UHF FM TRANSCEIVER / UHF 调频对讲机

TK-3217

SERVICE MANUAL / 维修手册

C, C2 versions / C, C2 版本

KENWOOD

Kenwood Corporation

B51-8805-00 (S) 496

SUPPLEMENT / 追补版

This TK-3217(C, C2) service manual contains a number of sections which differ from the service manual (B51-8744-00) for the TK-3217(C).
For items other than those in this TK-3217(C, C2) service manual please refer to the service manual (B51-8744-00) for the TK-3217(C).

本TK-3217(C, C2)维修手册记述了不同于TK-3217(C)用维修手册（B51-8744-00）部分的内容。
对于本TK-3217(C, C2)维修手册中未予记载的项目，请参阅TK-3217(C)的维修手册（B51-8744-00）。

Does not come with antenna.
Antenna is available as an option.
不包括天线。天线为选件。

无铅焊接通信产品 LF
保护环境建伍领先

⚠ 注意：本产品是无铅化焊接产品
在维修时请使用无铅焊锡
和相应的焊接工具
详细事项请访问如下网址了解:
http://www.kenwoodhk.com.hk/

Service Manual List

Title	Parts number	Remarks	Market code	TX-RX unit number
TK-3217	B51-8744-00		C	X57-7130-21 J72-0968-19
TK-3217	B51-8805-00 (This service manual)	SUPPLEMENT	C, C2	X57-713X-XX J79-0075-19

维修手册表

型号	零件号码	备注	市场代码	TX-RX 单元号码
TK-3217	B51-8744-00		C	X57-7130-21 J72-0968-19
TK-3217	B51-8805-00 (本维修手册)	追补版	C, C2	X57-713X-XX J79-0075-19

LF
This product uses Lead Free solder.

TK-3217

CONTENTS / 目录

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GENERAL / 概述

INTRODUCTION

SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication date. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

引言

本手册的范围

本手册是提供给熟悉通信专业并且具有维修经验的技术人员使用的。它包括了维修该设备所需要的全部资料和现行出版日期。在出版后如果发生变动，则根据需要使用《维修通报》或《手册修订本》进行补充。

ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts : components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

替换零件的订购

当订购替换零件或设备资料时，应注明完整的零件识别号码。所有的零件均有识别号码：元件，组件或机壳。如果不知道零件的号码，为了正确地识别，必须注明此元件所属的机壳或组件的号码，并对元件进行充分的说明。

GENERAL / 概述

PERSONAL SAFETY

The following precautions are recommended for personal safety:

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

SERVICE

This transceiver is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

Unit / Model & destination		TX-RX Unit	Frequency range	Remarks
TK-3217	C	X57-7130-21	440~480MHz	IF1 : 38.85MHz
	C2	X57-7133-01	400~430MHz	LO2 : 38.4MHz

个人安全

为了个人的安全，请注意下列事项：

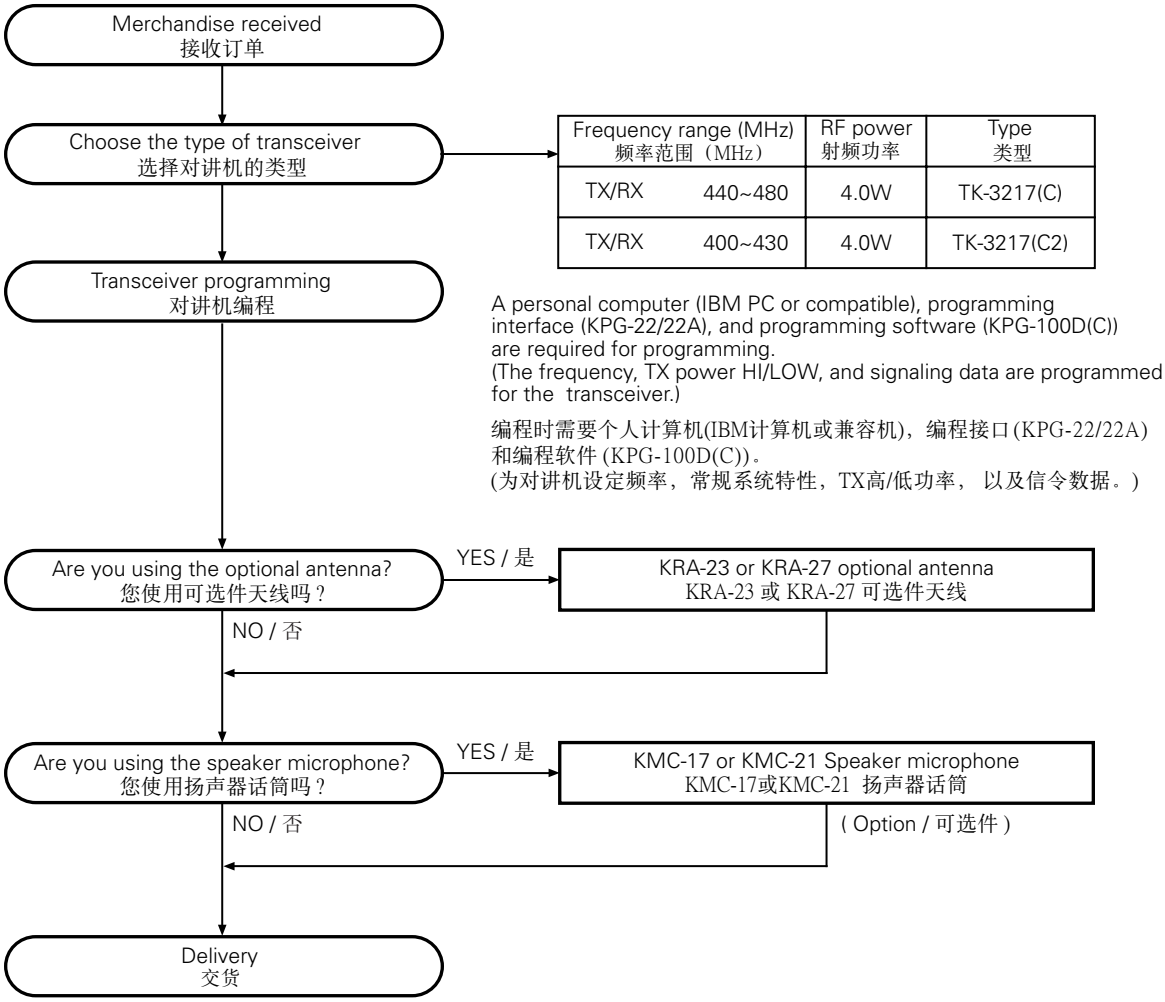
- 在没有认真核实所有射频插头之前或有任何一个打开的插头没有连接到相应端子上的情况下，均不要发射。
- 在电爆管附近或在易燃性气体环境中，必须关掉电源，不要操作本设备。
- 本设备只应该由有资格的技术人员来维修。

维修服务

为了便于维修本设备，建立了完整的维修服务体系，提供了包括原理图，印刷线路板图和调整步骤在内的资料供参考。

单元 / 型号和类型		TX-RX 单元	频率范围	备注
TK-3217	C	X57-7130-21	440~480MHz	IF1 : 38.85MHz
	C2	X57-7133-01	400~430MHz	LO2 : 38.4MHz

SYSTEM SET-UP / 系统体系



Frequency range (MHz) 频率范围（MHz）		RF power 射频功率	Type 类型
TX/RX	440~480	4.0W	TK-3217(C)
TX/RX	400~430	4.0W	TK-3217(C2)

A personal computer (IBM PC or compatible), programming interface (KPG-22/22A), and programming software (KPG-100D(C)) are required for programming.
(The frequency, TX power HI/LOW, and signaling data are programmed for the transceiver.)

编程时需要个人计算机(IBM计算机或兼容机)，编程接口(KPG-22/22A)和编程软件(KPG-100D(C))。
(为对讲机设定频率，常规系统特性，TX高/低功率， 以及信令数据。)

KRA-23 or KRA-27 optional antenna
KRA-23 或 KRA-27 可选件天线

KMC-17 or KMC-21 Speaker microphone
KMC-17或KMC-21 扬声器话筒

(Option / 可选件)

REALIGNMENT / 模式组合

1. Clone Mode

1-1. Outline

"Clone Mode" copies the transceiver data to another transceiver.

The dealer can copy the transceiver data to another transceiver even without the use of a personal computer.

1-2. Example

The transceiver can copy the programming data to one or more transceivers via RF communication.

The clone source and clone target/s must be in Clone mode.

1-3. Operation

1. To switch the clone target/s to Clone mode, press and hold the [<B] key while turning the transceiver power ON.
2. Wait for 2 seconds. "CLONE" appears on the LCD, followed by "FRQTBL 1".
3. Select a channel table number using the [Selector] knob.
4. To switch the clone source to Clone mode, press and hold the [<B] key while turning the transceiver power ON.
5. Wait for 2 seconds. "CLONE" appears on the LCD, followed by "FRQTBL 1".
6. Select the same channel table number as the clone target/s.
7. Press the [S] key on the clone source to begin data transmission. When the clone target starts to receive data, the green LED will light and "CLONING" will appear on the LCD. The source unit will display "MASTER".
8. When the clone source finishes sending data, a "confirmation" tone will sound and "COMPLETE" will appear on the LCD. If data transmission failed while cloning, the target unit will produced an error tone and "CLONE NG" will appear on the LCD.
9. If the cloning fails, no data will be available in the target unit when it is returned to User mode.
10. When the cloning is successful, the target unit's "Scan" and "Key lock" functions will return to their default values (Scan = OFF, Key lock = OFF).
11. The source will remain in clone mode after cloning. The target unit will return to user mode after a successful cloning.

Notes:

- The dealer can clone data to two or more transceivers by repeating the above procedures.
- If the transceivers Clone Mode is configured as "Disabled", the transceiver cannot enter Clone mode.
- The table shown below will cover the frequency tables used for wireless cloning.
- Clone mode cannot be entered in battery low state.
- A unit cannot be a "Source Unit" if it is unprogrammed. If the [S] key is pressed, an "error" tone will sound.
- Once a unit is set to be the Source, it cannot be a target after the data has been transmitted. This protects the data in the Source unit.
- MSK signaling is used in cloning.

1. 复制模式

1-1. 概要

"复制模式"可以将一台对讲机数据复制到其它的对讲机。

经销商甚至不使用个人电脑也可以将一台对讲机的数据复制到其它的对讲机。

1-2. 例

对讲机可以通过 RF 通信将编程数据复制到一台或更多的对讲机。

复制主机和复制子机必须处于复制模式。

1-3. 操作方法

1. 将子机切换到复制模式，接通(ON)对讲机电源开关的同时，持续按[<B]键。
2. 等待 2 秒。LCD 上显示"CLONE"，然后显示"FRQTBL 1"。
3. 用[Selector]旋钮选择频率表号码。
4. 将主机切换到复制模式，打开对讲机电源(ON)的同时，持续按[<B]键。
5. 等待2秒。在LCD上显示"CLONE"，然后显示"FRQTBL 1"。
6. 选择与复制子机相同的频率表号码。
7. 按复制主机上的[S]键，开始传输数据。当复制子机开始接收数据时，绿色 LED 将亮灯，并且"CLONING"显示在 LCD 上。主机将显示出"MASTER"。
8. 当复制主机完成数据传送，将发出一个"确认"音，并且在 LCD 上显示出"COMPLETE"。如果复制中数据通讯失败，子机将发出错误音，而且在 LCD 上显示出"CLONE NG"。
9. 如果复制失败，子机回到用户模式时会无可用数据。
10. 当复制成功时，子机的"扫描"和"键锁定"功能将返回到它们的初始值(扫描 = OFF，键锁定 = OFF)。
11. 主机在复制后将停留在复制模式。复制成功后，子机将返回到用户模式。

注：

- 经销上可以把同样的数据反复地复制到两台或更多的对讲机。
- 如果对讲机的复制模式被设定为"禁用"，则对讲机不能进入复制模式。
- 此表是使用于无线复制的频率表。
- 在电池低电压状态时，不能进入复制模式。
- 如果没有被编程，就不能成为"主机"。如果[S]键被按，将会发出"错误"音。
- 对讲机一旦被设定为主机，而且数据被传送之后，它就不能成为子机。此功能是为了保护主机内的数据。
- MSK 信号用于复制。

REALIGNMENT / 模式组合

- Electronic interface may cause a failure in data transfer during Wireless Clone, such as when waveforms or electromagnetics are being performed at the workbench.
- Clone mode can be used ONLY by the authorized service personnel.
- The Clone mode setting must be configured as "Disable" before being delivered to the end-user.
- To clone, replace the antenna from both the source transceiver and the target transceiver with a dummy load.
- The transmit output power is automatically set to Low in Clone mode.

- 电子干扰有可能导致无线复制时数据传送失败，如在工作台上受到电波或电磁的干扰。
- **复制模式只可以由授权的服务人员使用。**
- **在向最终用户交货之前，复制模式必须设置为“禁用”。**
- **复制时，取下主对讲机和子对讲机的天线并装上假负载。**
- **在复制模式，对讲机输出功率自动地被设定为低功率。**

Clone Frequency Table

Type / Operating Frequency (MHz) / Clone Frequency Table	C	C2
1	440.000	400.000
2	442.000	401.000
3	444.000	402.000
4	446.000	403.000
5	448.000	404.000
6	450.000	405.000
7	452.000	406.000
8	454.000	407.000
9	456.000	408.000
10	458.000	409.000
11	460.000	410.000
12	462.000	411.000
13	464.000	412.000
14	466.000	413.000
15	468.000	414.000
16	470.000	415.000
17	472.000	416.000
18	474.000	417.000
19	476.000	418.000
20	478.000	419.000

复制频率表

类型 / 操作频率 (MHz) / 复制频率表	C	C2
1	440.000	400.000
2	442.000	401.000
3	444.000	402.000
4	446.000	403.000
5	448.000	404.000
6	450.000	405.000
7	452.000	406.000
8	454.000	407.000
9	456.000	408.000
10	458.000	409.000
11	460.000	410.000
12	462.000	411.000
13	464.000	412.000
14	466.000	413.000
15	468.000	414.000
16	470.000	415.000
17	472.000	416.000
18	474.000	417.000
19	476.000	418.000
20	478.000	419.000

REALIGNMENT / 模式组合

1-4. Adding the Data Password

If the Data password is set to the transceiver, you must enter the password to activate a clone mode. The maximum length of the password is 6 digits.

The following describes how to enter the password.

1. Press and hold the [<B] key for 2 seconds while turning the transceiver power on.
2. "CLN.LOCK.R"(When the Read authorization password is set to the transceiver.) / "CLN.LOCK.W" (When the Overwrite password is set to the transceiver.) is displayed on the LCD.
3. If the [selector] knob is rotated while "CLN.LOCK.R"/ "CLN.LOCK.W" is displayed, the number (0 to 9) flashes on the LCD.
   When you press the [C>] key, the currently selected number is determined.
   If you press the [A] key, the least digit of the password is deleted.
   If you press the [S] key after entering the password in this procedure, "FRQTBL 1" is displayed if the entered password is correct.
   If the password is incorrect, "CLN.LOCK.R"/ "CLN.LOCK.W" is redisplayed.

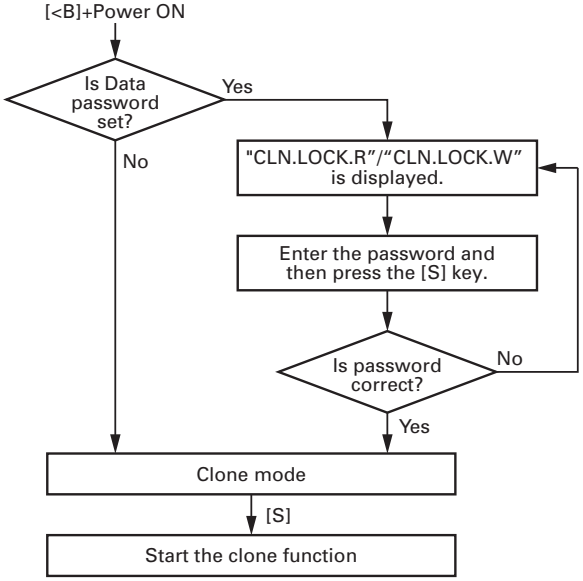
1-4. 增加数据密码

如果数据密码被设定于对讲机，则您必须先输入密码才能启动复制模式。密码的最大长度为 6 位数字。

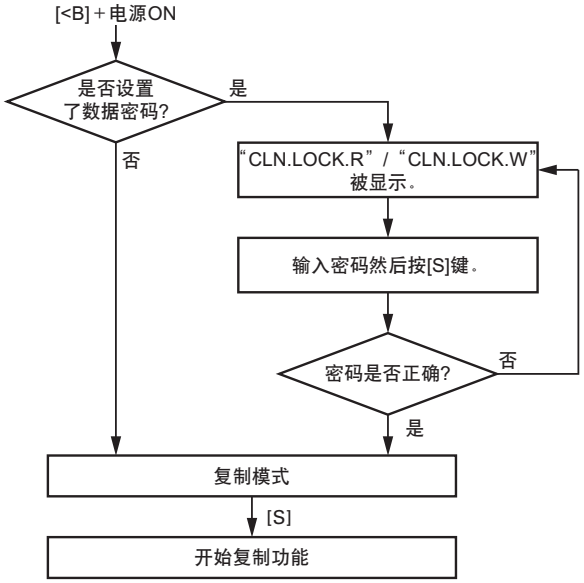
输入密码的方法说明如下。

1. 打开对讲机电源的同时，持续按[<B]键 2 秒。
2. "CLN.LOCK.R"(当读取授权密码被设定到对讲机时) / "CLN.LOCK.W"(重写密码被设定到对讲机时)被显示在LCD。
3. 在"CLN.LOCK.R" / "CLN.LOCK.W"被显示时，如果[选择器]旋钮被转动，在 LCD 上会闪烁出数字(0~9)。
   当您按了[C>]键，通常被选择的数字将被确定。
   如果您按了[A]键，密码的最小位数字将被删除。
   在此程序中输入了密码，并且被输入的密码正确，如果您按了[S]键，则显示出"FRQTBL 1"。
   如果密码错误，则继续显示"CLN.LOCK.R" / "CLN.LOCK.W"。

■ Flow Chart (Source transceiver)



■ 流程图(主对讲机)

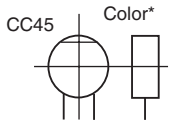


PARTS LIST / 零件表

CAPACITORS

CC 45 TH 1H 220 J
1 2 3 4 5 6

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, ect.
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
Multiplier
2nd number
1st number

· Temperature coefficient

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

2nd Word	G	H	J	K	L
ppm/℃	±30	±60	±120	±250	±500

Example : CC45TH = -470 ± 60ppm/℃

· 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	+ 80	+ 100	More than 10μF -10 ~ +50
							- 40	- 20	-0	Less than 4.7μF -10 ~ +75

(Less than 10pF)

Gode	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

· Voltage rating

1st word \ 2nd 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	3150	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 capacitors)

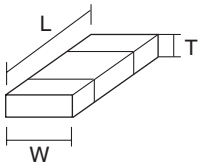
Dimension code	L	W	T
Empty	5.6 ±0.5	5.0 ±0.5	Less than 2.0
A	4.5 ±0.5	3.2 ±0.4	Less than 2.0
B	4.5 ±0.5	2.0 ±0.3	Less than 2.0
C	4.5 ±0.5	1.25 ±0.2	Less than 1.25
D	3.2 ±0.4	2.5 ±0.3	Less than 1.5
E	3.0 ±0.2	1.6 ±0.2	Less than 1.25
F	2.0 ±0.3	1.25 ±0.2	Less than 1.25
G	1.6 ±0.2	0.8 ±0.2	Less than 1.0
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)

