UHF FM TRANSCEIVER

TK-3302

SERVICE MANUAL

SUPPLEMENT

KENWOOD

Kenwood Corporation

B51-8852-00 (N) 358

K2,K3,M2 Versions

This TK-3302 (K2,K3,M2) service manual contains a number of sections which differ from the service manual (B51-8840-00) for the TK-3302/3302(U)/3306 (K,P,M,M3).
For item other than those in this TK-3302 (K2,K3,M2) service manual, please refer to the service manual (B51-8840-00) for the TK-3302/3302(U)/3306 (K,P,M,M3).

CONTENTS

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

This product uses Lead Free solder.

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.

GENERAL

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.

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.

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

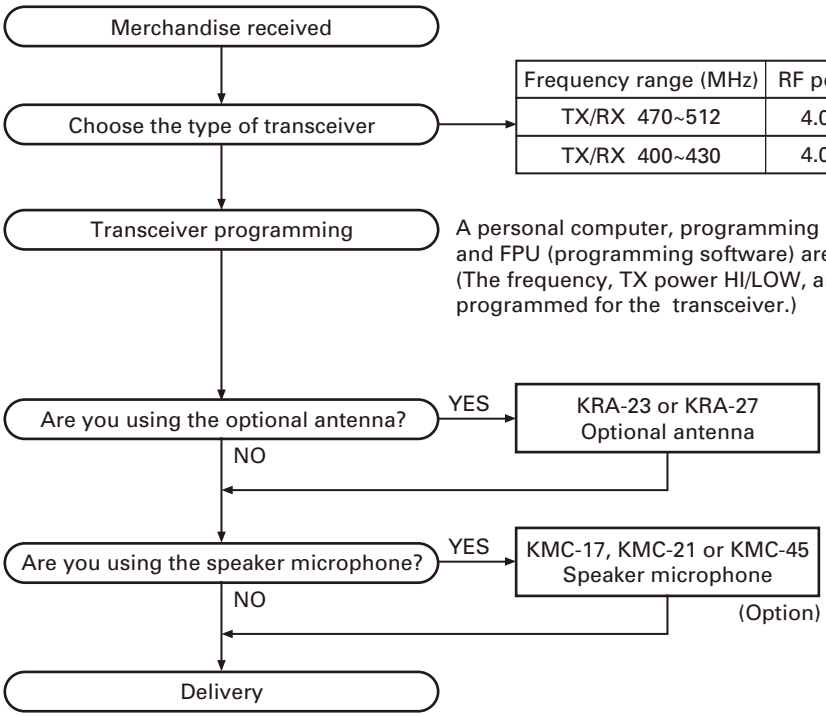
This transceiver is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

Model	Type	TX-RX unit	Frequency range	Remarks
TK-3302	K2,M2	X57-7580-22	470~512MHz	IF1: 38.85MHz LOC: 38.4MHz
TK-3302	K3	X57-7580-23	400~430MHz	

Service Manual List

Title	Parts number	Remarks	Market code
TK-3302/3302(U)/3306	B51-8840-00		K,P,M,M3
TK-3302	B51-8852-00 This service manual	SUPPLEMENT	K2,K3,M2

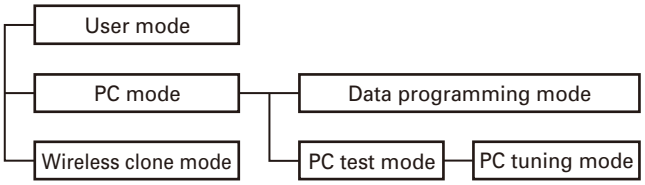
SYSTEM SET-UP



Frequency range (MHz)	RF power	Type
TX/RX 470~512	4.0W	TK-3302: K2,M2
TX/RX 400~430	4.0W	TK-3302: K3

REALIGNMENT

1. Modes



Mode	Function
User mode	For normal use.
PC mode	Used for communication between the transceiver and PC.
Data programming mode	Used to read and write frequency data and other features to and from the transceiver.
PC test mode	Used to check the transceiver using the PC. This feature is included in the FPU.
Wireless clone mode	Used to transfer programming data from one transceiver to another.

2. How to Enter Each Mode

Mode	Operation
User mode	Power ON
PC mode	Received commands from PC
Wireless clone mode	[PTT]+[Side2]+Power ON (Two seconds)

3. PC Mode

3-1. Preface

The transceiver is programmed by using a personal computer, a programming interface (KPG-22/22A, USB adapter (KCT-53U)) and FPU (programming software).

The programming software can be used with a PC or compatible. Figure 1 shows the setup of a PC for programming.

3-2. Connection Procedure

1. Connect the transceiver to the personal computer with the interface cable and USB adapter (when the interface cable is KPG-22A, the KCT-53U can be used).

REALIGNMENT

Notes:
- You must install the KCT-53U driver in the computer to use the USB adapter (KCT-53U).
- When using the USB adapter (KCT-53U) for the first time, plug the KCT-53U into a USB port on the computer with the computer power ON.

2. When the POWER is switched on, user mode can be entered immediately. When the PC sends a command, the transceiver enters PC mode.
   When data is read from the transceiver, the red LED lights.
   When data is written to by the transceiver, the green LED lights.

Notes :
- The data stored in the personal computer must match Model Name and Model Type when it is written into EEPROM.
- Do not press the [PTT] key during data transmission or reception.

3-3. KPG-22/KPG-22A Description (PC programming interface cable : Option)

The KPG-22/22A is required to interface the transceiver with the computer. It has a circuit in its D-sub connector (KPG-22: 25-pin, KPG-22A: 9-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-22/22A connects the SP/MIC connector of the transceiver to the RS-232C serial port of the computer.

3-4. KCT-53U Description (USB adapter : Option)

The KCT-53U is a cable which connects the KPG-22A to a USB port on a computer.

When using the KCT-53U, install the supplied CD-ROM (with driver software) in the computer. The KCT-53U driver runs under Windows 2000 or XP.

3-5. FPU (Programming Software) Description

The FPU is the programming software for the transceiver supplied on a CD-ROM. The software on this disk allows a user to program the transceiver transceivers via Programming interface cable (KPG-22/22A).

3-6. Programming with PC

If data is transferred to the transceiver from a PC with the FPU, the data for each set can be modified.

Data can be programmed into the EEPROM in RS-232C format via the SP/MIC jack.

In this mode the PTT line operate as TXD and RXD data lines respectively.

List of FPU for transceiver

Model	Type	FPU
TK-3302	K2,K3,M2	KPG-118D(K)

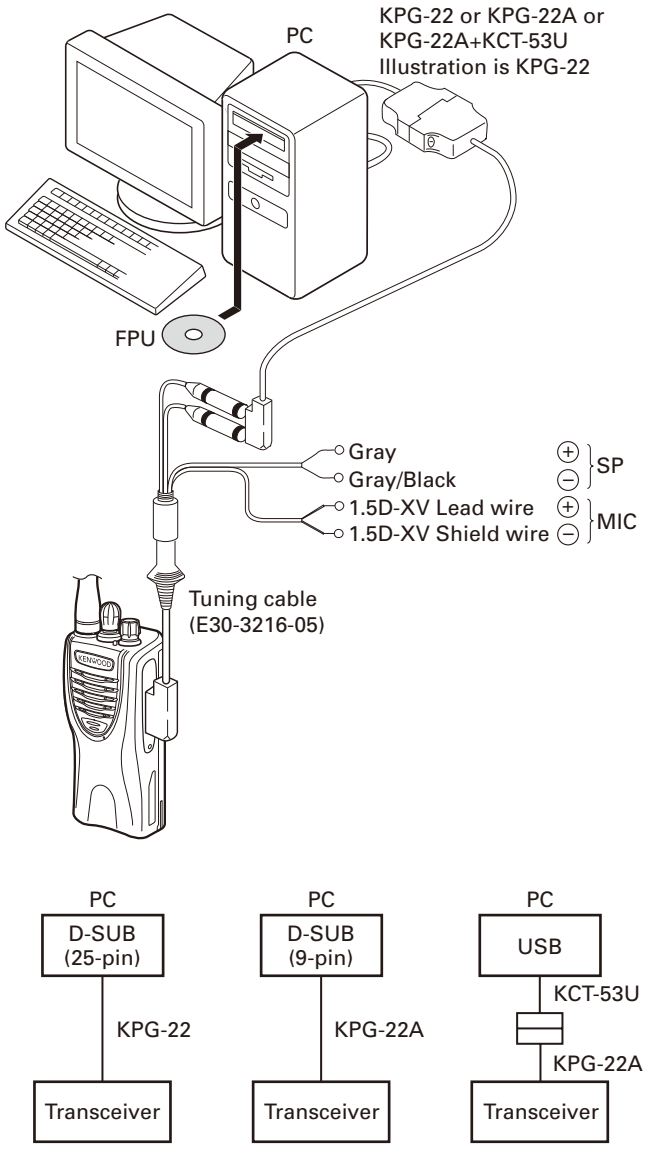


Fig. 1

4. Wireless Clone Mode

4-1. Outline

"Wireless 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.

4-2. 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 wireless clone mode.

REALIGNMENT

4-3. Operation

1. To switch the clone target/s to wireless clone mode, press and hold the [PTT] and [side2] keys while turning the transceiver power ON.
2. Wait for 2 seconds. The LED will light orange and the transceiver will announce "Clone".
3. Select a channel table number using Side1 (increment channel table) and Side2 (decrement channnel table) keys.
4. To switch the clone source to wireless clone mode, press and hold the [PTT] and [side2] keys while turning the transceiver power ON.
5. Wait for 2 seconds. The LED will light orange and the transceiver will announce "Clone".
6. Select the same channel table number as the clone target/s.
7. Press [PTT] on the clone source to begin data transmission.
   When the clone target starts to receive data, the LED will light green.
   When the clone source finishes sending data, a "confirmation" tone will sound.
   If data transmission fails while cloning, an "error" tone will sound from the target unit.
8. If the cloning fails, no data will be available in the target unit when it is returned to User mode.
9. 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).

Notes:

- The dealer can clone data to two or more transceivers by repeating the above procedures.
- If the transceivers wireless clone mode is configured as "Disabled", the transceiver cannot enter wireless clone mode.
- The table shown below will cover the frequency tables used for wireless cloning.
- Wireless clone mode cannot be entered in battery low state.
- A unit cannot be a "Source Unit" if it is unprogrammed. If [PTT] is pressed, an "error" tone will sound.
- The language used in cloning depends on the "Model type" setting, not the FPU setting.
- 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.
- Electronic interface may cause a failure in data transfer during wireless clone, such as when waveforms or electromagnetics are being performed at the workbench.
- **Wireless clone mode can be used ONLY by the authorized service personnel.**
- **The wireless 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 wireless clone mode.**

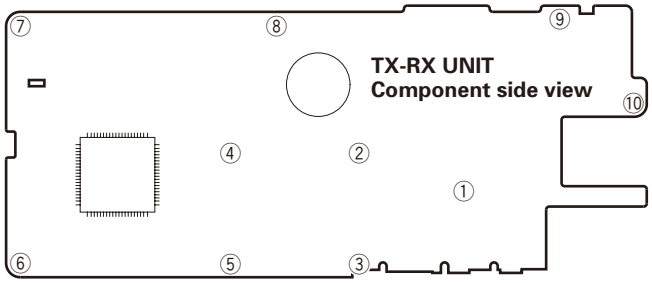
• Clone frequency table

No.	Operating frequency (MHz)	
	TK-3302 K2,M2	TK-3302 K3
	470~512	400~430
1	472.000	400.000
2	474.000	401.000
3	476.000	402.000
4	478.000	403.000
5	480.000	404.000
6	482.000	405.000
7	484.000	406.000
8	486.000	407.000
9	488.000	408.000
10	490.000	409.000
11	492.000	410.000
12	494.000	411.000
13	496.000	412.000
14	498.000	413.000
15	500.000	414.000
16	502.000	415.000
17	504.000	416.000
18	506.000	417.000
19	508.000	418.000
20	510.000	419.000

DISASSEMBLY FOR REPAIR

Screw sequence for mounting the TX-RX unit to the chassis

Attach the TX-RX unit to the chassis using the screws in the order shown in the drawing below.

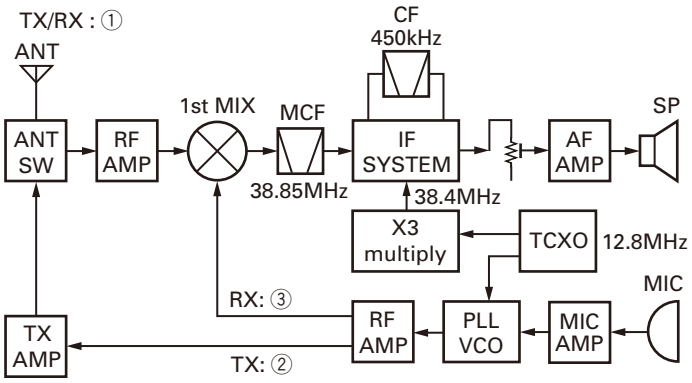


CIRCUIT DESCRIPTION

1. Frequency Configuration

The receiver utilizes double conversion. The first IF is 38.85MHz and the second IF is 450kHz. The first local oscillator signal is supplied from the PLL circuit.

The PLL circuit in the transmitter generates the necessary frequencies. Fig. 1 shows the frequencies.



Model	Type	①	②	③
TK-3302	K2,M2	470~512MHz	470~512MHz	431.15~473.15MHz
TK-3302	K3	400~430MHz	400~430MHz	361.15~391.15MHz

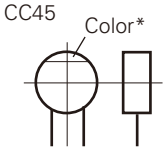
Fig. 1 Frequency configuration

PARTS LIST

CAPACITORS

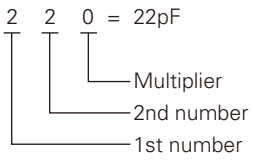
CC	45	TH	1H	220	J
1	2	3	4	5	6

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



• 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 –20	+80 –20	+100 –0	More than 10μF : –10~+50 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	–

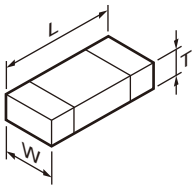
• Chip capacitors

(EX) CC 73 F SL 1H 000 J
1 2 3 4 5 6 7
(Chip) (CH, RH, UJ, SL)

(EX) CK 73 F F 1H 000 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) RD 73 E B 2B 000 J
1 2 3 4 5 6 7
(Chip) (B, F)

• Carbon resistor (Normal type)

(EX) RD 14 B B 2C 000 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		

TK-3302

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

TK-3302 (Y50-6350-XX)
TX-RX UNIT (X57-7580-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
			TK-3302		
1	1A		A02-4040-03	PLASTIC CABINET ASSY	
2	3A		A10-4124-01	CHASSIS	
4	2C,2E		B09-0725-03	CAP ACCESSORY	
7	1C		B62-2109-00	INSTRUCTION MANUAL	K,M,K2
7	1C		B62-2109-00	INSTRUCTION MANUAL	K3,M2
8	1E		B62-2139-00	INSTRUCTION MANUAL	P
9	1A		D10-0649-03	LEVER	
10	1A		D21-0863-04	SHAFT	
11	1A		D32-0441-13	STOPPER	
13	3B		E04-0477-05	RF COAXIAL RECEPTACLE (SMA)	
14	3A		E23-1253-04	TERMINAL (BATT-)	
15	2A		E23-1254-04	TERMINAL (BATT+)	
16	2B		E37-1175-15	SP WIRE LEAD (BROWN)	
17	2B		E37-1176-15	SP WIRE LEAD (GREEN)	
19	3A		F20-3353-14	INSULATING SHEET (CHASSIS-BATT+)	
21	1A		G01-4542-04	COIL SPRING (LEVER)	
22	1A		G01-4543-14	COIL SPRING (STOPPER)	
23	2A		G10-1330-04	FIBROUS SHEET (AUDIO IC)	
24	2A		G11-4465-04	RUBBER SHEET (FINAL FET)	
25	3B		G13-2009-04	CUSHION (CHASSIS)	
26	3A		G13-2033-04	CUSHION (BATT-)	
27	3A		G13-2034-14	CUSHION (CHASSIS-)	
28	3A		G13-2038-24	CUSHION (CHASSIS-CERAMIC FILTER)	
29	2A		G13-2039-14	CUSHION (PCB-CERAMIC FILTER)	
30	3A		G53-1604-03	PACKING (CHASSIS)	
31	2A		G53-1605-03	PACKING (BATT+)	
32	2A		G53-1609-14	PACKING (ECM)	
33	2B		G53-1799-03	PACKING (VOLUME/SELECTOR)	
34	1B		G53-1800-03	PACKING (SP/MIC)	
35	1B		G53-1801-03	PACKING (SPEAKER)	
36	2B		G53-1802-04	PACKING (SMA)	
38	2E	✻	H12-4250-05	PACKING FIXTURE	P
39	2D		H12-4251-05	PACKING FIXTURE	K,M,K2
39	2D		H12-4251-05	PACKING FIXTURE	K3,M2
40	1F		H13-2109-03	CARTON BOARD	P
42	3D		H52-2300-13	ITEM CARTON CASE	K,M,K2
42	3D		H52-2300-13	ITEM CARTON CASE	K3,M2
43	3F		H52-2301-13	ITEM CARTON CASE	P
46	2A		J19-5463-03	HOLDER (BATT+)	
47	2A		J19-5473-03	HOLDER ASSY (BATT+)	
48	2C,2E		J19-5521-03	HOLDER (SP/MIC) ACCSSORY	
49	2B		J19-5522-03	SPEAKER CLASP	
50	2C,1E		J29-0734-05	BELT HOOK ACCESSORY	
51	2A		J82-0121-05	FPC	
52	1A		J99-0737-04	ADHESIVE SHEET (PTT)	
54	1B		K29-9309-13	KNOB (VOLUME)	
55	1A		K29-9425-03	BUTTON KNOB (PTT)	
56	1A		K29-9426-03	BUTTON KNOB (MON/PF)	
57	1B		K29-9427-03	KNOB (SELECTOR)	
A	3B		N14-0848-05	CIRCULAR NUT (SELECTOR)	
B	3B		N14-0849-05	CIRCULAR NUT (VOLUME)	
C	2B		N30-2604-48	PAN HEAD MACHINE SCREW	
D	3A		N30-2606-48	PAN HEAD MACHINE SCREW	
E	2A,3A,2B		N83-2005-48	PAN HEAD TAPTITE SCREW	
61	2C,2E		N99-2046-05	SCREW SET ACCESSORY	
63	2A	✻	R31-0670-15	VARIABLE RESISTOR	
65	2A		S60-0440-05	ROTARY SWITCH	
67	1B		T07-0369-15	SPEAKER	
68	2D,2E		T90-1039-25	WHIP ANTENNA	K,P,M
68	2D		T90-1040-25	WHIP ANTENNA	K2,M2
68	2D		T90-1041-25	WHIP ANTENNA	K3
70	1F		W08-0970-35	AC ADAPTER (TRANSFORMER)	P
71	1C		W08-0988-05	CHARGER (KSC-35)	K,M,K2
71	1C		W08-0988-05	CHARGER (KSC-35)	K3,M2
72	1D		W08-0989-15	AC ADAPTER (SWITCHING)	K,K2,K3
73	1D		W08-0992-05	AC ADAPTER (SWITCHING)	M,M2
74	2F		W08-1067-05	CHARGER (KSC-31)	P
			TX-RX UNIT (X57-7580-XX) -20: K,P,M -22: K2,M2 -23: K3		
D303			B30-2315-05	LED (RED)	
D304			B30-2314-05	LED (GREEN)	
C1			CK73HB1H332K	CHIP C 3300PF K	
C2			CK73HB1C682K	CHIP C 6800PF K	
C3			CK73GB1A105K	CHIP C 1.0UF K	
C4			CK73HB1A104K	CHIP C 0.10UF K	
C5			CK73HB1H471K	CHIP C 470PF K	K,P,M
C5			CK73HB1H471K	CHIP C 470PF K	K2,M2
C5,6			CK73HB1H471K	CHIP C 470PF K	K3
C6			CK73HB1E103K	CHIP C 0.010UF K	K,P,M
C6			CK73HB1E103K	CHIP C 0.010UF K	K2,M2
C7			CC73HCH1H100D	CHIP C 10PF D	
C8-10			CC73HCH1H101J	CHIP C 100PF J	
C11			CK73FB0J106K	CHIP C 10UF K	K,P,M
C11			CK73FB0J106K	CHIP C 10UF K	K2,M2
C11			CK73FB1H471K	CHIP C 470PF K	K3
C12			CK73HB1H471K	CHIP C 470PF K	
C13			CC73HCH1H100D	CHIP C 10PF D	
C14			CK73HB1E103K	CHIP C 0.010UF K	K3
C14,15			CK73HB1E103K	CHIP C 0.010UF K	K,P,M
C14,15			CK73HB1E103K	CHIP C 0.010UF K	K2,M2
C15			CK73HB1H471K	CHIP C 470PF K	K3
C16			CC73HCH1H470J	CHIP C 47PF J	
C17			CK73HB1E103K	CHIP C 0.010UF K	
C18			CC73HCH1H180J	CHIP C 18PF J	
C21			CK73HB1E103K	CHIP C 0.010UF K	
C22			CK73FB0J106K	CHIP C 10UF K	
C23			CK73HB1E103K	CHIP C 0.010UF K	
C25			CC73HCH1H300J	CHIP C 30PF J	
C26			CC73HCH1H020B	CHIP C 2.0PF B	
C27			CS77AA1VR33M	CHIP TNTL 0.33UF 35WV	
C29			CC73HCH1H270J	CHIP C 27PF J	

