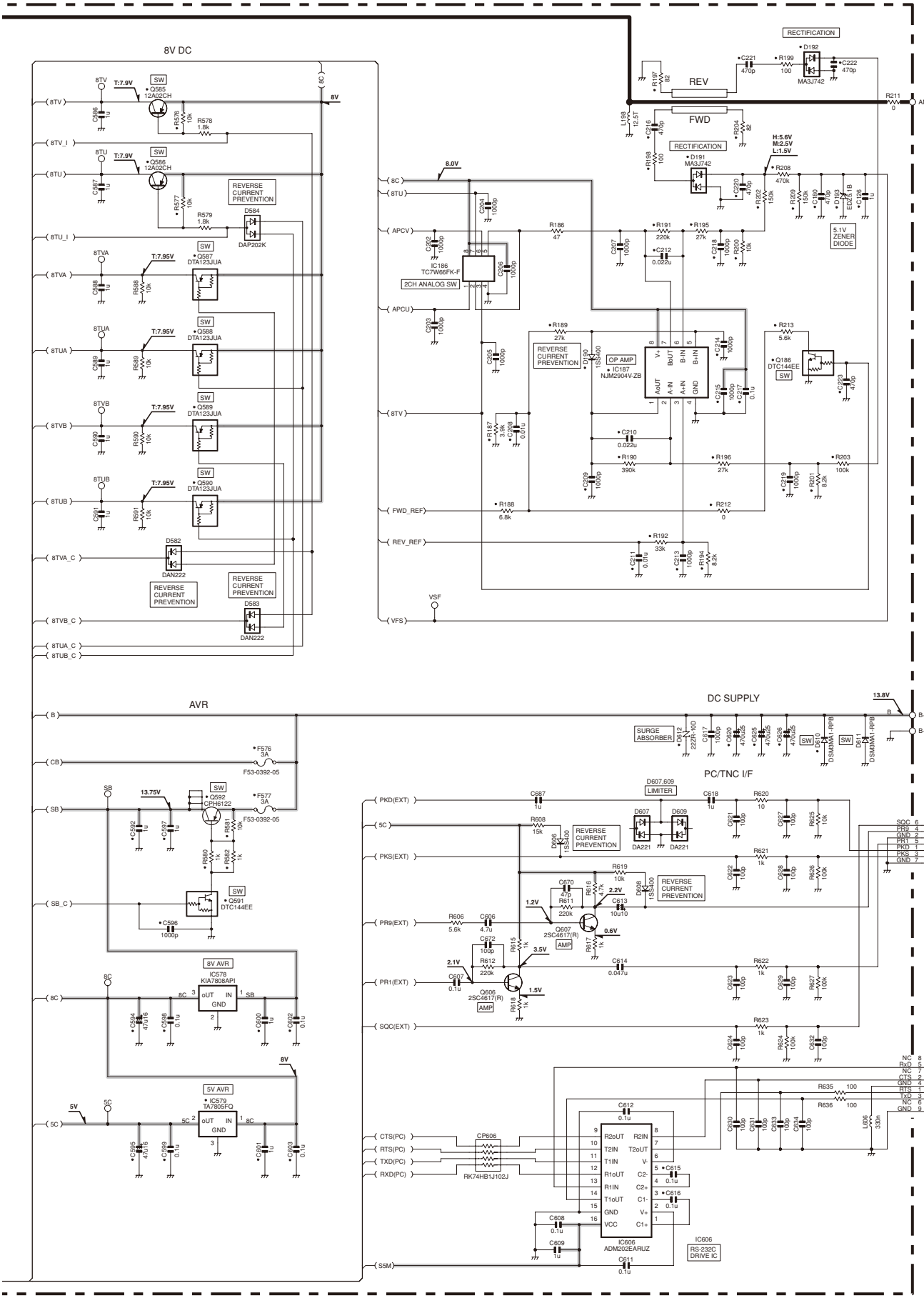
# TM-V71A/V71E SCHEMATIC DIAGRAM





# SCHEMATIC DIAGRAM TM-V71A/V71E

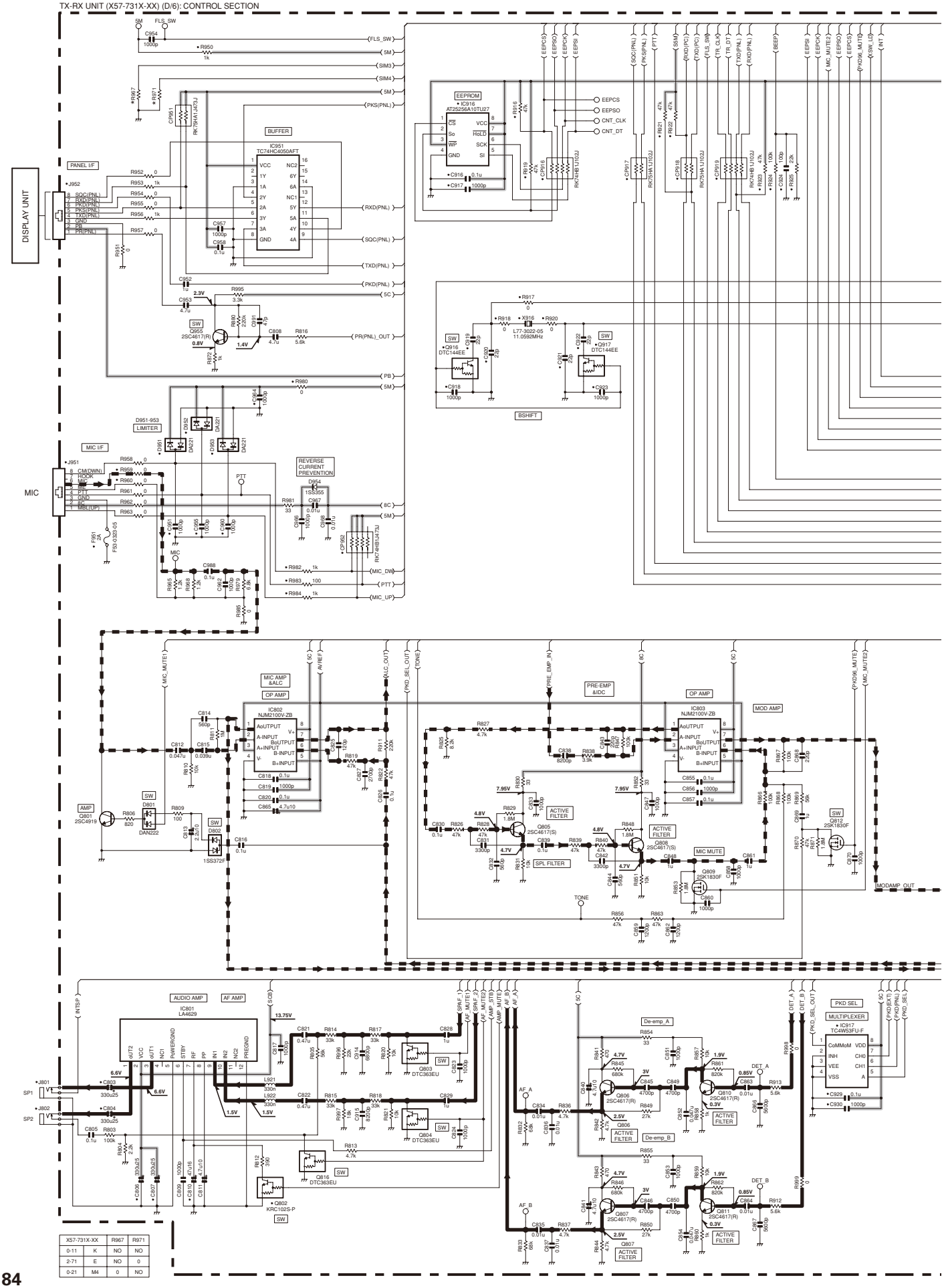
TX-RX UNIT (X57-731X-XX) (A/6): TX-RX SECTION




**Note : The components marked with a dot (•) are parts of layer 1.**

# TM-V71A/V71E SCHEMATIC DIAGRAM

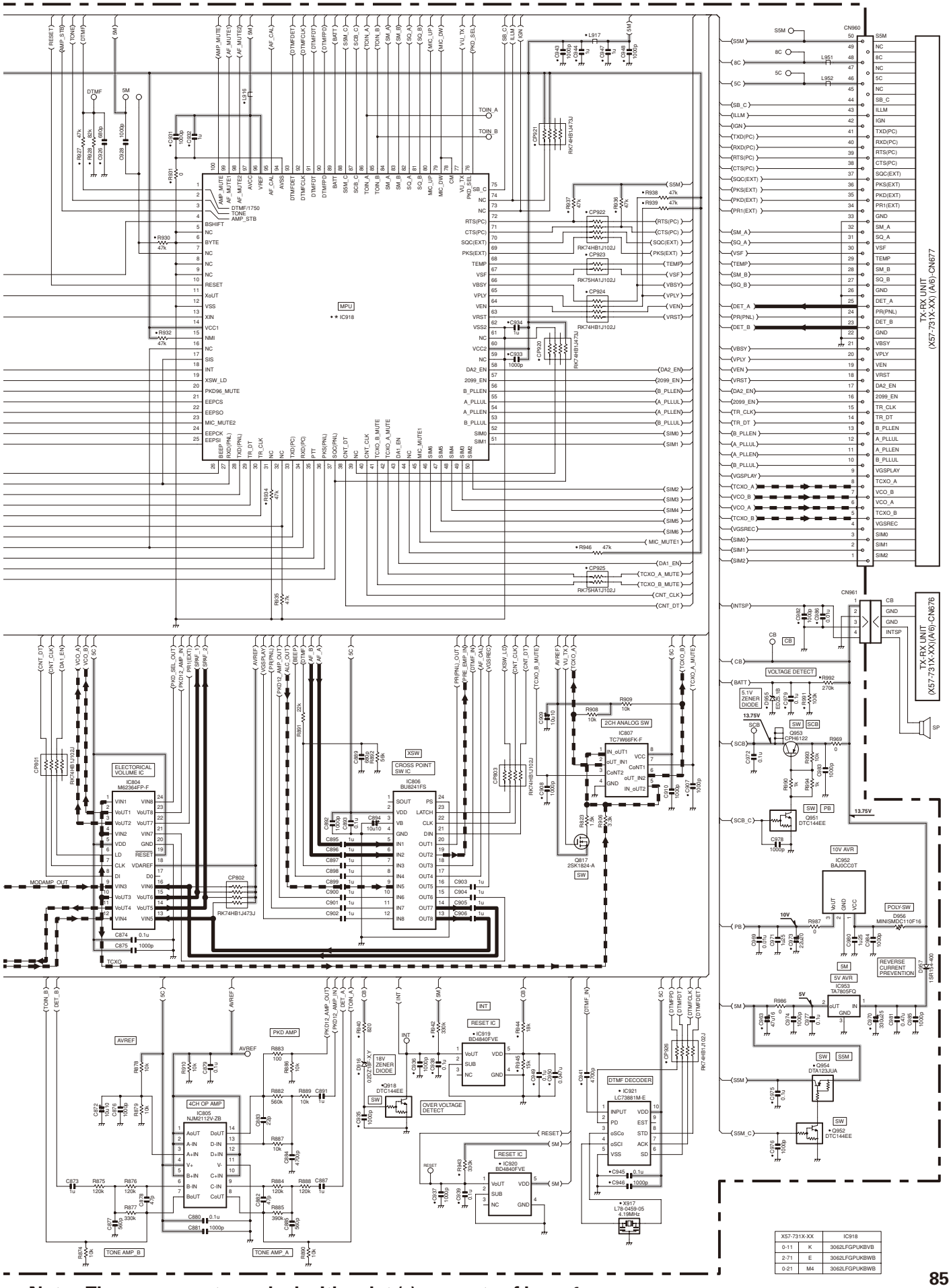
TX-RX UNIT (X57-731X-XX) (D/6): CONTROL SECTION