Dimension



· 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

Dimension (Chip resistor)

Dimension 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		

TK-3217

PARTS LIST / 零件表

* 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

TK-3217 (Y50-5983-XX)
TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
TK-3217					
1	1B		A02-3894-43	PLASTIC CABINET ASSY	
2	3A		A10-4078-41	CHASSIS	
3	2C		B09-0680-03	CAP(SP/MIC) ACCESSORY	
4	2B		B11-1817-04	ILLUMINATION GUIDE(TX/RX)	
5	1A		B11-1830-03	ILLUMINATION GUIDE(LCD)	
6	1A		B38-0906-25	LCD ASSY	
7	1C	*	B62-1894-10	INSTRUCTION MANUAL	
9	1B		D10-0649-03	LEVER	
10	1B		D21-0863-04	SHAFT	
11	1B		D32-0441-03	STOPPER	
12	2A		E04-0465-05	RF COAXIAL RECEPTACLE(SMA)	
13	3A		E23-1253-04	TERMINAL(BATT-)	
14	2B		E37-1158-05	PROCESSED LEAD WIRE(WHITE:SP+)	
15	2B		E37-1176-05	PROCESSED LEAD WIRE(GREEN:SP-)	
16	3A		F20-3353-14	INSULATING SHEET(CHASSIS BATT+)	
17	2B		G01-4542-04	COIL SPRING(LEVER)	
18	2B		G01-4543-04	COIL SPRING(STOPPER)	
19	2A		G10-1330-04	FIBROUS SHEET(IC302:AUDIO IC)	
21	2A		G10-1348-04	FIBROUS SHEET(SP WIRE)	
22	3A		G11-4283-04	RUBBER SHEET(Q106:FINAL FET)	
23	2A		G11-4359-04	SHEET(FPU CONNECTOR)	
24	3A		G13-2033-04	CUSHION(TERMINAL BATT-)	
25	3A		G13-2034-14	CUSHION(TERMINAL BATT-)	
27	3A		G13-2038-24	CUSHION(CHASSIS-CERAMIC FILTER)	
28	2A		G13-2039-14	CUSHION(PCB-CERAMIC FILTER)	
29	3A		G13-2045-04	CUSHION(CHASSIS)	
30	2A		G13-2053-04	CUSHION(CHASSIS,ENC)	
31	2A		G13-2074-04	CUSHION(PCB)	
32	3A		G13-2088-04	CUSHION(CHASSIS,VOL)	
33	2A		G13-2107-04	CUSHION(MOUNTING HARDWARE)	
34	3A		G53-1604-03	PACKING(CHASSIS)	
35	3A		G53-1605-03	PACKING(TERMINAL BATT+)	
36	2B		G53-1606-13	PACKING(VOL/ENC/LED)	
38	2A		G53-1610-04	PACKING(SMA)	
39	2B		G53-1660-03	PACKING(SP)	
40	2A		G53-1661-03	PACKING(SP/MIC)	
41	2C		H12-3179-05	PACKING FIXTURE	
43	1C		H25-0085-04	PROTECTION BAG (100/200/0.07)	
44	3C		H52-2126-02	ITEM CARTON CASE	
46	2C		J19-5472-03	HOLDER(SP/MIC) ACCESSORY	
50	2A		J19-5473-03	HOLDER ASSY(TERMINAL BATT+)	
51	1A		J21-8496-02	MOUNTING HARDWARE(LCD)	
52	2B		J21-8497-03	MOUNTING HARDWARE(4 KEY)	
53	2B		J21-8525-03	MOUNTING HARDWARE(VOL/ENC)	
54	2C		J29-0734-05	BELT CLIP ACCESSORY	
55	1D		J69-0352-15	HANDSTRAP ACCESSORY	
56	2A		J82-0107-05	FPC	
57	1A		J99-0385-04	ADHESIVE SHEET(LCD)	
59	1B		K29-9308-23	BUTTON KNOB(PTT)	
60	1B		K29-9309-03	KNOB(VOL)	
61	1B		K29-9345-04	KNOB(ENC)	
62	2B		K29-9346-02	KEY TOP	
63	1B		K29-9364-03	BUTTON KNOB(SIDE1/SIDE2)	
A	2B		N14-0819-04	CIRCULAR NUT(VOL KNOB)	
B	2B		N14-0832-04	CIRCULAR NUT(CH KNOB)	
C	2A		N30-2604-48	PAN HEAD MACHINE SCREW(SMA)	
D	3A		N30-2606-48	PAN HEAD MACHINE SCREW(CHASSIS)	
E	1A,2A, 2B,3A		N83-2005-48	PAN HEAD TAPTITE SCREW(PCB)	
65	2D		N99-2046-05	SCREW SET ACCESSORY	
66	2A		R31-0661-05	VARIABLE RESISTOR(POWER SW/VOL)	
67	1B		T07-0760-25	SPEAKER	
71	2A		W02-3711-05	ENCODER	
TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2					
D403			B30-2156-05	LED(RED)	
D404			B30-2157-05	LED(YELLOW)	
C1			CK73HB1H332K	CHIP C 3300PF K	
C2			CK73HB1C682K	CHIP C 6800PF K	
C3			CK73GB1A105K	CHIP C 1.0UF K	
C4			CK73HB1C103K	CHIP C 0.010UF K	
C5			CK73HB1H102K	CHIP C 1000PF K	
C6			CK73HB1A104K	CHIP C 0.10UF K	
C7 ,8			CC73HCH1H101J	CHIP C 100PF J	
C9			CC73HCH1H100D	CHIP C 10PF D	
C10			CS77AA0J100M	CHIP TNTL 10UF 6.3WV	
C11			CC73HCH1H101J	CHIP C 100PF J	
C12			CK73HB1H102K	CHIP C 1000PF K	
C13			CK73HB1A104K	CHIP C 0.10UF K	
C14			CK73HB1C103K	CHIP C 0.010UF K	
C15			CC73HCH1H100D	CHIP C 10PF D	
C16			CK73HB1H102K	CHIP C 1000PF K	
C17			CC73HCH1H470J	CHIP C 47PF J	
C18			CC73HCH1H180J	CHIP C 18PF J	
C19			CK73HB1A104K	CHIP C 0.10UF K	
C21			CS77AA0J100M	CHIP TNTL 10UF 6.3WV	
C22			CS77AA1VR33M	CHIP TNTL 0.33UF 35WV	
C24			CK73HB1H102K	CHIP C 1000PF K	
C25			CC73HCH1H020B	CHIP C 2.0PF B	
C26			CC73HCH1H300J	CHIP C 30PF J	
C27			CS77CA1C3R3M	CHIP TNTL 3.3UF 16WV	
C29			CK73HB1H471K	CHIP C 470PF K	
C32			CS77CA1V0R1M	CHIP TNTL 0.1UF 35WV	
C33 ,34			CK73HB1H102K	CHIP C 1000PF K	
C35			CC73HCH1H270J	CHIP C 27PF J	
C38			CC73HCH1H050B	CHIP C 5.0PF B	
C39			CK73GB1H332K	CHIP C 3300PF K	
C40			CC73HCH1H030B	CHIP C 3.0PF B	
C41			CK73GB1H682K	CHIP C 6800PF K	
C42			CC73HCH1H050B	CHIP C 5.0PF B	
C43			CC73HCH1H100C	CHIP C 10PF C	
C44			CK73HB1H471K	CHIP C 470PF K	
C45			CK73GB1A105K	CHIP C 1.0UF K	
C47			CC73HCH1H101J	CHIP C 100PF J	
C48			CK73HB1H471K	CHIP C 470PF K	
C49			CC73HCH1H101J	CHIP C 100PF J	
C50			CC73HCH1H100D	CHIP C 10PF D	

PARTS LIST / 零件表

TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
C52			CC73HCH1H110J	CHIP C 11PF J	C2
C52			CC73HCH1H120J	CHIP C 12PF J	C
C54			CC73HCH1H090B	CHIP C 9.0PF B	
C55			CC73HCH1H120J	CHIP C 12PF J	
C56			CC73HCH1H020B	CHIP C 2.0PF B	C2
C57			CC73HCH1H0R5B	CHIP C 0.5PF B	C2
C58			CC73HCH1H060B	CHIP C 6.0PF B	C
C58			CC73HCH1H090B	CHIP C 9.0PF B	C2
C59			CC73HCH1H1R5B	CHIP C 1.5PF B	C2
C59 ,60			CC73HCH1H010B	CHIP C 1.0PF B	C
C60			CC73HCH1H010B	CHIP C 1.0PF B	C2
C61			CC73HCH1H030B	CHIP C 3.0PF B	C
C61			CC73HCH1H040B	CHIP C 4.0PF B	C2
C62			CC73HCH1H020B	CHIP C 2.0PF B	C
C62			CC73HCH1H030B	CHIP C 3.0PF B	C2
C63			CC73HCH1H101J	CHIP C 100PF J	
C64			CC73HCH1H040B	CHIP C 4.0PF B	C2
C64			CC73HCH1H050B	CHIP C 5.0PF B	C
C65 ,66			CC73HCH1H050B	CHIP C 5.0PF B	C2
C65 ,66			CC73HCH1H070B	CHIP C 7.0PF B	C
C67			CC73HCH1H040B	CHIP C 4.0PF B	C2
C67			CC73HCH1H050B	CHIP C 5.0PF B	C
C68 -70			CK73HB1H471K	CHIP C 470PF K	
C71 ,72			CK73HB1A104K	CHIP C 0.10UF K	
C73 ,74			CC73HCH1H0R5B	CHIP C 0.5PF B	
C75 ,76			CK73HB1H102K	CHIP C 1000PF K	
C77			CK73HB1H471K	CHIP C 470PF K	
C78			CC73HCH1H330J	CHIP C 33PF J	
C79			CS77CP0J100M	CHIP TNTL 10UF 6.3WV	
C80			CK73HB1H471K	CHIP C 470PF K	
C83			CC73HCH1H150J	CHIP C 15PF J	
C84 -86			CK73HB1H102K	CHIP C 1000PF K	
C87			CC73HCH1H100D	CHIP C 10PF D	
C88			CC73HCH1H010B	CHIP C 1.0PF B	C2
C90			CK73HB1H102K	CHIP C 1000PF K	
C100			CK73HB1H471K	CHIP C 470PF K	
C101			CK73GB1H471K	CHIP C 470PF K	
C102			CC73GCH1H120J	CHIP C 12PF J	
C106			CK73HB1H471K	CHIP C 470PF K	
C107			CC73GCH1H060B	CHIP C 6.0PF B	C
C107			CC73GCH1H070B	CHIP C 7.0PF B	C2
C108			CK73HB1H471K	CHIP C 470PF K	
C110,111			CK73GB1H471K	CHIP C 470PF K	
C112			CC73GCH1H070D	CHIP C 7.0PF D	
C113			CK73GB1C104K	CHIP C 0.10UF K	
C116			CC73GCH1H030B	CHIP C 3.0PF B	C2
C116			CC73GCH1H110J	CHIP C 11PF J	C
C119			CK73GB1H471K	CHIP C 470PF K	
C121			CC73GCH1H120J	CHIP C 12PF J	C2
C122			CC73GCH1H330J	CHIP C 33PF J	
C123			CC73GCH1H330G	CHIP C 33PF G	
C124			CC73HCH1H100D	CHIP C 10PF D	
C125			CC73GCH1H060B	CHIP C 6.0PF B	C
C125			CC73GCH1H110J	CHIP C 11PF J	C2
C126			CS77CA1C010M	CHIP TNTL 1.0UF 16WV	
C127			CC73GCH1H200J	CHIP C 20PF J	C
C128			CK73HB1H471K	CHIP C 470PF K	
C129			CK73GB1H471K	CHIP C 470PF K	
C130			CK73HB1H471K	CHIP C 470PF K	
C132			CC73GCH1H240J	CHIP C 24PF J	C

Ref. No.	Address	New parts	Parts No.	Description	Destination
C132			CC73GCH1H390J	CHIP C 39PF J	C2
C133			CK73GB1H471K	CHIP C 470PF K	
C134			CK73GB1H103K	CHIP C 0.010UF K	
C135			CK73GB1C104K	CHIP C 0.10UF K	
C136			CK73GB1A105K	CHIP C 1.0UF K	
C138			CK73GB1H102K	CHIP C 1000PF K	
C140			CC73GCH1H101J	CHIP C 100PF J	
C142			CC73GCH1H070B	CHIP C 7.0PF B	C
C145			CC73GCH1H180J	CHIP C 18PF J	C
C145			CC73GCH1H300J	CHIP C 30PF J	C2
C146			CK73GB1H102K	CHIP C 1000PF K	
C148			CK73GB1H102K	CHIP C 1000PF K	
C149			CC73GCH1H070B	CHIP C 7.0PF B	C2
C151			CC73GCH1H070B	CHIP C 7.0PF B	C2
C152			CC73GCH1H200J	CHIP C 20PF J	
C154			CK73GB1H471K	CHIP C 470PF K	
C156			CC73GCH1H030B	CHIP C 3.0PF B	C2
C156			CC73GCH1H040B	CHIP C 4.0PF B	C
C157			CC73GCH1H010B	CHIP C 1.0PF B	C
C157			CC73GCH1H040B	CHIP C 4.0PF B	C2
C158			CC73GCH1H101J	CHIP C 100PF J	
C159			CC73GCH1H020C	CHIP C 2.0PF C	
C160			CC73GCH1H020B	CHIP C 2.0PF B	
C161			CC73GCH1H050B	CHIP C 5.0PF B	
C163			CC73GCH1H030B	CHIP C 3.0PF B	
C164			CC73GCH1H050B	CHIP C 5.0PF B	
C166			CC73GCH1HR75B	CHIP C 0.75PF B	
C168			CC73GCH1H010B	CHIP C 1.0PF B	C
C169			CC73GCH1H060B	CHIP C 6.0PF B	C
C169			CC73GCH1H100C	CHIP C 10PF C	C2
C190			CK73GB1A105K	CHIP C 1.0UF K	
C191			CK73GB1H103K	CHIP C 0.010UF K	
C201			CK73GB1A224K	CHIP C 0.22UF K	
C206			CK73HB1H102K	CHIP C 1000PF K	
C207			CK73HB1H182K	CHIP C 1800PF K	
C208			CK73HB1H471K	CHIP C 470PF K	
C209			CS77CP0J100M	CHIP TNTL 10UF 6.3WV	
C210			CK73HB1H471K	CHIP C 470PF K	
C211			CK73HB1C103K	CHIP C 0.010UF K	
C213			CK73HB1A104K	CHIP C 0.10UF K	
C214			CC73HCH1H680J	CHIP C 68PF J	
C215			CK73HB1H102K	CHIP C 1000PF K	
C216			CK73GB1C104K	CHIP C 0.10UF K	
C217			CK73HB1A104K	CHIP C 0.10UF K	
C218			CK73GB1C104K	CHIP C 0.10UF K	
C219			CC73HCH1H330J	CHIP C 33PF J	
C220			CK73HB1H102K	CHIP C 1000PF K	
C221			CK73GB1C104K	CHIP C 0.10UF K	
C222			CK73HB1H102K	CHIP C 1000PF K	
C224,225			CK73HB1C103K	CHIP C 0.010UF K	
C228			CC73GCH1H120J	CHIP C 12PF J	
C230			CK73HB1C103K	CHIP C 0.010UF K	
C231			CK73GB1H103K	CHIP C 0.010UF K	
C232			CK73HB1C103K	CHIP C 0.010UF K	
C233			CC73GCH1H060B	CHIP C 6.0PF B	
C234			CK73HB1H102K	CHIP C 1000PF K	
C236			CC73GCH1H180J	CHIP C 18PF J	
C237			CK73HB1H102K	CHIP C 1000PF K	
C238			CK73GB1C104K	CHIP C 0.10UF K	
C239			CK73GB1H102K	CHIP C 1000PF K	

PARTS LIST / 零件表

TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
C240			CC73GCH1H010B	CHIP C 1.0PF B	C2
C240			CC73GCH1H3R5B	CHIP C 3.5PF B	C
C241			CK73GB1H471K	CHIP C 470PF K	
C247			CK73HB1H471K	CHIP C 470PF K	C
C249			CC73GCH1H050B	CHIP C 5.0PF B	C2
C249			CC73GCH1H2R5B	CHIP C 2.5PF B	C
C250			CC73GCH1H220J	CHIP C 22PF J	
C251			CK73HB1H471K	CHIP C 470PF K	
C252			CC73GCH1H010B	CHIP C 1.0PF B	C
C252			CC73GCH1H1R5B	CHIP C 1.5PF B	C2
C253			CC73GCH1H010B	CHIP C 1.0PF B	C2
C253			CC73GCH1H1R5B	CHIP C 1.5PF B	C
C254			CK73HB1H471K	CHIP C 470PF K	
C255			CC73GCH1H220J	CHIP C 22PF J	
C256			CS77CP0J4R7M	CHIP TNTL 4.7UF 6.3WV	
C257			CC73GCH1H070B	CHIP C 7.0PF B	C2
C257			CC73GCH1H4R5B	CHIP C 4.5PF B	C
C258			CK73HB1H471K	CHIP C 470PF K	
C259			CK73GB1H471K	CHIP C 470PF K	
C262,263			CK73HB1H471K	CHIP C 470PF K	
C265			CK73HB1H471K	CHIP C 470PF K	
C266			CK73GB1H471K	CHIP C 470PF K	
C267			CC73GCH1H040B	CHIP C 4.0PF B	C
C267			CC73GCH1H060B	CHIP C 6.0PF B	C2
C268			CC73GCH1H220J	CHIP C 22PF J	
C269			CC73GCH1H020B	CHIP C 2.0PF B	
C270,271			CK73HB1H471K	CHIP C 470PF K	
C272			CC73GCH1H020B	CHIP C 2.0PF B	C
C272			CC73GCH1H1R5B	CHIP C 1.5PF B	C2
C273			CC73GCH1H220J	CHIP C 22PF J	
C274			CC73GCH1H010B	CHIP C 1.0PF B	C
C274			CC73GCH1H040B	CHIP C 4.0PF B	C2
C275			CC73GCH1H020B	CHIP C 2.0PF B	C2
C275			CC73GCH1H030B	CHIP C 3.0PF B	C
C276			CC73GCH1H040B	CHIP C 4.0PF B	
C290			CC73GCH1H020B	CHIP C 2.0PF B	
C291			CC73GCH1H060B	CHIP C 6.0PF B	
C292			CK73HB1H471K	CHIP C 470PF K	
C293			CC73GCH1H070B	CHIP C 7.0PF B	C
C301			CK73HB1H392K	CHIP C 3900PF K	
C302			CK73HB1H271K	CHIP C 270PF K	
C304			CK73GB1A224K	CHIP C 0.22UF K	
C306			CS77AA0J4R7M	CHIP TNTL 4.7UF 6.3WV	
C307,308			CK73HB1A104K	CHIP C 0.10UF K	
C309			CC73GCH1H820J	CHIP C 82PF J	
C310			CK73HB1A683K	CHIP C 0.068UF K	
C311			CK73GB1A105K	CHIP C 1.0UF K	
C312			CC73GCH1H120J	CHIP C 12PF J	
C313			CC73GCH1H121J	CHIP C 120PF J	
C314			CK73HB1A104K	CHIP C 0.10UF K	
C315			CK73GB1A105K	CHIP C 1.0UF K	
C316			CK73GB1C104K	CHIP C 0.10UF K	
C317			CK73HB1A104K	CHIP C 0.10UF K	
C318			CS77AA0J4R7M	CHIP TNTL 4.7UF 6.3WV	
C319			CC73GCH1H271J	CHIP C 270PF J	
C320			CK73HB1C103K	CHIP C 0.010UF K	
C321			CK73GB1C473K	CHIP C 0.047UF K	
C322			CK73HB1C153K	CHIP C 0.015UF K	
C323			CC73GCH1H820J	CHIP C 82PF J	
C324			CC73HCH1H820J	CHIP C 82PF J	