PARTS LIST

TX-RX UNIT (X57-7580-XX)

Ref. No.	Address	New parts	Parts No.	Description			Destination
C30			CC73HCH1H101J	CHIP C	100PF	J	K2,M2
C30			CK73HB1H471K	CHIP C	470PF	K	K,P,M
C30			CK73HB1H471K	CHIP C	470PF	K	K3
C31			CK73HB1E103K	CHIP C	0.010UF	K	
C32			CS77CA1C3R3M	CHIP TNTL	3.3UF	16WV	
C33			CK73HB1H471K	CHIP C	470PF	K	
C35			CS77CA1V0R1M	CHIP TNTL	0.1UF	35WV	K,P,M
C35			C92-0863-05	CHIP TNTL	0.047UF	35WV	K2,K3,M2
C36			CK73HB1H332K	CHIP C	3300PF	K	
C38			CK73HB1H471K	CHIP C	470PF	K	K3
C39			CK73HB1C682K	CHIP C	6800PF	K	
C40			CC73HCH1H050B	CHIP C	5.0PF	B	
C41			CC73HCH1H030B	CHIP C	3.0PF	B	
C42			CC73HCH1H050B	CHIP C	5.0PF	B	
C43			CC73HCH1H101J	CHIP C	100PF	J	K3
C44,45			CK73GB1A105K	CHIP C	1.0UF	K	
C47			CC73HCH1H100C	CHIP C	10PF	C	
C50			CK73HB1H471K	CHIP C	470PF	K	
C51			CC73HCH1H030B	CHIP C	3.0PF	B	K3
C51			CC73HCH1H100D	CHIP C	10PF	D	K,P,M
C51			CC73HCH1H100D	CHIP C	10PF	D	K2,M2
C52			CC73HCH1H090B	CHIP C	9.0PF	B	K,P,M
C52			CC73HCH1H110J	CHIP C	11PF	J	K2,M2
C52			CC73HCH1H150J	CHIP C	15PF	J	K3
C53			CC73HCH1H080B	CHIP C	8.0PF	B	K2,M2
C53			CC73HCH1H090B	CHIP C	9.0PF	B	K3
C53			CC73HCH1H110J	CHIP C	11PF	J	K,P,M
C55			CC73HCH1H0R5B	CHIP C	0.5PF	B	K,P,M
C55			CC73HCH1H020B	CHIP C	2.0PF	B	K3
C56			CC73HCH1H060B	CHIP C	6.0PF	B	K2,M2
C56			CC73HCH1H080B	CHIP C	8.0PF	B	K3
C56			CC73HCH1H120J	CHIP C	12PF	J	K,P,M
C57			CC73HCH1H040B	CHIP C	4.0PF	B	K,P,M
C57			CC73HCH1H090B	CHIP C	9.0PF	B	K2,M2
C57			CC73HCH1H100B	CHIP C	10PF	B	K3
C58,59			CC73HCH1H010B	CHIP C	1.0PF	B	K,P,M
C58,59			CC73HCH1H010B	CHIP C	1.0PF	B	K2,M2
C58,59			CC73HCH1H1R5B	CHIP C	1.5PF	B	K3
C60			CC73HCH1H020B	CHIP C	2.0PF	B	K,P,M
C60			CC73HCH1H040B	CHIP C	4.0PF	B	K3
C60,61			CC73HCH1H030B	CHIP C	3.0PF	B	K2,M2
C61			CC73HCH1H030B	CHIP C	3.0PF	B	K,P,M
C61			CC73HCH1H070B	CHIP C	7.0PF	B	K3
C62			CK73HB1H471K	CHIP C	470PF	K	
C63			CC73HCH1H050B	CHIP C	5.0PF	B	K2,M2
C63			CC73HCH1H060B	CHIP C	6.0PF	B	K,P,M
C63			CC73HCH1H060B	CHIP C	6.0PF	B	K3
C64			CC73HCH1H040B	CHIP C	4.0PF	B	K2,M2
C64			CC73HCH1H050B	CHIP C	5.0PF	B	K,P,M
C64			CC73HCH1H3R5B	CHIP C	3.5PF	B	K3
C65			CC73HCH1H040B	CHIP C	4.0PF	B	K3
C65			CC73HCH1H060B	CHIP C	6.0PF	B	K,P,M
C65			CC73HCH1H060B	CHIP C	6.0PF	B	K2,M2
C66			CK73HB1H471K	CHIP C	470PF	K	
C67			CC73HCH1H040B	CHIP C	4.0PF	B	K2,K3,M2
C67			CC73HCH1H050B	CHIP C	5.0PF	B	K,P,M
C68			CK73HB1H471K	CHIP C	470PF	K	K2,K3,M2
C68,69			CK73HB1H471K	CHIP C	470PF	K	K,P,M
C70			CC73HCH1H0R5B	CHIP C	0.5PF	B	K2,K3,M2
C70,71			CC73HCH1H0R5B	CHIP C	0.5PF	B	K,P,M
C71			CC73HCH1H0R3B	CHIP C	0.3PF	B	K2,K3,M2
C72,73			CK73HB1A104K	CHIP C	0.10UF	K	
C74,75			CK73HB1H471K	CHIP C	470PF	K	
C76			CS77CP0J100M	CHIP TNTL	10UF	6.3WV	
C77			CK73HB1H471K	CHIP C	470PF	K	
C78			CC73HCH1H300J	CHIP C	30PF	J	K3
C78			CC73HCH1H330J	CHIP C	33PF	J	K,P,M
C78			CC73HCH1H330J	CHIP C	33PF	J	K2,M2
C79,80			CK73HB1H471K	CHIP C	470PF	K	
C81			CC73HCH1H150J	CHIP C	15PF	J	
C83-85			CK73HB1H471K	CHIP C	470PF	K	
C86			CC73HCH1H100B	CHIP C	10PF	B	
C101,102			CK73HB1H471K	CHIP C	470PF	K	
C103			CC73HCH1H120J	CHIP C	12PF	J	K2,K3,M2
C103			CC73HCH1H300J	CHIP C	30PF	J	K,P,M
C104			CC73HCH1H040B	CHIP C	4.0PF	B	K,P,M
C104			CC73HCH1H160J	CHIP C	16PF	J	K3
C106			CK73GB1A105K	CHIP C	1.0UF	K	
C107			CK73HB1H471K	CHIP C	470PF	K	
C108			CK73GB1A105K	CHIP C	1.0UF	K	
C109			CC73HCH1H060B	CHIP C	6.0PF	B	K,P,M
C109			CC73HCH1H060B	CHIP C	6.0PF	B	K2,M2
C109			CC73HCH1H180J	CHIP C	18PF	J	K3
C111			CK73GB1A105K	CHIP C	1.0UF	K	
C112,113			CK73HB1H471K	CHIP C	470PF	K	
C114			CK73HB1A104K	CHIP C	0.10UF	K	
C115			CC73HCH1H050B	CHIP C	5.0PF	B	K2,K3,M2
C115			CC73HCH1H110J	CHIP C	11PF	J	K,P,M
C117			CC73HCH1H020B	CHIP C	2.0PF	B	K2,M2
C117			CC73HCH1H110J	CHIP C	11PF	J	K,P,M
C118			CC73HCH1H090B	CHIP C	9.0PF	B	K3
C120			CK73HB1H471K	CHIP C	470PF	K	
C122			CK73HB0J105K	CHIP C	1.0UF	K	K2,K3,M2
C123			CC73HCH1H0R5B	CHIP C	0.5PF	B	K3
C124			CK73HB1H471K	CHIP C	470PF	K	
C125			CC73HCH1H100B	CHIP C	10PF	B	K,P,M
C125			CC73HCH1H100B	CHIP C	10PF	B	K2,M2
C125			CC73HCH1H150J	CHIP C	15PF	J	K3
C126			CC73HCH1H060B	CHIP C	6.0PF	B	K2,M2
C126			CC73HCH1H110J	CHIP C	11PF	J	K,P,M
C127			CC73HCH1H160J	CHIP C	16PF	J	K,P,M
C127			CC73HCH1H180J	CHIP C	18PF	J	K2,M2
C127			CC73HCH1H470J	CHIP C	47PF	J	K3
C128,129			CK73HB1H471K	CHIP C	470PF	K	
C130			CK73GB1A105K	CHIP C	1.0UF	K	
C131			CK73HB1E103K	CHIP C	0.010UF	K	
C132			CC73HCH1H560J	CHIP C	56PF	J	K2,M2
C133			CK73GB1A105K	CHIP C	1.0UF	K	
C135,136			CK73HB1H471K	CHIP C	470PF	K	
C137			CC73HCH1H101J	CHIP C	100PF	J	
C140			CK73HB1H471K	CHIP C	470PF	K	
C141			CK73HB1A104K	CHIP C	0.10UF	K	
C142			CC73GCH1H430J	CHIP C	43PF	J	K,P,M
C142			CC73GCH1H470J	CHIP C	47PF	J	K3
C143			CC73GCH1H300J	CHIP C	30PF	J	K2,M2
C144			CK73HB1H471K	CHIP C	470PF	K	
C145			CC73GCH1H010B	CHIP C	1.0PF	B	K2,M2
C145			CC73GCH1H360J	CHIP C	36PF	J	K3
C146			CC73GCH1H120J	CHIP C	12PF	J	K,P,M
C154			CK73HB1H471K	CHIP C	470PF	K	

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Ref. No.	Address	New parts	Parts No.	Description			Destination
C155			CC73GCH1H0R3B	CHIP C	0.3PF	B	K3
C161			CC73GCH1H010B	CHIP C	1.0PF	B	K,P,M
C161			CC73GCH1H1R5B	CHIP C	1.5PF	B	K3
C162			CC73GCH1H010B	CHIP C	1.0PF	B	K2,M2
C162			CC73GCH1H020B	CHIP C	2.0PF	B	K,P,M
C164			CC73GCH1H030B	CHIP C	3.0PF	B	K3
C166			CC73GCH1H050B	CHIP C	5.0PF	B	K2,M2
C166			CC73GCH1H060B	CHIP C	6.0PF	B	K,P,M
C166			CC73GCH1H070B	CHIP C	7.0PF	B	K3
C167			CK73HB1H471K	CHIP C	470PF	K	
C168			CC73GCH1H040B	CHIP C	4.0PF	B	K,P,M
C168			CC73GCH1H040B	CHIP C	4.0PF	B	K3
C168			CC73GCH1H2R5B	CHIP C	2.5PF	B	K2,M2
C169			CC73GCH1H040B	CHIP C	4.0PF	B	K2,M2
C169			CC73GCH1H2R5B	CHIP C	2.5PF	B	K,P,M
C169			CC73GCH1H2R5B	CHIP C	2.5PF	B	K3
C170			CC73GCH1H101J	CHIP C	100PF	J	
C172			CC73GCH1H010B	CHIP C	1.0PF	B	K3
C172			CC73GCH1H030B	CHIP C	3.0PF	B	K,P,M
C172			CC73GCH1H060B	CHIP C	6.0PF	B	K2,M2
C173			CC73GCH1H0R5B	CHIP C	0.5PF	B	K,P,M
C173			CC73GCH1H0R5B	CHIP C	0.5PF	B	K3
C174			CC73GCH1H050B	CHIP C	5.0PF	B	K,P,M
C174			CC73GCH1H100C	CHIP C	10PF	C	K3
C174			CC73GCH1H110J	CHIP C	11PF	J	K2,M2
C175			CC73GCH1H020B	CHIP C	2.0PF	B	K,P,M
C176			CC73GCH1H050B	CHIP C	5.0PF	B	K,P,M
C176			CC73GCH1H070B	CHIP C	7.0PF	B	K2,M2
C176			CC73GCH1H100C	CHIP C	10PF	C	K3
C177			CC73GCH1H0R3B	CHIP C	0.3PF	B	K3
C177			CC73GCH1H0R5B	CHIP C	0.5PF	B	K2,M2
C177			CC73GCH1H020B	CHIP C	2.0PF	B	K,P,M
C178			CC73GCH1H020B	CHIP C	2.0PF	B	K2,M2
C178			CC73GCH1H030B	CHIP C	3.0PF	B	K,P,M
C178			CC73GCH1H060B	CHIP C	6.0PF	B	K3
C201			CK73GB1C224K	CHIP C	0.22UF	K	
C202			CK73FB0J106K	CHIP C	10UF	K	
C203			CK73HB1E103K	CHIP C	0.010UF	K	
C204			CK73HB1H102K	CHIP C	1000PF	K	
C205			CK73HB1H182K	CHIP C	1800PF	K	
C206,207			CK73HB1H561K	CHIP C	560PF	K	
C208			CK73HB1A104K	CHIP C	0.10UF	K	
C209			CC73HCH1H680J	CHIP C	68PF	J	
C210-213			CK73HB1A104K	CHIP C	0.10UF	K	
C214			CC73HCH1H020B	CHIP C	2.0PF	B	
C215,216			CK73HB1E103K	CHIP C	0.010UF	K	
C219			CC73HCH1H010B	CHIP C	1.0PF	B	K,P,M
C219			CC73HCH1H010B	CHIP C	1.0PF	B	K3
C220			CC73HCH1H180J	CHIP C	18PF	J	
C222			CK73HB1H471K	CHIP C	470PF	K	
C223			CK73HB1E103K	CHIP C	0.010UF	K	
C224			CK73HB1A104K	CHIP C	0.10UF	K	
C225			CK73HB1E103K	CHIP C	0.010UF	K	
C226			CK73HB1H471K	CHIP C	470PF	K	
C227			CC73HCH1H180J	CHIP C	18PF	J	
C228			CK73HB1H471K	CHIP C	470PF	K	
C230			CK73HB1E103K	CHIP C	0.010UF	K	
C231			CK73HB1H102K	CHIP C	1000PF	K	K3
C231			CK73HB1H471K	CHIP C	470PF	K	K,P,M
C231			CK73HB1H471K	CHIP C	470PF	K	K2,M2