| X57-731X-XX | R967 | R971 |
|---|---|---|
| 0-11 | K | NO | NO |
| 2-71 | E | NO | 0 |
| 0-21 | M4 | 0 | NO |

# SCHEMATIC DIAGRAM TM-V71A/V71E

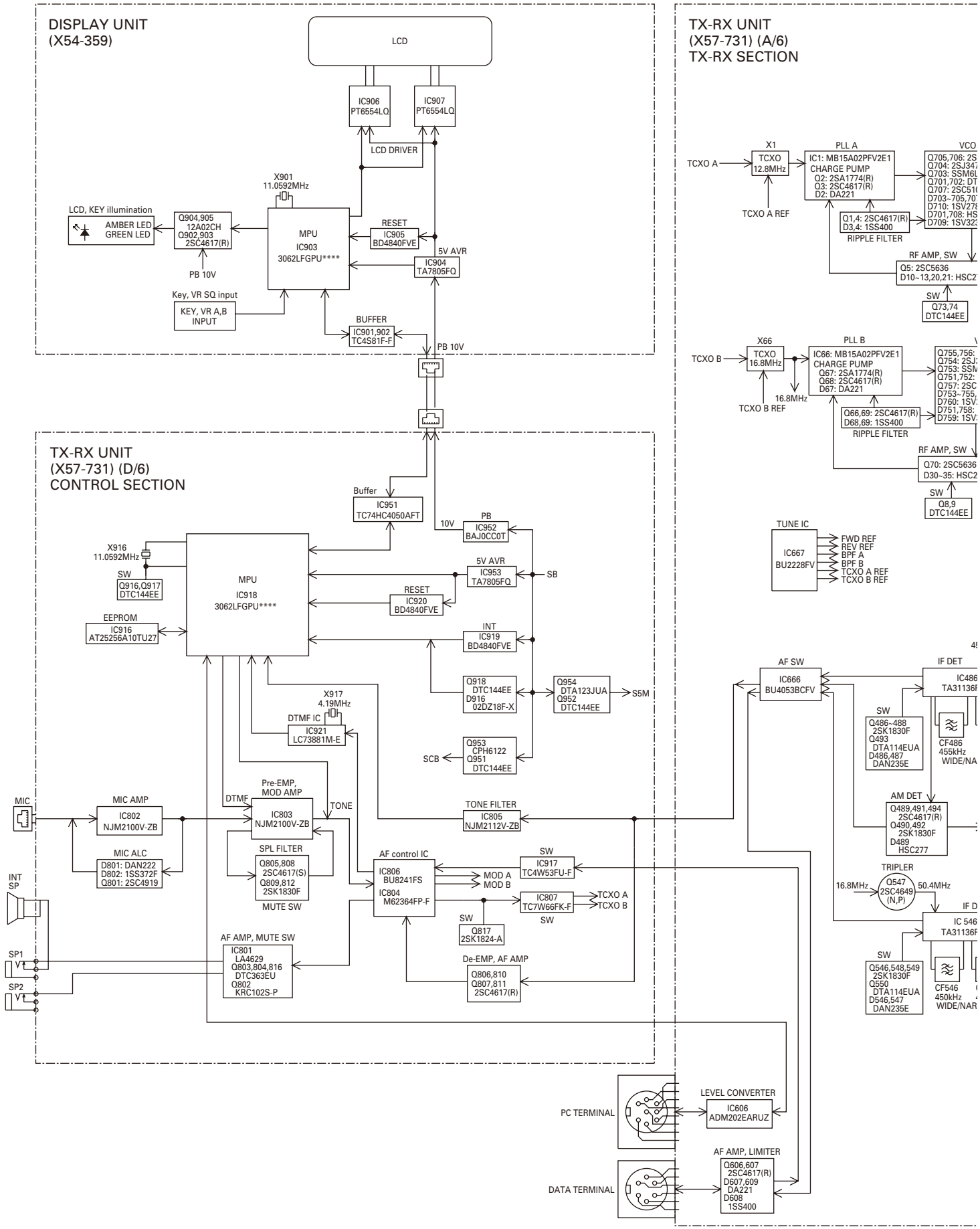
TX-RX UNIT (X57-731X-XX) (D/6): CONTROL SECTION