Ref. No.	Address	New parts	Parts No.	Description	Destination
C325			CK73HB1A104K	CHIP C 0.10UF K	
C326			CK73HB1H102K	CHIP C 1000PF K	
C327			CC73HCH1H101J	CHIP C 100PF J	
C328			CK73HB1H391K	CHIP C 390PF K	
C329,330			CK73GB1A105K	CHIP C 1.0UF K	
C331			CK73HB1A104K	CHIP C 0.10UF K	
C332			CK73HB1H471K	CHIP C 470PF K	
C333,334			CK73GB1C104K	CHIP C 0.10UF K	
C335			CC73GCH1H221J	CHIP C 220PF J	
C336			CK73FB1C474K	CHIP C 0.47UF K	
C338			CC73GCH1H101J	CHIP C 100PF J	
C339			CS77AA0J100M	CHIP TNTL 10UF 6.3WV	
C340			CK73GB1C104K	CHIP C 0.10UF K	
C341			CK73GB1C473K	CHIP C 0.047UF K	
C342			CS77AA0J100M	CHIP TNTL 10UF 6.3WV	
C343			CK73GB1C473J	CHIP C 0.047UF J	
C344			CC73GCH1H221J	CHIP C 220PF J	
C345			CS77AB20J101M	CHIP TAN 100UF 6.3WV	
C346			CK73GB1H102K	CHIP C 1000PF K	
C348			CK73HB1H471K	CHIP C 470PF K	
C350			CK73HB1H471K	CHIP C 470PF K	
C351,352			CK73HB1C103K	CHIP C 0.010UF K	
C354			CK73HB1A104K	CHIP C 0.10UF K	
C356			CK73HB1A333K	CHIP C 0.033UF K	
C357			CK73HB1E472K	CHIP C 4700PF K	
C401			CC73GCH1H471J	CHIP C 470PF J	
C402			CK73HB1H102K	CHIP C 1000PF K	
C403			CK73GB1C104K	CHIP C 0.10UF K	
C405			CC73GCH1H101J	CHIP C 100PF J	
C406			CK73HB1E472K	CHIP C 4700PF K	
C407			CK73HB1H102K	CHIP C 1000PF K	
C408			CK73HB1E472K	CHIP C 4700PF K	
C409,410			CK73GB1A105K	CHIP C 1.0UF K	
C411			CK73HB1H102K	CHIP C 1000PF K	
C415			CK73HB1H471K	CHIP C 470PF K	
C417			CK73GB1A105K	CHIP C 1.0UF K	
C418			CK73HB1E562K	CHIP C 5600PF K	
C419			CK73HB1H102K	CHIP C 1000PF K	
C421			CK73GB1A105K	CHIP C 1.0UF K	
C424			CK73HB1H471K	CHIP C 470PF K	
C426,427			CK73GB1A105K	CHIP C 1.0UF K	
C428,429			CK73HB1H102K	CHIP C 1000PF K	
C430			CK73GB1H103K	CHIP C 0.010UF K	
C431			CK73HB1C103K	CHIP C 0.010UF K	
C432			CC73HCH1H050B	CHIP C 5.0PF B	
C433,434			CC73HCH1H030B	CHIP C 3.0PF B	
C435			CC73HCH1H050B	CHIP C 5.0PF B	
C440			CC73GCH1H040B	CHIP C 4.0PF B	
C443			CK73GB1A474K	CHIP C 0.47UF K	
C444			CC73GCH1H020B	CHIP C 2.0PF B	C2
C450,451			CK73HB1C103K	CHIP C 0.010UF K	
C452			CK73HB1H102K	CHIP C 1000PF K	
C456			CK73GB1C104K	CHIP C 0.10UF K	
C901,902			CK73GB1A105K	CHIP C 1.0UF K	
TC1 ,2			C05-0245-05	CERAMIC TRIMMER CAPACITOR(10PF)	
CN201			E23-1278-05	TERMINAL	
CN401			E40-6363-05	FLAT CABLE CONNECTOR	
CN402			E40-6430-05	FLAT CABLE CONNECTOR	

PARTS LIST / 零件表

TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
J301			E11-0707-05	PHONE JACK(2.5/3.5)	
F401			F53-0324-05	FUSE(2.5A)	
101	2A		J30-1288-14	SPACER	
CD201			L79-1582-05	TUNING COIL	
CF201	2A		L72-0973-05	CERAMIC FILTER	
L1			L40-4791-86	SMALL FIXED INDUCTOR(4.7UH)	
L3			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)	
L5			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)	
L6 ,7			L92-0138-05	CHIP FERRITE	
L8 ,9			L41-1875-06	SMALL FIXED INDUCTOR(18NH)	
L10 ,11			L41-1085-06	SMALL FIXED INDUCTOR(100NH)	
L12			L92-0138-05	CHIP FERRITE	
L13 ,14			L41-1085-06	SMALL FIXED INDUCTOR(100NH)	
L16			L40-2278-67	SMALL FIXED INDUCTOR(22NH)	C
L16			L40-2778-67	SMALL FIXED INDUCTOR(27NH)	C2
L17			L40-2778-67	SMALL FIXED INDUCTOR(27NH)	C
L17			L40-3378-67	SMALL FIXED INDUCTOR(33NH)	C2
L18 ,19			L41-2285-03	SMALL FIXED INDUCTOR(220NH)	
L20 ,21			L40-3391-86	SMALL FIXED INDUCTOR(3.3UH)	
L22			L92-0138-05	CHIP FERRITE	
L23			L41-2275-06	SMALL FIXED INDUCTOR(22NH)	
L24			L92-0470-05	CHIP FERRITE	
L25			L41-2275-06	SMALL FIXED INDUCTOR(22NH)	
L100			L41-3375-06	SMALL FIXED INDUCTOR(33NH)	C2
L100,101			L41-1575-06	SMALL FIXED INDUCTOR(15NH)	C
L101			L41-2275-06	SMALL FIXED INDUCTOR(22NH)	C2
L102			L92-0138-05	CHIP FERRITE	
L103,104			L40-8265-92	SMALL FIXED INDUCTOR(8.2NH)	
L105			L40-1575-54	SMALL FIXED INDUCTOR(15NH)	
L106			L92-0149-05	CHIP FERRITE	
L107			L40-1263-92	SMALL FIXED INDUCTOR(1.2NH)	C
L109			L92-0149-05	CHIP FERRITE	
L110			L40-2285-54	SMALL FIXED INDUCTOR(220NH)	
L111			L41-1092-44	SMALL FIXED INDUCTOR(1UH)	
L201			L40-1091-86	SMALL FIXED INDUCTOR(1.0UH)	
L202			L92-0138-05	CHIP FERRITE	
L203			L41-5685-39	SMALL FIXED INDUCTOR(0.56UH)	
L204			L40-2785-92	SMALL FIXED INDUCTOR(270NH)	
L206			L41-3975-06	SMALL FIXED INDUCTOR(39NH)	C2
L212			L41-8268-14	SMALL FIXED INDUCTOR(8.2NH)	
L214			L41-8268-14	SMALL FIXED INDUCTOR(8.2NH)	
L215			L41-2285-03	SMALL FIXED INDUCTOR(220NH)	
L220			L34-4602-05	AIR-CORE COIL	
L223			L34-4572-05	AIR-CORE COIL	C
L224-226			L34-4564-05	AIR-CORE COIL	
L228,229			L41-8268-14	SMALL FIXED INDUCTOR(8.2NH)	
L230			L41-3978-03	SMALL FIXED INDUCTOR(39NH)	C
L230			L41-5678-03	SMALL FIXED INDUCTOR(56NH)	C2
L250			L41-1875-06	SMALL FIXED INDUCTOR(18NH)	
L290			L41-3078-17	SMALL FIXED INDUCTOR(30NH)	C
L301			L92-0140-05	CHIP FERRITE	
L302			L92-0149-05	CHIP FERRITE	
L401			L92-0149-05	CHIP FERRITE	
L402-404			L92-0138-05	CHIP FERRITE	
L410			L92-0138-05	CHIP FERRITE	
L411			L41-1875-06	SMALL FIXED INDUCTOR(18NH)	

Ref. No.	Address	New parts	Parts No.	Description	Destination
L412			L34-4564-05	AIR-CORE COIL	C2
X1			L77-1931-05	TCXO(12.8MHZ)	
X3			L77-1633-05	CRYSTAL RESONATOR(7.3728MHZ)	
XF201			L71-0619-05	MCF(38.85MHZ)	
CP404			RK75HA1J473J	CHIP-COM 47K J 1/16W	
CP405-407			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
R1			RK73HB1J223J	CHIP R 22K J 1/16W	
R2			RK73HB1J103J	CHIP R 10K J 1/16W	
R3			RK73HB1J333J	CHIP R 33K J 1/16W	
R4			RK73HB1J563J	CHIP R 56K J 1/16W	
R5			RK73HB1J104J	CHIP R 100K J 1/16W	
R6			RK73HB1J823J	CHIP R 82K J 1/16W	
R7			RK73HB1J101J	CHIP R 100 J 1/16W	
R8 -11			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R12			RK73HB1J222J	CHIP R 2.2K J 1/16W	
R13			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R14			RK73HB1J334J	CHIP R 330K J 1/16W	
R15			RK73GB2A221J	CHIP R 220 J 1/10W	
R16			RK73GB2A561J	CHIP R 560 J 1/10W	
R17			RK73HB1J101J	CHIP R 100 J 1/16W	
R18			RK73GB2A181J	CHIP R 180 J 1/10W	
R19			RK73GB2A122J	CHIP R 1.2K J 1/10W	
R20			RK73HB1J100J	CHIP R 10 J 1/16W	
R21			RK73GB2A681J	CHIP R 680 J 1/10W	
R22			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R23			RK73GB2A103J	CHIP R 10K J 1/10W	
R25			RK73HB1J223J	CHIP R 22K J 1/16W	
R26			RK73HB1J103J	CHIP R 10K J 1/16W	
R27			RK73HB1J220J	CHIP R 22 J 1/16W	
R30			RK73HB1J333J	CHIP R 33K J 1/16W	
R31			RK73HB1J474J	CHIP R 470K J 1/16W	
R32			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R33			RK73HB1J154J	CHIP R 150K J 1/16W	
R34			RK73HB1J474J	CHIP R 470K J 1/16W	
R35 ,36			RK73HB1J274J	CHIP R 270K J 1/16W	
R37			RK73HB1J101J	CHIP R 100 J 1/16W	
R38			RK73HB1J181J	CHIP R 180 J 1/16W	
R39			RK73HB1J151J	CHIP R 150 J 1/16W	C2
R39 ,40			RK73HB1J151J	CHIP R 150 J 1/16W	C
R40			RK73HB1J101J	CHIP R 100 J 1/16W	C2
R41			RK73HB1J154J	CHIP R 150K J 1/16W	
R42			RK73HB1J103J	CHIP R 10K J 1/16W	C
R42			RK73HB1J472J	CHIP R 4.7K J 1/16W	C2
R43			RK73HB1J101J	CHIP R 100 J 1/16W	
R46			RK73HB1J103J	CHIP R 10K J 1/16W	
R47			RK73HB1J220J	CHIP R 22 J 1/16W	
R48			RK73HB1J331J	CHIP R 330 J 1/16W	
R49			RK73HB1J222J	CHIP R 2.2K J 1/16W	
R50			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R100			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R103			RK73GB2A333J	CHIP R 33K J 1/10W	C2
R103			RK73GB2A473J	CHIP R 47K J 1/10W	C
R105			RK73GB2A331J	CHIP R 330 J 1/10W	
R106			RK73GB2A121J	CHIP R 120 J 1/10W	C2
R106			RK73GB2A220J	CHIP R 22 J 1/10W	C
R107			RK73HB1J101J	CHIP R 100 J 1/16W	
R110			RK73GB2A331J	CHIP R 330 J 1/10W	

If a part reference number is listed in a shaded box (for example, CF 201), that part does not come with the PCB.

PARTS LIST / 零件表

TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R111,112			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R114			RK73GB2A124J	CHIP R 120K J 1/10W	C
R114			RK73GB2A683J	CHIP R 68K J 1/10W	C2
R115			RK73GB2A103J	CHIP R 10K J 1/10W	C
R115			RK73GB2A822J	CHIP R 8.2K J 1/10W	C2
R116			RK73GB2A220J	CHIP R 22 J 1/10W	
R121			RK73GB2A220J	CHIP R 22 J 1/10W	
R123			RK73FB2B000J	CHIP R 0.0 J 1/8W	
R124			RK73GB2A473J	CHIP R 47K J 1/10W	
R126			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R127-129			RK73EB2ER39K	CHIP R 0.39 K 1/4W	
R130-135			RK73GH2A154D	CHIP R 150K D 1/10W	
R137			RK73FB2B000J	CHIP R 0.0 J 1/8W	
R138			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R139			RK73GB2A473J	CHIP R 47K J 1/10W	
R140			RK73GB2A563J	CHIP R 56K J 1/10W	
R141			RK73GB2A104J	CHIP R 100K J 1/10W	
R142			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R143			RK73GB2A104J	CHIP R 100K J 1/10W	
R145			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R147			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R190			RK73GB2A101J	CHIP R 100 J 1/10W	
R191,192			RK73GB2A271J	CHIP R 270 J 1/10W	
R193			RK73GB2A473J	CHIP R 47K J 1/10W	C2
R193,194			RK73GB2A473J	CHIP R 47K J 1/10W	C
R194			RK73GB2A683J	CHIP R 68K J 1/10W	C2
R203			RK73HB1J184J	CHIP R 180K J 1/16W	
R206			RK73GB2A100J	CHIP R 10 J 1/10W	
R207			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R208			RK73HB1J823J	CHIP R 82K J 1/16W	
R209			RK73HB1J272J	CHIP R 2.7K J 1/16W	
R210,211			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R212			RK73HB1J823J	CHIP R 82K J 1/16W	
R213			RK73HB1J392J	CHIP R 3.9K J 1/16W	
R215			RK73HB1J101J	CHIP R 100 J 1/16W	
R216			RK73HB1J124J	CHIP R 120K J 1/16W	
R217			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R218			RK73HB1J471J	CHIP R 470 J 1/16W	
R219			RK73GB2A391J	CHIP R 390 J 1/10W	
R226,227			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R228			RK73GB2A151J	CHIP R 150 J 1/10W	
R233			RK73HB1J104J	CHIP R 100K J 1/16W	
R236			RK73HB1J563J	CHIP R 56K J 1/16W	
R238			RK73HB1J104J	CHIP R 100K J 1/16W	
R239			RK73HB1J563J	CHIP R 56K J 1/16W	
R240			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R241			RK73HB1J105J	CHIP R 1.0M J 1/16W	C
R243,244			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R248			RK73GB2A221J	CHIP R 220 J 1/10W	
R249			RK73GB2A220J	CHIP R 22 J 1/10W	
R251			RK73HB1J104J	CHIP R 100K J 1/16W	
R253			RK73HB1J104J	CHIP R 100K J 1/16W	
R254			RK73HB1J683J	CHIP R 68K J 1/16W	
R255			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R256,257			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R258			RK73FB2B000J	CHIP R 0.0 J 1/8W	
R301			RK73HB1J103J	CHIP R 10K J 1/16W	
R304			RK73HB1J273J	CHIP R 27K J 1/16W	
R305			RK73HB1J104J	CHIP R 100K J 1/16W	

Ref. No.	Address	New parts	Parts No.	Description	Destination
R306			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R307			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R310			RK73GB2A394J	CHIP R 390K J 1/10W	
R311			RK73HB1J123J	CHIP R 12K J 1/16W	
R312			RK73GB2A334J	CHIP R 330K J 1/10W	
R313			RK73GB2A104J	CHIP R 100K J 1/10W	
R314			RK73GB2A272J	CHIP R 2.7K J 1/10W	
R315			RK73GB2A334J	CHIP R 330K J 1/10W	
R316			RK73GB2A124J	CHIP R 120K J 1/10W	
R317			RK73GB2A474J	CHIP R 470K J 1/10W	
R318			RK73GB2A122J	CHIP R 1.2K J 1/10W	
R319			RK73HB1J563J	CHIP R 56K J 1/16W	
R320			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R321			RK73HB1J224J	CHIP R 220K J 1/16W	
R322			RK73HB1J184J	CHIP R 180K J 1/16W	
R323			RK73HB1J563J	CHIP R 56K J 1/16W	
R324,325			RK73GB2A104J	CHIP R 100K J 1/10W	
R326			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R327			RK73GB2A184J	CHIP R 180K J 1/10W	
R328			RK73GB2A103J	CHIP R 10K J 1/10W	
R329			RK73GB2A823J	CHIP R 82K J 1/10W	
R330			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R331			RK73GB2A154J	CHIP R 150K J 1/10W	
R332			RK73GB2A153J	CHIP R 15K J 1/10W	
R334			RK73GB2A473J	CHIP R 47K J 1/10W	
R335			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R336			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R337			RK73GB2A151J	CHIP R 150 J 1/10W	
R338			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R339			RK73GB2A471J	CHIP R 470 J 1/10W	
R340,341			RK73GB2A103J	CHIP R 10K J 1/10W	
R342			RK73GB2A101J	CHIP R 100 J 1/10W	
R343			RK73GB2A474J	CHIP R 470K J 1/10W	
R344			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R345,346			RK73GB2A101J	CHIP R 100 J 1/10W	
R347			RK73GB2A104J	CHIP R 100K J 1/10W	
R348			RK73GB2A563J	CHIP R 56K J 1/10W	
R349			RK73GB2A333J	CHIP R 33K J 1/10W	
R350			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R352			RK73HB1J104J	CHIP R 100K J 1/16W	
R353			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R354,355			RK73HB1J103J	CHIP R 10K J 1/16W	
R403			RK73GB2A101J	CHIP R 100 J 1/10W	
R404			RK73HH1J474D	CHIP R 470K D 1/16W	
R405			RK73GB2A334J	CHIP R 330K J 1/10W	
R406			RK73HH1J474D	CHIP R 470K D 1/16W	
R407			RK73HB1J334J	CHIP R 330K J 1/16W	
R408			RK73HB1J473J	CHIP R 47K J 1/16W	
R409,410			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R412			RK73HB1J473J	CHIP R 47K J 1/16W	
R413,414			RK73GB2A331J	CHIP R 330 J 1/10W	
R415,416			RK73GB2A473J	CHIP R 47K J 1/10W	
R417-420			RK73HB1J473J	CHIP R 47K J 1/16W	
R421,422			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R423			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R424,425			RK73HB1J473J	CHIP R 47K J 1/16W	
R435			RK73HB1J473J	CHIP R 47K J 1/16W	
R436			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R437,438			RK73HB1J473J	CHIP R 47K J 1/16W	
R447			RK73HB1J123J	CHIP R 12K J 1/16W	