Ref. No.	Address	New parts	Parts No.	Description			Destination
C232			CC73HCH1H040B	CHIP C	4.0PF	B	K2,M2
C232			CC73HCH1H3R5B	CHIP C	3.5PF	B	K,P,M
C232			CC73HCH1H3R5B	CHIP C	3.5PF	B	K3
C233			CC73HCH1H060B	CHIP C	6.0PF	B	
C234			CK73HB1H471K	CHIP C	470PF	K	
C235			CC73HCH1HR75B	CHIP C	0.75PF	B	K3
C236			CC73GCH1H040B	CHIP C	4.0PF	B	K,P,M
C236			CC73GCH1H070B	CHIP C	7.0PF	B	K3
C236			CC73GCH1H2R5B	CHIP C	2.5PF	B	K2,M2
C237			CC73HCH1H220J	CHIP C	22PF	J	K,P,M
C237			CC73HCH1H270J	CHIP C	27PF	J	K3
C237			CC73HCH1H300J	CHIP C	30PF	J	K2,M2
C238			CC73HCH1H010B	CHIP C	1.0PF	B	
C239			CK73HB1H471K	CHIP C	470PF	K	
C240			CC73HCH1H020B	CHIP C	2.0PF	B	K,P,M
C240			CC73HCH1H040B	CHIP C	4.0PF	B	K3
C240			CC73HCH1H1R5B	CHIP C	1.5PF	B	K2,M2
C241			CK73FB0J106K	CHIP C	10UF	K	
C242			CC73HCH1H040B	CHIP C	4.0PF	B	K2,M2
C242			CC73HCH1H060B	CHIP C	6.0PF	B	K,P,M
C242			CC73HCH1H080B	CHIP C	8.0PF	B	K3
C243			CK73HB1H471K	CHIP C	470PF	K	
C244			CC73HCH1H220J	CHIP C	22PF	J	K,P,M
C244			CC73HCH1H270J	CHIP C	27PF	J	K3
C244			CC73HCH1H300J	CHIP C	30PF	J	K2,M2
C245			CC73HCH1HR75B	CHIP C	0.75PF	B	K2,M2
C245			CC73HCH1H010B	CHIP C	1.0PF	B	K,P,M
C245			CC73HCH1H010B	CHIP C	1.0PF	B	K3
C246			CK73HB1H471K	CHIP C	470PF	K	
C247			CC73HCH1H020B	CHIP C	2.0PF	B	K,P,M
C247			CC73HCH1H020B	CHIP C	2.0PF	B	K2,M2
C247			CC73HCH1H040B	CHIP C	4.0PF	B	K3
C248			CC73HCH1H220J	CHIP C	22PF	J	K,P,M
C248			CC73HCH1H270J	CHIP C	27PF	J	K3
C248			CC73HCH1H300J	CHIP C	30PF	J	K2,M2
C249			CC73GCH1H030B	CHIP C	3.0PF	B	K2,M2
C249			CC73GCH1H040B	CHIP C	4.0PF	B	K,P,M
C249			CC73GCH1H080B	CHIP C	8.0PF	B	K3
C250			CK73HB1H471K	CHIP C	470PF	K	
C252-254			CK73HB1H471K	CHIP C	470PF	K	
C256			CK73HB1H471K	CHIP C	470PF	K	
C257			CC73HCH1H080B	CHIP C	8.0PF	B	K3
C257			CC73HCH1H2R5B	CHIP C	2.5PF	B	K2,M2
C257			CC73HCH1H3R5B	CHIP C	3.5PF	B	K,P,M
C258			CC73HCH1H220J	CHIP C	22PF	J	K,P,M
C258			CC73HCH1H220J	CHIP C	22PF	J	K3
C258			CC73HCH1H300J	CHIP C	30PF	J	K2,M2
C259			CC73HCH1H020B	CHIP C	2.0PF	B	K,P,M
C259			CC73HCH1H1R5B	CHIP C	1.5PF	B	K2,K3,M2
C260			CK73HB1H471K	CHIP C	470PF	K	
C261			CC73HCH1H020B	CHIP C	2.0PF	B	K3
C261			CC73HCH1H030B	CHIP C	3.0PF	B	K,P,M
C261			CC73HCH1H1R5B	CHIP C	1.5PF	B	K2,M2
C262			CC73HCH1H220J	CHIP C	22PF	J	K,P,M
C262			CC73HCH1H220J	CHIP C	22PF	J	K3
C262			CC73HCH1H300J	CHIP C	30PF	J	K2,M2
C263			CC73HCH1H010B	CHIP C	1.0PF	B	K,P,M
C263			CC73HCH1H020B	CHIP C	2.0PF	B	K2,M2
C263			CC73HCH1H060B	CHIP C	6.0PF	B	K3
C264			CC73HCH1H020B	CHIP C	2.0PF	B	K3

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Ref. No.	Address	New parts	Parts No.	Description			Destination
C264			CC73HCH1H220J	CHIP C	22PF	J	K2,M2
C264			CC73HCH1H3R5B	CHIP C	3.5PF	B	K,P,M
C265			CC73HCH1H030B	CHIP C	3.0PF	B	K,P,M
C265			CC73HCH1H050B	CHIP C	5.0PF	B	K3
C265			CC73HCH1H080B	CHIP C	8.0PF	B	K2,M2
C266			CC73HCH1H050B	CHIP C	5.0PF	B	K,P,M
C266			CC73HCH1H060B	CHIP C	6.0PF	B	K2,M2
C266			CC73HCH1H070B	CHIP C	7.0PF	B	K3
C290			CC73HCH1H020B	CHIP C	2.0PF	B	
C291			CC73HCH1H060B	CHIP C	6.0PF	B	
C303			CC73HCH1H101J	CHIP C	100PF	J	
C304			CK73HB1A104K	CHIP C	0.10UF	K	
C305			CC73HCH1H101J	CHIP C	100PF	J	
C306			CK73GB1A105K	CHIP C	1.0UF	K	
C307			CC73HCH1H101J	CHIP C	100PF	J	
C310			CK73GB1A105K	CHIP C	1.0UF	K	
C311			CC73HCH1H101J	CHIP C	100PF	J	
C312			CK73HB1H471K	CHIP C	470PF	K	
C313			CC73HCH1H101J	CHIP C	100PF	J	
C315			CC73HCH1H101J	CHIP C	100PF	J	
C316			CK73HB1H471K	CHIP C	470PF	K	
C318			CK73HB1E103K	CHIP C	0.010UF	K	
C319			CK73HB1H102K	CHIP C	1000PF	K	
C320			CC73HCH1H101J	CHIP C	100PF	J	
C321			CK73GB1A105K	CHIP C	1.0UF	K	
C322			CC73HCH1H101J	CHIP C	100PF	J	
C323			CK73GB1A105K	CHIP C	1.0UF	K	
C325			CC73HCH1H101J	CHIP C	100PF	J	
C327			CK73HB1H471K	CHIP C	470PF	K	
C331			CK73HB1A104K	CHIP C	0.10UF	K	
C332			CC73HCH1H050B	CHIP C	5.0PF	B	
C334			CK73HB1E103K	CHIP C	0.010UF	K	
C335			CK73FB0J106K	CHIP C	10UF	K	
C337			CC73HCH1H050B	CHIP C	5.0PF	B	
C339			CK73GB1A105K	CHIP C	1.0UF	K	
C341			CK73HB1H471K	CHIP C	470PF	K	
C353-355			CK73HB1E103K	CHIP C	0.010UF	K	
C356			CK73HB1H102K	CHIP C	1000PF	K	
C358			CK73GB1C224K	CHIP C	0.22UF	K	
C359			CK73FB0J106K	CHIP C	10UF	K	
C360			CK73HB1A104K	CHIP C	0.10UF	K	
C361			CK73GB1A105K	CHIP C	1.0UF	K	
C362			CK73HB1H471K	CHIP C	470PF	K	
C363			CC73HCH1H820J	CHIP C	82PF	J	
C364			CC73HCH1H120J	CHIP C	12PF	J	
C365			CC73HCH1H820J	CHIP C	82PF	J	
C366			CK73HB1A104K	CHIP C	0.10UF	K	
C367			CK73GB1A105K	CHIP C	1.0UF	K	
C368			CK73HB1H271K	CHIP C	270PF	K	
C369,370			CK73HB1A104K	CHIP C	0.10UF	K	
C371			CK73FB0J106K	CHIP C	10UF	K	
C372			CK73HB1H471K	CHIP C	470PF	K	
C373			CC73HCH1H121J	CHIP C	120PF	J	
C374			CK73HB1H102K	CHIP C	1000PF	K	
C375,376			CK73HB1H471K	CHIP C	470PF	K	
C377			CK73HB1A683K	CHIP C	0.068UF	K	
C378			CC73HCH1H820J	CHIP C	82PF	J	
C379,380			CK73GB1A105K	CHIP C	1.0UF	K	
C381			CK73HB1H391K	CHIP C	390PF	K	
C382			CK73HB1C153K	CHIP C	0.015UF	K	

Ref. No.	Address	New parts	Parts No.	Description			Destination
C383-385			CK73HB1A104K	CHIP C	0.10UF	K	
C386			CK73HB1E103K	CHIP C	0.010UF	K	
C388,389			CK73HB1H471K	CHIP C	470PF	K	
C390,391			CK73GB1A105K	CHIP C	1.0UF	K	
C392			CK73HB1A473K	CHIP C	0.047UF	K	
C393			CK73FB0J106K	CHIP C	10UF	K	
C395			CC73HCH1H221J	CHIP C	220PF	J	
C396			CK73HB1A104K	CHIP C	0.10UF	K	
C397			CK73GB1C474K	CHIP C	0.47UF	K	
C399			CC73HCH1H101J	CHIP C	100PF	J	
C400			CK73FB0J106K	CHIP C	10UF	K	
C402			CK73HB1A104K	CHIP C	0.10UF	K	
C403			CK73HB1A473J	CHIP C	0.047UF	J	
C404			CS77CC0J101M	CHIP TNTL	100UF	6.3WV	
C405			CC73HCH1H221J	CHIP C	220PF	J	
C408			CK73HB1H471K	CHIP C	470PF	K	K2,M2
C408,409			CK73HB1H471K	CHIP C	470PF	K	K,P,M
C408,409			CK73HB1H471K	CHIP C	470PF	K	K3
C411			CK73HB1H471K	CHIP C	470PF	K	K,P,M
C413-415			CK73HB1H471K	CHIP C	470PF	K	
TC1,2			C05-0384-05	CERAMIC TRIMMER CAP (10PF)			
CN301			E40-6573-05	FLAT CABLE CONNECTOR			
J301			E11-0703-05	PHONE JACK (2.5/3.5)			
F301			F53-0324-05	FUSE(2.5A)			
101	2A		J30-1282-14	SPACER			
CD201			L79-1866-05	TUNING COIL			
CF201	2A		L72-0973-05	CERAMIC FILTER			
L1			L92-0138-05	CHIP FERRITE			
L2			L40-4791-86	SMALL FIXED INDUCTOR (4.7UH)			
L4			L40-5681-86	SMALL FIXED INDUCTOR (0.56UH)			
L6			L40-5681-86	SMALL FIXED INDUCTOR (0.56UH)			
L7			L92-0138-05	CHIP FERRITE			
L8			L40-1875-71	SMALL FIXED INDUCTOR (18NH)			
L9			L92-0470-05	CHIP FERRITE			
L10,11			L40-1885-92	SMALL FIXED INDUCTOR (180NH)			
L12			L40-1875-71	SMALL FIXED INDUCTOR (18NH)			
L13,14			L40-1885-92	SMALL FIXED INDUCTOR (180NH)			
L15			L40-2278-67	SMALL FIXED INDUCTOR (22NH)			K2,M2
L15			L40-2778-67	SMALL FIXED INDUCTOR (27NH)			K,P,M
L15			L40-2778-67	SMALL FIXED INDUCTOR (27NH)			K3
L16			L40-1878-67	SMALL FIXED INDUCTOR (18NH)			K,P,M
L16			L40-1878-67	SMALL FIXED INDUCTOR (18NH)			K2,M2
L16			L40-2278-67	SMALL FIXED INDUCTOR (22NH)			K3
L17,18			L41-2785-45	SMALL FIXED INDUCTOR (270NH)			
L19,20			L40-1885-92	SMALL FIXED INDUCTOR (180NH)			
L21			L92-0138-05	CHIP FERRITE			
L22,23			L40-2275-71	SMALL FIXED INDUCTOR (22NH)			
L101			L40-1875-71	SMALL FIXED INDUCTOR (18NH)			
L102			L40-2775-71	SMALL FIXED INDUCTOR (27NH)			K3
L102			L40-3975-71	SMALL FIXED INDUCTOR (39NH)			K,P,M
L102			L40-3975-71	SMALL FIXED INDUCTOR (39NH)			K2,M2
L103			L40-1575-71	SMALL FIXED INDUCTOR (15NH)			K,P,M
L103			L40-1875-71	SMALL FIXED INDUCTOR (18NH)			K3
L103			L40-2275-71	SMALL FIXED INDUCTOR (22NH)			K2,M2
L104			L40-3368-71	SMALL FIXED INDUCTOR (3.3NH)			K2,M2
L104			L40-8265-71	SMALL FIXED INDUCTOR (8.2NH)			K,P,M
L104			L40-8265-71	SMALL FIXED INDUCTOR (8.2NH)			K3

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

PARTS LIST

TX-RX UNIT (X57-7580-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
L105			L41-2278-45	SMALL FIXED INDUCTOR (22NH)	K,P,M
L105			L41-2278-45	SMALL FIXED INDUCTOR (22NH)	K2,M2
L105			L41-4765-45	SMALL FIXED INDUCTOR (4.7NH)	K3
L106			L92-0472-05	CHIP FERRITE	
L107			L40-2263-92	SMALL FIXED INDUCTOR (2.2NH)	K3
L107			L40-2763-92	SMALL FIXED INDUCTOR (2.7NH)	K,P,M
L107			L40-8265-92	SMALL FIXED INDUCTOR (8.2NH)	K2,M2
L108			L34-4603-15	AIR-CORE COIL	K,P,M
L108			L34-4603-15	AIR-CORE COIL	K3
L108			L34-4604-15	AIR-CORE COIL	K2,M2
L109			L92-0472-05	CHIP FERRITE	
L111			L41-2785-45	SMALL FIXED INDUCTOR (270NH)	
L112			L34-4572-05	AIR-CORE COIL	
L113-115			L34-4564-05	AIR-CORE COIL	
L116			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			L40-1885-92	SMALL FIXED INDUCTOR (180NH)	
L205			L40-2775-71	SMALL FIXED INDUCTOR (27NH)	K,P,M
L205			L40-2775-71	SMALL FIXED INDUCTOR (27NH)	K2,M2
L205			L40-3375-71	SMALL FIXED INDUCTOR (33NH)	K3
L206,207			L41-8268-14	SMALL FIXED INDUCTOR (8.2NH)	
L208			L92-0138-05	CHIP FERRITE	
L209			L41-8268-14	SMALL FIXED INDUCTOR (8.2NH)	
L210			L41-2785-45	SMALL FIXED INDUCTOR (270NH)	
L212			L41-8268-14	SMALL FIXED INDUCTOR (8.2NH)	K2,M2
L212,213			L41-8268-14	SMALL FIXED INDUCTOR (8.2NH)	K,P,M
L212,213			L41-8268-14	SMALL FIXED INDUCTOR (8.2NH)	K3
L213			L41-3963-14	SMALL FIXED INDUCTOR (3.9NH)	K2,M2
L214			L41-4775-45	SMALL FIXED INDUCTOR (47NH)	K,P,M
L214			L41-4775-45	SMALL FIXED INDUCTOR (47NH)	K3
L215			L41-3963-14	SMALL FIXED INDUCTOR (3.9NH)	K2,M2
L250			L40-1875-71	SMALL FIXED INDUCTOR (18NH)	
L301			L92-0472-05	CHIP FERRITE	
L302-304			L92-0138-05	CHIP FERRITE	
L305			L92-0140-05	CHIP FERRITE	
X1			L77-3042-05	TCXO (12.8MHZ)	
X301			L78-1433-05	RESONATOR (14.746MHZ)	
XF201			L71-0619-05	MCF (38.85MHZ/6.5KH)	
CP1			RK75HA1J101J	CHIP-COM 100 J 1/16W	
CP201			RK75HA1J104J	CHIP-COM 100K J 1/16W	
CP202			RK75HA1J474J	CHIP-COM 470K J 1/16W	
CP203			RK75HA1J104J	CHIP-COM 100K J 1/16W	
CP204			RK75HA1J474J	CHIP-COM 470K J 1/16W	
CP301,302			RK75HA1J473J	CHIP-COM 47K J 1/16W	
CP303,304			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			RK73HB1J154J	CHIP R 150K J 1/16W	K3
R3			RK73HB1J184J	CHIP R 180K J 1/16W	K,P,M
R3			RK73HB1J184J	CHIP R 180K J 1/16W	K2,M2
R4			RK73HB1J563J	CHIP R 56K J 1/16W	
R5			RK73HB1J104J	CHIP R 100K J 1/16W	
R7			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R8			RK73HB1J101J	CHIP R 100 J 1/16W	
R9			RK73HB1J222J	CHIP R 2.2K J 1/16W	K2,M2
R9			RK73HB1J821J	CHIP R 820 J 1/16W	K,P,M
R9			RK73HB1J821J	CHIP R 820 J 1/16W	K3
R10			RK73HB1J000J	CHIP R 0.0 J 1/16W	

Ref. No.	Address	New parts	Parts No.	Description	Destination
R11			RK73HB1J274J	CHIP R 270K J 1/16W	K,P,M
R11			RK73HB1J274J	CHIP R 270K J 1/16W	K3
R11			RK73HB1J334J	CHIP R 330K J 1/16W	K2,M2
R12			RK73HB1J221J	CHIP R 220 J 1/16W	
R13			RK73HB1J101J	CHIP R 100 J 1/16W	
R14			RK73HB1J100J	CHIP R 10 J 1/16W	
R15			RK73HB1J561J	CHIP R 560 J 1/16W	
R16			RK73HB1J000J	CHIP R 0.0 J 1/16W	K,P,M
R16			RK73HB1J181J	CHIP R 180 J 1/16W	K2,K3,M2
R17			RK73HB1J122J	CHIP R 1.2K J 1/16W	K2,K3,M2
R17			RK73HB1J182J	CHIP R 1.8K J 1/16W	K,P,M
R18			RK73HB1J681J	CHIP R 680 J 1/16W	
R19			RK73HB1J223J	CHIP R 22K J 1/16W	
R20			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R21,22			RK73HB1J103J	CHIP R 10K J 1/16W	
R23			RK73HB1J470J	CHIP R 47 J 1/16W	K3
R26			RK73HB1J333J	CHIP R 33K J 1/16W	
R27			RK73HB1J684J	CHIP R 680K J 1/16W	
R28			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R29			RK73HB1J154J	CHIP R 150K J 1/16W	
R30			RK73HB1J273J	CHIP R 27K J 1/16W	
R31			RK73HB1J274J	CHIP R 270K J 1/16W	
R32			RK73HB1J394J	CHIP R 390K J 1/16W	K3
R32			RK73HB1J474J	CHIP R 470K J 1/16W	K,P,M
R32			RK73HB1J474J	CHIP R 470K J 1/16W	K2,M2
R33			RK73HB1J100J	CHIP R 10 J 1/16W	K3
R33			RK73HB1J101J	CHIP R 100 J 1/16W	K2,M2
R33-36			RK73HB1J101J	CHIP R 100 J 1/16W	K,P,M
R34			RK73HB1J181J	CHIP R 180 J 1/16W	K2,M2
R34-36			RK73HB1J101J	CHIP R 100 J 1/16W	K3
R35			RK73HB1J820J	CHIP R 82 J 1/16W	K2,M2
R36			RK73HB1J101J	CHIP R 100 J 1/16W	K2,M2
R37			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R38			RK73HB1J154J	CHIP R 150K J 1/16W	
R39			RK73HB1J101J	CHIP R 100 J 1/16W	
R40			RK73HB1J472J	CHIP R 4.7K J 1/16W	K,P,M
R40			RK73HB1J472J	CHIP R 4.7K J 1/16W	K2,M2
R41			RK73HB1J562J	CHIP R 5.6K J 1/16W	
R42			RK73HB1J220J	CHIP R 22 J 1/16W	
R43			RK73HB1J471J	CHIP R 470 J 1/16W	
R45			RK73HB1J562J	CHIP R 5.6K J 1/16W	
R101			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R102			RK73HB1J273J	CHIP R 27K J 1/16W	
R103			RK73HB1J331J	CHIP R 330 J 1/16W	
R104			RK73HB1J390J	CHIP R 39 J 1/16W	K3
R104			RK73HB1J470J	CHIP R 47 J 1/16W	K,P,M
R104			RK73HB1J470J	CHIP R 47 J 1/16W	K2,M2
R105			RK73HB1J183J	CHIP R 18K J 1/16W	K3
R105			RK73HB1J273J	CHIP R 27K J 1/16W	K,P,M
R105			RK73HB1J273J	CHIP R 27K J 1/16W	K2,M2
R106			RK73HB1J331J	CHIP R 330 J 1/16W	
R107			RK73HB1J390J	CHIP R 39 J 1/16W	K3
R107			RK73HB1J560J	CHIP R 56 J 1/16W	K,P,M
R107			RK73HB1J560J	CHIP R 56 J 1/16W	K2,M2
R109			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R111			RK73HB1J393J	CHIP R 39K J 1/16W	K,P,M
R111			RK73HB1J393J	CHIP R 39K J 1/16W	K2,M2
R111			RK73HB1J473J	CHIP R 47K J 1/16W	K3
R112			RK73HB1J220J	CHIP R 22 J 1/16W	
R113			RK73HB1J104J	CHIP R 100K J 1/16W	