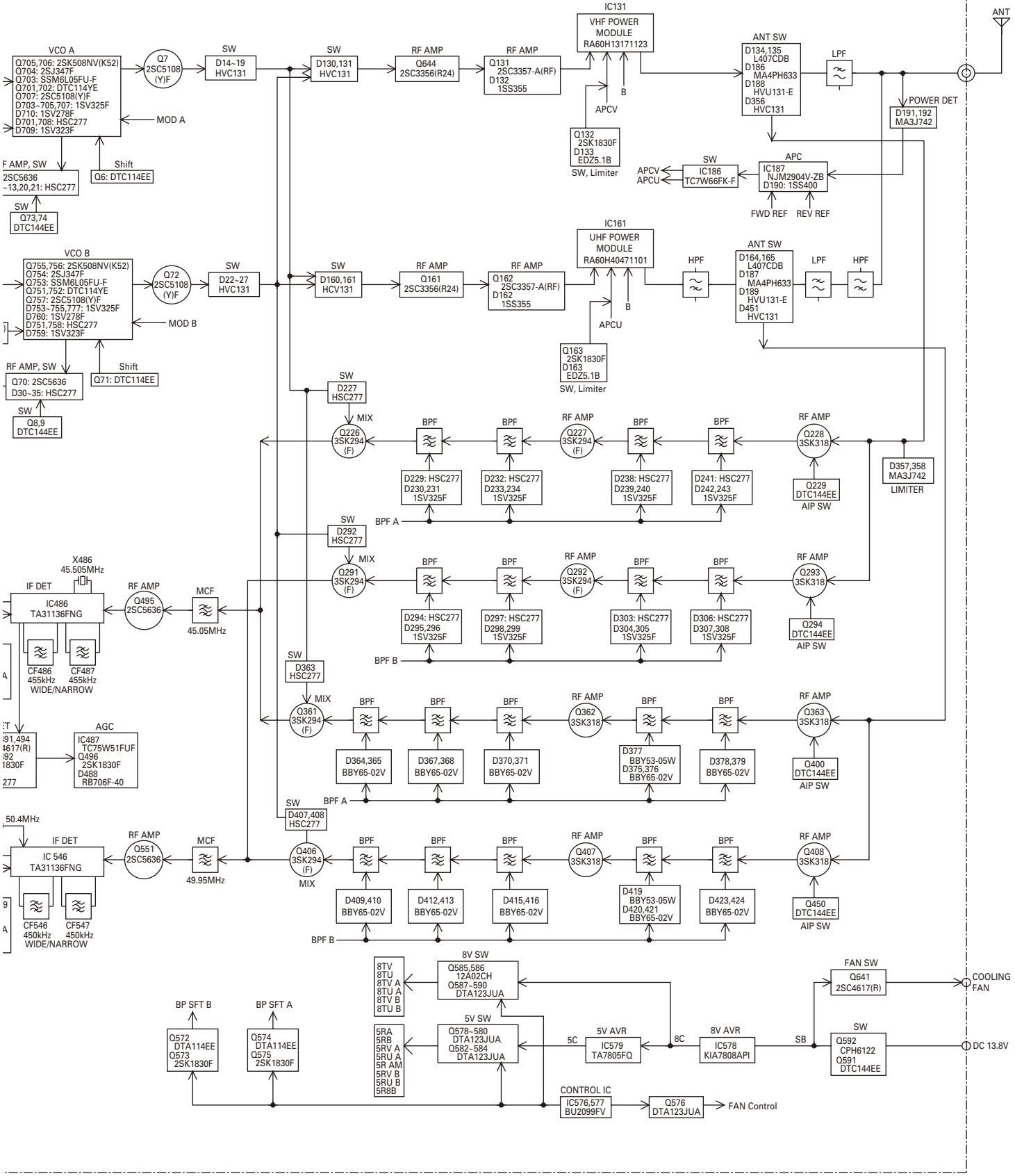



| X57-731X-XX | IC918 |
|---|---|
| 0-11 | K 3062LFGPUKBVB |
| 2-71 | E 3062LFGPUKBWB |
| 0-21 | M4 3062LFGPUKBWB |

**Note : The components marked with a dot (•) are parts of layer 1.**

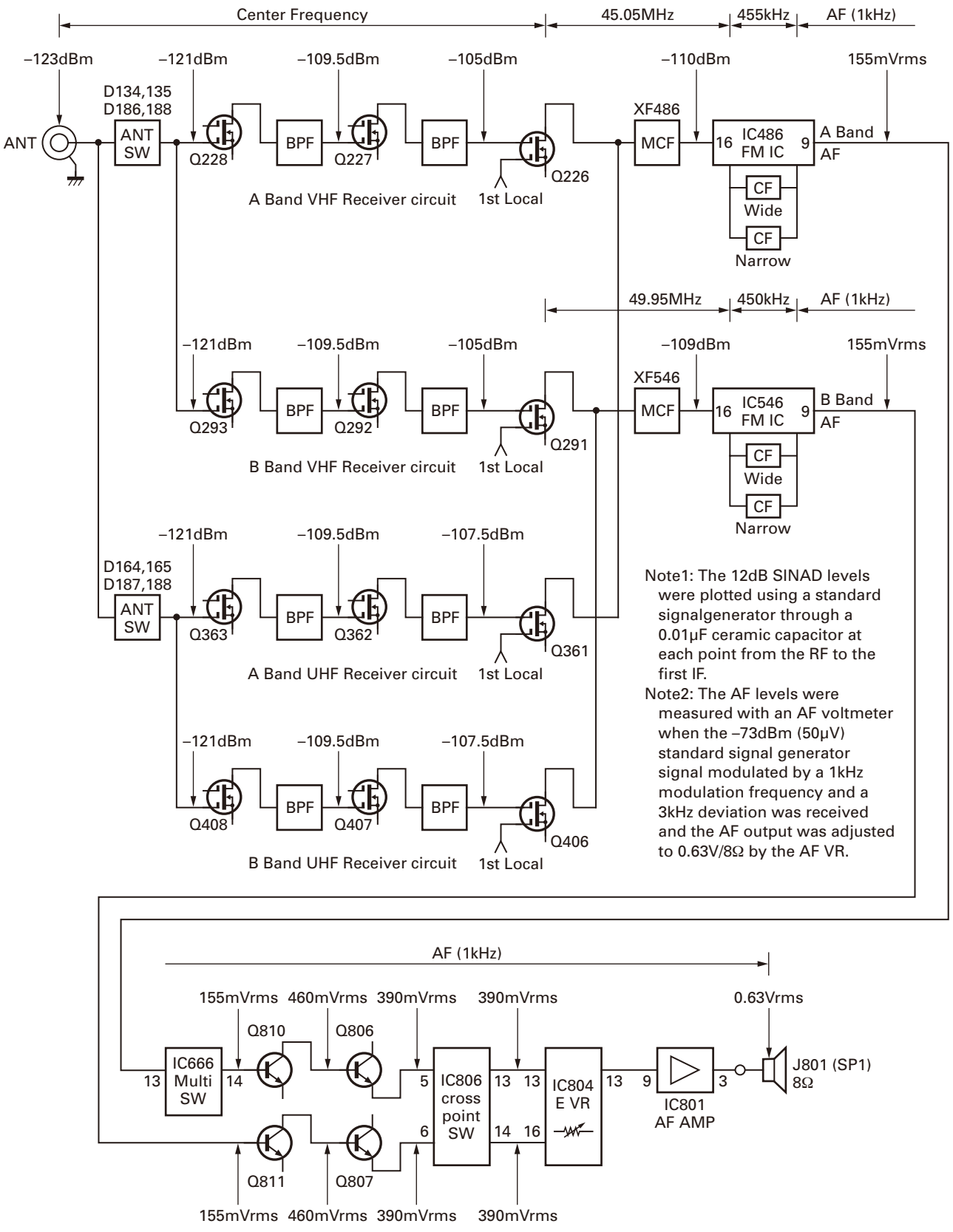
# TM-V71A/V71E BLOCK DIAGRAM




ANT
IC131
VHF POWER MODULE RA60H13171123
ANT SW
D134,135 L407CDB
D186 MA4PH633
D188 HVU131-E
D356 HVC131
LPF
POWER DET
D191,192 MA3J742
VCO A
Q705,706: 2SK508NV(K52)
Q704: 2SJ347F
Q703: SSM6L05FU-F
Q701,702: DTC114YE
Q707: 2SC5108(Y)F
D703~705,707: 1SV325F
D710: 1SV278F
D701,708: HSC277
D709: 1SV323F
Q7 2SC5108 (Y)F
SW D14~19 HVC131
SW D130,131 HVC131
RF AMP Q644 2SC3356(R24)
RF AMP Q131 2SC3357-A(RF) D132 1SS355
MOD A
APCV
B
Q132 2SK1830F D133 EDZ5.1B
SW, Limiter
F AMP, SW
2SC5636 ~13,20,21: HSC277
Shift
Q6: DTC114EE
SW Q73,74 DTC144EE
SW IC186 TC7W66FK-F
APCV
APCU
APC IC187 NJM2904V-ZB D190: 1SS400
FWD REF
REV REF
IC161
UHF POWER MODULE RA60H40471101
VCO B
Q755,756: 2SK508NV(K52)
Q754: 2SJ347F
Q753: SSM6L05FU-F
Q751,752: DTC114YE
Q757: 2SC5108(Y)F
D753~755,777: 1SV325F
D760: 1SV278F
D751,758: HSC277
D759: 1SV323F
Q72 2SC5108 (Y)F
SW D22~27 HVC131
SW D160,161 HCV131
RF AMP Q161 2SC3356(R24)
RF AMP Q162 2SC3357-A(RF) D162 1SS355
HPF
ANT SW
D164,165 L407CDB
D187 MA4PH633
D189 HVU131-E
D451 HVC131
LPF
HPF
MOD B
APCU
B
Q163 2SK1830F D163 EDZ5.1B
SW, Limiter
RF AMP, SW
Q70: 2SC5636 D30~35: HSC277
Shift
Q71: DTC114EE
SW Q8,9 DTC144EE
SW D227 HSC277
MIX Q226 3SK294 (F)
BPF
RF AMP Q227 3SK294 (F)
RF AMP Q228 3SK318
D229: HSC277 D230,231 1SV325F
D232: HSC277 D233,234 1SV325F
D238: HSC277 D239,240 1SV325F
D241: HSC277 D242,243 1SV325F
Q229 DTC144EE AIP SW
D357,358 MA3J742 LIMITER
BPF A
SW D292 HSC277
X486 45.505MHz
IF DET IC486 TA31136FNG
RF AMP Q495 2SC5636
MCF 45.05MHz
MIX Q291 3SK294 (F)
RF AMP Q292 3SK294 (F)
RF AMP Q293 3SK318
D294: HSC277 D295,296 1SV325F
D297: HSC277 D298,299 1SV325F
D303: HSC277 D304,305 1SV325F
D306: HSC277 D307,308 1SV325F
Q294 DTC144EE AIP SW
BPF B
CF486 455kHz WIDE/NARROW
CF487 455kHz
SW D363 HSC277
MIX Q361 3SK294 (F)
RF AMP Q362 3SK318
RF AMP Q363 3SK318
D364,365 BBY65-02V
D367,368 BBY65-02V
D370,371 BBY65-02V
D377 BBY53-05W D375,376 BBY65-02V
D378,379 BBY65-02V
Q400 DTC144EE AIP SW
AGC
IC487 TC75W51FUF Q496 2SK1830F D488 RB706F-40
BPF A
SW D407,408 HSC277
50.4MHz
IF DET IC 546 TA31136FNG
RF AMP Q551 2SC5636
MCF 49.95MHz
MIX Q406 3SK294 (F)
RF AMP Q407 3SK318
RF AMP Q408 3SK318
D409,410 BBY65-02V
D412,413 BBY65-02V
D415,416 BBY65-02V
D419 BBY53-05W D420,421 BBY65-02V
D423,424 BBY65-02V
Q450 DTC144EE AIP SW
CF546 450kHz WIDE/NARROW
CF547 450kHz
BPF B
8V SW
8TV 8TU 8TV A 8TU A 8TV B 8TU B
Q585,586 12A02CH Q587~590 DTA123JUA
FAN SW
Q641 2SC4617(R)
COOLING FAN
BP SFT B
BP SFT A
Q572 DTA114EE Q573 2SK1830F
Q574 DTA114EE Q575 2SK1830F
5V SW
5RA 5RB 5RV A 5RU A 5R AM 5RV B 5RU B 5R8B
Q578~580 DTA123JUA Q582~584 DTA123JUA
5C
5V AVR IC579 TA7805FQ
8C
8V AVR IC578 KIA7808API
SB
SW Q592 CPH6122 Q591 DTC144EE
DC 13.8V
CONTROL IC IC576,577 BU2099FV
Q576 DTA123JUA
FAN Control

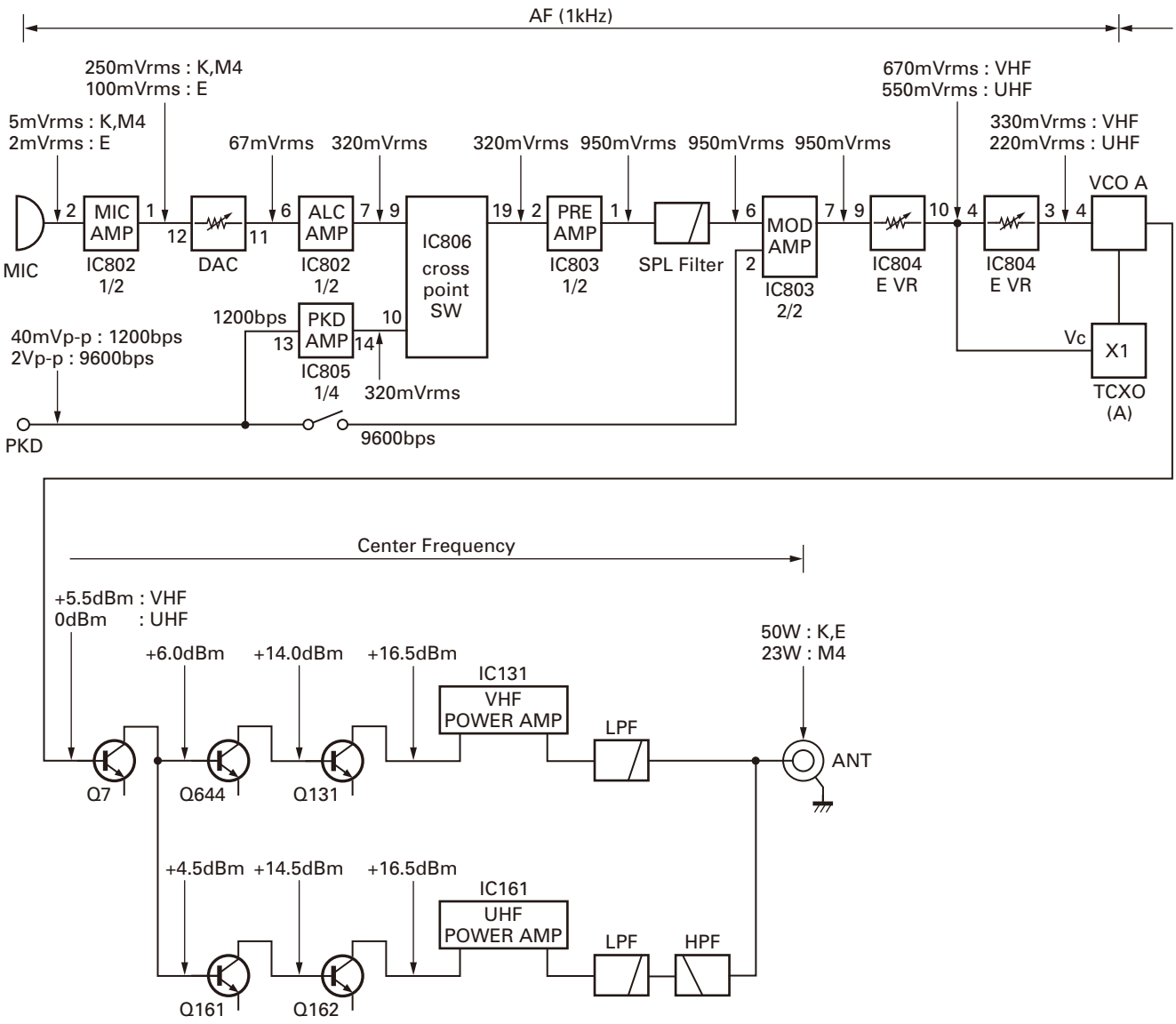
# LEVEL DIAGRAM

## Receiver Section



# LEVEL DIAGRAM

## Transmitter Section




Note1: Set the AG so that the microphone socket input is 3kHz deviation at 1kHz modulation. The data communication connector input level is 3kHz deviation at 1kHz modulation for 1200bps and 2kHz deviation at 1kHz modulation for 9600bps.
Note2: The transmit frequency is 145.0 or 435.0MHz.
Note3: The HI/MID/LOW switch is set to HI.
Note4: The measurements with the power meter, except for the ANT connector, are the values with the APC off.