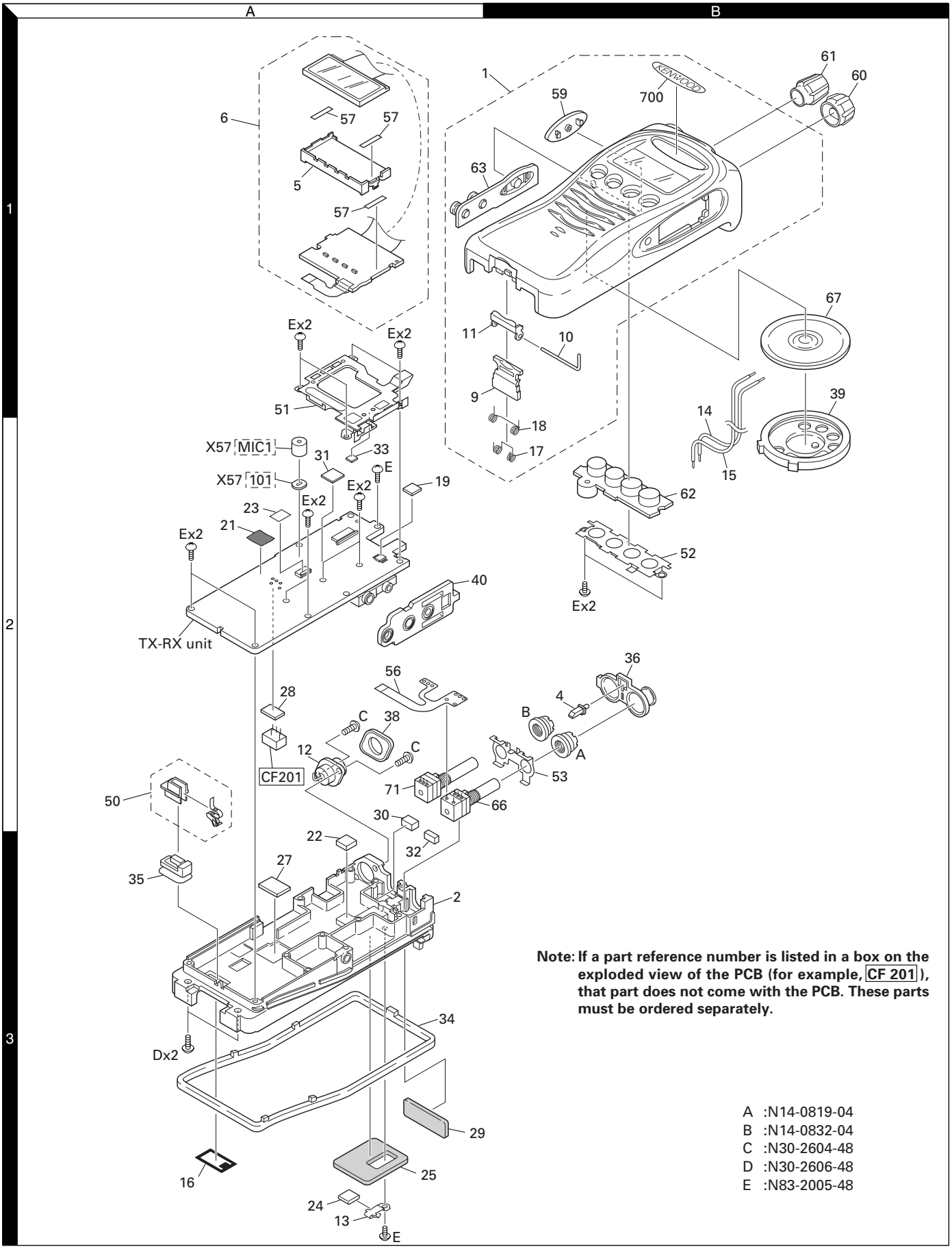
PARTS LIST / 零件表

TX-RX UNIT (X57-713X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R449,450			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R451			RK73HB1J680J	CHIP R 68 J 1/16W	
R452			RK73HB1J103J	CHIP R 10K J 1/16W	
R453			RK73HB1J223J	CHIP R 22K J 1/16W	
R470			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R901,902			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R903			RK73GB2A000J	CHIP R 0.0 J 1/10W	C2
VR1			R32-0736-05	SEMI FIXED VARIABLE RESISTOR(68K)	
S1 -3			S70-0414-05	TACT SWITCH	
MIC1	2A		T91-0648-05	MIC ELEMENT	
D1			MA2S111-F	DIODE	
D2 -9			HVC376B	VARIABLE CAPACITANCE DIODE	
D10			1SV278F	DIODE	
D11			MA2S111-F	DIODE	
D101			HSC277	DIODE	
D102			HZU5CLL	ZENER DIODE	
D103			HVC131	DIODE	
D104			HSC277	DIODE	
D106			HSC277	DIODE	
D122			HVC131	DIODE	
D202			HSC277	DIODE	
D203-206			HVC355B	VARIABLE CAPACITANCE DIODE	
D210			HVC355B	VARIABLE CAPACITANCE DIODE	C
D301,302			RB706F-40	DIODE	
D303			DAN222	DIODE	
D401			RB521S-30	DIODE	
D402			1SR154-400	DIODE	
IC1			MB15A02PFV2E1	MOS-IC	
IC101			TA75W01FUF	MOS-IC	
IC201			TA31136FNG	MOS-IC	
IC301			AQUA-L	MOS-IC	
IC302			TA7368FG	MOS-IC	
IC401,402			XC6204B502MR	MOS-IC	
IC403			BD4840FVE	MOS-IC	
IC404			BD4845FVE	MOS-IC	
IC405			30620MCPA50GP	MICROCONTROLLER IC	
IC406			AT24128N10SU27	ROM IC	
IC407			TC7W74FU-F	MOS-IC	
Q1			KTC4082	TRANSISTOR	
Q2			2SC5108(Y)F	TRANSISTOR	
Q3 ,4			2SK508NV(K52)	FET	
Q5			RT1P430U	TRANSISTOR	
Q6			2SC5108(Y)F	TRANSISTOR	
Q7			RT1P430U	TRANSISTOR	
Q8			2SC4617(S)	TRANSISTOR	
Q9			2SC4619	TRANSISTOR	
Q100			2SC4619	TRANSISTOR	
Q101			2SK3077F	FET	
Q102			2SK2596-E	FET	
Q103			2SK3476-F	FET	
Q104			RT1N141U	TRANSISTOR	
Q105			2SK879(Y)F	FET	
Q107			RT1N141U	TRANSISTOR	
Q108			2SK1824-A	FET	
Q109			RT1P441U	TRANSISTOR	
Q202			RT1P441U	TRANSISTOR	

Ref. No.	Address	New parts	Parts No.	Description	Destination
Q203			2SC4649(N,P)	TRANSISTOR	
Q204,205			3SK318	FET	
Q301			RT1P141U	TRANSISTOR	
Q302			2SC4919	TRANSISTOR	
Q303			RT1N441U	TRANSISTOR	
Q304			2SA1362-F(GR)	TRANSISTOR	
Q305			RT1N441U	TRANSISTOR	
Q306			2SK3577-A	FET	
Q316			2SK3577-A	FET	
Q401,402			RT1N141U	TRANSISTOR	
Q403			CPH3317	FET	
Q404,405			RT1P237U-T111	TRANSISTOR	
Q407,408			2SK1830F	FET	
Q901			2SK1824-A	FET	
TH101			B57331V2104J	THERMISTOR	
TH203			B57331V2104J	THERMISTOR	

EXPLODED VIEW / 部件分解图

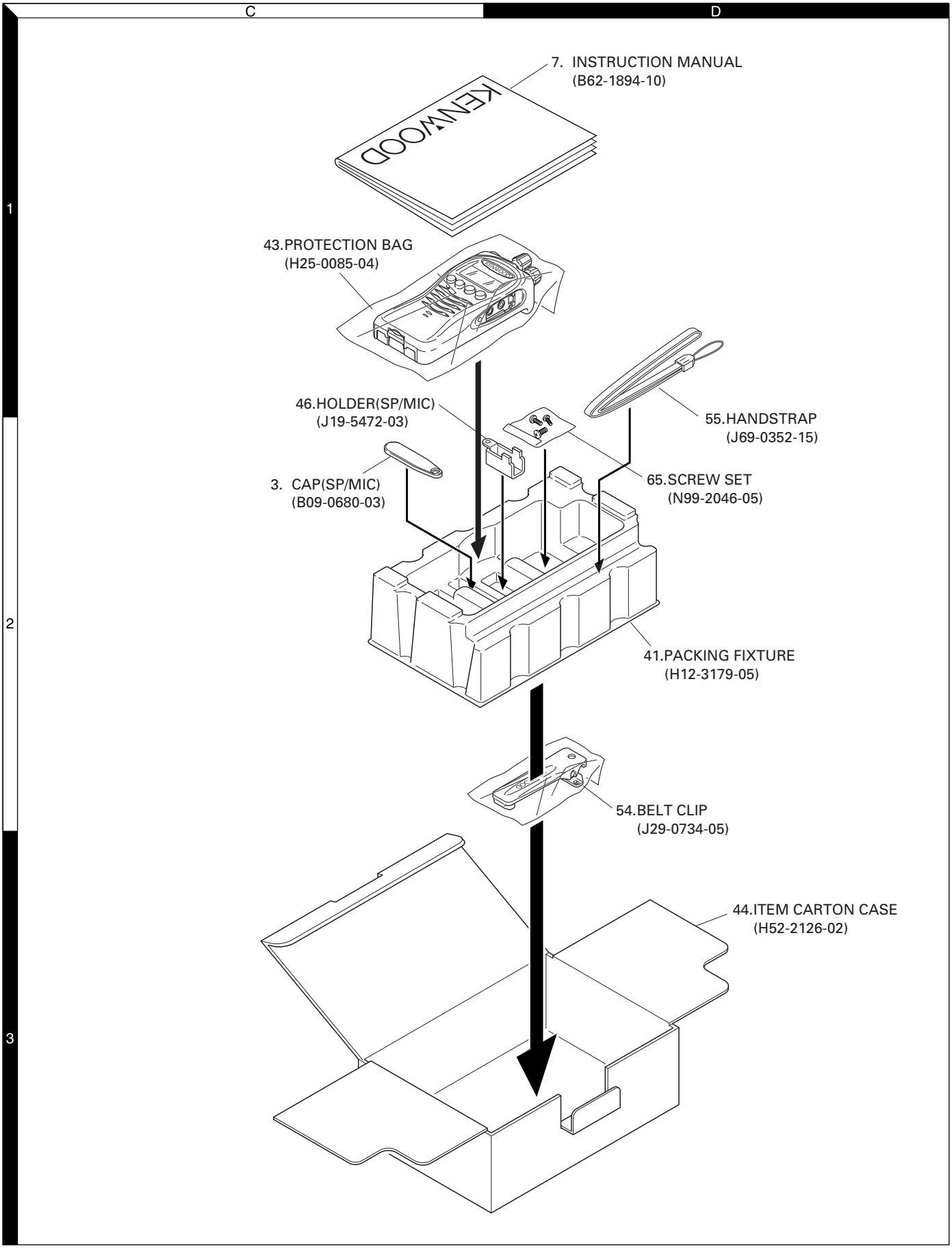


Note: If a part reference number is listed in a box on the exploded view of the PCB (for example, CF 201), that part does not come with the PCB. These parts must be ordered separately.

A :N14-0819-04
B :N14-0832-04
C :N30-2604-48
D :N30-2606-48
E :N83-2005-48

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

PACKING / 包装



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

ADJUSTMENT / 调整

Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range	400 to 480MHz
	Modulation	Frequency modulation and external modulation
	Output	-127dBm/0.1μV to greater than -47dBm/1mV
2. Power Meter	Input Impedance	50Ω
	Operation Frequency	400 to 480MHz
	Measurement Range	Vicinity of 10W
3. Deviation Meter	Frequency Range	400 to 480MHz
4. Digital Volt Meter (DVM)	Measuring Range	10mV to 10V DC
	Input Impedance	High input impedance for minimum circuit loading
5. Oscilloscope		DC through 30MHz
6. High Sensitivity Frequency Counter	Frequency Range	10Hz to 1000MHz
	Frequency Stability	0.2ppm or less
7. Ammeter		5A
8. AF Volt Meter (AF VTVM)	Frequency Range	50Hz to 10kHz
	Voltage Range	1mV to 10V
9. Audio Generator (AG)	Frequency Range	50Hz to 5kHz or more
	Output	0 to 1V
10. Distortion Meter	Capability	3% or less at 1kHz
	Input Level	50mV to 10Vrms
11. Spectrum Analyzer	Measuring Range	DC to 1GHz or more
12. Tracking Generator	Center frequency	50kHz to 600MHz
	Output Voltage	100mV or more
13. 8Ω Dummy Load		Approx. 8Ω, 3W
14. Regulated Power Supply		5V to 10V, approx. 3A
		Useful if ammeter equipped

所需的用于调整的测试设备

测试设备	主要特性	
1. 标准信号发生器 (SSG)	频率范围	400 到 480MHz
	调制	调频和外部调制
	输出	-127dBm/0.1μV到大于 -47dBm/1mV
2. 功率计	输入阻抗	50Ω
	操作频率	400 到 480MHz
	测量范围	10W 左右
3. 偏差仪	频率范围	400 到 480MHz
4. 数字电压表 (DVM)	测量范围	10mV 到 10V DC
	输入阻抗	为最小电路负载高输入阻抗
5. 示波器		直流到 30MHz
6. 高灵敏度频率计数器	频率范围	10Hz 到 1000MHz
	频率稳定性	0.2ppm 或更低
7. 电流表		5A
8. 音频电压表 (AF VTVM)	频率范围	50Hz 到 10kHz
	电压范围	1mV 到 10V
9. 音频发生器 (AG)	频率范围	50Hz 到 5kHz 或更高
	输出	0 到 1V
10. 失真测试仪	容量	1kHz 时 3% 或更低
	输入电平	50mV 到 10Vrms
11. 频谱分析仪	测量范围	DC 到 1GHz 或更高
12. 轨迹发生器	中心频率	50kHz 到 600MHz
	输出电压	100mV 或更高
13. 8Ω假负载		大约 8Ω，3W
14. 可调电源		5V 到 10V, 大约 3A
		配备了电流表时有用

ADJUSTMENT / 调整

■ The following parts are required for adjustment

1. Antenna connector adapter

The antenna connector of this transceiver uses an SMA terminal.

Use an antenna connector adapter [SMA(f) – BNC(f) or SMA(f) – N(f)] for adjustment. (The adapter is not provided as an option, so buy a commercially-available one.)

2. Repair Jig (Chassis)

Use jig (part No.: A10-4086-03) for repairing the TK-3217. Place the TX-RX unit on the jig and fit it with screws.

The jig facilitates the voltage check and protects the final amplifier FET when the voltage on the flow side of the TX-RX unit is checked during repairs.

3. Nut wrench

In order to turn the volume nut and the channel selector nut, use a recommendation tool.

KENWOOD part No. : W05-1012-00

4. Battery Jig (W05-1011-00)

Connect the power cable properly between the battery jig installed in the transceiver and the power supply, and be sure output voltage and the power supply polarity prior to switching the power supply ON, otherwise over voltage and reverse connection may damage the transceiver, or the power supply or both.

Note: When using the battery jig, you must measure the voltage at the terminals of the battery jig. Otherwise, a slight voltage drop may occur within the power cable, between the power supply and the battery jig, especially while the transceiver transmits.

■ 下面是调整时所需的部件

1. 天线接口转换头

此对讲机的天线接口使用 SMA 终端。

使用天线接口转换头 [SMA (f) - BNC (f) 或 SMA (f) - N (f)] 进行调整。（转换头不作为可选件提供，因此请购买商用转换头。）

2. 维修机架（机壳）

使用机壳（A10-4086-03）维修 TK-3217。将 TX-RX 单元放置在机壳上，并且拧上螺钉。

在维修过程中，需要在 TX-RX 单元的电路板上检测电压时，机壳可以方便地进行电压检测，并且保护模块。

3. 螺母扳手

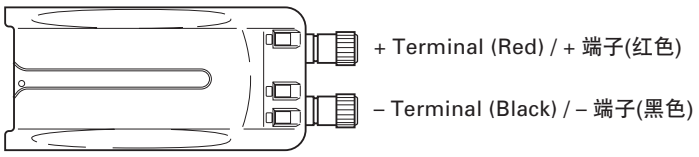
为了转动音量螺母和信道选择螺母，请使用推荐的工具。

KENWOOD 零件号：W05-1012-00

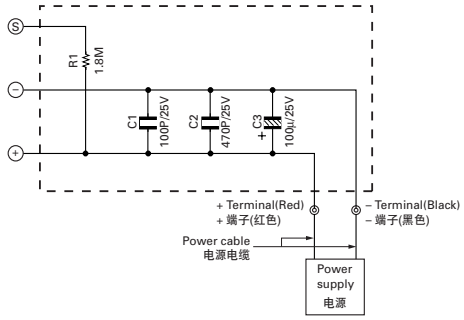
4. 电池夹具 (W05-1011-00)

在对讲机的电池夹具和电源之间连接适当的电源电缆，确认了输出电压之后接通电源开关，电压超过或极性颠倒都有可能损坏对讲机。

注：当使用电池夹具时，你必须测定电池夹具的终端电压。因为，电源和电池夹具之间会有一些的电压下降，尤其在对讲机发射的时候。

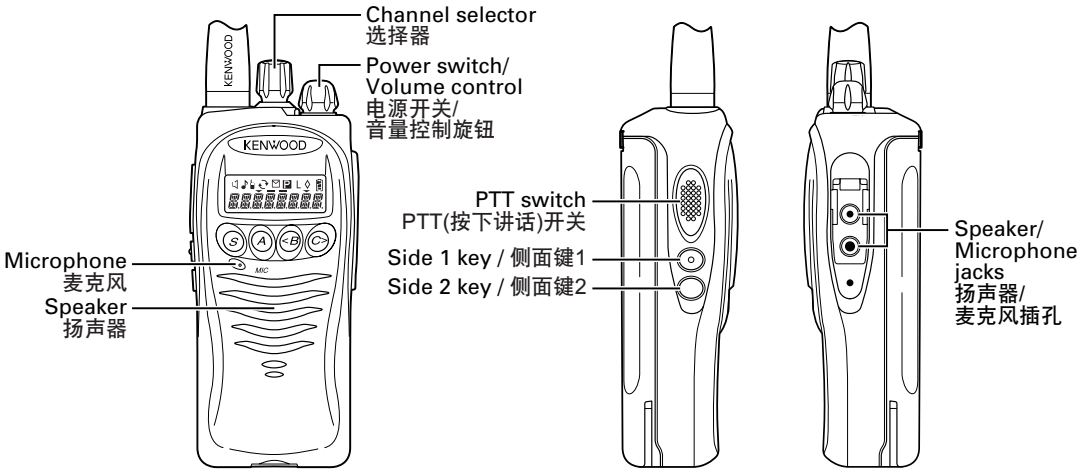


SCHEMATIC DIAGRAM / 原理图

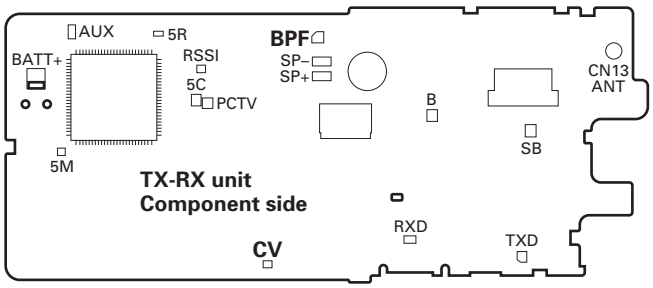


ADJUSTMENT / 调整

Controls 控制

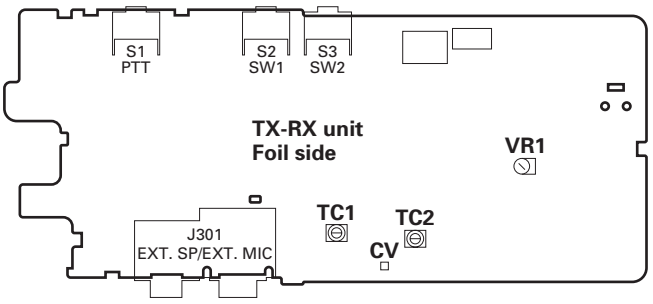


Adjustment Points 调整点



BPF : Band-pass wave form test point
CV : Lock voltage adjustment terminal

BPF : 带通波形测试点
CV : 锁定电压调整端子



VR1 : Frequency adjustment
TC1 : Transmit lock voltage adjustment
TC2 : Receive lock voltage adjustment
CV : Lock voltage adjustment terminal

VR1 : 频率调整
TC1 : 发射锁定电压调整
TC2 : 接收锁定电压调整
CV : 锁定电压调整端子

ADJUSTMENT / 调整

■ Frequency and signaling

The transceiver has been adjusted for the frequencies shown in the following table. When required, readjust them following the adjustment procedure to obtain the frequencies you want in actual operation.