PARTS LIST

TX-RX UNIT (X57-7580-XX)

Ref. No.	Address	New parts	Parts No.	Description				Destination
R114			RK73HB1J822J	CHIP R	8.2K	J	1/16W	
R116			RK73HB1J331J	CHIP R	330	J	1/16W	K,P,M
R116			RK73HB1J331J	CHIP R	330	J	1/16W	K2,M2
R118			RK73HB1J000J	CHIP R	0.0	J	1/16W	K2,M2
R118			RK73HB1J331J	CHIP R	330	J	1/16W	K3
R119			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R120			RK73EB2ER39K	CHIP R	0.39	K	1/4W	
R121			RK73HB1J103J	CHIP R	10K	J	1/16W	K,P,M
R121			RK73HB1J153J	CHIP R	15K	J	1/16W	K3
R121			RK73HB1J472J	CHIP R	4.7K	J	1/16W	K2,M2
R122			RK73HB1J273J	CHIP R	27K	J	1/16W	K,P,M
R122			RK73HB1J273J	CHIP R	27K	J	1/16W	K2,M2
R122			RK73HB1J683J	CHIP R	68K	J	1/16W	K3
R123			RK73EB2ER39K	CHIP R	0.39	K	1/4W	
R124			RK73HB1J101J	CHIP R	100	J	1/16W	K3
R124			RK73HB1J220J	CHIP R	22	J	1/16W	K,P,M
R124			RK73HB1J220J	CHIP R	22	J	1/16W	K2,M2
R125			RK73HB1J683J	CHIP R	68K	J	1/16W	
R126			RK73EB2ER39K	CHIP R	0.39	K	1/4W	
R127,128			RK73GH2A154D	CHIP R	150K	D	1/10W	
R129,130			RK73GH2A334D	CHIP R	330K	D	1/10W	
R131			RK73HB1J105J	CHIP R	1.0M	J	1/16W	
R132			RK73HB1J473J	CHIP R	47K	J	1/16W	
R133			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R134			RK73HB1J563J	CHIP R	56K	J	1/16W	
R135			RK73HB1J104J	CHIP R	100K	J	1/16W	K2,K3,M2
R135			RK73HB1J184J	CHIP R	180K	J	1/16W	K,P,M
R136			RK73HB1J474J	CHIP R	470K	J	1/16W	
R137			RK73FB2B000J	CHIP R	0.0	J	1/8W	
R138			RK73GB2A151J	CHIP R	150	J	1/10W	
R140			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R141			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R201			RK73HB1J184J	CHIP R	180K	J	1/16W	K3
R201			RK73HB1J823J	CHIP R	82K	J	1/16W	K,P,M
R201			RK73HB1J823J	CHIP R	82K	J	1/16W	K2,M2
R203			RK73HB1J472J	CHIP R	4.7K	J	1/16W	
R204			RK73HB1J100J	CHIP R	10	J	1/16W	
R205			RK73HB1J823J	CHIP R	82K	J	1/16W	
R206			RK73HB1J272J	CHIP R	2.7K	J	1/16W	
R207			RK73HB1J332J	CHIP R	3.3K	J	1/16W	
R208			RK73HB1J823J	CHIP R	82K	J	1/16W	
R209			RK73HB1J332J	CHIP R	3.3K	J	1/16W	
R210			RK73HB1J392J	CHIP R	3.9K	J	1/16W	K,P,M
R210			RK73HB1J392J	CHIP R	3.9K	J	1/16W	K2,M2
R210			RK73HB1J472J	CHIP R	4.7K	J	1/16W	K3
R211			RK73HB1J101J	CHIP R	100	J	1/16W	
R212			RK73HB1J184J	CHIP R	180K	J	1/16W	K2,M2
R212			RK73HB1J224J	CHIP R	220K	J	1/16W	K,P,M
R212			RK73HB1J224J	CHIP R	220K	J	1/16W	K3
R213			RK73HB1J391J	CHIP R	390	J	1/16W	
R214			RK73HB1J331J	CHIP R	330	J	1/16W	
R215			RK73HB1J222J	CHIP R	2.2K	J	1/16W	
R216			RK73HB1J151J	CHIP R	150	J	1/16W	
R217			RK73HB1J332J	CHIP R	3.3K	J	1/16W	
R218			RK73HB1J823J	CHIP R	82K	J	1/16W	K3
R218,219			RK73HB1J563J	CHIP R	56K	J	1/16W	K,P,M
R218,219			RK73HB1J563J	CHIP R	56K	J	1/16W	K2,M2
R219			RK73HB1J563J	CHIP R	56K	J	1/16W	K3
R220			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R221			RK73HB1J105J	CHIP R	1.0M	J	1/16W	
R222			RK73HB1J150J	CHIP R	15	J	1/16W	K3
R222			RK73HB1J220J	CHIP R	22	J	1/16W	K,P,M
R222			RK73HB1J220J	CHIP R	22	J	1/16W	K2,M2
R223			RK73HB1J121J	CHIP R	120	J	1/16W	K3
R223			RK73HB1J221J	CHIP R	220	J	1/16W	K,P,M
R223			RK73HB1J221J	CHIP R	220	J	1/16W	K2,M2
R225			RK73HB1J683J	CHIP R	68K	J	1/16W	
R226			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R227			RK73FB2B000J	CHIP R	0.0	J	1/8W	K,P,M
R227			RK73FB2B000J	CHIP R	0.0	J	1/8W	K3
R228			RK73HB1J102J	CHIP R	1.0K	J	1/16W	
R229			RK73GB2A000J	CHIP R	0.0	J	1/10W	K2,M2
R301			RK73HH1J474D	CHIP R	470K	D	1/16W	
R302			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R303			RK73HB1J101J	CHIP R	100	J	1/16W	
R304			RK73HB1J334J	CHIP R	330K	J	1/16W	
R305			RK73HH1J474D	CHIP R	470K	D	1/16W	
R306			RK73HB1J184J	CHIP R	180K	J	1/16W	
R307			RK73GB2A271J	CHIP R	270	J	1/10W	
R308			RK73GB2A221J	CHIP R	220	J	1/10W	
R309,310			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R313			RK73HB1J102J	CHIP R	1.0K	J	1/16W	
R314,315			RK73HB1J103J	CHIP R	10K	J	1/16W	
R316			RK73HB1J222J	CHIP R	2.2K	J	1/16W	
R317			RK73HB1J472J	CHIP R	4.7K	J	1/16W	
R318			RK73HB1J182J	CHIP R	1.8K	J	1/16W	
R319			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R320			RK73HB1J123J	CHIP R	12K	J	1/16W	
R321			RK73HB1J103J	CHIP R	10K	J	1/16W	
R322,323			RK73HB1J102J	CHIP R	1.0K	J	1/16W	
R324,325			RK73HB1J472J	CHIP R	4.7K	J	1/16W	
R340-342			RK73HB1J103J	CHIP R	10K	J	1/16W	
R344			RK73HB1J474J	CHIP R	470K	J	1/16W	
R345			RK73HB1J273J	CHIP R	27K	J	1/16W	
R347			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R348			RK73HB1J102J	CHIP R	1.0K	J	1/16W	
R349			RK73HB1J105J	CHIP R	1.0M	J	1/16W	
R350			RK73HB1J124J	CHIP R	120K	J	1/16W	
R351			RK73HB1J334J	CHIP R	330K	J	1/16W	
R352			RK73HB1J154J	CHIP R	150K	J	1/16W	
R353			RK73HB1J123J	CHIP R	12K	J	1/16W	
R354			RK73HB1J334J	CHIP R	330K	J	1/16W	
R355			RK73HB1J124J	CHIP R	120K	J	1/16W	
R356			RK73HB1J472J	CHIP R	4.7K	J	1/16W	
R357			RK73HB1J563J	CHIP R	56K	J	1/16W	
R358			RK73HB1J474J	CHIP R	470K	J	1/16W	
R359			RK73HB1J473J	CHIP R	47K	J	1/16W	
R360			RK73HB1J562J	CHIP R	5.6K	J	1/16W	
R361			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R362			RK73HB1J184J	CHIP R	180K	J	1/16W	
R363,364			RK73HB1J104J	CHIP R	100K	J	1/16W	
R365			RK73HB1J332J	CHIP R	3.3K	J	1/16W	
R366			RK73HB1J154J	CHIP R	150K	J	1/16W	
R367			RK73HB1J393J	CHIP R	39K	J	1/16W	
R368			RK73GB2A000J	CHIP R	0.0	J	1/10W	
R369			RK73HB1J823J	CHIP R	82K	J	1/16W	
R370			RK73HB1J102J	CHIP R	1.0K	J	1/16W	
R371			RK73HB1J272J	CHIP R	2.7K	J	1/16W	
R372			RK73HB1J000J	CHIP R	0.0	J	1/16W	
R373			RK73HB1J224J	CHIP R	220K	J	1/16W	

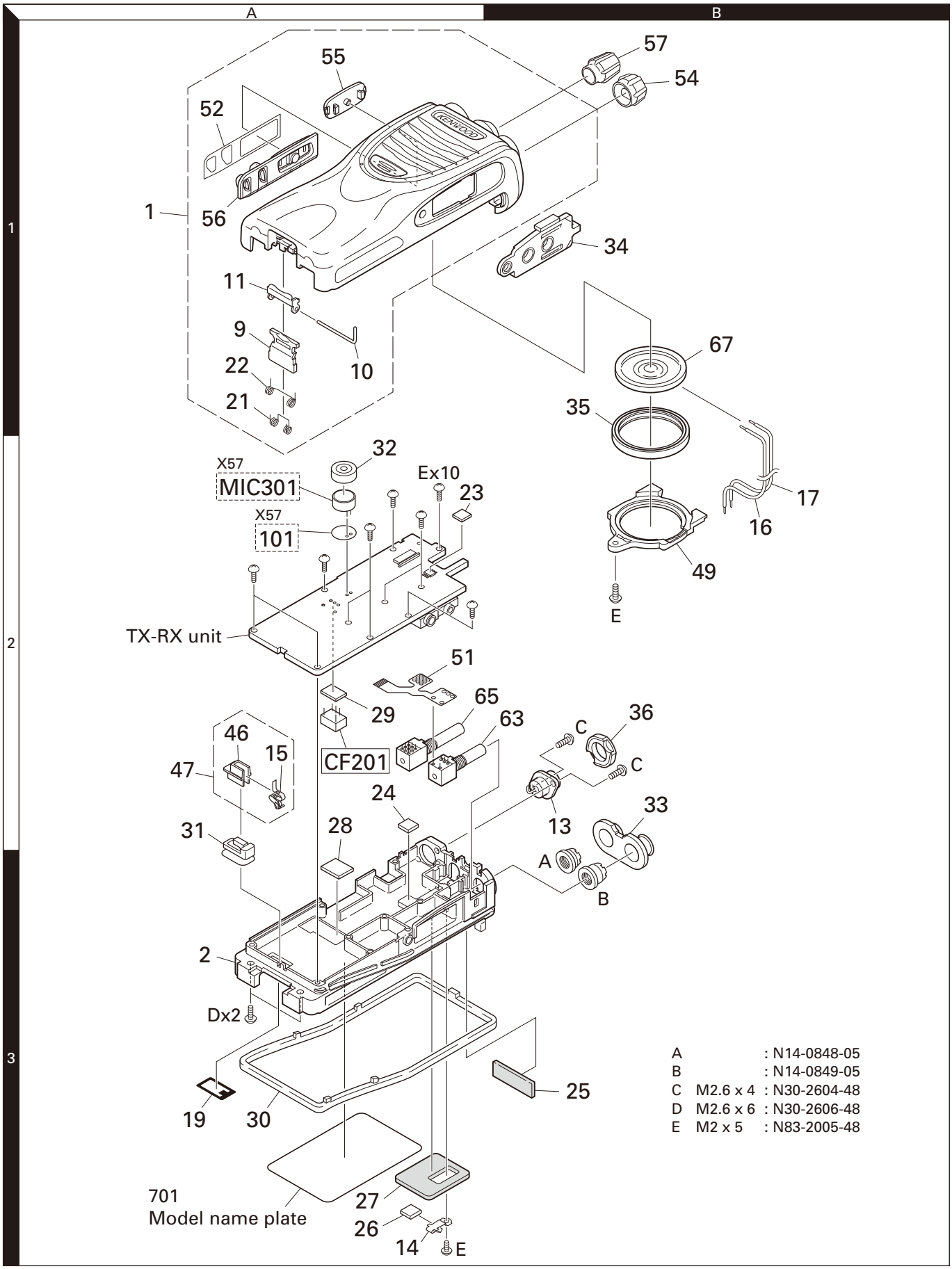
PARTS LIST

TX-RX UNIT (X57-7580-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R374			RK73HB1J153J	CHIP R 15K J 1/16W	
R375			RK73HB1J182J	CHIP R 1.8K J 1/16W	
R376			RK73HB1J471J	CHIP R 470 J 1/16W	
R377			RK73HB1J473J	CHIP R 47K J 1/16W	
R378			RK73HB1J561J	CHIP R 560 J 1/16W	
R379			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R380			RK73HB1J474J	CHIP R 470K J 1/16W	
R381			RK73HB1J151J	CHIP R 150 J 1/16W	
R383			RK73HB1J563J	CHIP R 56K J 1/16W	
R384			RK73HB1J333J	CHIP R 33K J 1/16W	
R385			RK73GB2A101J	CHIP R 100 J 1/10W	
R387			RK73HB1J104J	CHIP R 100K J 1/16W	
R388			RK73HB1J101J	CHIP R 100 J 1/16W	
R389			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R390			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R391			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R393			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R394			RK73HB1J473J	CHIP R 47K J 1/16W	
R398			RK73HB1J000J	CHIP R 0.0 J 1/16W	
VR1			R32-0736-05	SEMI FIXED VARIABLE RESISTOR	
S1-3			S70-0414-05	TACT SWITCH	
MIC301	2A		T91-0651-15	MIC ELEMENT	
D3,4			1SV325F	VARIABLE CAPACITANCE DIODE	
D6			1SV325F	VARIABLE CAPACITANCE DIODE	
D8			1SV325F	VARIABLE CAPACITANCE DIODE	
D9			KDV214E-P	DIODE	
D10			MC2858	DIODE	
D101			UDZW5.1(B)	ZENER DIODE	
D103			HSC277	DIODE	
D104			HVC131	DIODE	K2,K3,M2
D104,105			HVC131	DIODE	K,P,M
D106			HVC131	DIODE	K2,K3,M2
D201-205			HVC355B	VARIABLE CAPACITANCE DIODE	
D301			GN1G	DIODE	
D302			HRC0203C	DIODE	
D306			KDR731	DIODE	
D307			MC2850	DIODE	
D308,309			KDR731	DIODE	
IC1			MB15A02PFV2E1	MOS-IC	
IC101			BA2904FVM	MOS-IC	
IC201			TA31136FNG	MOS-IC	
IC301			BD4840FVE	MOS-IC	
IC303			XC6209B502PR	MOS-IC	
IC304			XC6209B502MR	MOS-IC	
IC305			BR24L16F-W	ROM IC	
IC306		*	R5F212CCKCMB	MICRO CONTROL UNIT	
IC308			AQUA-L	MOS-IC	
IC309			TA7368FG	MOS-IC	
Q1			KTC4075E(Y,GR)	TRANSISTOR	
Q2			2SC4774	TRANSISTOR	
Q3			2SC5636	TRANSISTOR	
Q4,5			2SK1875-F(V)	FET	
Q6			KTC4075E(Y,GR)	TRANSISTOR	
Q7,8			RT1P430U	TRANSISTOR	
Q9			2SC5636	TRANSISTOR	
Q10			KTC4075E(Y,GR)	TRANSISTOR	
Q11			2SC5636	TRANSISTOR	
Q101			2SC5636	TRANSISTOR	

Ref. No.	Address	New parts	Parts No.	Description	Destination
Q102			2SC4926YD	TRANSISTOR	K,P,M
Q102			2SC5455-A	TRANSISTOR	K2,K3,M2
Q103			RQA0004PXDQS	FET	
Q104			RT1N441U	TRANSISTOR	K2,K3,M2
Q106			RD07MVS1BT122	FET	
Q107			RT1N441U	TRANSISTOR	
Q108			2SK1824-A	FET	
Q109			RT1P441U	TRANSISTOR	
Q201			RT1P441U	TRANSISTOR	
Q202			2SC4774	TRANSISTOR	
Q203,204			3SK318	FET	
Q301,302			RT1N441U	TRANSISTOR	
Q303			RT1P141U	TRANSISTOR	
Q304			DTB723YE	DIGITAL TRANSISTOR	
Q305,306			2SC4919	TRANSISTOR	
Q307			RT1N441U	TRANSISTOR	
Q308			KTC4075E(Y,GR)	TRANSISTOR	
Q310			2SC4116(GR)F	TRANSISTOR	
Q311			2SA1586(Y,GR)F	TRANSISTOR	
Q312			RT1N441U	TRANSISTOR	
Q313			2SB1694	TRANSISTOR	
Q314			RT1N441U	TRANSISTOR	
Q315,316			2SK3577-A	FET	
TH101			B57331V2104J	THERMISTOR	
TH201			B57331V2104J	THERMISTOR	