# OPTIONAL ACCESSORIES

## DFK-3D (Detachable Front Panel Kit (3 m))

■ **External View**

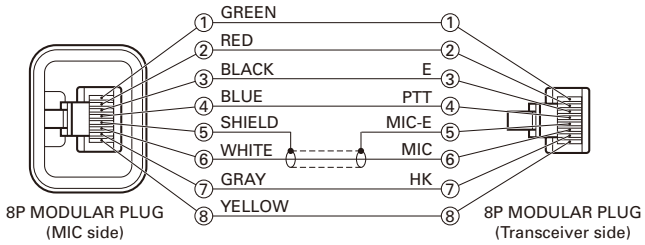
## PG-5F (Extension Cable Kit (4 m))

■ **External View**

## MC-59 (Keypad Microphone)

■ **External View**

■ **Cord Assembly**




■ **Specifications**

Voltage Required .....8V±10%
Operating Temperature Range
..... –20°C~+60°C (–4°F~+140°F)
Current Drain .....Less than 12mA

## PG-5G (Programming Interface Cable (2 m))

■ **External View**

## PG-5H (PC Interface Cable Kit (2 m))

■ **External View**

# SPECIFICATIONS

| General | | | | TM-V71A K Type | TM-V71E E Type | TM-V71A M4 Type |
|---|---|---|---|---|---|---|
| Guaranteed range | Band A & B | TX & RX | | 144~148MHz | 144~146MHz | |
| | | | | 438~450MHz | 430~440MHz | |
| Frequency range | Band A | RX | | 118 ~ 524MHz | | – |
| | Band B | | | 136~524MHz | | – |
| | | | | 800~1300MHz (excluding cellular band) | | – |
| Mode | | | | F2D/ F3E | | |
| Antenna impedance | | | | 50 Ω | | |
| Operating temperature range | | | | –20°C~+60°C (–4°F~+140°F) | | |
| Power requirement | | | | 13.8 V DC±15% (Negative ground) | | |
| Frequency stability | | | | Within ±5 ppm (–10°C~+50°C) | | |
| Current | TX | VHF | HI | Less than 13.0A | | – |
| | | | MID | Less than 5.5A | | Less than 9.0A |
| | | | LOW | Less than 4.0A | | |
| | | UHF | HI | Less than 13.0A | | – |
| | | | MID | Less than 6.5A | | Less than 9.0A |
| | | | LOW | Less than 5.0A | | |
| | RX | | | Less than 1.2A (at 2W audio output) | | |
| Dimensions (W x H x D) | Without projections | | | Panel: 140 x 43 x 38.2 mm (5.51" x 1.69" x 1.50")<br>Body (with Panel): 140 x 43 x 180.7 mm (5.51" x 1.69" x 7.11") | | |
| | With projections | | | Panel: 140 x 43 x 55.4 mm (5.51" x 1.69" x 2.18")<br>Body (with Panel): 140 x 43 x 213.1 mm (5.51" x 1.69" x 8.39") | | |
| Weight (approx.) | | | | Body (with Panel): 1.5 kg (3.3 lbs) | | |
| **Transmitter** | | | | | | |
| RF power output | | HI | | 50W | | – |
| | | MID | | Approx. 10W | | 25W |
| | | LOW | | Approx. 5W | | |
| Modulation | | | | Reactance modulation | | |
| Maximum frequency deviation | | | | Within ±5kHz | | |
| Spurious radiation | | | | Less than –60dB | | |
| Modulation distortion (300Hz~3kHz) | | | | Less than 3% | | |
| Microphone impedance | | | | 600Ω | | |
| **Receiver** | | | | | | |
| Circuitry | | | | Double super heterodyne | | |
| Intermediate frequency | | 1st (Band A/ Band B) | | 45.05MHz/ 49.95MHz | | |
| | | 2nd (Band A/ Band B) | | 455kHz/ 450kHz | | |
| Sensitivity | | | | Less than 0.16µV | | |
| Squelch sensitivity | | | | Less than 0.1µV | | |
| Selectivity | | –6dB | | More than 11kHz | | |
| | | –50dB | | Less than 30kHz | | |
| Low frequency output (8Ω) | | | | More than 2W (at 5% distortion) | | |

# TM-V71A/V71E


## Kenwood Corporation

2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan

### Kenwood U.S.A. Corporation

P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

### Kenwood Electronics Canada Inc.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

### Kenwood Electronics Deutschland GmbH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

### Kenwood Electronics Belgium N.V.

Leuvensesteenweg 248 J, 1800 Vilvoorde, Belgium

### Kenwood Electronics France S.A.

L'Etoile Paris Nord 2, 50 Allée des Impressionnistes, Bp 58416 Villepinte, 95944 Roissy Ch De Gaulle Cedex

### Kenwood Electronics UK Limited

KENWOOD House, Dwight Road, Watford, Herts., WD18 9EB United Kingdom

### Kenwood Electronics Europe B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

### Kenwood Electronics Italia S.p.A.

Via G. Sirtori, 7/9 20129 Milano, Italy

### Kenwood Ibérica, S.A.

Bolivia, 239-08020 Barcelona, Spain

### Kenwood Electronics Australia Pty. Ltd.

(A.C.N. 001 499 074)
16 Giffnock Avenue, Centrecourt Estate, North Ryde, N.S.W. 2113 Australia

### Kenwood Electronics (Hong Kong) Ltd.

Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

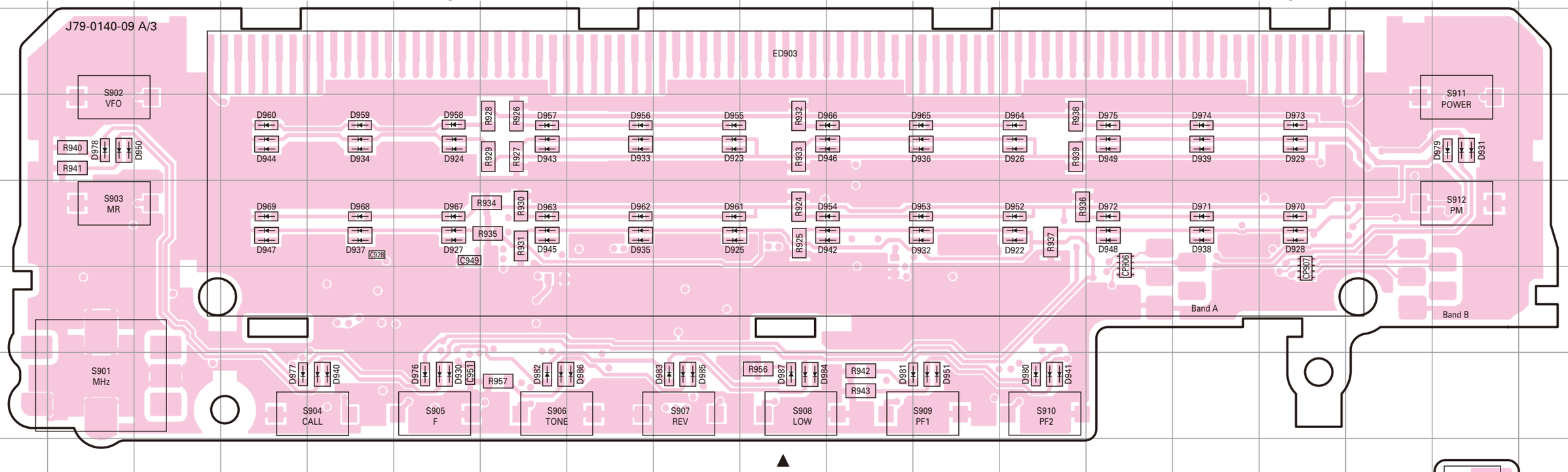
### Kenwood Electronics Singapore Pte Ltd

1 Ang Mo Kio Street 63, Singapore 569110

PC BOARD TM-V71A/V71E

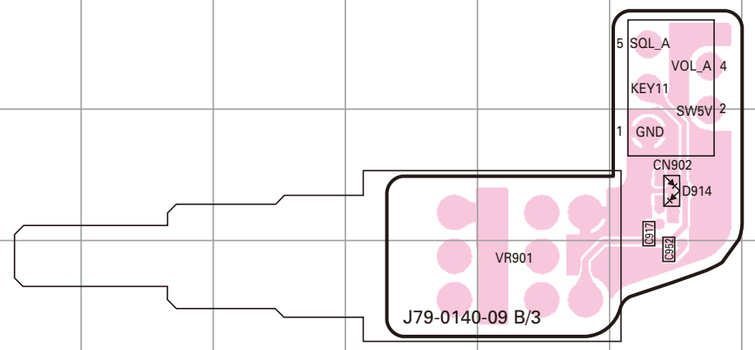
## DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Component side view (J79-0140-09)

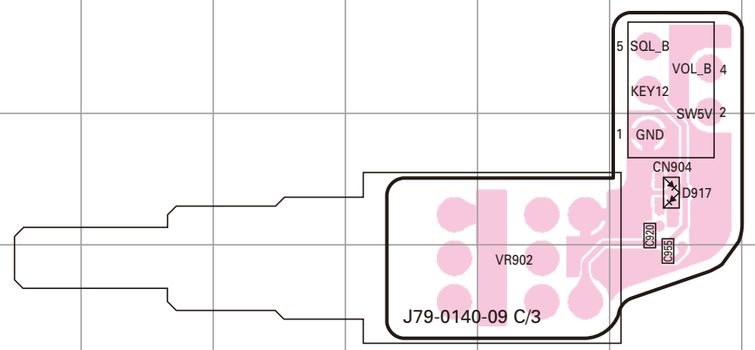
DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Component side view (J79-0140-09)




Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|---|---|
| D914 | 9R | D937 | 5E | D954 | 5K | D971 | 5O |
| D917 | 12R | D938 | 5O | D955 | 4I | D972 | 5N |
| D922 | 5M | D939 | 4O | D956 | 4H | D973 | 4P |
| D923 | 4I | D940 | 7E | D957 | 4G | D974 | 4O |
| D924 | 4F | D941 | 7M | D958 | 4F | D975 | 4N |
| D925 | 5I | D942 | 5K | D959 | 4E | D976 | 7F |
| D926 | 4M | D943 | 4G | D960 | 4D | D977 | 7D |
| D927 | 5F | D944 | 4D | D961 | 5I | D978 | 4B |
| D928 | 5P | D945 | 5G | D962 | 5H | D979 | 4R |
| D929 | 4P | D946 | 4K | D963 | 5G | D980 | 7M |
| D930 | 7F | D947 | 5D | D964 | 4M | D981 | 7K |
| D931 | 4R | D948 | 5N | D965 | 4L | D982 | 7G |
| D932 | 5L | D949 | 4N | D966 | 4K | D983 | 7I |
| D933 | 4H | D950 | 4B | D967 | 5F | D984 | 7J |
| D934 | 4E | D951 | 7L | D968 | 5E | D985 | 7I |
| D935 | 5H | D952 | 5M | D969 | 5D | D986 | 7H |
| D936 | 4L | D953 | 5L | D970 | 5P | D987 | 7J |