Frequency (MHz) C type

Channel No.	RX Frequency	TX Frequency
1	460.050	460.100
2	440.050	440.100
3	479.950	479.900
4	460.000	460.000
5	460.200	460.200
6	460.400	460.400

Frequency (MHz) C2 type

Channel No.	RX Frequency	TX Frequency
1	415.050	415.100
2	400.050	400.100
3	429.950	429.900
4	415.000	415.000
5	415.200	415.200
6	415.400	415.400

Signaling

Signaling No.	RX	TX
1	None	None
2	None	100Hz Square Wave
3	QT 67.0Hz	QT 67.0Hz
4	QT 151.4Hz	QT 151.4Hz
5	QT 250.3Hz	QT 250.3Hz
6	DQT D023N	DQT D023N
7	DQT D754I	DQT D754I
8	DTMF 159D	DTMF 159D
9	None	DTMF tone 9
10	None	MSK

- **Preparations for tuning the transceiver**

Before attempting to tune the transceiver, connect the unit to a suitable power supply.

Whenever the transmitter is tuned, the unit must be connected to a suitable dummy load (i.e. power meter).

The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

Adjustment Frequency

TEST CH	C type	
	RX Frequency	TX Frequency
Low	440.050MHz	440.100MHz
Low'	450.050MHz	450.100MHz
Center	460.050MHz	460.100MHz
High'	470.050MHz	470.100MHz
High	479.950MHz	479.900MHz

TEST CH	C2 type	
	RX Frequency	TX Frequency
Low	400.050MHz	400.100MHz
Low'	407.550MHz	407.600MHz
Center	415.050MHz	415.100MHz
High'	422.550MHz	422.600MHz
High	429.950MHz	429.900MHz

■ 频率和信令

频率设定调整如下表所示。当需要时，按照如下调整程序重新调整，以便获得您在实际操作时希望的频率。

频率 (MHz) C 类型

信道号码	RX 频率	TX 频率
1	460.050	460.100
2	440.050	440.100
3	479.950	479.900
4	460.000	460.000
5	460.200	460.200
6	460.400	460.400

频率 (MHz) C2 类型

信道号码	RX 频率	TX 频率
1	415.050	415.100
2	400.050	400.100
3	429.950	429.900
4	415.000	415.000
5	415.200	415.200
6	415.400	415.400

信令

信令号码	RX	TX
1	无	无
2	无	100Hz 方形波
3	QT 67.0Hz	QT 67.0Hz
4	QT 151.4Hz	QT 151.4Hz
5	QT 250.3Hz	QT 250.3Hz
6	DQT D023N	DQT D023N
7	DQT D754I	DQT D754I
8	DTMF 159D	DTMF 159D
9	无	DTMF 音频 9
10	无	MSK

- **调谐对讲机的准备**

在调谐对讲机之前，把装置连接到规定的电源。

任何时候调整发射，装置必须连接到合适的假负载 (即功率表)。

在全部调谐过程中，扬声器输出端子必须连接8 Ω 假负载连接到 AC 伏特计和音频失真仪或 SINAD 测试表。

调整频率

测试 CH	C 类型	
	RX 频率	TX 频率
低	440.050MHz	440.100MHz
低′	450.050MHz	450.100MHz
中心	460.050MHz	460.100MHz
高′	470.050MHz	470.100MHz
高	479.950MHz	479.900MHz

测试 CH	C2 类型	
	RX 频率	TX 频率
低	400.050MHz	400.100MHz
低′	407.550MHz	407.600MHz
中心	415.050MHz	415.100MHz
高′	422.550MHz	422.600MHz
高	429.950MHz	429.900MHz

ADJUSTMENT / 调整

Common Section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Setting	1) BATT terminal voltage:7.5V 2) SSG standard modulation [Wide] MOD:1kHz,DEV:3kHz [Narrow] MOD:1kHz,DEV:1.5kHz					
2. VCO lock voltage RX	1) CH:High	Power meter DVM	ANT CV	TC2	3.0V	±0.1V
	2) CH:Low				Check	0.6V or more
3. VCO lock voltage TX	3) CH:High PTT:ON			TC1	3.0V	±0.1V
	4) CH:Low PTT:ON				Check	0.6V or more

Transmitter Section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Frequency Adjust	1) CH:High 2) PTT:ON	Frequency counter	ANT	VR1	High frequency ±50Hz	**Note:** After replacing the TCXO(X1) align frequency.
2. High power Adjust	TEST CH: Low Center High (3 points) BATT terminal voltage:7.5V PTT:ON	Power meter Ammeter		Programming Software: KPG-100D(C)	3.95W	±0.05W 2.0 A or less
3. High power Check	TEST CH: Low' High' BATT terminal voltage:7.5V PTT:ON				Check	3.8~4.1W 2.0 A or less
4. Low power Adjust	TEST CH: Low Center High (3 points) BATT terminal voltage:7.5V PTT:ON			Programming Software: KPG-100D(C)	0.95W	±0.05W 1.0 A or less
5. Low power Check	TEST CH: Low' High' BATT terminal voltage:7.5V PTT:ON				Check	0.85~1.1W 1.0 A or less
6. VOX 1 Writing	TEST CH:Center AG:1kHz/45mV	Power meter Deviation meter Oscilloscope AG AF VTVM	ANT SP/MIC connector	Programming Software: KPG-100D(C)		
7. VOX 10 Writing	TEST CH:Center AG:1kHz/3.0mV					

ADJUSTMENT / 调整

公用部分

项目	条件	测量		调整		规格 / 备注
		测试设备	端子	部件	方法	
1. 设置	1) BATT端子电压 : 7.5V 2) SSG 标准调制 [宽] MOD:1kHz,DEV:3kHz [窄] MOD:1kHz,DEV:1.5kHz					
2. VCO 锁定电压 RX	1) CH : 高	功率表 DVM	ANT CV	TC2	3.0V	±0.1V
	2) CH : 低				检查	0.6V 或以上
3. VCO 锁定电压 TX	3) CH : 高 PTT : ON			TC1	3.0V	±0.1V
	4) CH : 低 PTT : ON				检查	0.6V 或以上

发射部分

项目	条件	测量		调整		规格 / 备注
		测试设备	端子	部件	方法	
1. 频率调整	1) CH : 高 2) PTT : ON	频率计	ANT	VR1	高频率 ±50Hz	**注意**:更换TCXO(X1)后，请调整频率。
2. 高功率调整	测试 CH : 低 中心 高 (3 点) BATT 端子电压 : 7.5V PTT : ON	功率表 电流表		编程软件 : KPG-100D(C)	3.95W	±0.05W 2.0A 或以下
3. 高功率检查	测试 CH : 低′ 高′ BATT 端子电压 : 7.5V PTT : ON				检查	3.8~4.1W 2.0A 或以下
4. 低功率调整	测试 CH : 低 中心 高 (3 点) BATT 端子电压 : 7.5V PTT : ON			编程软件 : KPG-100D(C)	0.95W	±0.05W 1.0A 或以下
5. 低功率检查	测试 CH : 低′ 高′ BATT 端子电压 : 7.5V PTT : ON				检查	0.85~1.1W 1.0A 或以下
6. VOX 1 写入	测试 CH : 中心 AG : 1kHz / 45mV	功率表 频偏仪 示波器 AG AF VTVM	ANT SP / MIC 连接器	编程软件 : KPG-100D(C)		
7. VOX 10 写入	测试 CH : 中心 AG : 1kHz / 3.0mV					

ADJUSTMENT / 调整

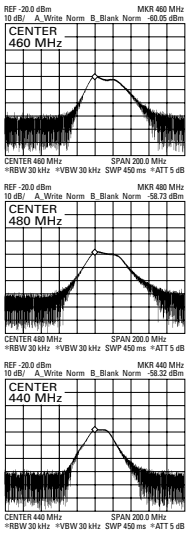
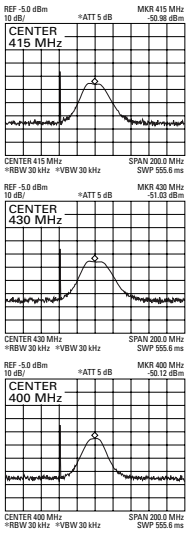
Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
8. DQT Balance Adjust [Wide]	TEST CH: Center Low High (3 points) LPF:3kHz HPF:OFF PTT:ON	Power meter Deviation meter Oscilloscope AG AF VTVM	ANT	Programming Software: KPG-100D(C)	Make the demodulation wave into square waves	
[Narrow]	TEST CH:Center PTT:ON					
9. Max deviation Adjust [Wide]	TEST CH: Center Low High (3 points) AG:1kHz/110mV Deviation meter filter LPF:15kHz HPF:OFF PTT:ON		ANT SP/MIC connector	Programming Software: KPG-100D(C)	4.2kHz (According to the larger +,–)	±80Hz
[Narrow]	TEST CH:Center PTT:ON				2.2kHz (According to the larger +,–)	±80Hz
10.QT Deviation Adjust [Wide]	TEST CH: Center Low High (3 points) LPF:3kHz HPF:OFF PTT:ON		ANT	Programming Software: KPG-100D(C)	0.80kHz	±40Hz
[Narrow]	TEST CH: Center PTT:ON				0.42kHz	±40Hz
11.DQT Deviation Adjust [Wide]	TEST CH: Center Low High (3 points) LPF:3kHz HPF:OFF PTT:ON				0.75kHz	±40Hz
[Narrow]	TEST CH:Center PTT:ON				0.38kHz	±40Hz
12.DTMF Deviation Adjust [Wide]	TEST CH:Center LPF:15kHz HPF:OFF PTT:ON				3.0kHz	±100Hz
[Narrow]	TEST CH:Center PTT:ON				1.5kHz	±100Hz
13.MSK Deviation Adjust [Wide]	TEST CH: Center LPF:15kHz HPF:OFF PTT:ON				3.1kHz	±100Hz
[Narrow]	TEST CH:Center PTT:ON				1.5kHz	±100Hz

ADJUSTMENT / 调整

项目	条件	测量		调整		规格 / 备注
		测试设备	端子	部件	方法	
8. DQT 平衡调整 [宽]	测试 CH : 中心 低 高 (3 点) LPF : 3kHz HPF : OFF PTT : ON	功率表 频偏仪 示波器 AG AF VTVM	ANT	编程软件 : KPG-100D(C)	把解调波调整 为方波	
[窄]	测试 CH : 中心 PTT : ON					
9. 最大频偏调整 [宽]	测试 CH : 中心 低 高 (3 点) AG : 1kHz / 110mV 频偏仪滤波器 LPF : 15kHz HPF : OFF PTT : ON		ANT SP / MIC 连接器	编程软件 : KPG-100D(C)	4.2kHz (按照最大+,-)	± 80Hz
[窄]	测试 CH : 中心 PTT : ON				2.2kHz (按照最大+,-)	± 80Hz
10.QT 频偏调整 [宽]	测试 CH : 中心 低 高 (3 点) LPF : 3kHz HPF : OFF PTT : ON		ANT	编程软件 : KPG-100D(C)	0.80kHz	± 40Hz
[窄]	测试 CH : 中心 PTT : ON				0.42kHz	± 40Hz
11. DQT 频偏调整 [宽]	测试 CH : 中心 低 高 (3 点) LPF : 3kHz HPF : OFF PTT : ON				0.75kHz	± 40Hz
[窄]	测试 CH : 中心 PTT : ON				0.38kHz	± 40Hz
12. DTMF 频偏调整 [宽]	测试 CH : 中心 LPF : 15kHz HPF : OFF PTT : ON				3.0kHz	± 100Hz
[窄]	测试 CH : 中心 PTT : ON				1.5kHz	± 100Hz
13. MSK 频偏调整 [宽]	测试 CH : 中心 LPF : 15kHz HPF : OFF PTT : ON				3.1kHz	± 100Hz
[窄]	测试 CH : 中心 PTT : ON				1.5kHz	± 100Hz

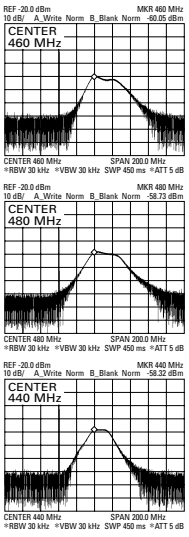
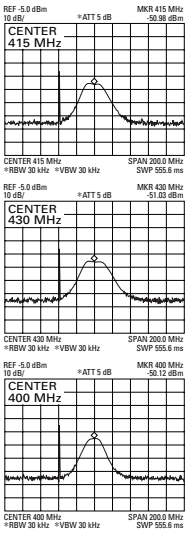
ADJUSTMENT / 调整

Receiver Section

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
1. BPF Wave Adjust TK-3217(C)	(1)Center frequency Spectrum analyzer setting Center-f : 460MHz Span : 200MHz RBW : 30kHz VBW : 30kHz ATT : 5dB (2)High-edge frequency Spectrum analyzer setting Center-f : 480MHz (3)Low-edge frequency Spectrum analyzer setting Center-f : 440MHz	Spectrum analyzer	ANT BPF	Programming Software: KPG-100D(C)	Adjust the waveform as shown to the right.	
TK-3217(C2)	(1)Center frequency Spectrum analyzer setting Center-f : 415MHz Span : 200MHz RBW : 30kHz VBW : 30kHz ATT : 5dB (2)High-edge frequency Spectrum analyzer setting Center-f : 430MHz (3)Low-edge frequency Spectrum analyzer setting Center-f : 400MHz					
2. Sensitivity Check [Wide]	TEST CH: Low Center High SSG output:–117 dBm(0.3µV) SSG MOD:3.0kHz	SSG DVM Oscilloscope AF VTVM	ANT		Check	12dB SINAD or more
[Narrow]	TEST CH: Center SSG output:–115 dBm(0.4µV) SSG MOD:1.5kHz					
3. SQL1 (Threshold) Writing [Wide]	TEST CH: Center Low High SSG output:–123 dBm(0.16µV) SSG MOD:3.0kHz			Programming Software: KPG-100D(C)	Write	Squelch open
[Narrow]	TEST CH: Center SSG output:–122 dBm(0.18µV) SSG MOD:1.5kHz					

ADJUSTMENT / 调整

接收部分

项目	条件	测量		调整		规格 / 备注
		测试设备	端子	部件	方法	
1. BPF 波形调整 TK-3217(C)	(1)中心频率 频谱分析仪设定 Center-f : 460MHz Span : 200MHz RBW : 30kHz VBW : 30kHz ATT : 5dB (2)高边频率 频谱分析仪设定 Center-f : 480MHz (3)低边频率 频谱分析仪设定 Center-f : 440MHz	频谱分析仪	ANT BPF	编程软件 : KPG-100D(C)	调整波形如 右图所示	
TK-3217(C2)	(1)中心频率 频谱分析仪设定 Center-f : 415MHz Span : 200MHz RBW : 30kHz VBW : 30kHz ATT : 5dB (2)高边频率 频谱分析仪设定 Center-f : 430MHz (3)低边频率 频谱分析仪设定 Center-f : 400MHz					
2. 灵敏度检查 [宽]	测试 CH : 低 中心 高 SSG 输出 : -117 dBm (0.3 μ V) SSG MOD : 3.0kHz	SSG DVM 示波器 AF VTVM	ANT		检查	12dB SINAD 或 以上
[窄]	测试 CH : 中心 SSG 输出 : -115 dBm (0.4 μ V) SSG MOD : 1.5kHz					
3. SQL1 (静噪阀值) 写入 [宽]	测试 CH : 中心 低 高 SSG 输出 : -123 dBm (0.16 μ V) SSG MOD : 3.0kHz			编程软件 : KPG-100D(C)	写入	静噪开放
[窄]	测试 CH : 中心 SSG 输出 : -122 dBm (0.18 μ V) SSG MOD : 1.5kHz					

ADJUSTMENT / 调整

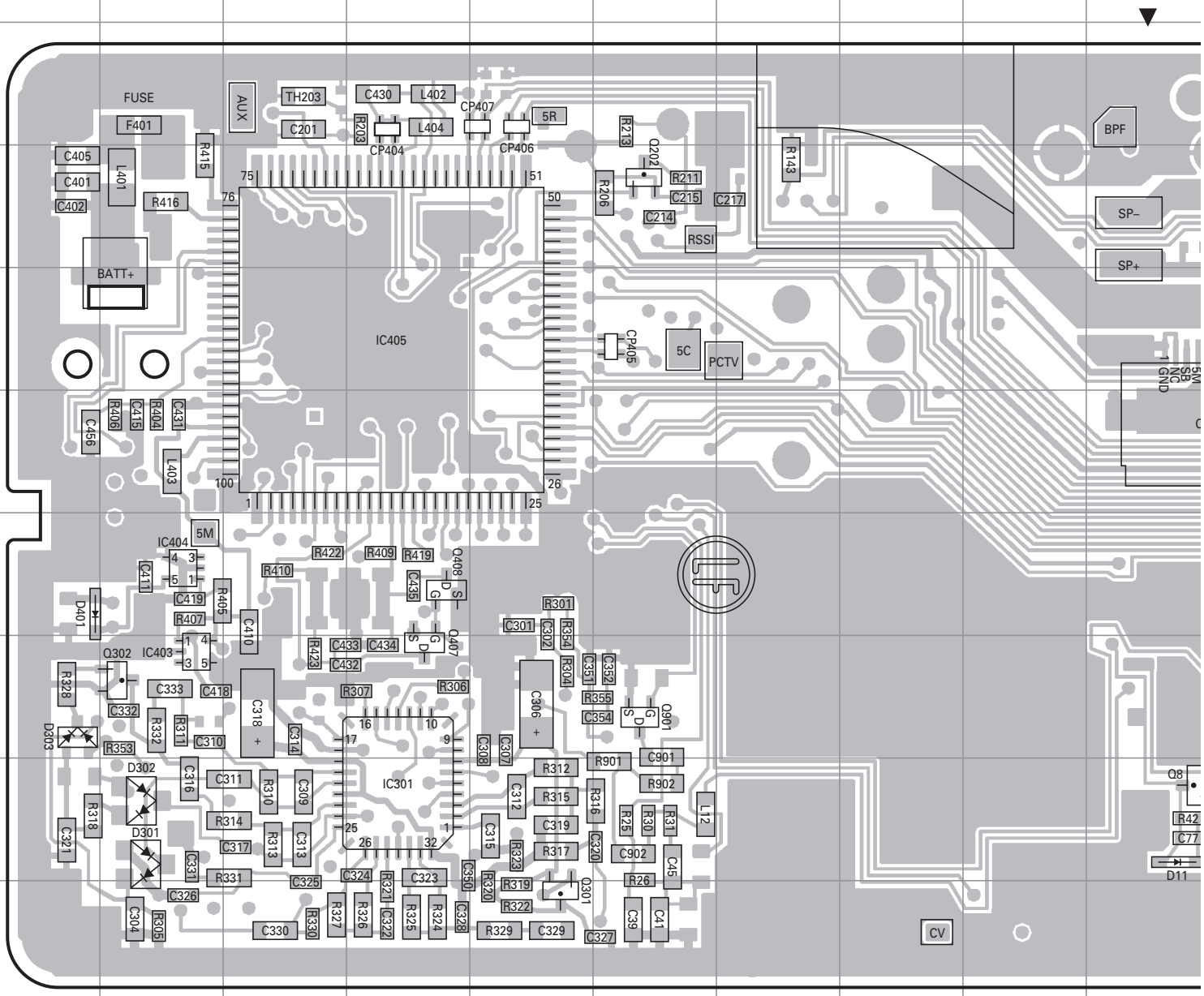
Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
4. SQL9 (Tight) Writing [Wide]	TEST CH: Center Low High SSG output:–117 dBm(0.3µV) SSG MOD:3.0kHz	SSG DVM Oscilloscope AF VTVM	ANT	Programming Software: KPG-100D(C)	Write	Squelch open
[Narrow]	TEST CH:Center SSG output:–116 dBm(0.35µV) SSG MOD:1.5kHz					
5. BATT detection Writing	BATT terminal voltage:5.9V	DVM	ANT BATT terminal			BATT terminal voltage:5.9V