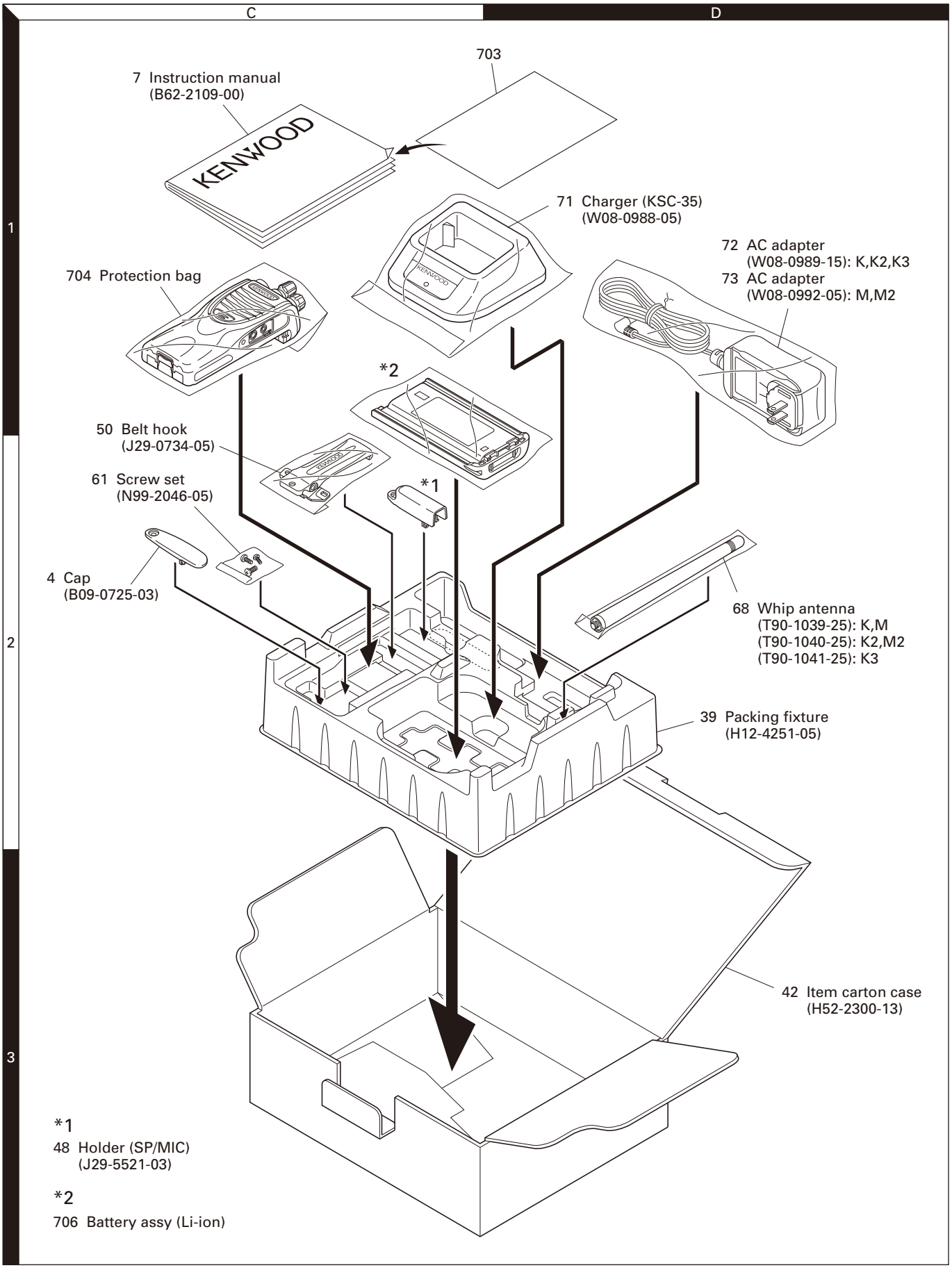
EXPLODED VIEW



A		: N14-0848-05
B		: N14-0849-05
C	M2.6 x 4	: N30-2604-48
D	M2.6 x 6	: N30-2606-48
E	M2 x 5	: N83-2005-48

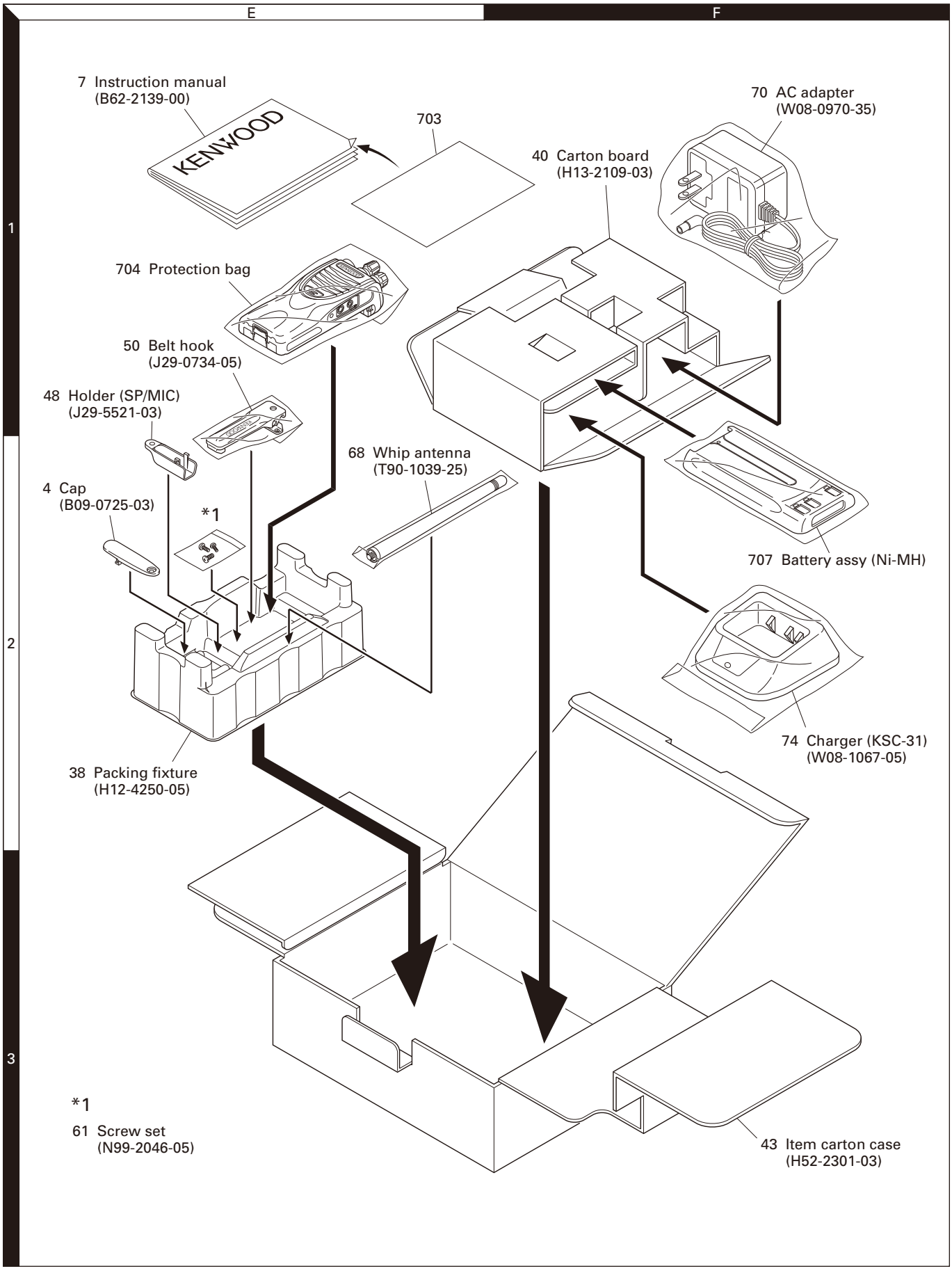
Parts with the exploded numbers larger than 700 are not supplied.
If a part reference number is listed in a box on the exploded view of the PCB, that part does not come with the PCB.
These parts must be ordered separately.

PACKING (K2,K3,M2 TYPE)



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

PACKING (P TYPE)



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

ADJUSTMENT

Test Equipment Required for Alignment

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

■ 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.)

■ Repair Jig (Chassis)

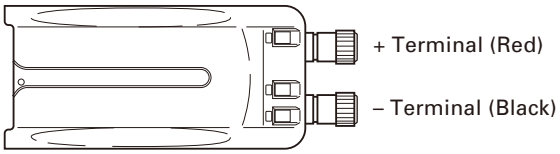
Use jig (part No.: A10-4215-03) for repairing the transceiver. Place the TX-RX unit on the jig and fit it with screws.

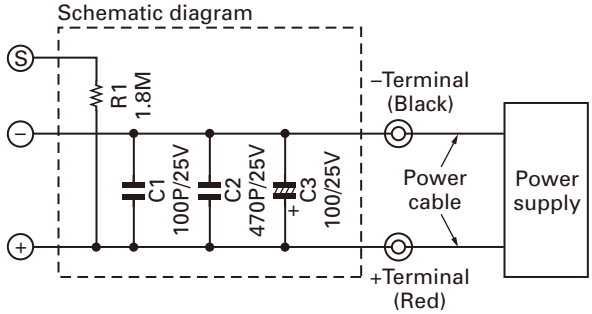
The jig facilitates the voltage check and protects the final amplifier FET when the voltage on the flow side of the TX-RX unit is checked during repairs.

■ 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.





ADJUSTMENT

Frequency and Signaling

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

■ Frequency (MHz)

• TK-3302 K2,M2

Channel No.	RX Frequency	TX Frequency
1	495.050	495.100
2	470.050	470.100
3	519.950	519.900
4	495.000	495.000
5	495.200	495.200
6	495.400	495.400
7~16	-	-

• TK-3302 K3

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
7~16	-	-

■ 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 Decode [159D]	DTMF Encode [159D]
9	None	DTMF Tone 9

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	TK-3302 K2,M2	
	RX	TX
Center	495.050MHz	495.100MHz
Low	470.050MHz	470.100MHz
High	519.950MHz	519.900MHz
Low'	482.550MHz	482.600MHz
High'	507.550MHz	507.600MHz

TEST CH	TK-3302 K3	
	RX	TX
Center	415.050MHz	415.100MHz
Low	400.050MHz	400.100MHz
High	429.950MHz	429.900MHz
Low'	407.550MHz	407.600MHz
High'	422.550MHz	422.600MHz

■ List of FPU for transceiver

Model	Type	FPU
TK-3302	K2,K3,M2	KPG-118D(K)

ADJUSTMENT

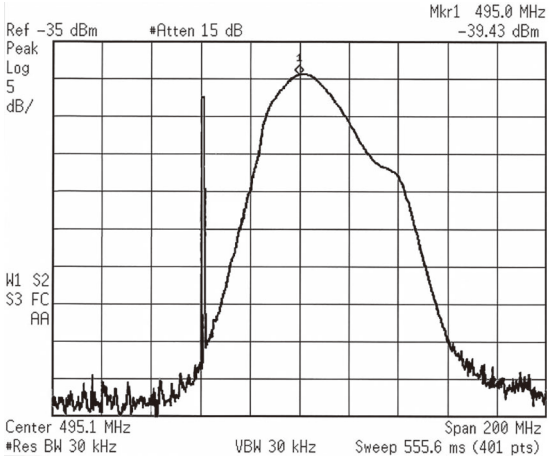


Fig. 1 Center frequency: K2,M2

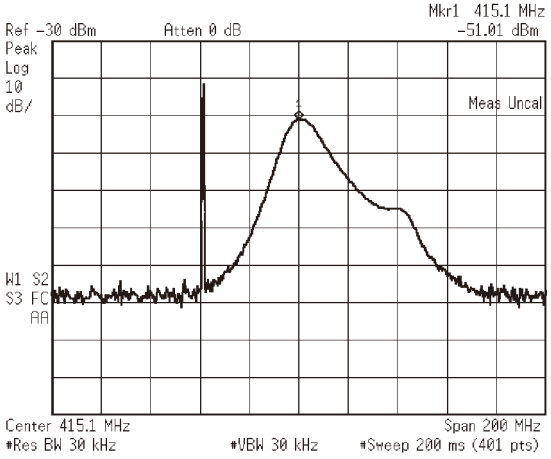


Fig. 4 Center frequency: K3

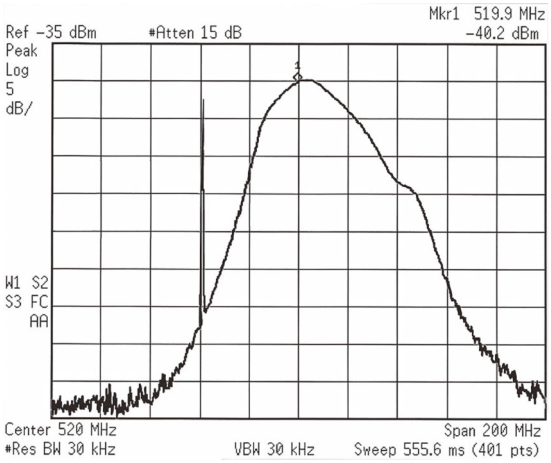


Fig. 2 High-edge frequency: K2,M2

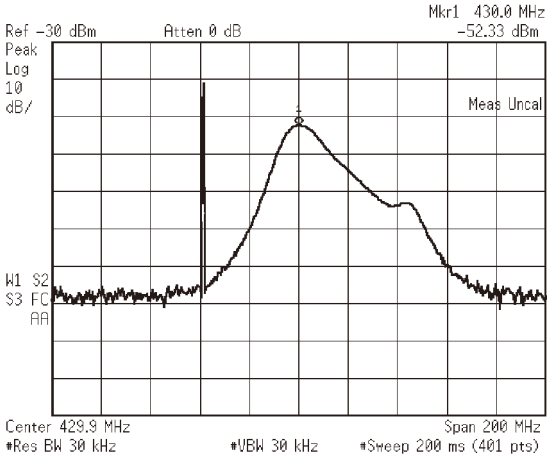


Fig. 5 High-edge frequency: K3

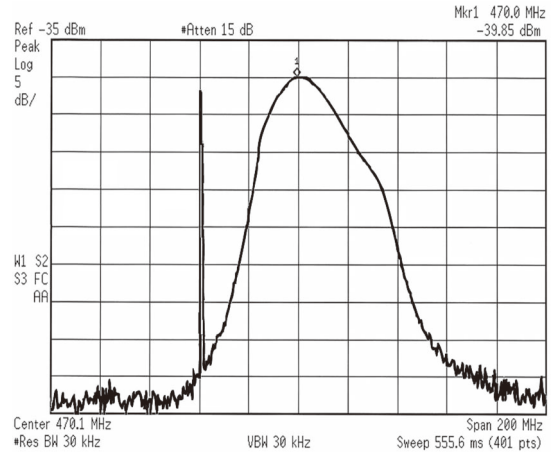


Fig. 3 Low-edge frequency: K2,M2

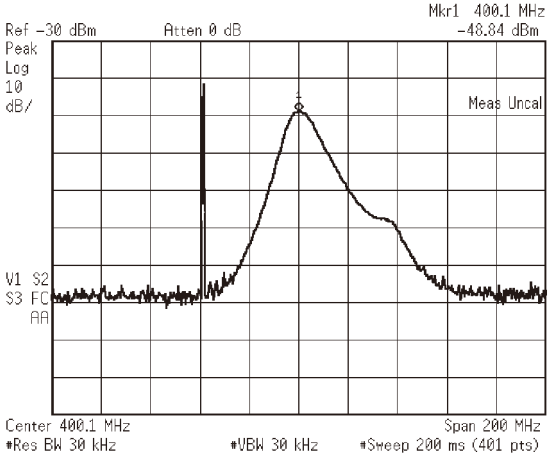


Fig. 6 Low-edge frequency: K3

ADJUSTMENT

Common Section

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) BATT terminal votage: 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	TX-RX	ANT LV (CV)	TX-RX	TC1	4.0V **K2,M2** 3.5V **K3**	±0.1V
	2) CH: Low						Check	0.6V or more
3. VCO lock voltage TX	3) CH: High PTT: ON				TX-RX	TC2	3.7V **K2,M2** 3.5V **K3**	±0.1V
	4) CH: Low PTT: ON						Check	0.6V or more

Transmitter Section

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Frequency Adjust	1) CH: High PTT: ON	f. counter		ANT	TX-RX	VR1	High frequency	±50Hz
2. High Transmit Power	1) TEST CH: Low, Low', Center, High', High (5 points) BATT terminal voltage: 7.5V PTT: ON	Power meter Ammeter				FPU		4.0W±0.1W 2.0A or less
3. Low Transmit Power	1) TEST CH: Low, Low', Center, High', High (5 points) BATT terminal voltage: 7.5V PTT: ON							1.0W±0.1W 1.0A or less
4. Maximum Deviation [Wide]	1) TEST CH: Center, Low, High (3 points) AG: 1kHz/150mV Deviation meter filter LPF: 15kHz HPF: OFF PTT: ON	Power meter Deviation meter Oscilloscope AG AF VTVM		ANT SP/MIC connector			4.4kHz (According to the larger +, –)	±80Hz
[Narrow]	2) TEST CH: Center PTT: ON						2.2kHz (According to the larger +, –)	±80Hz
5. DQT Balance [Wide]	1) TEST CH: Center, Low, High (3 points) Deviation meter filter LPF: 3kHz HPF: OFF PTT: ON						Make the demodulation wave into square waves.	
[Narrow]	2) TEST CH: Center PTT: ON							

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
6. QT Fine Deviation [Wide]	1) TEST CH: Center, Low, High (3 points) Deviation meter filter LPF: 3kHz HPF: OFF PTT: ON	Power meter Deviation meter Oscilloscope AG AF VTVM		ANT SP/MIC connector		FPU	0.75kHz	±40Hz
[Narrow]	2) TEST CH: Center PTT: ON						0.38kHz	±40Hz
7. DQT Fine Deviation [Wide]	1) TEST CH: Center, Low, High (3 points) Deviation meter filter LPF: 3kHz HPF: OFF PTT: ON						0.75kHz	±40Hz
[Narrow]	2) TEST CH: Center PTT: ON						0.38kHz	±40Hz
8. DTMF Fine Deviation [Wide]	1) TEST CH: Center Deviation meter filter LPF: 15kHz HPF: OFF PTT: ON						3.0kHz	±100Hz
[Narrow]	2) TEST CH: Center PTT: ON						1.5kHz	±100Hz
9. MSK Fine Deviation [Wide]	1) TEST CH: Center Deviation meter filter LPF: 15kHz HPF: OFF PTT: ON						3.0kHz	±100Hz
[Narrow]	2) TEST CH: Center PTT: ON						1.5kHz	±100Hz

Receiver Section

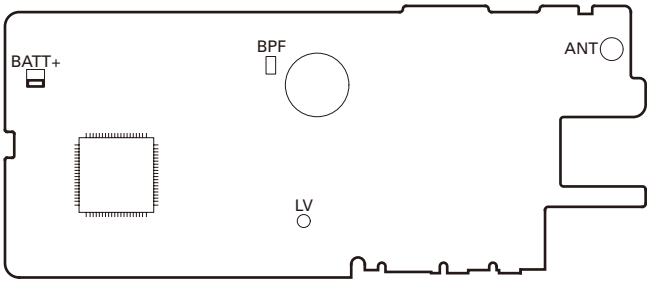
Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. BPF Wave Adjust **K2,M2**	1) Center frequency Spectrum analyzer setting Center-f: 495MHz Span: 200MHz RBW: 30kHz VBW: 30kHz ATT: 15dB 2) High-edge frequency Spectrum analyzer setting Center-f: 520MHz 3) Low-edge frequency Spectrum analyzer setting Center-f: 470MHz	SSG Spectrum analyzer	TX-RX	ANT BPF		FPU	Adjust the waveform as shown to the Fig. 1~3.	