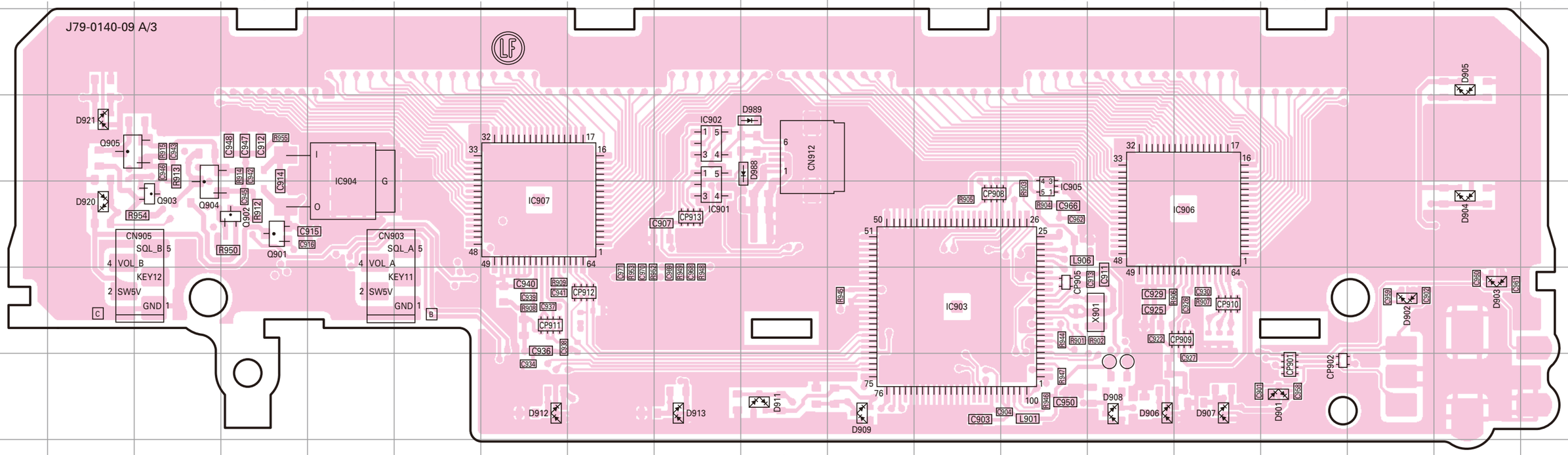


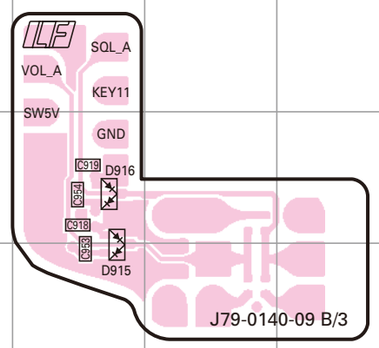



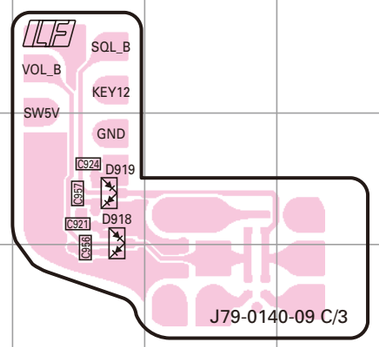
PC BOARD TM-V71A/V71E

## DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Foil side view (J79-0140-09)

DISPLAY UNIT (X54-3590-00) (A/3, B/3, C/3) Foil side view (J79-0140-09)




| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|
| IC901 | 5I | Q905 | 4B | D912 | 7G |
| IC902 | 4I | D901 | 7P | D913 | 7I |
| IC903 | 6L | D902 | 6Q | D915 | 10B |
| IC904 | 4E | D903 | 6R | D916 | 9B |
| IC905 | 5M | D904 | 5R | D918 | 12B |
| IC906 | 5O | D905 | 3R | D919 | 12B |
| IC907 | 5G | D906 | 7N | D920 | 5B |
| Q901 | 5D | D907 | 7O | D921 | 4B |
| Q902 | 5D | D908 | 7N | D988 | 4J |
| Q903 | 5C | D909 | 7K | D989 | 4H |
| Q904 | 5C | D911 | 7J | | |

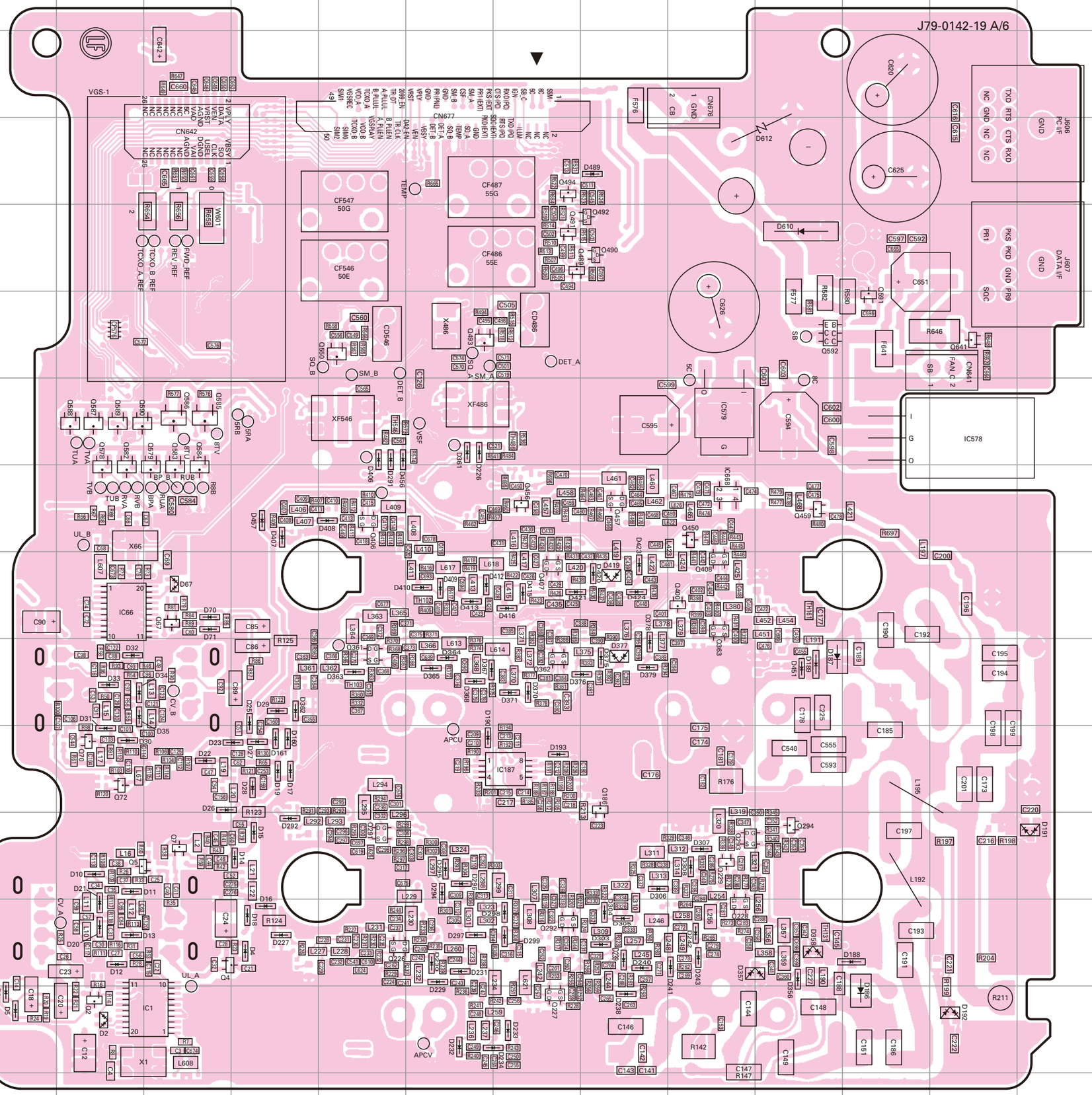
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

# TM-V71A/V71E PC BOARD

PC BOARD TM-V71A/V71E

**TX-RX UNIT**
**(X57-731X-XX)(A/6):**
**TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Component side view**
**(J79-0142-19 A/6)**

TX-RX UNIT
(X57-731X-XX)(A/6):
TX-RX SECTION
0-11 : K 0-21 : M4 2-71 : E
Component side view
(J79-0142-19 A/6)




| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| IC1 | 13F | Q585 | 6F |
| IC66 | 8E | Q586 | 6F |
| IC187 | 10J | Q587 | 6E |
| IC579 | 6L | Q588 | 6E |
| IC578 | 6O | Q589 | 6E |
| IC668 | 7L | Q590 | 6E |
| Q2 | 13E | Q591 | 5N |
| Q4 | 12F | Q592 | 5M |
| Q5 | 11E | Q641 | 5O |
| Q7 | 11F | D2 | 13E |
| Q67 | 8F | D4 | 12G |
| Q70 | 10E | D5 | 13D |
| Q72 | 10E | D6 | 13D |
| Q186 | 10K | D10 | 11E |
| Q226 | 12H | D11 | 11E |
| Q227 | 13J | D12 | 12E |
| Q228 | 12L | D13 | 12E |
| Q229 | 11L | D14 | 11G |
| Q291 | 11H | D15 | 11G |
| Q292 | 12J | D16 | 12G |
| Q293 | 11L | D17 | 10G |
| Q294 | 11M | D18 | 12G |
| Q361 | 9H | D19 | 10G |
| Q362 | 9J | D20 | 12E |
| Q363 | 8L | D21 | 12E |
| Q400 | 8L | D22 | 10F |
| Q406 | 7H | D23 | 10G |
| Q407 | 8J | D25 | 9G |
| Q408 | 8L | D26 | 10F |
| Q450 | 7L | D27 | 10G |
| Q456 | 7J | D28 | 10G |
| Q457 | 7K | D29 | 9G |
| Q459 | 7M | D30 | 10E |
| Q489 | 4J | D31 | 10E |
| Q490 | 4K | D32 | 9E |
| Q491 | 4J | D33 | 9E |
| Q492 | 4K | D34 | 9E |
| Q493 | 5I | D35 | 9E |
| Q494 | 3J | D67 | 8F |
| Q550 | 5H | D70 | 8F |
| Q578 | 7E | D71 | 8F |
| Q579 | 7F | D160 | 10G |
| Q582 | 7E | D161 | 10G |
| Q583 | 7F | D186 | 13N |
| Q584 | 7F | D187 | 9M |

| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| D188 | 12N | D358 | 12M |
| D189 | 9M | D361 | 6I |
| D190 | 10I | D362 | 9G |
| D191 | 11P | D363 | 9H |
| D192 | 13O | D364 | 9I |
| D193 | 10J | D365 | 9I |
| D226 | 6I | D367 | 9I |
| D227 | 12G | D368 | 9I |
| D229 | 12I | D370 | 9J |
| D230 | 12I | D371 | 9J |
| D231 | 12I | D375 | 9K |
| D232 | 13I | D376 | 9K |
| D233 | 13J | D377 | 9K |
| D234 | 13J | D378 | 9K |
| D238 | 13K | D379 | 9K |
| D239 | 12K | D406 | 6H |
| D240 | 12K | D407 | 7G |
| D241 | 12L | D408 | 7H |
| D242 | 12L | D409 | 8I |
| D243 | 12L | D410 | 8I |
| D291 | 6H | D412 | 8I |
| D292 | 11G | D413 | 8I |
| D294 | 11I | D415 | 8J |
| D295 | 11I | D416 | 8J |
| D296 | 11I | D419 | 8K |
| D297 | 12I | D420 | 8K |
| D298 | 12J | D421 | 8J |
| D299 | 12J | D423 | 8K |
| D303 | 12K | D424 | 8K |
| D304 | 12K | D451 | 9M |
| D305 | 12K | D456 | 6H |
| D306 | 11K | D457 | 7G |
| D307 | 11L | D489 | 3K |
| D308 | 11L | D610 | 4M |
| D356 | 12M | D612 | 3M |
| D357 | 12L | | |

Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

# TM-V71A/V71E PC BOARD

PC BOARD TM-V71A/V71E

**TX-RX UNIT (X57-731X-XX)(A/6): TX-RX SECTION**
**0-11 : K 0-21 : M4 2-71 : E**
**Foil side view**
**(J79-0142-19 A/6)**

TX-RX UNIT (X57-731X-XX)(A/6): TX-RX SECTION
0-11 : K 0-21 : M4 2-71 : E
Foil side view
(J79-0142-19 A/6)

J79-0142-19 A/6

| Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|
| IC131 | 11I | Q576 | 4N |
| IC161 | 8I | Q580 | 4I |
| IC186 | 10J | Q606 | 4E |
| IC486 | 5J | Q607 | 4F |
| IC487 | 4I | Q642 | 4G |
| IC546 | 5L | Q644 | 13M |
| IC576 | 5O | D1 | 13N |
| IC577 | 5N | D3 | 13P |
| IC606 | 3E | D24 | 11M |
| IC666 | 3M | D66 | 8O |
| IC667 | 3N | D68 | 8N |
| Q1 | 13P | D69 | 9O |
| Q3 | 13O | D130 | 13M |
| Q6 | 12O | D131 | 13M |
| Q8 | 9N | D132 | 13M |
| Q9 | 9O | D133 | 13K |
| Q66 | 8N | D134 | 13F |
| Q68 | 8N | D135 | 13F |
| Q69 | 9O | D136 | 12F |
| Q71 | 9N | D162 | 10L |
| Q73 | 12O | D163 | 10K |
| Q74 | 12O | D164 | 9F |
| Q131 | 13L | D165 | 9F |
| Q132 | 13K | D166 | 9G |
| Q161 | 10L | D486 | 4K |
| Q162 | 10L | D487 | 4J |
| Q163 | 10K | D488 | 3J |
| Q486 | 4J | D546 | 4M |
| Q487 | 4J | D547 | 4K |
| Q488 | 5J | D576 | 7N |
| Q495 | 5K | D578 | 7N |
| Q496 | 3I | D580 | 7N |
| Q546 | 4L | D582 | 6O |
| Q547 | 5M | D583 | 6O |
| Q548 | 4L | D584 | 6N |
| Q549 | 6L | D606 | 4E |
| Q551 | 6L | D607 | 4E |
| Q572 | 5M | D608 | 5F |
| Q573 | 5N | D609 | 4E |
| Q574 | 5N | D611 | 3H |
| Q575 | 5N | | |

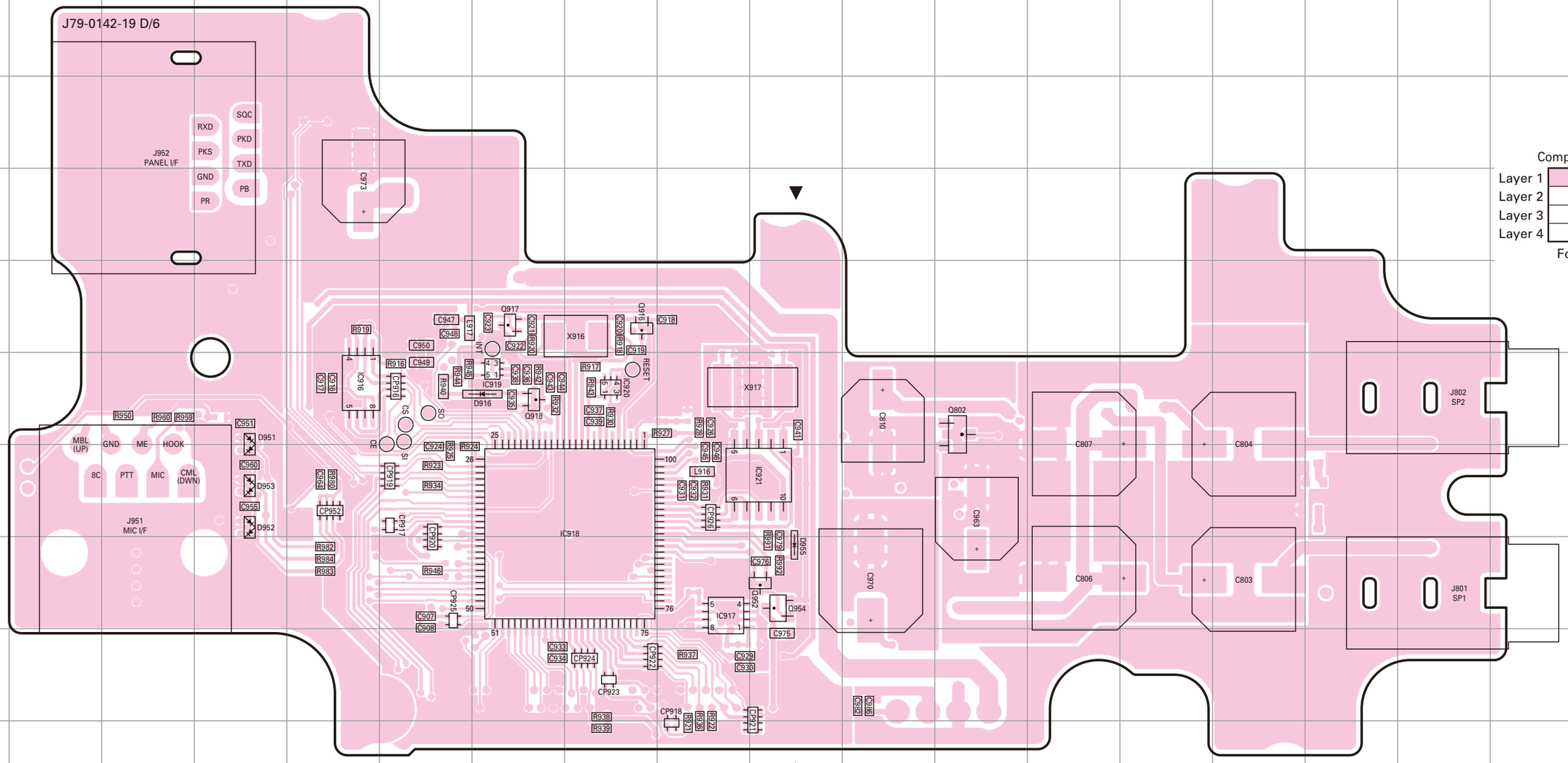
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

# TM-V71A/V71E PC BOARD

## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION
## 0-11 : K  0-21 : M4  2-71 : E  Component side view (J79-0142-19 D/6)

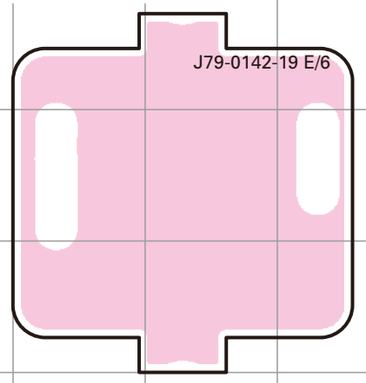
PC BOARD TM-V71A/V71E

TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION
0-11 : K  0-21 : M4  2-71 : E  Component side view (J79-0142-19 D/6)

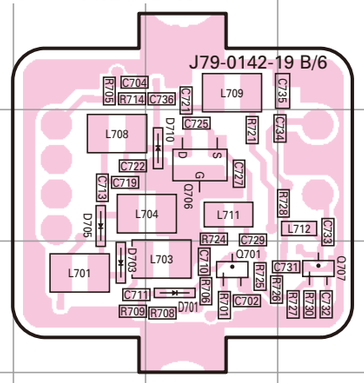



Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

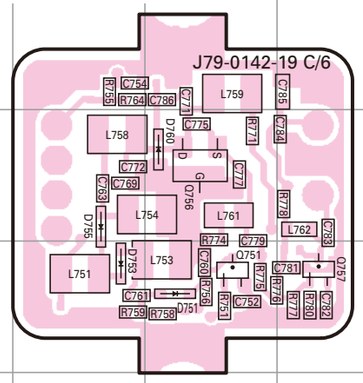
## TX-RX UNIT (E/6) : VCO A SECTION



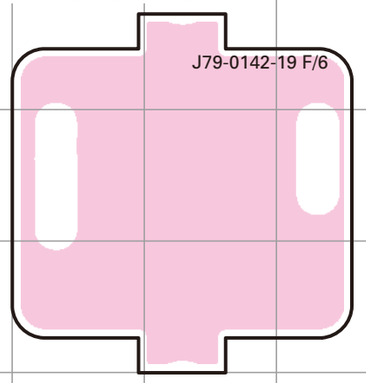

## TX-RX UNIT (B/6) : VCO A SECTION




## TX-RX UNIT (C/6) : VCO B SECTION




## TX-RX UNIT (F/6) : VCO B SECTION




| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|
| IC916 | 6E | Q757 | 13J | D751 | 13I |
| IC917 | 8I | Q802 | 6L | D753 | 13H |
| IC918 | 7H | Q916 | 5H | D755 | 12H |
| IC919 | 6G | Q917 | 5G | D760 | 12I |
| IC920 | 6H | Q918 | 6G | D916 | 6G |
| IC921 | 7J | Q952 | 8J | D951 | 6D |
| Q701 | 13F | Q954 | 8J | D952 | 7D |
| Q706 | 12F | D701 | 13F | D953 | 7D |
| Q707 | 13G | D703 | 13E | D955 | 8J |
| Q751 | 13I | D705 | 12E | | |
| Q756 | 12I | D710 | 12F | | |

# TM-V71A/V71E PC BOARD

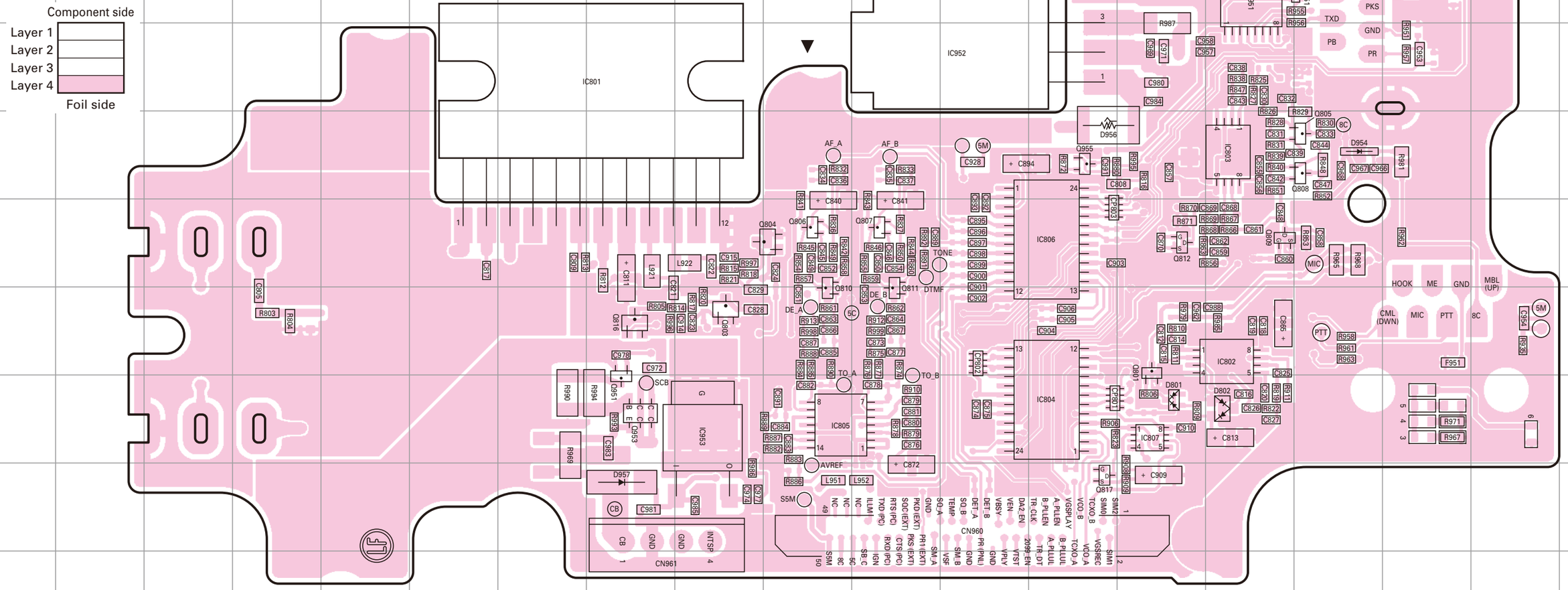
## TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION

**0-11 : K  0-21 : M4  2-71 : E  Foil side view (J79-0142-19 D/6)**

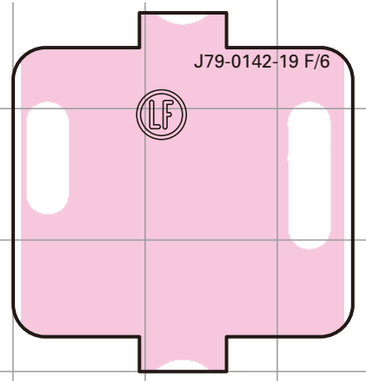

# PC BOARD TM-V71A/V71E

TX-RX UNIT (X57-731X-XX) (D/6) : CONTROL SECTION

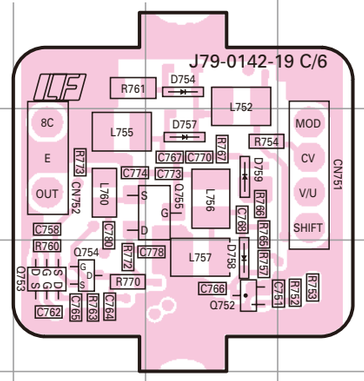
0-11 : K  0-21 : M4  2-71 : E  Foil side view (J79-0142-19 D/6)

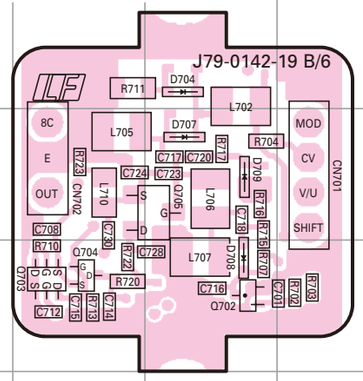

### TX-RX UNIT (F/6) : VCO B SECTION



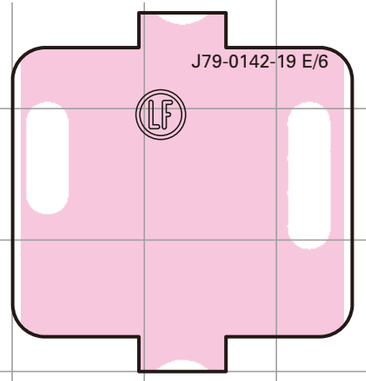

### TX-RX UNIT (C/6) : VCO B SECTION




### TX-RX UNIT (B/6) : VCO A SECTION



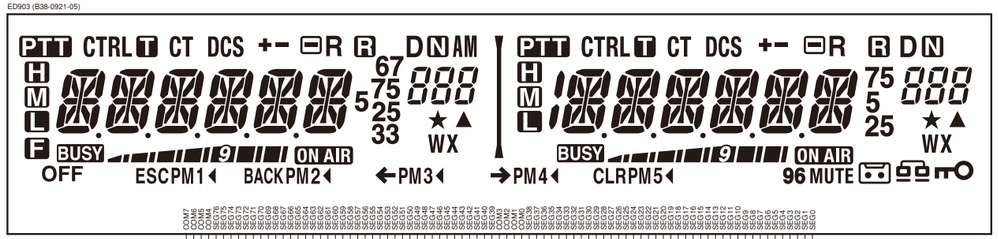

### TX-RX UNIT (E/6) : VCO A SECTION




| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|---|---|---|---|---|---|---|---|
| IC801 | 4H | Q704 | 13H | Q808 | 5P | D708 | 13I |
| IC802 | 7O | Q705 | 12I | Q809 | 6O | D709 | 12I |
| IC803 | 5O | Q752 | 13F | Q810 | 7J | D754 | 11F |
| IC804 | 8M | Q753 | 13E | Q811 | 7K | D757 | 12F |
| IC805 | 8J | Q754 | 13E | Q812 | 6N | D758 | 13F |
| IC806 | 6M | Q755 | 12F | Q816 | 7H | D759 | 12F |
| IC807 | 8N | Q801 | 7N | Q817 | 9M | D801 | 8N |
| IC951 | 3O | Q803 | 7I | Q951 | 8H | D802 | 8O |
| IC952 | 4L | Q804 | 6J | Q953 | 8H | D954 | 5P |
| IC953 | 8I | Q805 | 5P | Q955 | 5M | D956 | 5M |
| Q702 | 13I | Q806 | 6J | D704 | 11I | D957 | 9H |
| Q703 | 13H | Q807 | 6K | D707 | 12I | | |

DISPLAY UNIT (X54-3590-00) (A/3)

ED903 (B38-0921-05)




LCD2
LCD DRIVER
• IC907
PT6554LQ

LCD1
LCD DRIVER
• IC906
PT6554LQ

MPU
• IC903
3062LFGPUKBZA

X54-3590-00 (B/3)

X54-3590-00 (C/3)

RESET IC
• IC905
BD4840FVE

BUFFER
• IC901
TC4S81F-F

BUFFER
• IC902
TC4S81F-F

5V AVR
• IC904
TA4805BF

• Q901
DTA123JUA

• Q902
2SC4617(R)

• Q903
2SC4617(R)

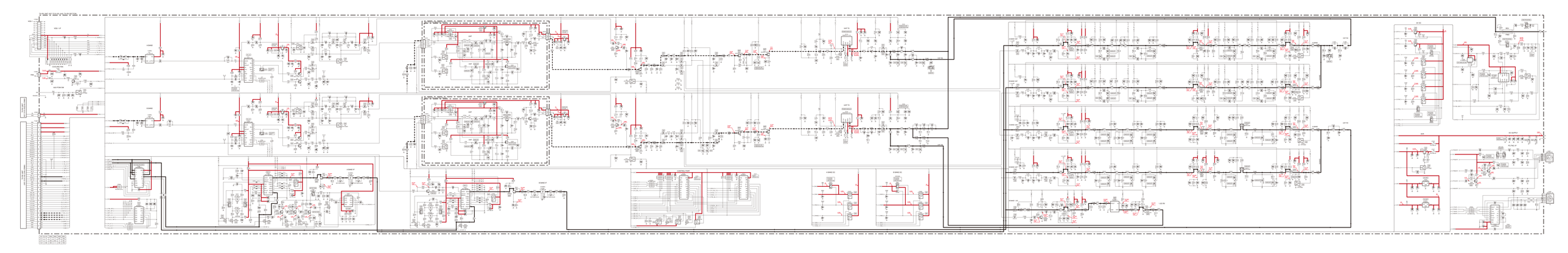
• Q904
12A02CH

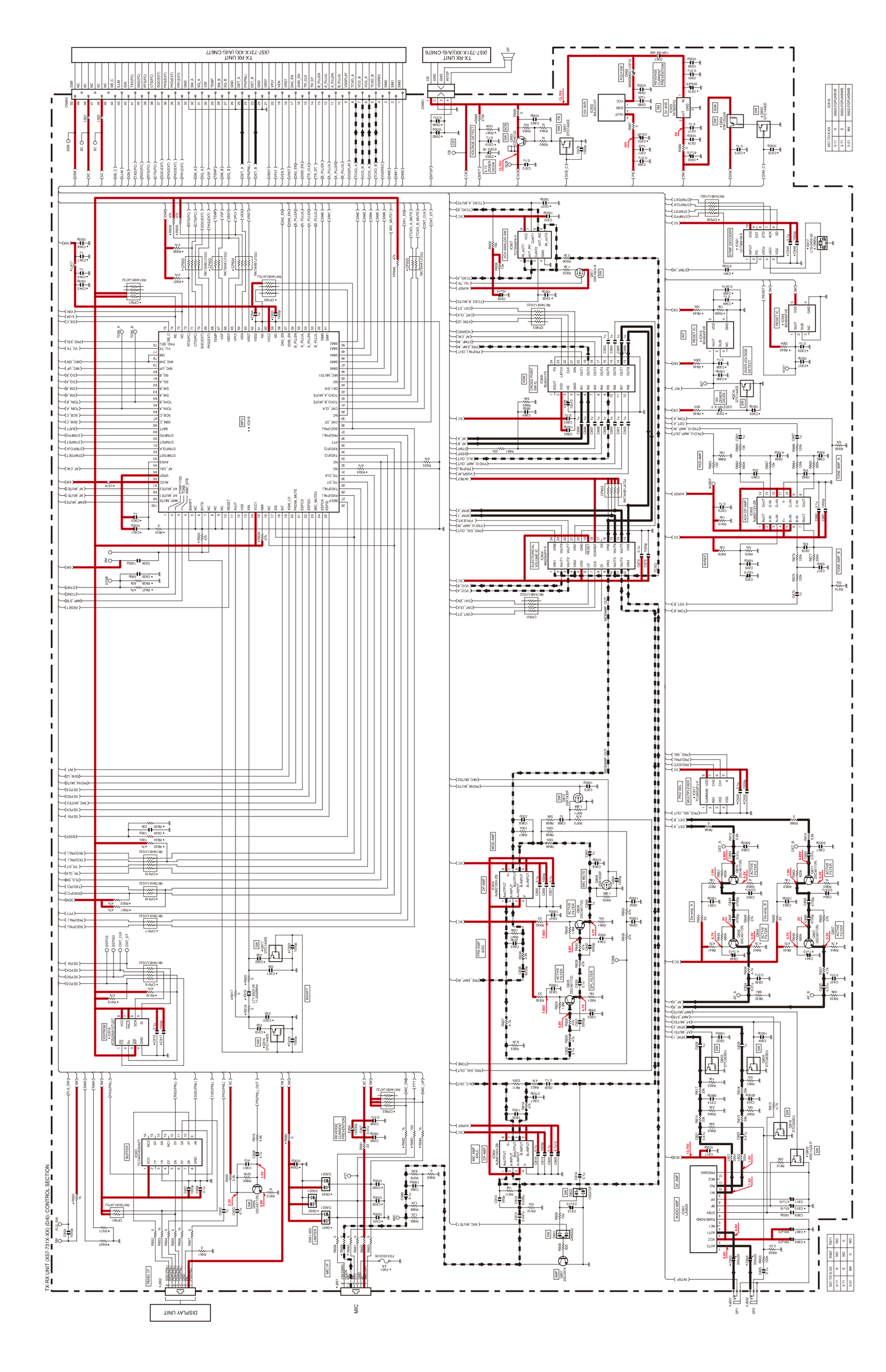
• Q905
12A02CH

• X901
LT3-1426-05
11.059MHz

• CN902
• CN903
• CN904
• CN905
• CN907
• CN908
• CN909
• CN910
• CN911
• CN912

TX-RX UNIT
(X57-731X-XX) (D/6)-J952




TX-RX UNIT (X57-7231X-XX) (D/E) CONTROL SECTION
TX-RX UNIT (X57-7231X-XX) (A/B) CONTROL SECTION
TX-RX UNIT (X57-731X-XX) (A/B)-CN676
TX-RX UNIT (X57-731X-XX) (A/B)-CN677
DISPLAY UNIT
MIC
X57-7231X-XX
X57-731X-XX
PCB1A
300G1FGPA0BWB
300G1FGPA1BWB
0-11
2-71
0-21
K
E
MA
NO
0