ADJUSTMENT / 调整

项目	条件	测量		调整		规格 / 备注
		测试设备	端子	部件	方法	
4. SQL9 (深静噪) 写入 [宽]	测试 CH : 中心 低 高 SSG 输出 : -117 dBm (0.3 μ V) SSG MOD : 3.0kHz	SSG DVM 示波器 AF VTVM	ANT	编程软件 : KPG-100D(C)	写入	静噪开放
[窄]	测试 CH : 中心 SSG 输出 : -116 dBm (0.35 μ V) SSG MOD : 1.5kHz					
5. 电池检测写入	BATT 端子电压 : 5.9V	DVM	ANT BATT 端子			BATT 端子电压 : 5.9V

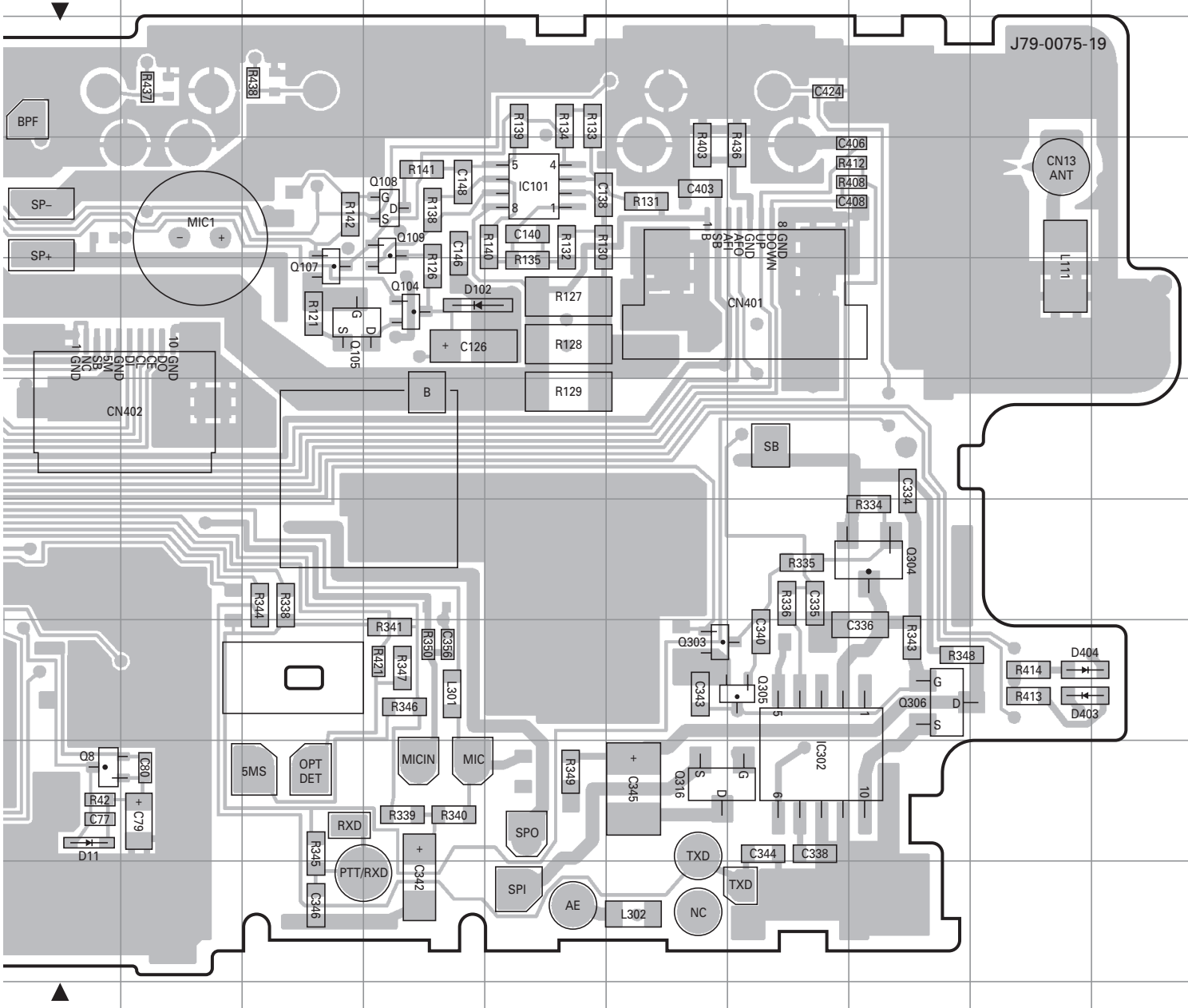
TK-3217 PC BOARD / PC 板

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Component side view (J79-0075-19)



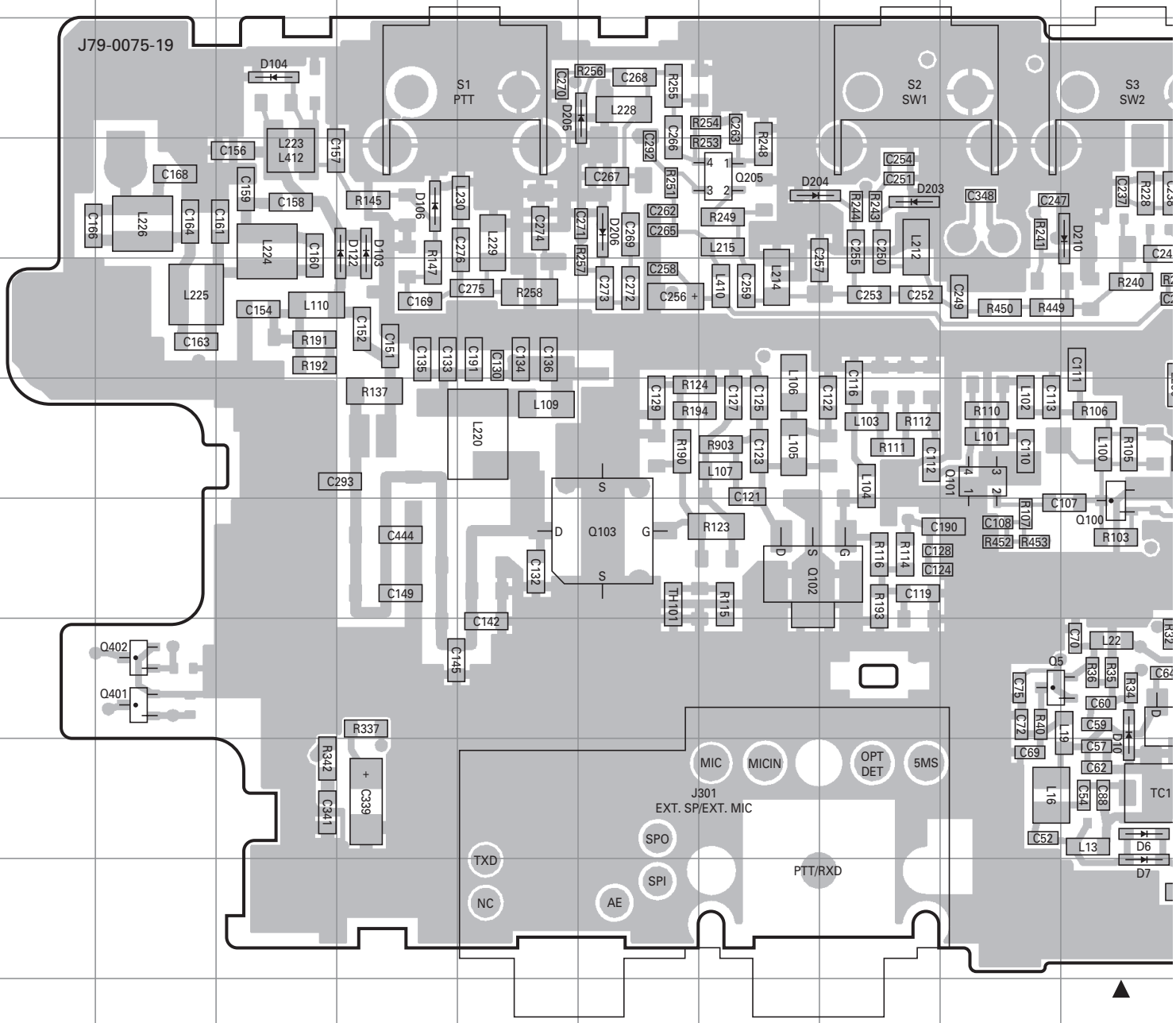
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC101	4N	Q105	5L	Q304	7Q	D102	5M
IC301	9D	Q107	5L	Q305	8P	D301	9B
IC302	9P	Q108	4M	Q306	8Q	D302	9B
IC403	8B	Q109	4M	Q316	9O	D303	8A
IC404	7B	Q202	4F	Q407	8D	D401	7A
IC405	5D	Q301	10E	Q408	7D	D403	8R
Q8	9J	Q302	8B	Q901	8F	D404	8R
Q104	5M	Q303	8O	D11	9J		

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Component side view (J79-0075-19)



TK-3217 PC BOARD / PC 板

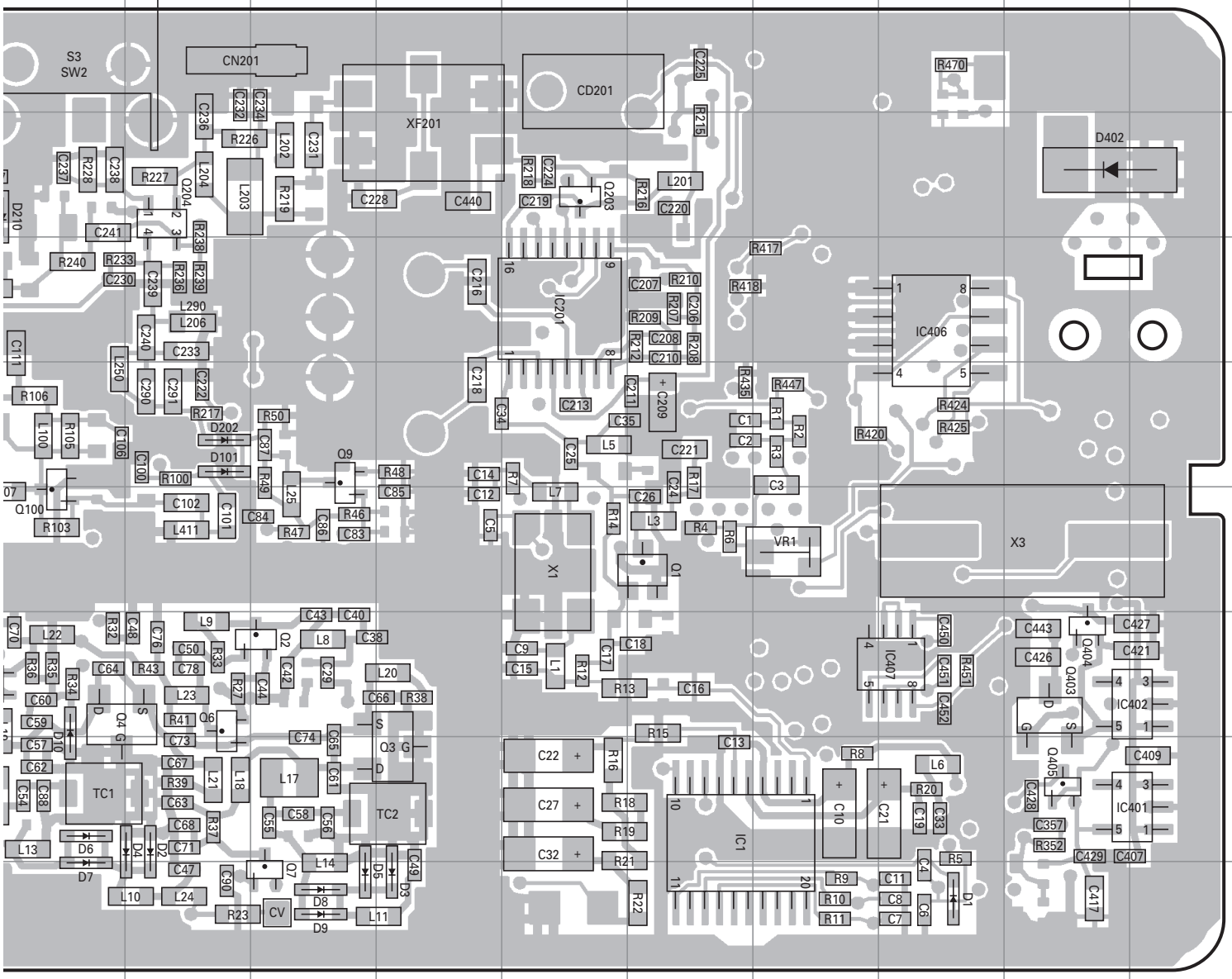
TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Foil side view (J79-0075-19)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	9O	Q3	9M	Q102	7G	Q404	8R	D7	10J	D122	4D
IC201	5N	Q4	8J	Q103	7F	Q405	9R	D8	10L	D202	6K
IC401	9S	Q5	8I	Q203	4N	D1	10Q	D9	10L	D203	4H
IC402	8S	Q6	8K	Q204	4K	D2	9K	D10	8J	D204	4G
IC406	5Q	Q7	10L	Q205	4G	D3	10M	D101	6K	D205	3F
IC407	8Q	Q9	6L	Q401	8B	D4	9K	D103	4D	D206	4F
Q1	7O	Q100	7J	Q402	8B	D5	10L	D104	3C	D210	4J
Q2	8L	Q101	6I	Q403	8R	D6	9J	D106	4D	D402	4R

PC BOARD / PC 板 TK-3217

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Foil side view (J79-0075-19)