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
K3	1) Center frequency Spectrum analyzer setting Center-f: 415MHz Span: 200MHz RBW: 30kHz VBW: 30kHz ATT: 0dB 2) High-edge frequency Spectrum analyzer setting Center-f: 430MHz 3) Low-edge frequency Spectrum analyzer setting Center-f: 400MHz	SSG Spectrum analyzer	TX-RX	ANT BPF		FPU	Adjust the waveform as shown to the Fig. 4~6.	
2. Sensitivity [Wide]	1) TEST CH: Low, Center, High (3 points) SSG otuput : –117dBm (0.3µV) SSG MOD: 3.0kHz	SSG DVM Oscilloscope AF VTVM		ANT SP/MIC connector			Check	12dB SINAD or more
[Narrow]	2) TEST CH: Center SSG otuput : –115dBm (0.4µV) SSG MOD: 1.5kHz							
3. Squelch Open [Wide]	1) TEST CH: Center, Low, High (3 points) SSG otuput : –123dBm (0.16µV) SSG MOD: 3.0kHz					FPU	Write	
[Narrow]	2) TEST CH: Center SSG otuput : –122dBm (0.18µV) SSG MOD: 1.5kHz							
4. Squelch Tight [Wide]	1) TEST CH: Center, Low, High (3 points) SSG otuput : –117dBm (0.3µV) SSG MOD: 3.0kHz							
[Narrow]	2) TEST CH:Center SSG otuput : –116dBm (0.35µV) SSG MOD: 1.5kHz							
5. Battery Warning Level	1) BATT terminal voltage: 5.9V	SSG DVM	TX-RX	ANT BATT terminal			Write	BATT terminal voltage: 5.9V

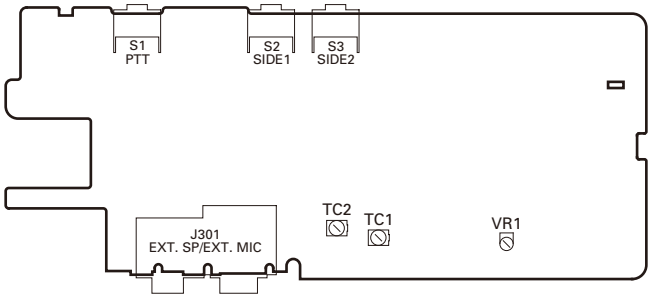
Adjustment Points

■ Component side view



BPF: BPF Wave Adjust
LV (CV): VCO lock voltage
BATT+: Battery Warning Level

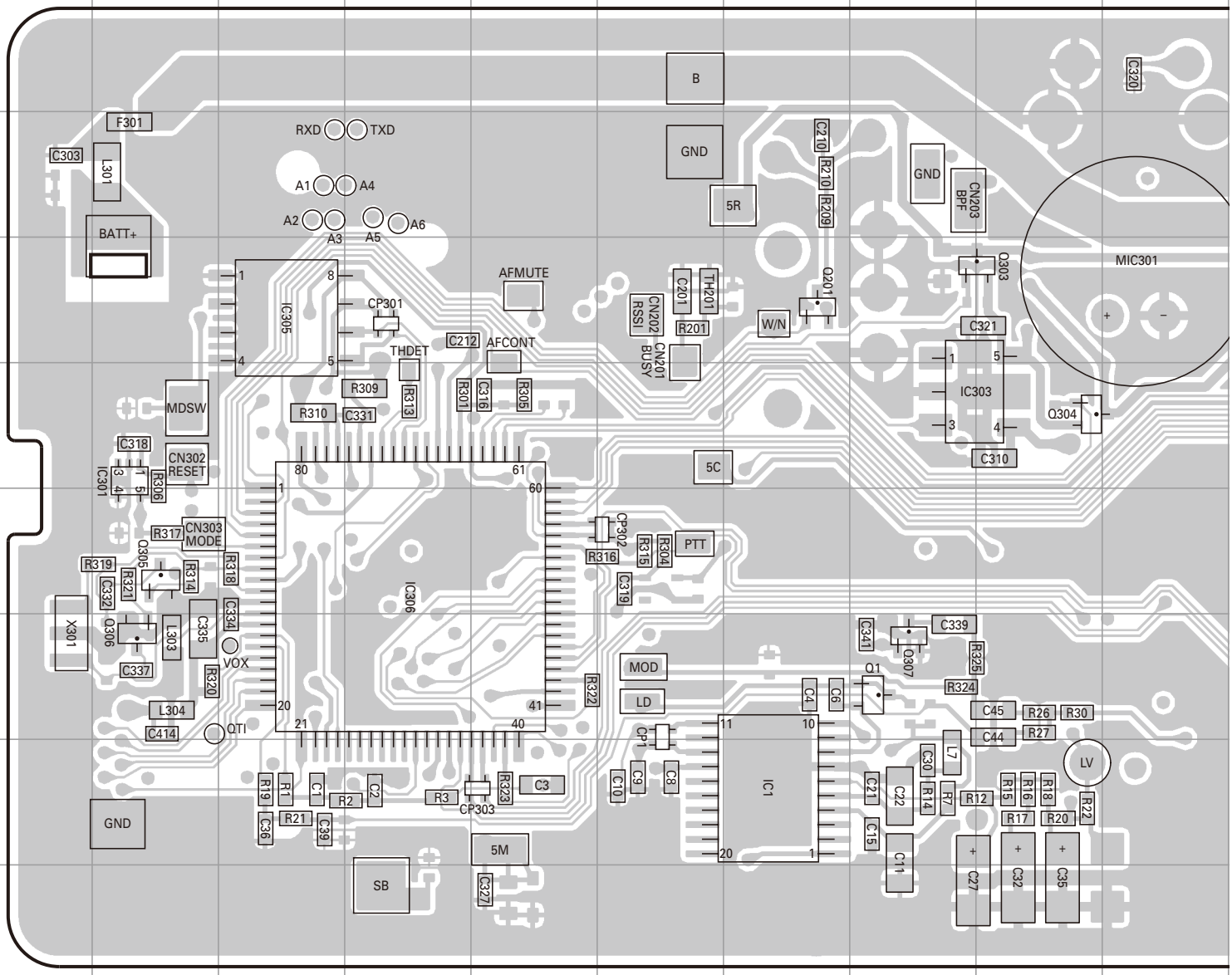
■ Foil side view



TC1 : VCO lock voltage (RX)
TC2 : VCO lock voltage (TX)
VR1 : Frequency adjustment

TK-3302 PC BOARD

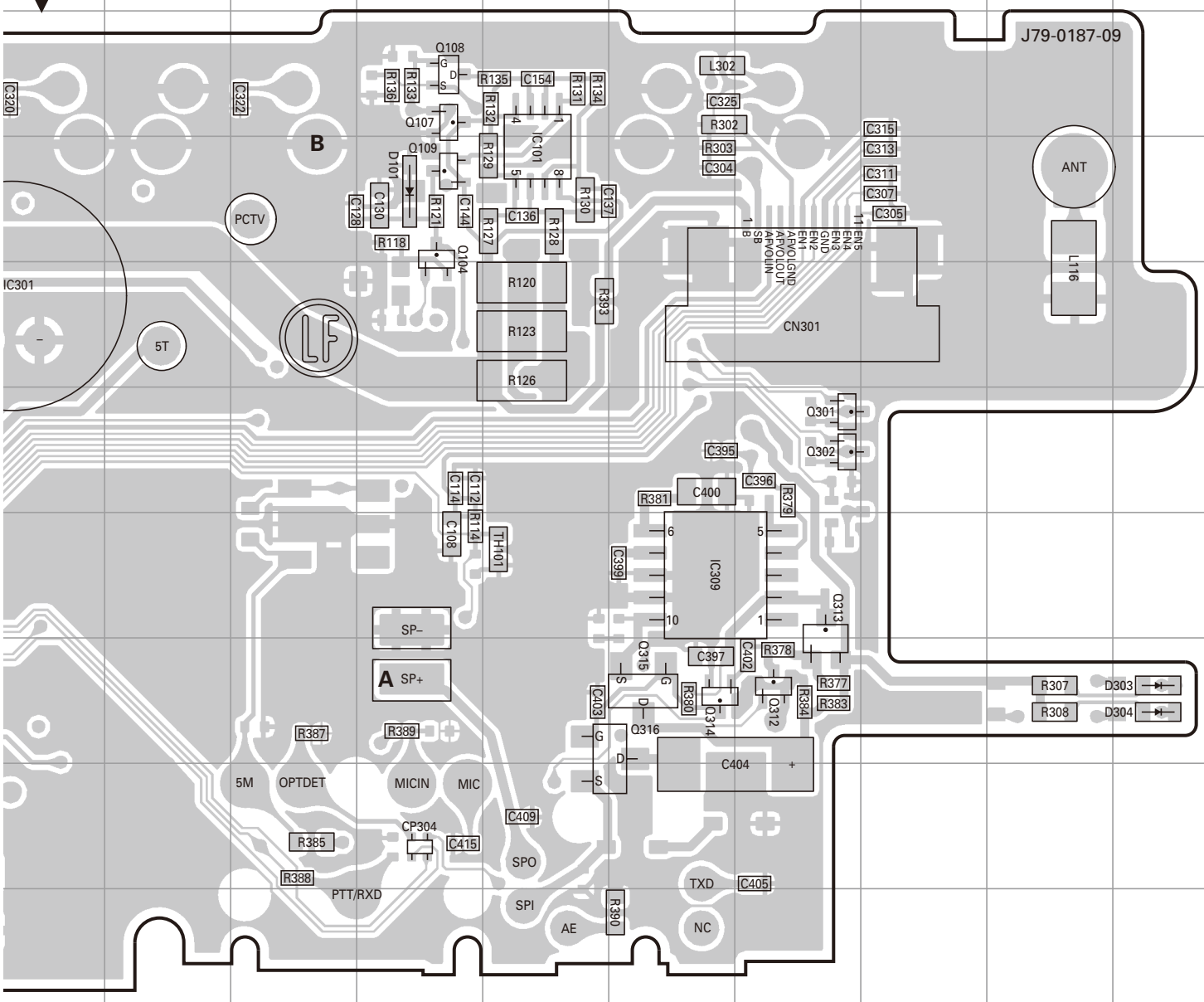
TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Component side view (J79-0187-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	9G	Q104	4M	Q304	6I	Q316	8O
IC101	4N	Q107	3M	Q305	7B	D101	4M
IC301	6B	Q108	3M	Q306	8B	D303	8S
IC303	6H	Q109	4M	Q307	8H	D304	8S
IC305	5C	Q201	5G	Q312	8P		
IC306	7D	Q301	6P	Q313	7P		
IC309	7O	Q302	6P	Q314	8O		
Q1	8H	Q303	5I	Q315	8O		

PC BOARD TK-3302

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Component side view (J79-0187-09)

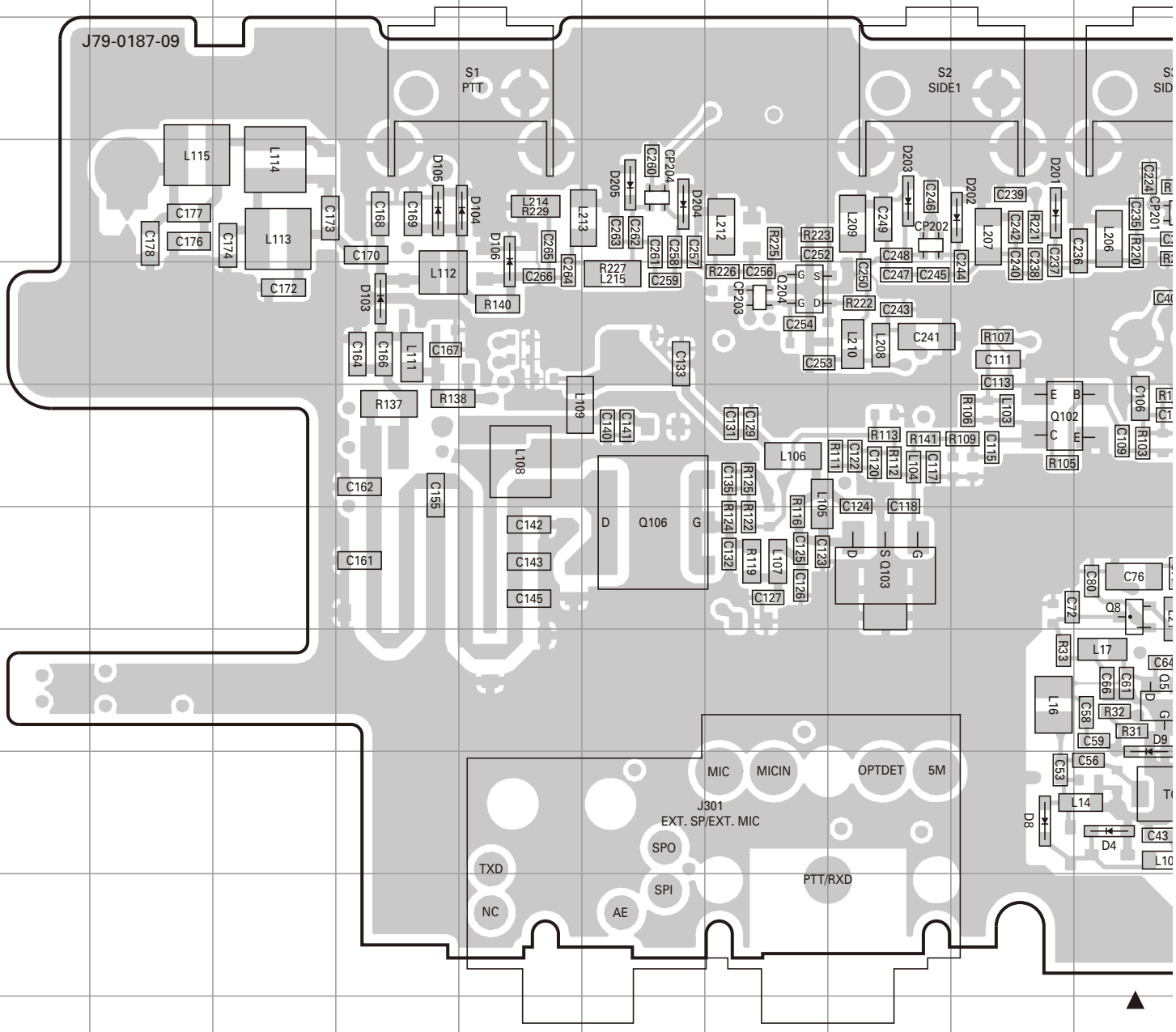


A: Green speaker wire soldering position.
B: Brown speaker wire soldering position.

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

TK-3302 PC BOARD

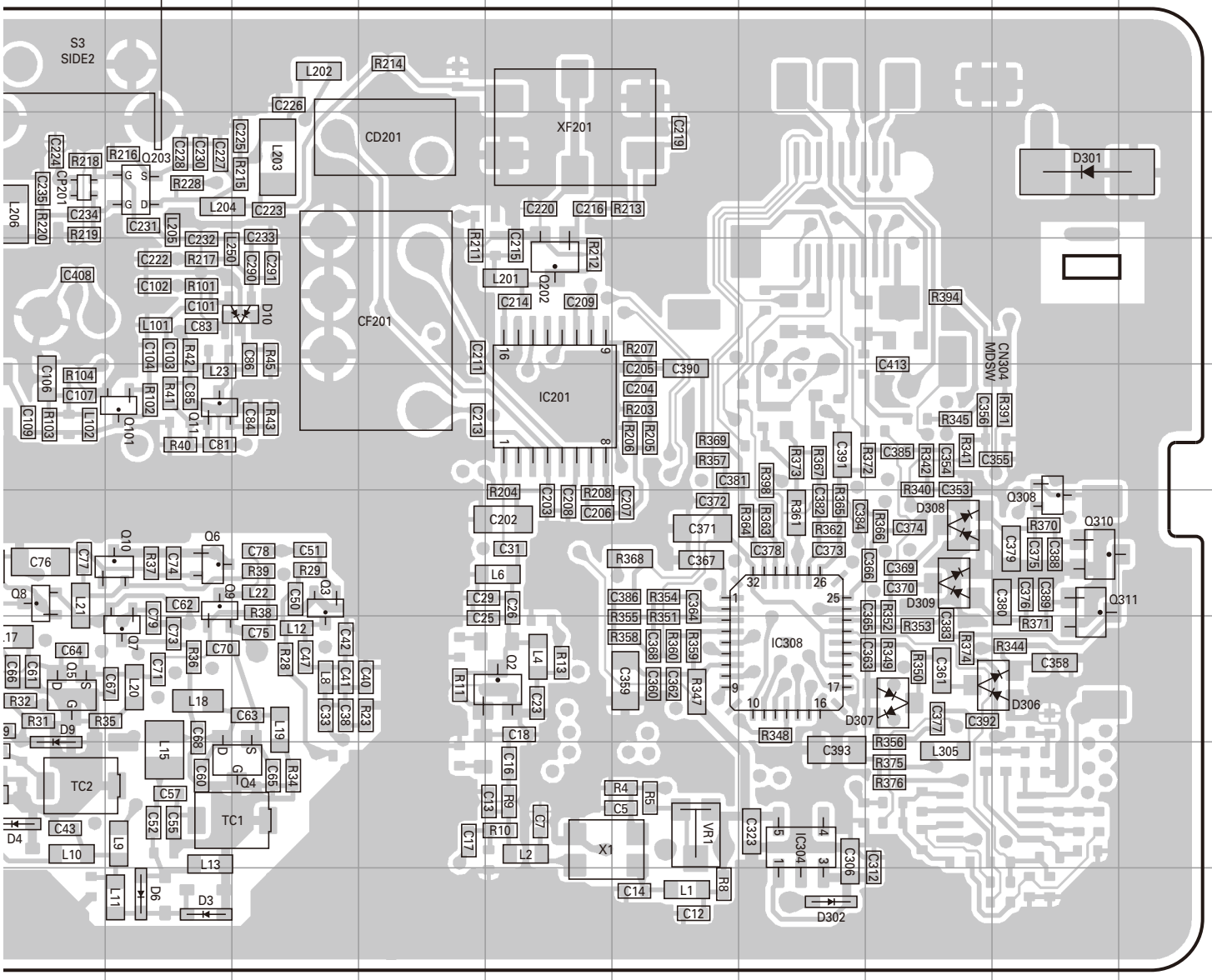
TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Foil side view (J79-0187-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC201	6N	Q8	7J	Q203	4K	D9	8J	D204	4F
IC304	9P	Q9	7K	Q204	5G	D10	5L	D205	4F
IC308	8P	Q10	7K	Q308	7R	D103	5D	D301	4R
Q2	8N	Q11	6K	Q310	7R	D104	4E	D302	10P
Q3	7L	Q101	6K	Q311	7R	D105	4D	D306	8R
Q4	9L	Q102	6I	D3	10K	D106	4E	D307	8Q
Q5	8J	Q103	7H	D4	9J	D201	4I	D308	7Q
Q6	7K	Q106	7F	D6	10K	D202	4I	D309	7Q
Q7	8K	Q202	5N	D8	9I	D203	4H		