ANT

DATA I/F

J607
E56-0405-05
7 GND
3 PKS
1 PKD
5 PR1
2 GND
4 PR9
6 SQC

PC I/F

J606
E56-0411-05
9 GND
6 NC
3 TXD
1 RTS
4 GND
2 CTS
7 NC
5 RXD
8 NC

FAN

CN641
E40-6525-05
1 SB
2 FAN_C

DC IN 13.8V

B+
B-

INT SP

CN676
E40-6525-05
1 GND
2 CB

E37-1291-05

CN961
E40-6527-05
4 INTSP
3 GND
2 GND
1 CB

# TX-RX UNIT
# X57-731 (A/6)
# (TX-RX SECTION)

CN702 E40-6770-05 CN701 E40-6771-05
OUT 1
E 2
8C 3
VCO A
1 SHIFT
2 V/U
3 CV
4 MOD
X57-731 (B,E/6)

CN752 E40-6770-05 CN751 E40-6771-05
OUT 1
E 2
8C 3
VCO B
1 SHIFT
2 V/U
3 CV
4 MOD
X57-731 (C,F/6)

OPTION

Voice Guide & Storage UNIT

VGS-1

CN642
E40-6389-05

| | | | |
|---|---|---|---|
| 1 | BUSY | 1 | VBSY |
| 2 | PLAY | 2 | VPLY |
| 3 | SO | 3 | SO |
| 4 | SI | 4 | DATA |
| 5 | CLK | 5 | CLK |
| 6 | EN | 6 | VEN |
| 7 | USEL | 7 | USEL |
| 8 | RST | 8 | VRST |
| 9 | DGND | 9 | DGND |
| 10 | GND | 10 | AGND |
| 11 | AO | 11 | VAI |
| 12 | AI | 12 | VAO |
| 13 | GND | 13 | AGND |
| 14 | 5C | 14 | 5C |
| 15~26 | NC | 15~26 | NC |

J82-0113-05

CN677
E40-6745-05

| | | | | | |
|---|---|---|---|---|---|
| 50 | SIM2 | 17 | PR1 (EXT) | 13 | CTS (PC) |
| 49 | SIM1 | 16 | PKD (EXT) | 12 | RTS (PC) |
| 48 | SIM0 | 15 | PKS (EXT) | 11 | RXD (PC) |
| 47 | VGSREC | 14 | SQC (EXT) | 10 | TXD (PC) |
| 46 | TCXO_B | 13 | CTS (PC) | 9 | IGN |
| 45 | VCO_A | 12 | RTS (PC) | 8 | ILLM |
| 44 | VCO_B | 11 | RXD (PC) | 7 | SB_C |
| 43 | TCXO_A | 10 | TXD (PC) | 6 | NC |
| 42 | VGSPLAY | 9 | IGN | 5 | 5C |
| 41 | B_PLLUL | 8 | ILLM | 4 | NC |
| 40 | A_PLLEN | 7 | SB_C | 3 | 8C |
| 39 | A_PLLUL | 6 | NC | 2 | NC |
| 38 | B_PLLEN | 5 | 5C | 1 | S5M |
| 37 | TR_DT | 4 | NC | | |
| 36 | TR_CLK | 3 | 8C | | |
| 35 | 2099_EN | 2 | NC | | |
| 34 | DA2_EN | 1 | S5M | | |
| 33 | VRST | | | | |
| 32 | VEN | | | | |
| 31 | VPLY | | | | |
| 30 | VBSY | | | | |
| 29 | GND | | | | |
| 28 | DET_B | | | | |
| 27 | PR (PNL) | | | | |
| 26 | DET_A | | | | |
| 25 | GND | | | | |
| 24 | SQ_B | | | | |
| 23 | SM_B | | | | |
| 22 | TEMP | | | | |
| 21 | VSF | | | | |
| 20 | SQ_A | | | | |
| 19 | SM_A | | | | |
| 18 | GND | | | | |

CN960
E40-6745-05

| | | | | | |
|---|---|---|---|---|---|
| SIM2 | 1 | PR1 (EXT) | 34 | CTS (PC) | 39 |
| SIM1 | 2 | PKD (EXT) | 35 | RTS (PC) | 40 |
| SIM0 | 3 | PKS (EXT) | 36 | RXD (PC) | 41 |
| VGSREC | 4 | SQC (EXT) | 37 | TXD (PC) | 42 |
| TCXO_B | 5 | CTS (PC) | 38 | IGN | 43 |
| VCO_A | 6 | RTS (PC) | 39 | ILLM | 44 |
| VCO_B | 7 | RXD (PC) | 40 | SB_C | 45 |
| TCXO_A | 8 | TXD (PC) | 41 | NC | 46 |
| VGSPLAY | 9 | IGN | 42 | 5C | 47 |
| B_PLLUL | 10 | ILLM | 43 | NC | 48 |
| A_PLLEN | 11 | SB_C | 44 | 8C | 49 |
| A_PLLUL | 12 | NC | 45 | NC | 50 |
| B_PLLEN | 13 | 5C | 46 | S5M | |
| TR_DT | 14 | NC | 47 | | |
| TR_CLK | 15 | 8C | 48 | | |
| 2099_EN | 16 | NC | 49 | | |
| DA2_EN | 17 | S5M | 50 | | |
| VRST | 18 | | | | |
| VEN | 19 | | | | |
| VPLY | 20 | | | | |
| VBSY | 21 | | | | |
| GND | 22 | | | | |
| DET_B | 23 | | | | |
| PR (PNL) | 24 | | | | |
| DET_A | 25 | | | | |
| GND | 26 | | | | |
| SQ_B | 27 | | | | |
| SM_B | 28 | | | | |
| TEMP | 29 | | | | |
| VSF | 30 | | | | |
| SQ_A | 31 | | | | |
| SM_A | 32 | | | | |
| GND | 33 | | | | |

J801
E11-0425-05
SP1
AF1
INTSP
GND

J802
E11-0425-05
SP2
AF2
SP1IN
GND

# TX-RX UNIT
# X57-731 (D/6)
# (CONTROL SECTION)

J952
E58-0527-05
PR 1
PB (10VDC) 2
GND 3
TXD 4
PKS 5
PKD 6
RXD 7
SQC 8

J951
E58-0523-05
MBL/UP 1
8C (8VDC) 2
GND 3
PTT 4
ME 5
MIC 6
NC 7
CM/DWN 8

CN903
E40-6708-05
GND 1
SW5V 2
KEY11 3
VOL_A 4
SQL_A 5

CN902
E40-6710-05
1 GND
2 SW5V
3 KEY11
4 VOL_A
5 SQL_A
VOL_A
X54-359 (B/3)

CN905
E40-6708-05
GND 1
SW5V 2
KEY12 3
VOL_B 4
SQL_B 5

CN904
E40-6710-05
1 GND
2 SW5V
3 KEY12
4 VOL_B
5 SQL_B
VOL_B
X54-359 (C/3)

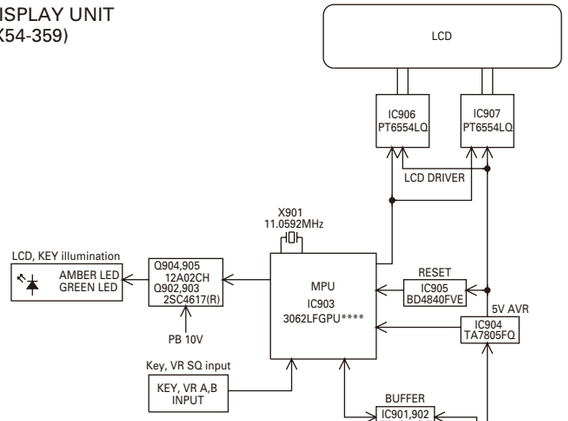
# DISPLAY UNIT
# X54-359 (A/3)

E58-0457-05
J82-0112-05
PB
GND
RXD
TXD

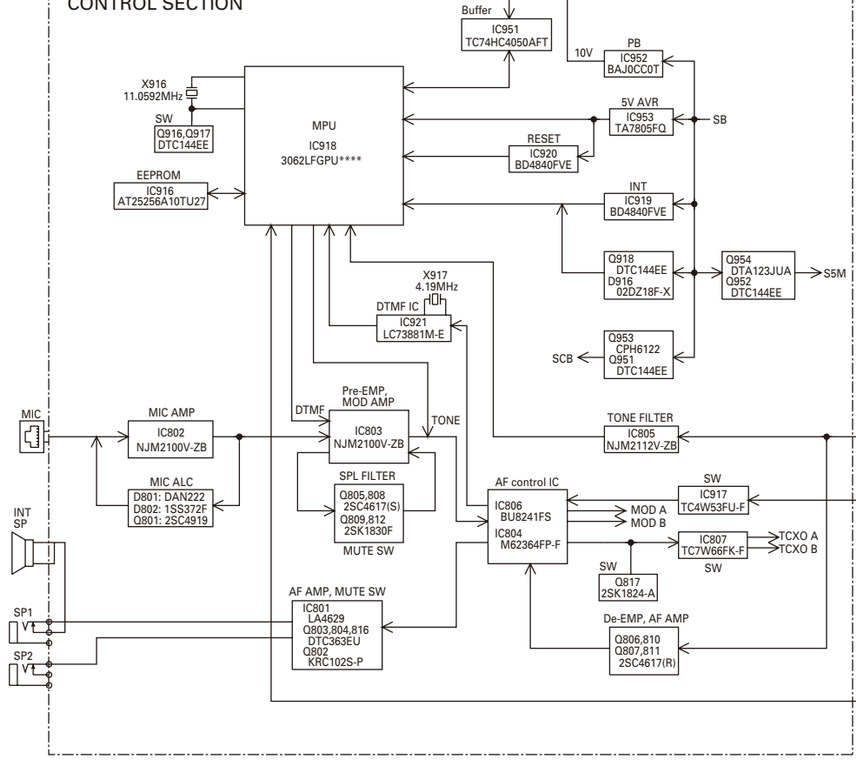
CN912
E41-2833-05
1 PB
2 PB
3 GND
4 GND
5 RXD
6 TXD

MIC

## DISPLAY UNIT (X54-359)




## TX-RX UNIT (X57-731) (D/6) CONTROL SECTION




## TX-RX UNIT (X57-731) (A/6) TX-RX SECTION