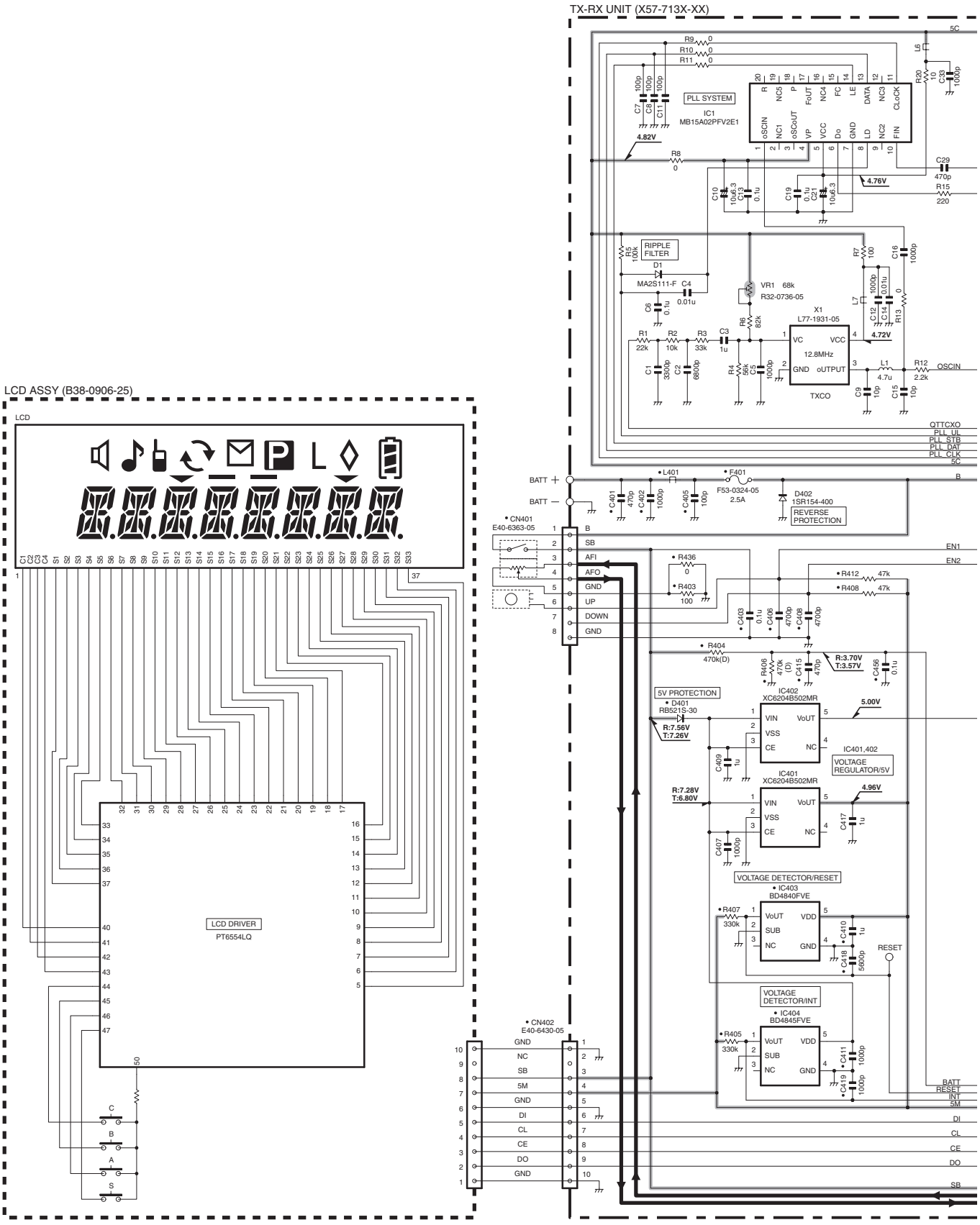


Component side

Layer 1	
Layer 2	
Layer 3	
Layer 4	

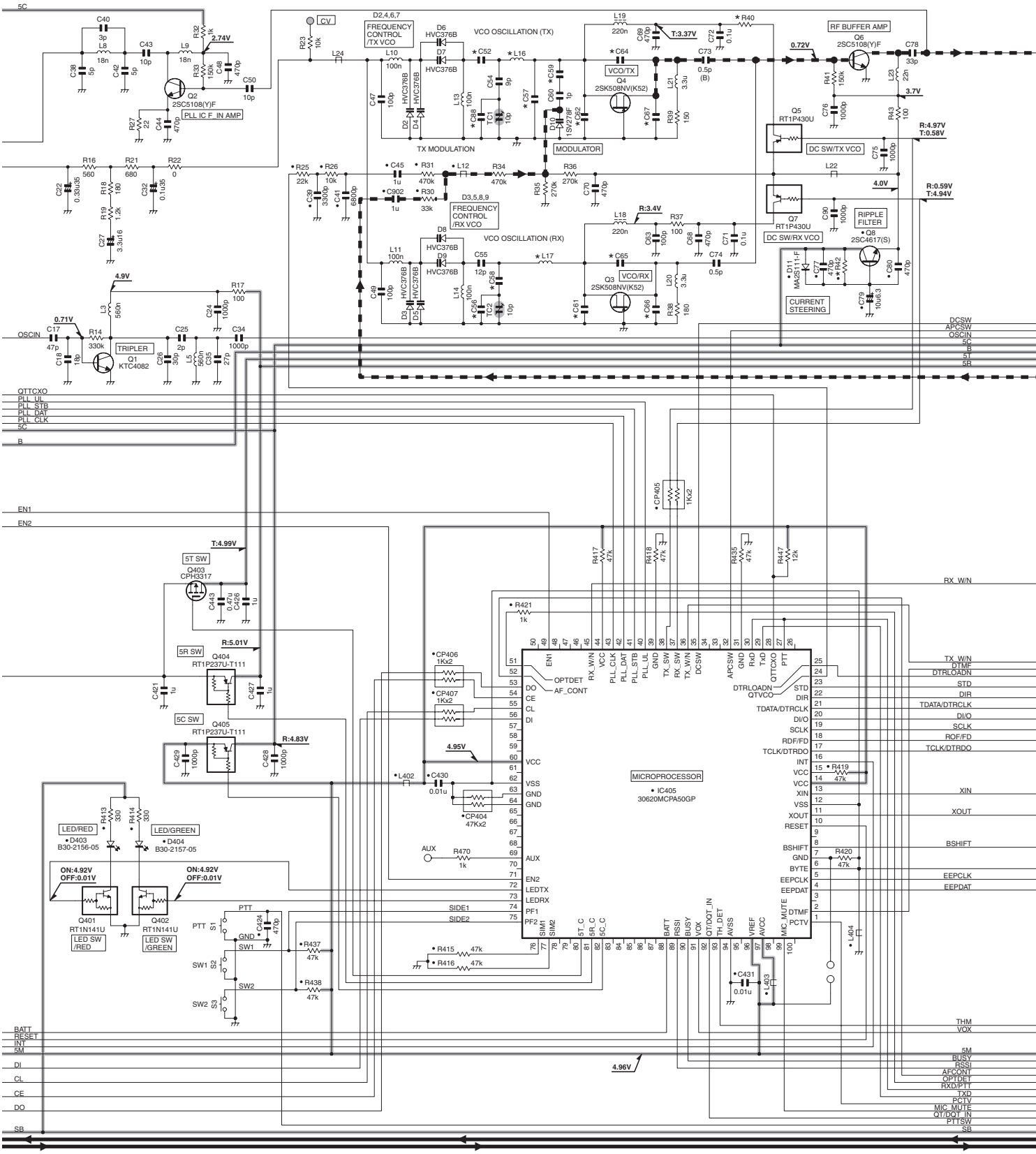
Foil side

TK-3217 SCHEMATIC DIAGRAM / 原理图



SCHEMATIC DIAGRAM / 原理图 TK-3217

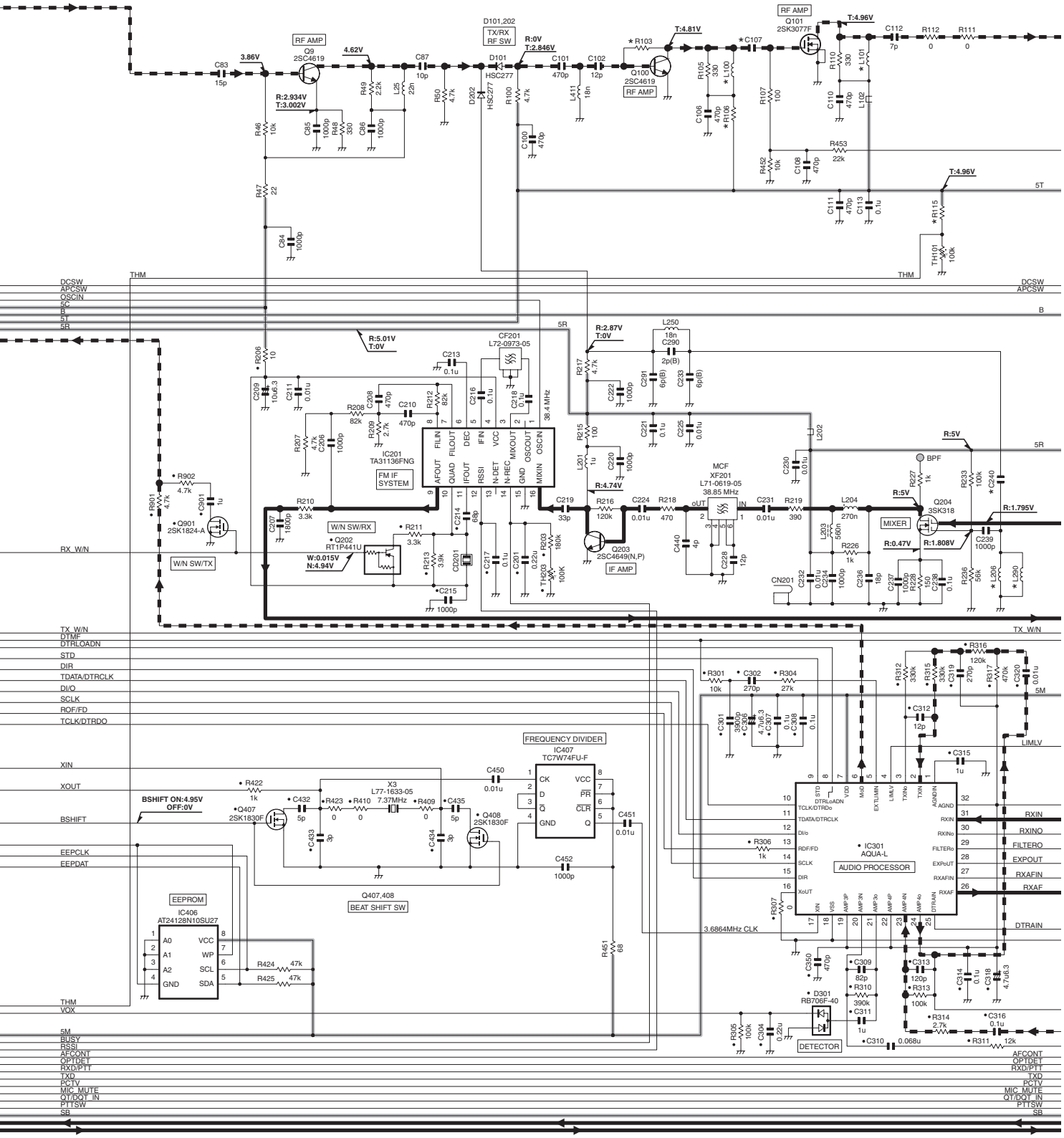
TX-RX UNIT (X57-713X-XX)



X57-713X-XX	L16	L17	R40	R42	C52	C56	C57	C58	C59	C61	C62	C64	C65	C66	C67	C88
0-21	C	22n	27n	150	10k	12p	NO	NO	6p	1p	3p	2p	5p	7p	7p	5p	NO
3-01	C2	27n	33n	100	4.7k	11p	2p	0.5p	9p	1.5p	4p	3p	4p	5p	5p	4p	1p

TK-3217 SCHEMATIC DIAGRAM / 原理图

TX-RX UNIT (X57-713X-XX)

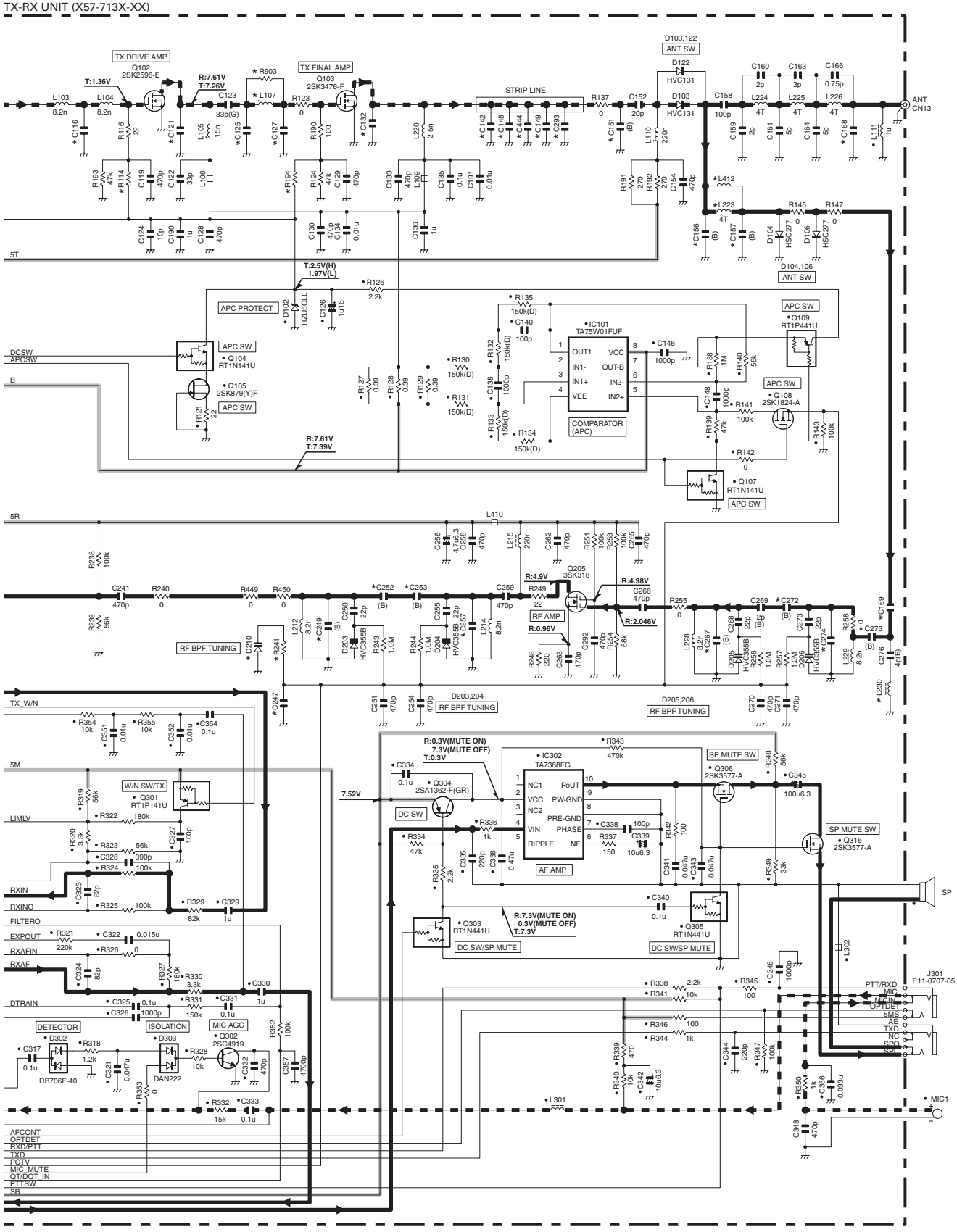


X57-713X-XX	C	L100	L101	L206	L290	R103	R106	R115	C107	C240
0-21	C	15n	15n	NO	30n	47k	22	10k	6p	3.5p
3-01	C2	33n	22n	39n	NO	33k	120	8.2k	7p	1p

SCHEMATIC DIAGRAM / 原理图 TK-3217

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

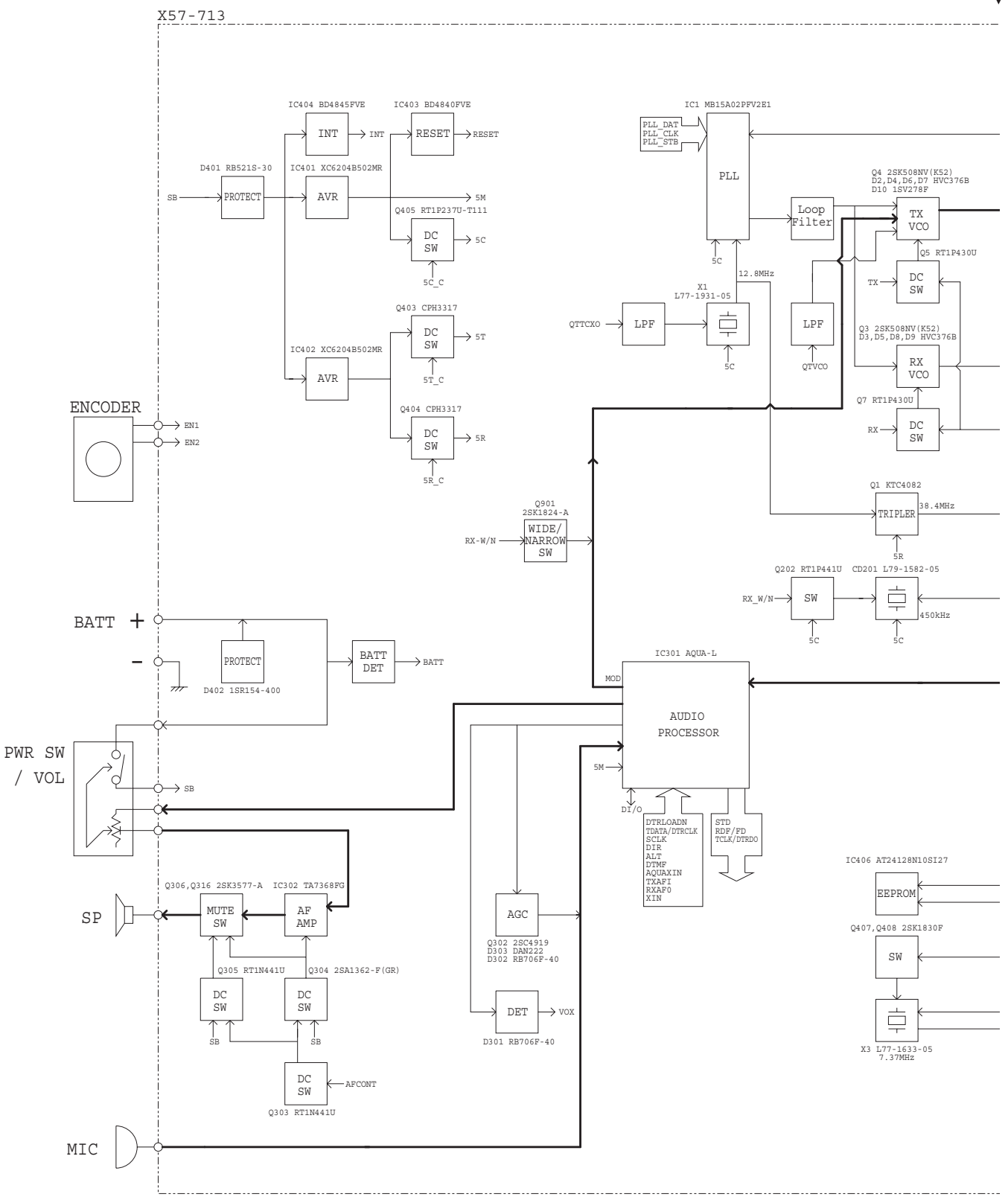
TX-RX UNIT (X57-713X-XX)



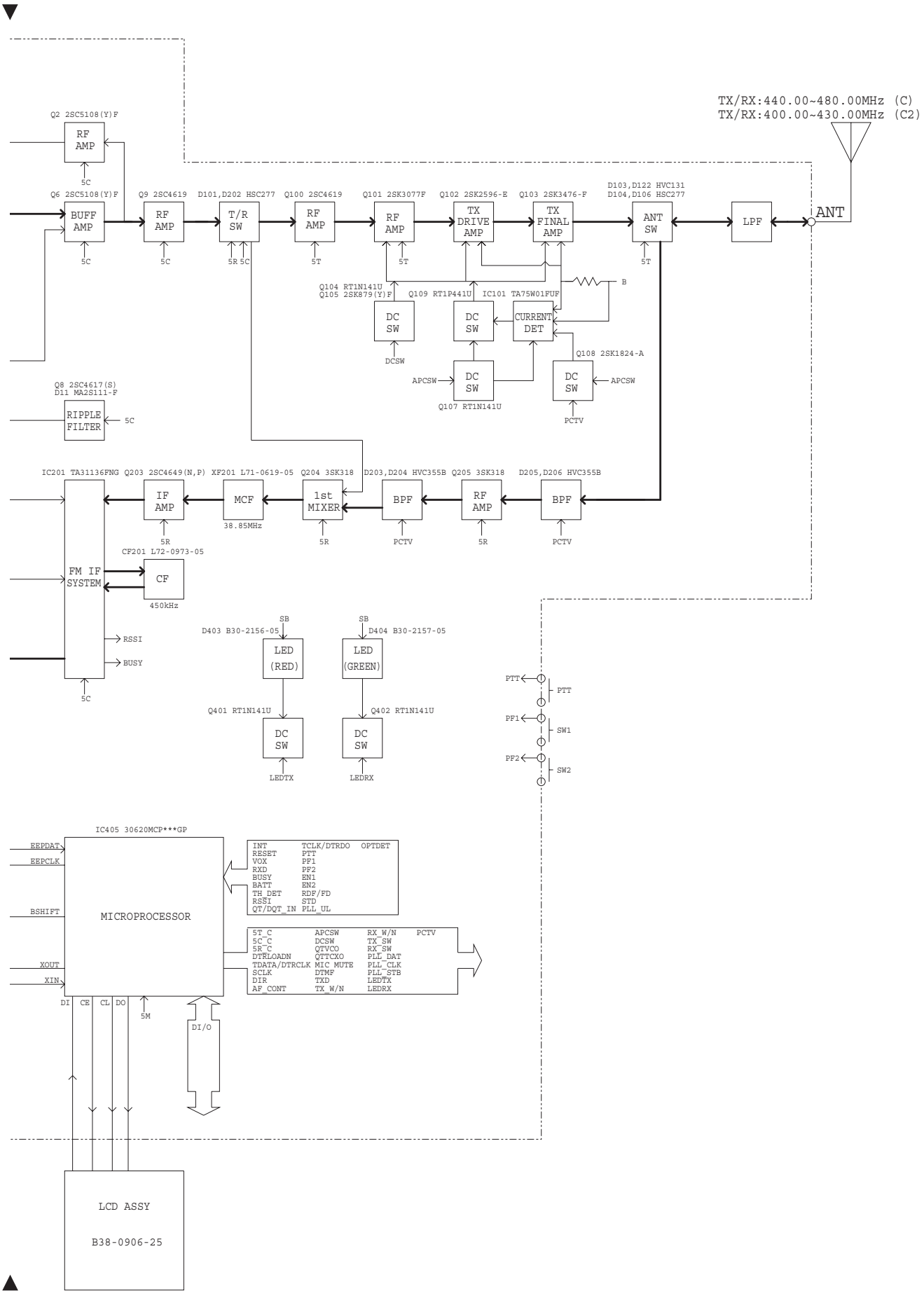
X57-713X-XX	D210	L107	L223	L230	L412	R114	R194	R241	R903	C116	C121	C125	C127	C132	C142	C145	C149
0-21 C	HVC355B	1.2n	L34-4572-05	39n	NO	120k	47k	1.0M	NO	11p	NO	6p	20p	24p	7p	18p	NO
3-01 C2	NO	NO	NO	56n	L34-4564-05	68k	68k	NO	0	3p	12p	11p	NO	39p	NO	30p	7p