PC BOARD TK-3302

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Foil side view (J79-0187-09)

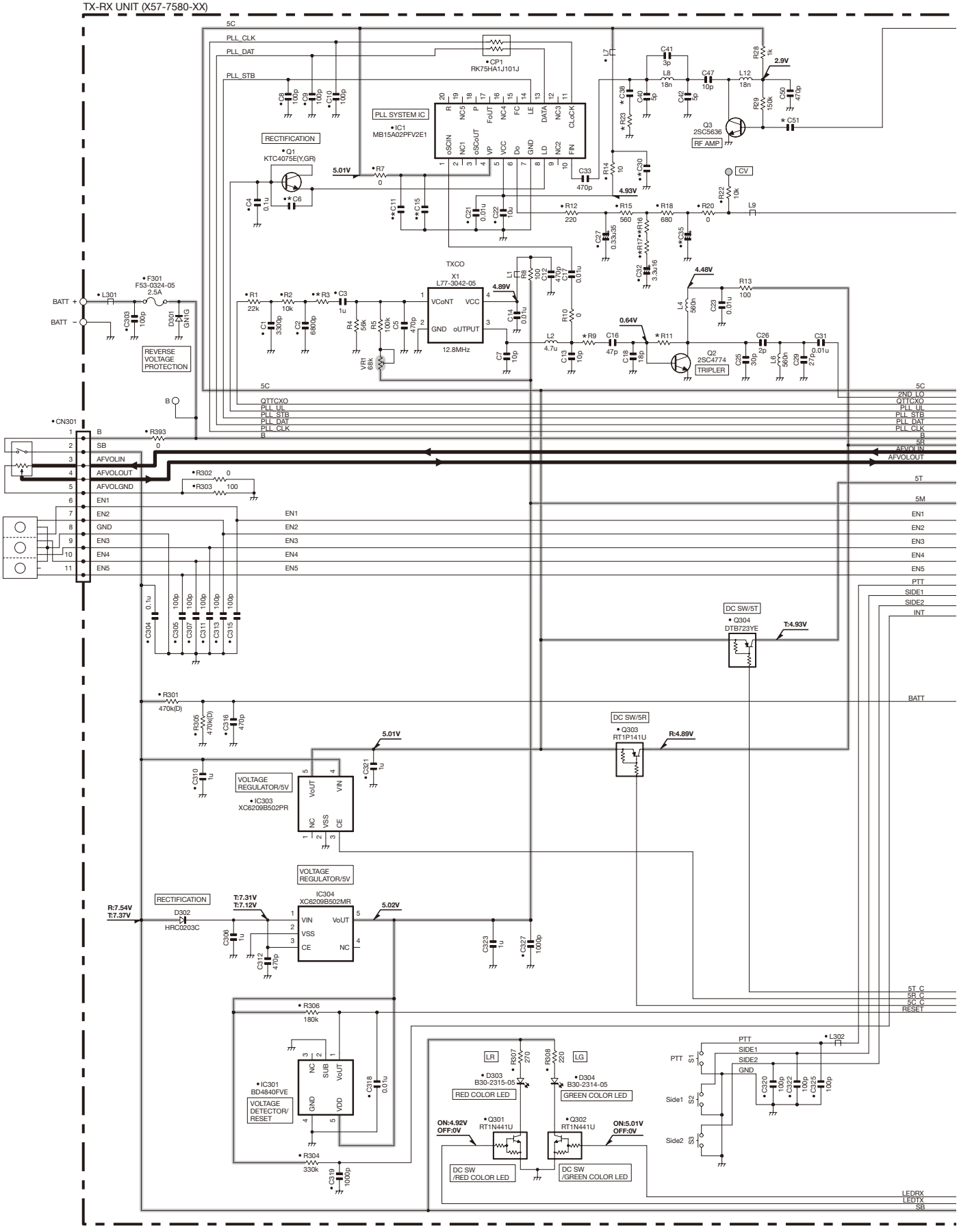


Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

TK-3302 SCHEMATIC DIAGRAM

X57-7580-XX	R3	R9	R11	R16	R17	R23	C6	C11	C15	C30	C35	C38	C51
-20	K,M,P	180k	820	270k	0	1.8k	NO	0.01u	10u	0.01u	470p	0.1u	NO	10p
-22	K2,M2	180k	2.2k	330k	180	1.2k	NO	0.01u	10u	0.01u	100p	0.047u	NO	10p
-23	K3	150k	820	270k	180	1.2k	47	470p	470p	470p	470p	0.047u	470p	3p

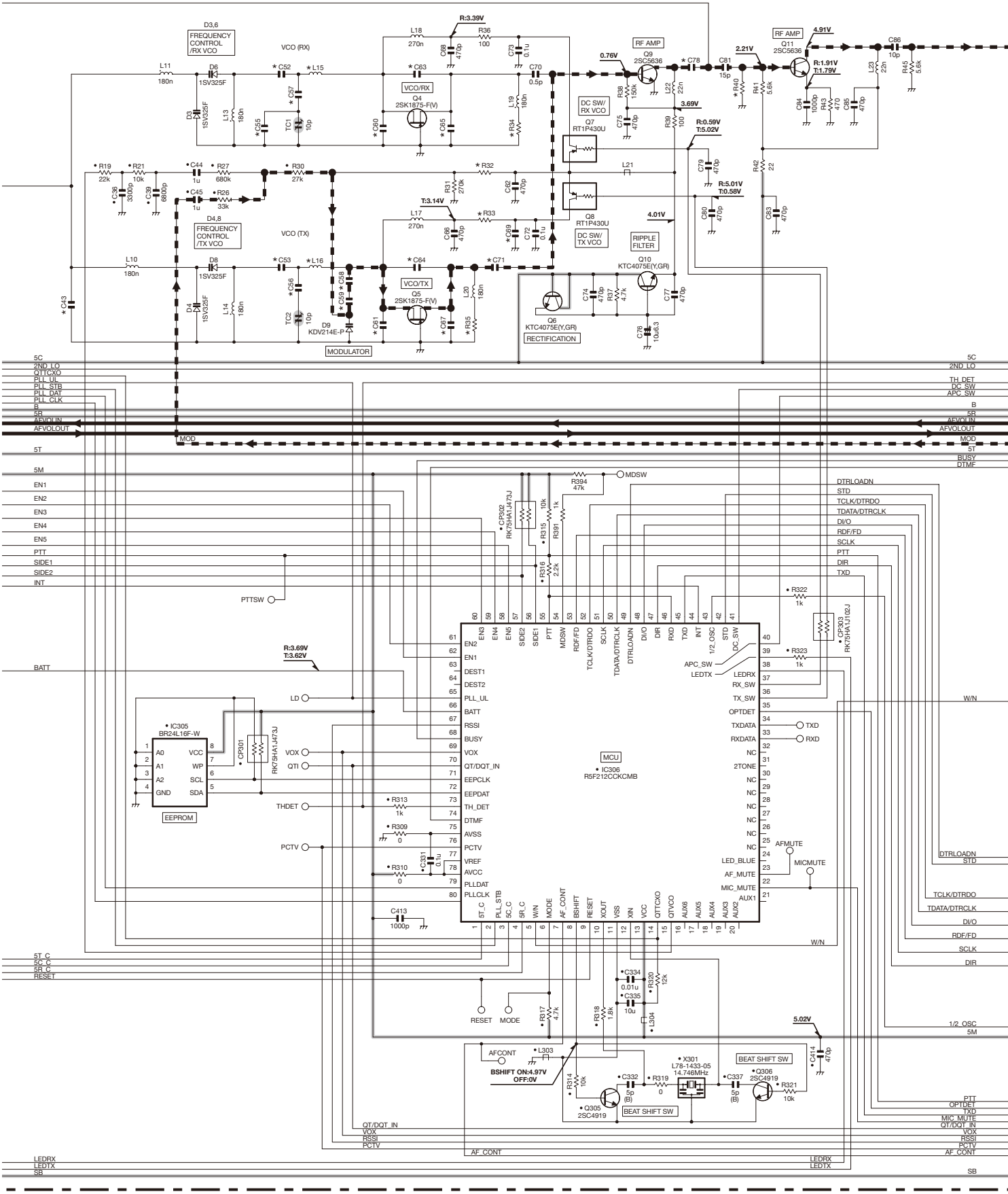
TX-RX UNIT (X57-7580-XX)



SCHEMATIC DIAGRAM TK-3302

X57-7580-XX		L15	L16	R32	R33	R34	R35	R40	C43	C52	C53	C55	C56	C57	C58	C59	C60	C61	C63	C64	C65	C67	C69	C71	C78
-20	K,M,P	27n	18n	470k	100	100	100	4.7k	NO	9p	11p	0.5p	12p	4p	1p	1p	2p	3p	6p	5p	6p	5p	470p	0.5p	33p
-22	K2,M2	22n	18n	470k	100	180	82	4.7k	NO	11p	8p	NO	6p	9p	1p	1p	3p	3p	5p	4p	6p	4p	NO	0.3p	33p
-23	K3	27n	22n	390k	10	100	100	NO	100p	15p	9p	2p	8p	10p	1.5p	1.5p	4p	7p	6p	3.5p	4p	4p	NO	0.3p	30p

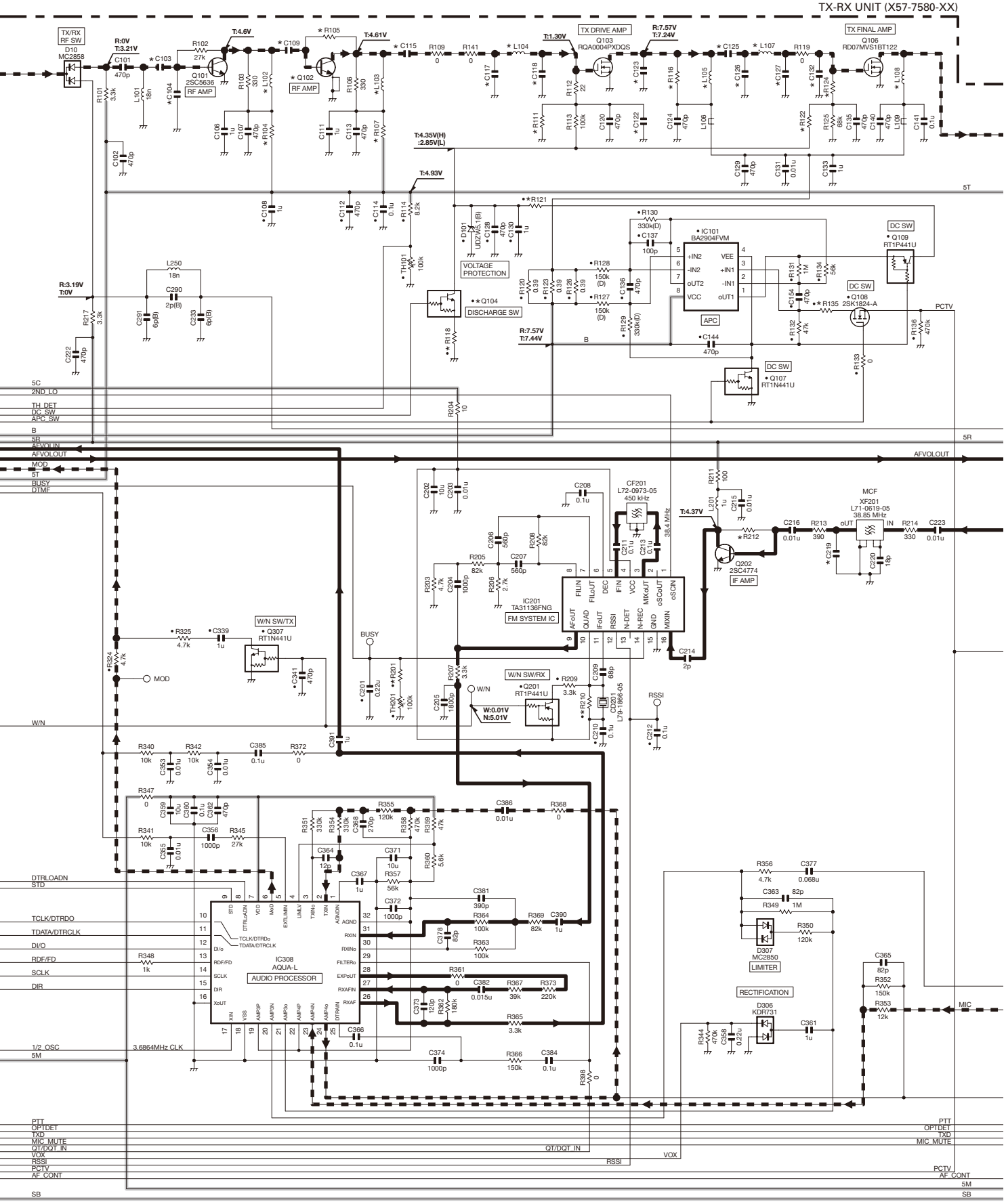
TX-RX UNIT (X57-7580-XX)



TK-3302 SCHEMATIC DIAGRAM

X57-7580-XX	Q102	Q104	L102	L103	L104	L105	L107	L108	R104	R105	R107	R111	R116	R118	R121	R122	R124	R135	R201	R210	R212	C103	C104	C109	C115	C117	C118	C122	C123	C125	C126	C127	C132	C219
-20	K,M,P	2SC4926YD	NO	39n	15n	8.2n	22n	2.7n	2T	47	27k	56	39k	330	NO	10k	27k	22	180k	82k	3.9K	220K	30p	4p	6p	11p	11p	NO	NO	NO	10p	11p	16p	NO	1p
-22	K2,M2	2SC5455-A	RT1N441U	39n	22n	3.3n	22n	8.2n	3T	47	27k	56	39k	330	O	4.7k	27k	22	100k	82k	3.9K	180K	12p	NO	6p	5p	2p	NO	1u	NO	10p	6p	18p	56p	NO
-23	K3	2SC5455-A	RT1N441U	27n	18n	8.2n	4.7n	2.2n	2T	39	18k	39	47k	NO	330	15k	68k	100	100k	180k	4.7K	220K	12p	16p	18p	5p	NO	9p	1u	0.5p	15p	NO	47p	NO	1p

TX-RX UNIT (X57-7580-XX)

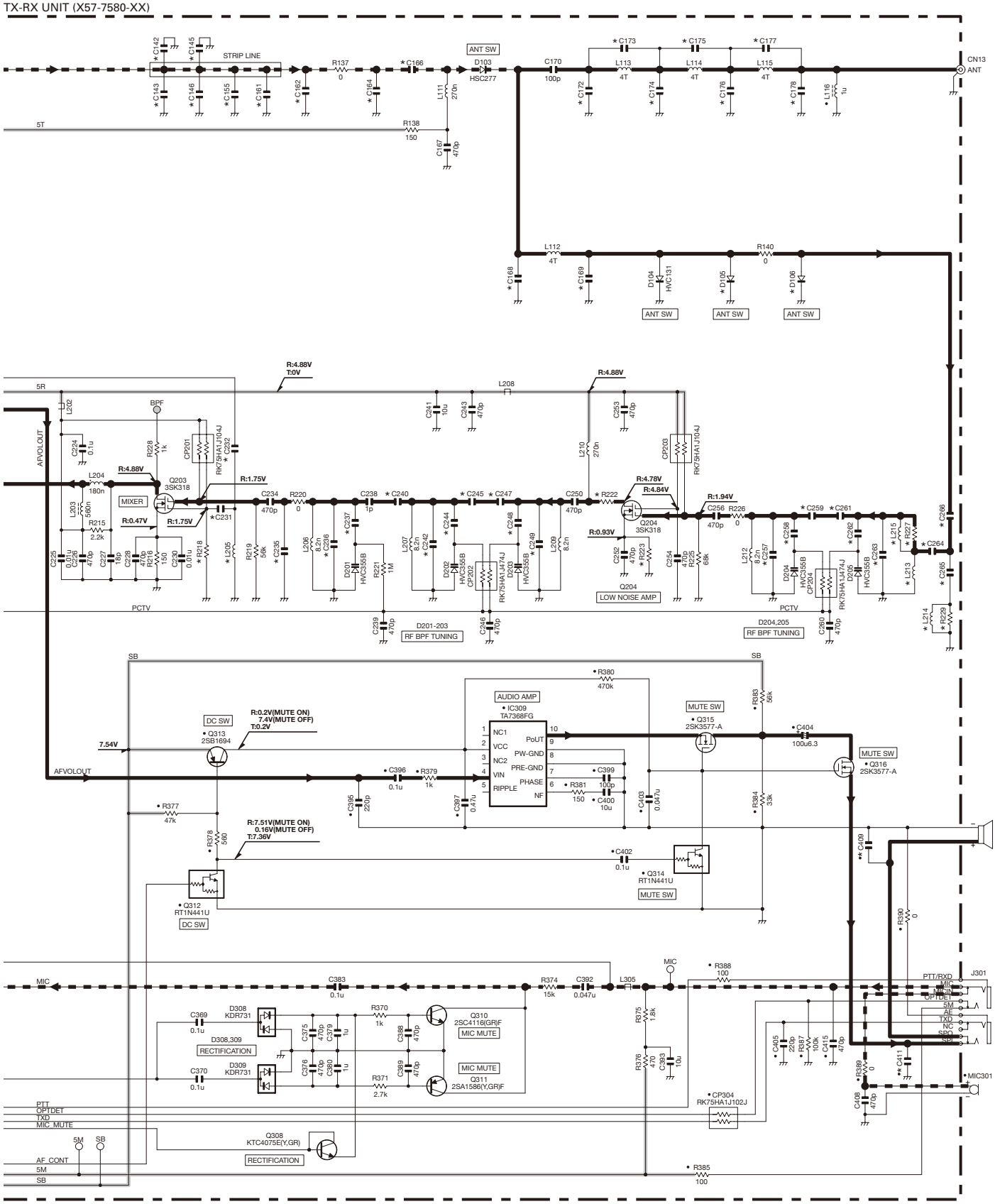


SCHEMATIC DIAGRAM TK-3302

X57-7580-XX	L205	L213	L214	L215	R218	R222	R223	R227	R229	C142	C143	C145	C146	C155	C161	C162	C164	C166	C168	C169	C172	C173	C174	C175	C176	C177	C178
-20	K,M,P	27n	8.2n	47n	NO	56k	22	220	0	NO	43p	NO	NO	12p	NO	1p	2p	NO	6p	4p	2.5p	3p	0.5p	5p	2p	5p	2p	3p
-22	K2,M2	27n	3.9n	NO	3.9n	56k	22	220	NO	0	NO	30p	1p	NO	NO	NO	1p	NO	5p	2.5p	4p	6p	NO	11p	NO	7p	0.5p	2p
-23	K3	33n	8.2n	47n	NO	82k	15	120	0	NO	47p	NO	36p	NO	0.3p	1.5p	NO	3p	7p	4p	2.5p	1p	0.5p	10p	NO	10p	0.3p	6p