X57-713X-XX	C151	C156	C157	C168	C169	C247	C249	C252	C253	C257	C267	C272	C274	C275	C293	C444
0-21 C	NO	4p	1p	1p	6p	470p	2.5p	1p	1.5p	4.5p	4p	2p	1p	3p	7p	NO
3-01 C2	7p	3p	4p	NO	10p	NO	5p	1.5p	1p	7p	6p	1.5p	4p	2p	NO	2p

BLOCK DIAGRAM / 方块图



BLOCK DIAGRAM / 方块图



SPECIFICATIONS

General

Frequency Range	440~480MHz (C) 400~430MHz (C2)
Number of Channels	Zone : Max.128 per Radio Channel : Max.128 per Zone
Channel Spacing	25kHz (Wide) 12.5kHz (Narrow)
Battery Voltage	7.5 V DC±20%
Battery Life (5-5-90 duty cycle, during high power, Battery Saver off)	KNB-29N(1500mAh) : Approx.10 hours
Operating Temperature Range	–30˚C to +60˚C (–22˚F to +140˚F) (–10˚C to +60˚C (+14˚F to +140˚F) when KNB-29N in use)
Frequency Stability	±2.5ppm (–30˚C to +60˚C / –22˚F to +140˚F)
Antenna Impedance	50Ω
Channel Frequency Spread	40MHz (C) 30MHz (C2)
Dimensions (W x H x D) (Projections not included, Min/Max)	
Radio Only	54 x 122 x 21.1 mm / 57 x 124.5 x 30.1 mm 2-1/8 x 4-13/16 x 13/16 in. / 2-1/4 x 4-7/8 x 1-3/16 in.
With KNB-29N (1500mAh battery)	54 x 122 x 33 mm / 57 x 124.5 x 42 mm 2-1/8 x 4-13/16 x 1-5/16 in. / 2-1/4 x 4-7/8 x 1-5/8 in.
Weight (net)	
Radio Only	180g (6.3 oz)
With KNB-29N (1500mAh battery)	380g (13.4 oz)

Receiver (Measurements made per TIA/EIA-603)

Sensitivity (12dB SINAD)	0.25μV (Wide)/0.28μV (Narrow)
Selectivity	70dB (Wide)/60dB (Narrow)
Intermodulation Distortion	65dB (Wide)/60dB (Narrow)
Spurious Response	60dB
Audio Output (8Ω)	500mW with less than 10% distortion

Transmitter (Measurements made per TIA/EIA-603)

RF Output Power	4W/1W
Spurious Response	65dB
Type of Emission	16K0F3E (Wide)/11K0F3E (Narrow)
FM Hum and Noise	45dB (Wide)/40dB (Narrow)
Audio Distortion	Less than 5%

规格

概述

频率范围	440~480MHz（C）
	400~430MHz（C2）
区域数	最大 128 / 各个对讲机
频道数	最大 128 / 各个区域
信道间距	25kHz（宽）12.5kHz(窄）
电池电压	7.5 V DC ± 20%
电池寿命	
(5-5-90 工作周期 , 处于高功率 , 电池省电 off 状态）	KNB-29N (1500mAh)： 约 10 时间
温度范围	-30℃到＋60℃ (-22° F 到＋ 140° F)
	(-10℃到＋60℃ (＋ 14° F 到＋ 140° F) 使用 KNB-29N 电池）
频率稳定性	± 2.5ppm (-30℃ 到＋60℃ / -22° F 到＋140° F)
阻抗	50 Ω
信道频率扩展	40MHz（C）
	30MHz（C2）
尺寸（宽 x 高 x 长）	
(尺寸不包括突出部分 , 最小 / 最大)	
仅对讲机时	54 x 122 x 21.1 mm / 57 x 124.5 x 30.1 mm
	2-1/8 x 4-13/16 x 13/16 英寸 / 2-1/4 x 4-7/8 x 1-3/16 英寸
带有 KNB-29N (1500mAh 电池)	54 x 122 x 33 mm / 57 x 124.5 x 42 mm
	2-1/8 x 4-13/16 x 1-5/16 英寸 / 2-1/4 x 4-7/8 x 1-5/8 英寸
重量	
仅对讲机时	180g (6.3 oz)
带有 KNB-29N (1500mAh 电池)	380g (13.4 oz)

接收部 （根据标准 TIA/EIA-603 测定）

灵敏度 (12dB SINAD)	0.25μV（宽）/0.28μV(窄）
选择性	70dB（宽）/60dB (窄）
互调	65dB（宽）/60dB (窄）
杂散响应抗扰性	60dB
音频输出 (8Ω)	500mW, 失真低于 10%

发射部 （根据标准 TIA/EIA-603 测定）

射频功率输出	4W/1W
杂散射频分量	65dB
调制	16K0F3E（宽）/11K0F3E (窄）
FM 噪音	45dB（宽）/40dB (窄）
音频失真	低于 5%

TK-3217

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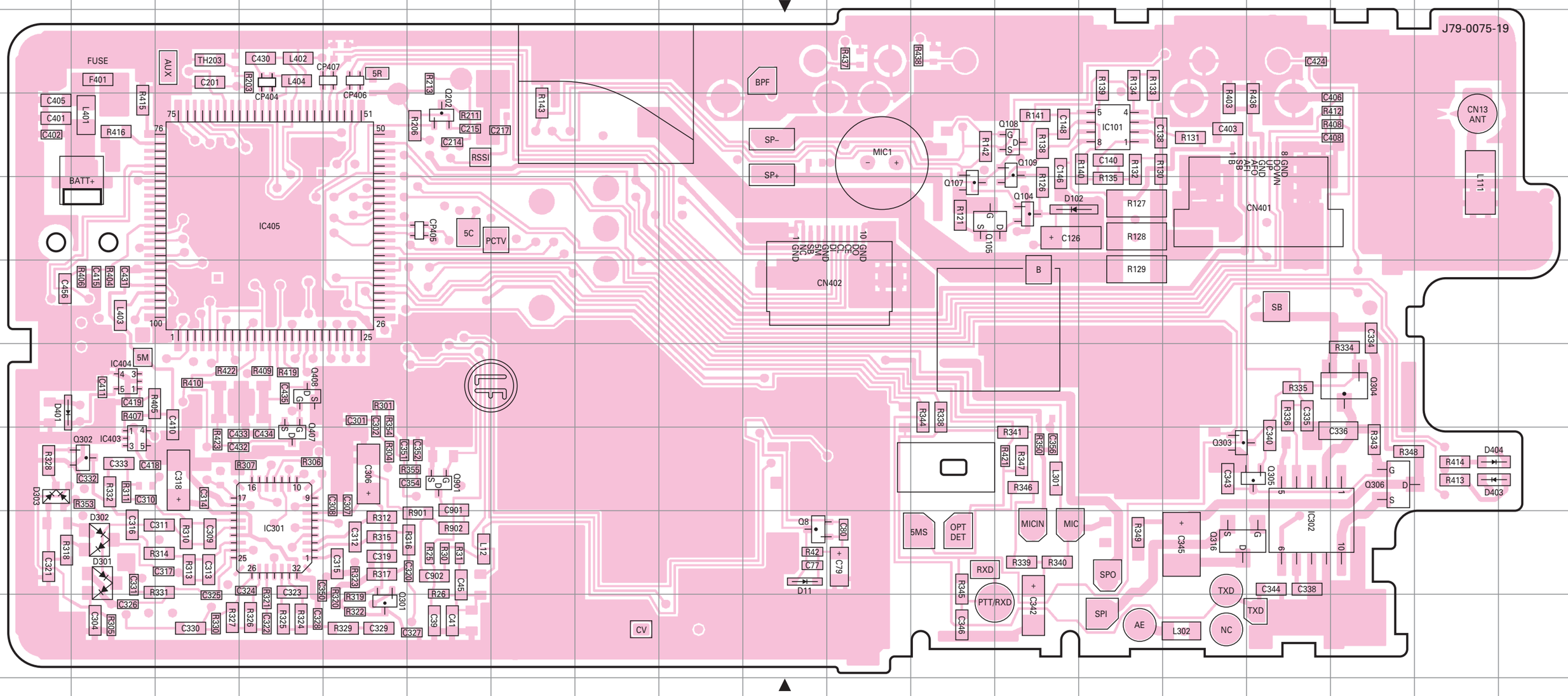
PC BOARD / PC 板 TK-3217

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Component side view (J79-0075-19)

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Component side view (J79-0075-19)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC101	4N	Q105	5L	Q304	7Q	D102	5M
IC301	9D	Q107	5L	Q305	8P	D301	9B
IC302	9P	Q108	4M	Q306	8Q	D302	9B
IC403	8B	Q109	4M	Q316	9O	D303	8A
IC404	7B	Q202	4F	Q407	8D	D401	7A
IC405	5D	Q301	10E	Q408	7D	D403	8R
Q8	9J	Q302	8B	Q901	8F	D404	8R
Q104	5M	Q303	8O	D11	9J		

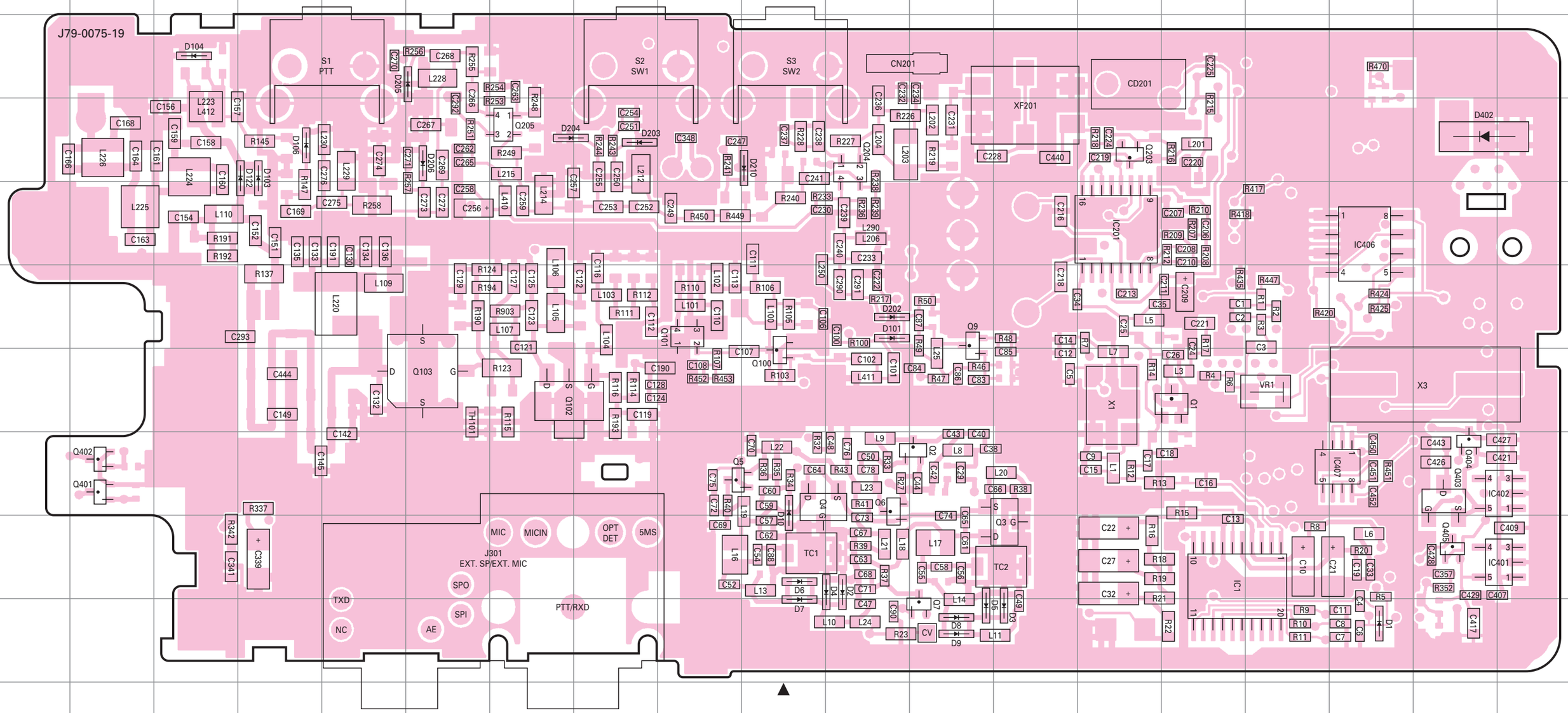
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

TK-3217 PC BOARD / PC 板

PC BOARD / PC 板 TK-3217

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Foil side view (J79-0075-19)

TX-RX UNIT (X57-713X-XX) 0-21:C 3-01:C2 Foil side view (J79-0075-19)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	9O	Q3	9M	Q102	7G	Q404	8R	D7	10J	D122	4D
IC201	5N	Q4	8J	Q103	7F	Q405	9R	D8	10L	D202	6K
IC401	9S	Q5	8I	Q203	4N	D1	10Q	D9	10L	D203	4H
IC402	8S	Q6	8K	Q204	4K	D2	9K	D10	8J	D204	4G
IC406	5Q	Q7	10L	Q205	4G	D3	10M	D101	6K	D205	3F
IC407	8Q	Q9	6L	Q401	8B	D4	9K	D103	4D	D206	4F
Q1	7O	Q100	7J	Q402	8B	D5	10L	D104	3C	D210	4J
Q2	8L	Q101	6I	Q403	8R	D6	9J	D106	4D	D402	4R

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

TK-3217 SCHEMATIC DIAGRAM / 原理图

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

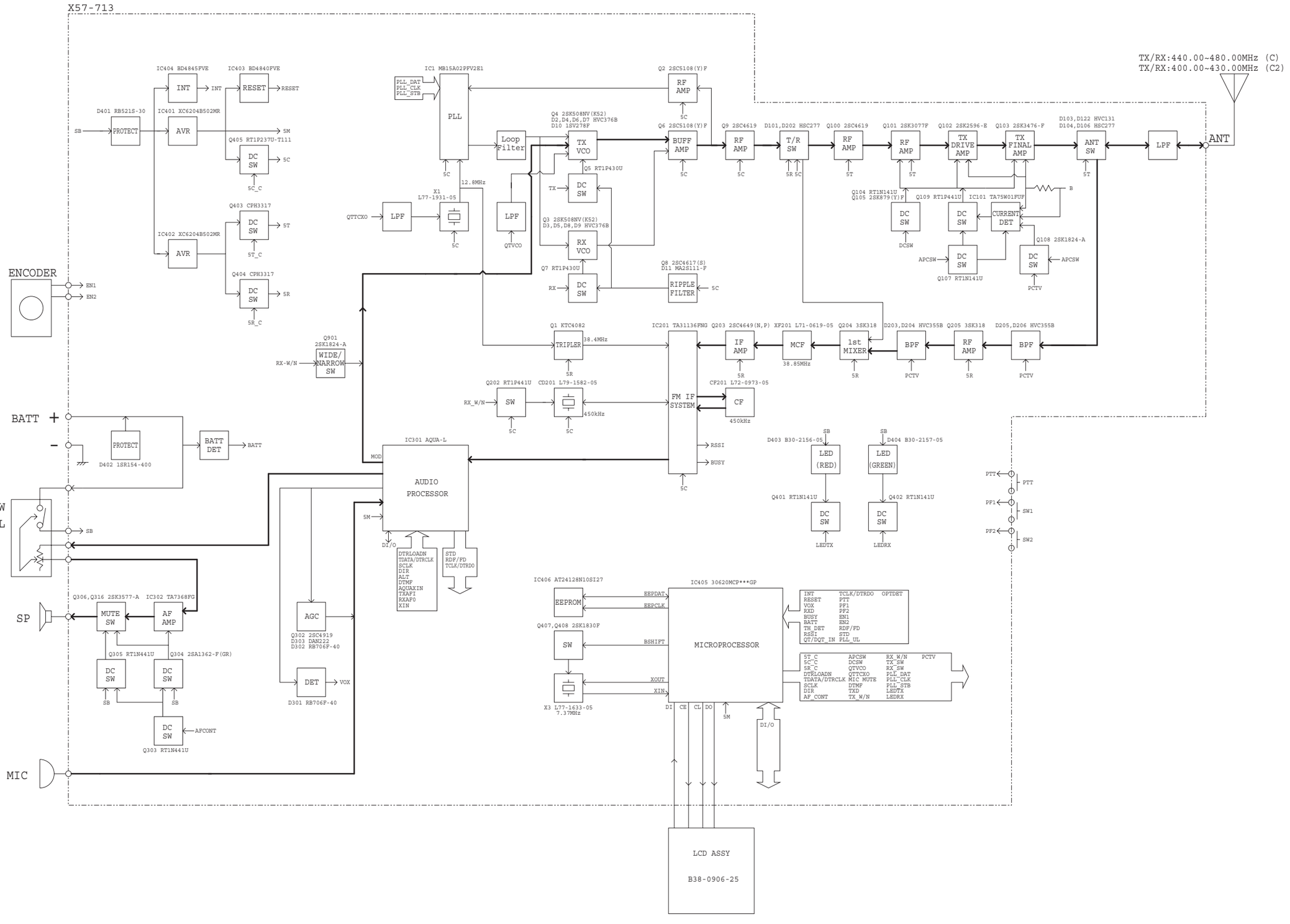
X57-713X-XX		L16	L17	R40	R42	C52	C56	C57	C58	C59	C61	C62	C64	C65	C66	C67	C88
0-21	C	22n	27n	150	10k	12p	NO	NO	6p	1p	3p	2p	5p	7p	7p	5p	NO
3-01	C2	27n	33n	100	4.7k	11p	2p	0.5p	9p	1.5p	4p	3p	4p	5p	5p	4p	1p

X57-713X-XX		L100	L101	L206	L290	R103	R106	R115	C107	C240
0-21	C	15n	15n	NO	30n	47k	22	10k	6p	3.5p
3-01	C2	33n	22n	39n	NO	33k	120	8.2k	7p	1p

X57-713X-XX		D210	L107	L223	L230	L412	R114	R194	R241	R903	C116	C121	C125	C127	C132	C142	C145	C149
0-21	C	HVC355B	1.2n	L34-4572-05	39n	NO	120k	47k	1.0M	NO	11p	NO	6p	20p	24p	7p	18p	NO
3-01	C2	NO	NO	NO	56n	L34-4564-05	68k	68k	NO	0	3p	12p	11p	NO	39p	NO	30p	7p

X57-713X-XX		C151	C156	C157	C168	C169	C247	C249	C252	C253	C257	C267	C272	C274	C275	C293	C444
0-21	C	NO	4p	1p	1p	6p	470p	2.5p	1p	1.5p	4.5p	4p	2p	1p	3p	7p	NO
3-01	C2	7p	3p	4p	NO	10p	NO	5p	1.5p	1p	7p	6p	1.5p	4p	2p	NO	2p

BLOCK DIAGRAM / 方块图



TK-3217

BLOCK DIAGRAM / 方块图