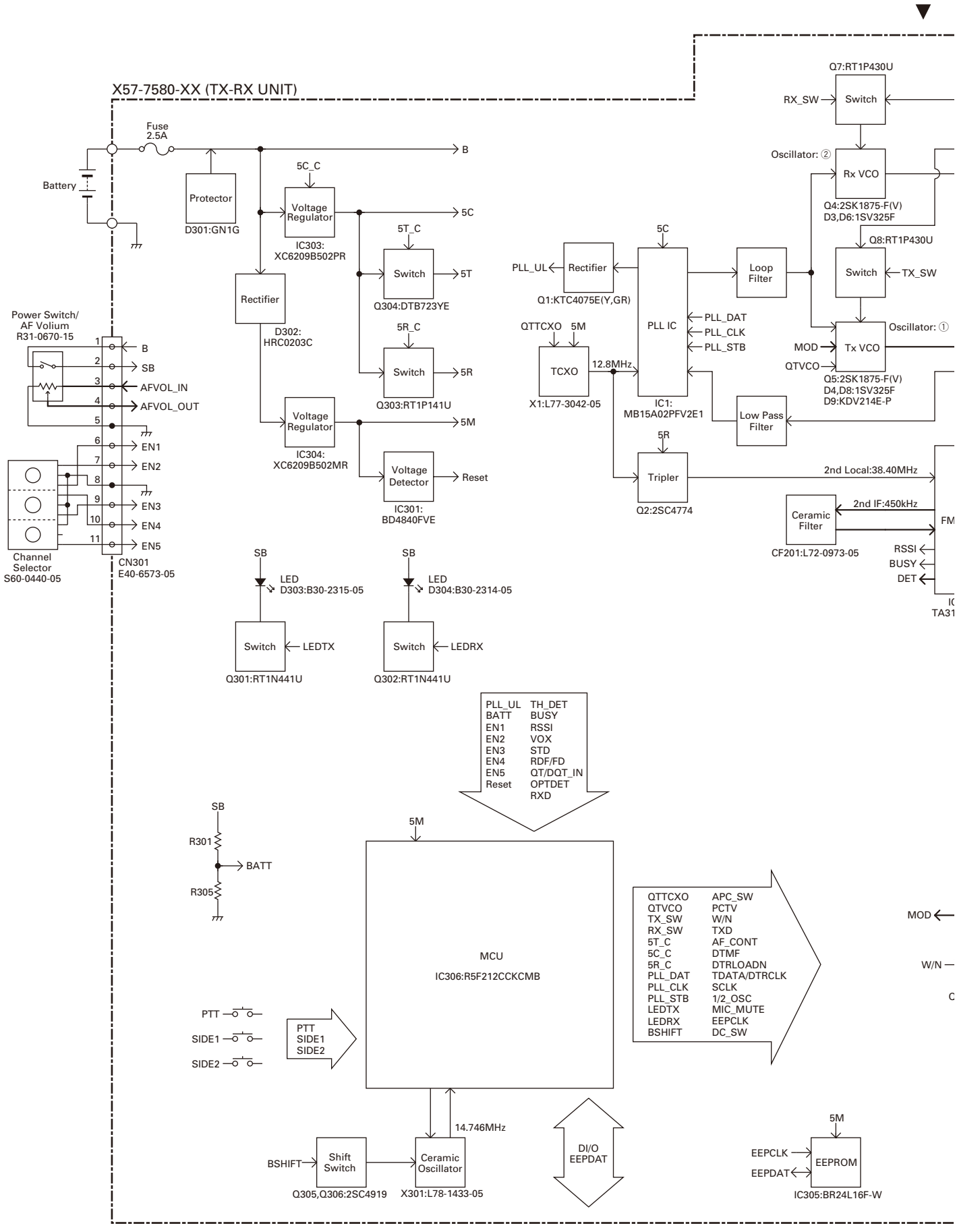
X57-7580-XX	C231	C232	C235	C236	C237	C240	C242	C244	C245	C247	C248	C249	C257	C258	C259	C261	C262	C263	C264	C265	C266	C409	C411	D105	D106
-20	K,M,P	470p	3.5p	NO	4p	22p	2p	6p	22p	1p	2p	22p	4p	3.5p	22p	2p	3p	22p	1p	3.5p	3p	5p	470p	470p	HVC131	NO
-22	K2,M2	470p	4p	NO	2.5p	30p	1.5p	4p	30p	0.75p	2p	30p	3p	2.5p	30p	1.5p	1.5p	30p	2p	22p	8p	6p	NO	NO	NO	HVC131
-23	K3	1000p	3.5p	0.75p	7p	27p	4p	8p	27p	1p	4p	27p	8p	8p	22p	1.5p	2p	22p	6p	2p	5p	7p	470p	NO	NO	HVC131

TX-RX UNIT (X57-7580-XX)

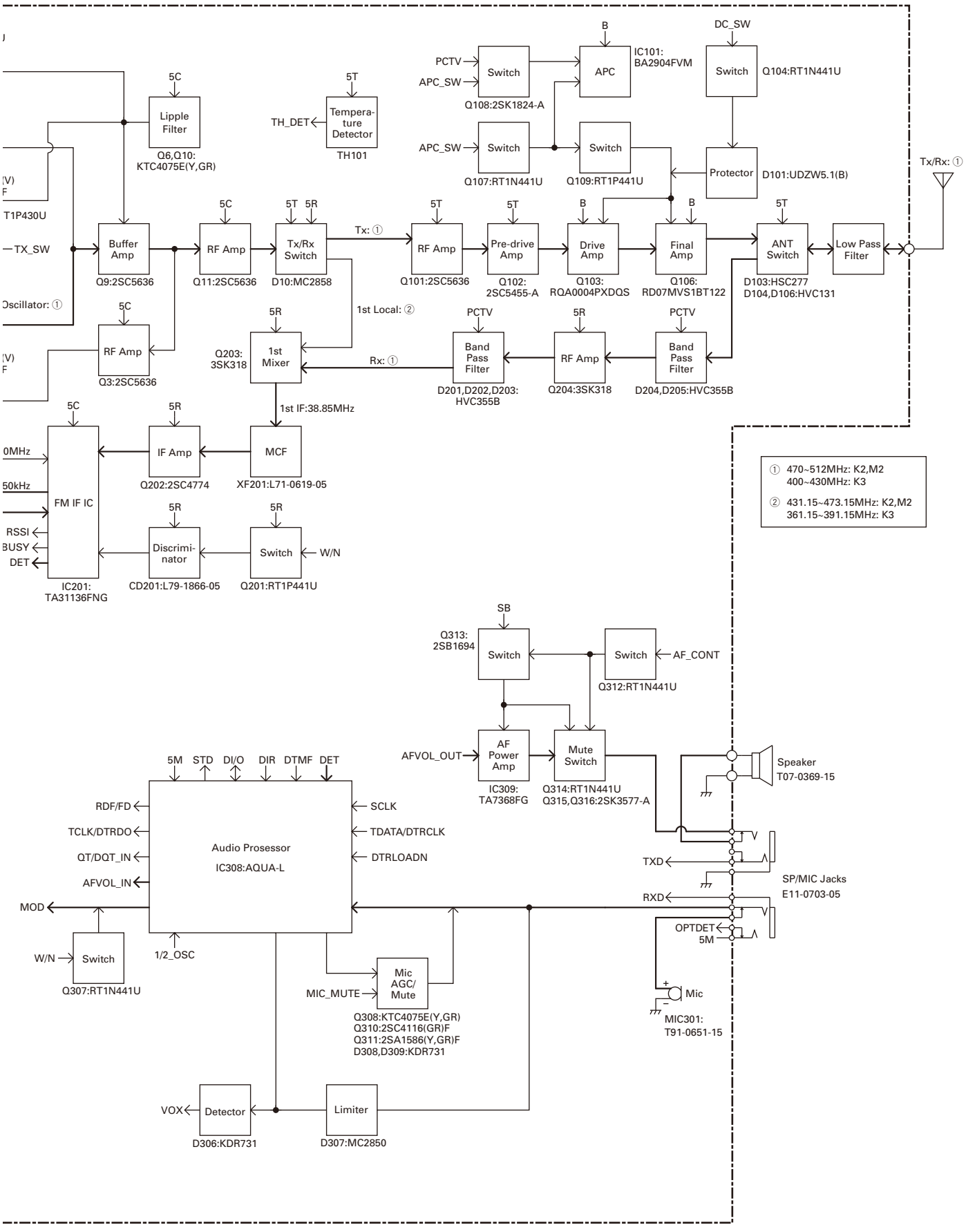


Note : The components marked with a dot (•) are parts of layer 1.

BLOCK DIAGRAM

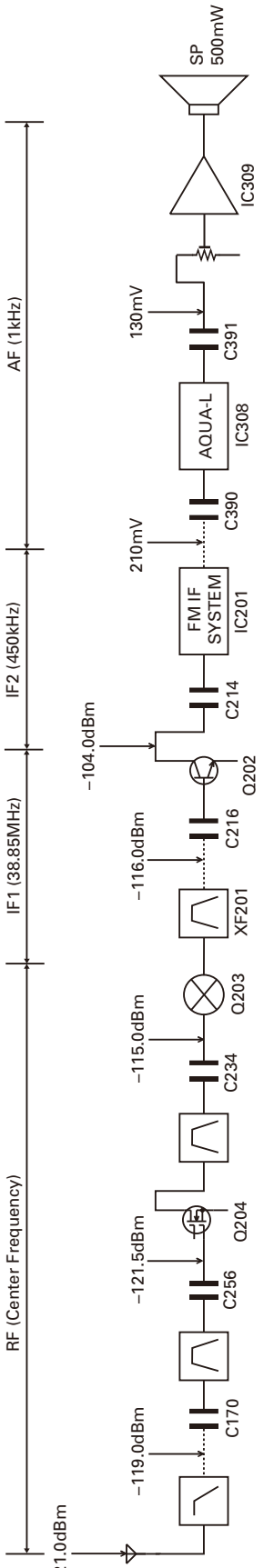


BLOCK DIAGRAM



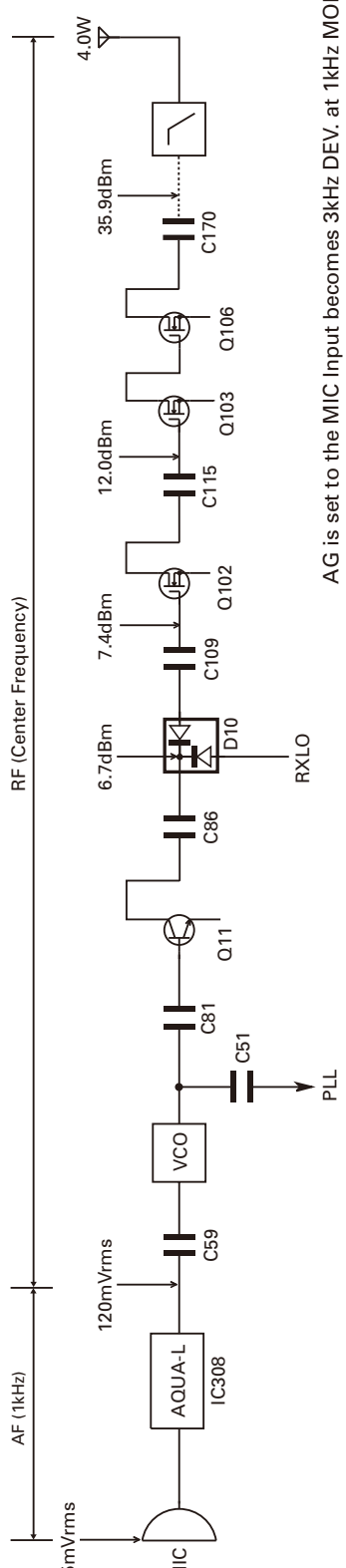
LEVEL DIAGRAM

Receiver Section



To make measurements in the AF section, connect the AC level meter.
(ANT input: –53dBm, 1kHz FM, 3kHz DEV (WIDE).)
In the RF section,use 470pF coupling capacitor.
(The display shows the SSG input value required to obtain
12dB SINAD without Local Level.)

Transmitter Section



AG is set to the MIC Input becomes 3kHz DEV. at 1kHz MOD. (WIDE).
To make measurements in the AF section, connect the AC level meter.
In the RF section, use 470pF coupling capacitor.

SPECIFICATIONS

General

Frequency Range	470~512MHz (TK-3302 K2,M2) 400~430MHz (TK-3302 K3)
Number of channels	Max. 16
Channel Spacing	25kHz (Wide) / 12.5kHz (Narrow)
PLL Channel Stepping	5kHz, 6.25kHz
Operating Voltage	7.5 V DC±20%
Battery Life	More than 18 hours at 4 watts (5-5-90 duty cycle with KNB-45L battery)
Operating Temperature range	–30°C to +60°C (–22°F to +140°F)
Frequency Stability	±2.5ppm (–30°C to +60°C)
Channel Frequency Spread	42MHz (TK-3302 K2,M2) 30MHz (TK-3302 K3)
Dimensions and Weight (Dimensions not including protrusions)	
Radio Only	160g (5.6oz)
With KNB-45L (2000mAh battery)	54 (2.13) W x 122 (4.8) H x 33.8 (1.33) D mm (inches) 280g (9.9oz)

Receiver (Measurements made per TIA/EIA-603)

Sensitivity	
EIA 12dB SINAD	0.25µV (Wide) / 0.28µV (Narrow)
Selectivity	70dB (Wide) / 60dB (Narrow)
Intermodulation	65dB (Wide) / 60dB (Narrow)
Spurious response	60dB
Audio Power Output	500mW at 4Ω less than 10% distortion

Transmitter (Measurements made per TIA/EIA-603)

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

TK-3302

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

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

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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

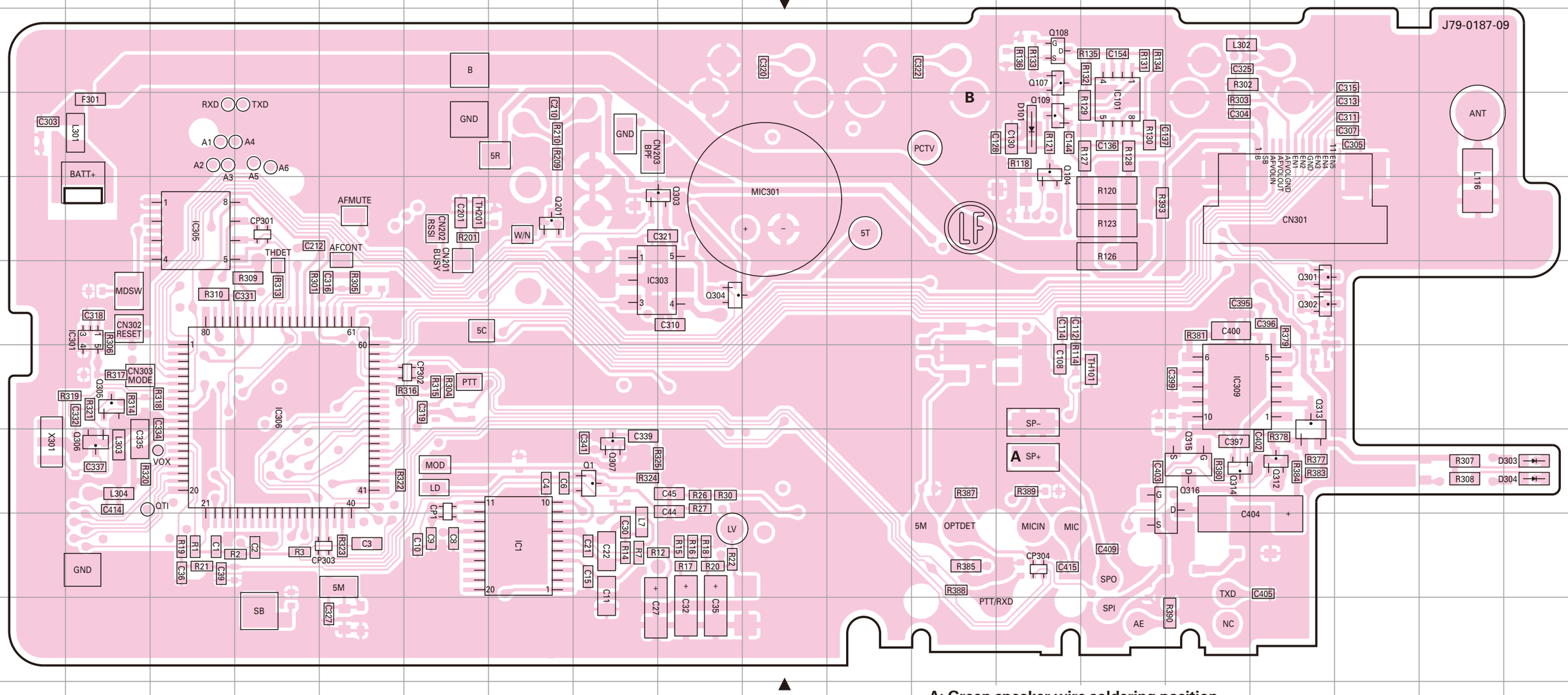
1 Ang Mo Kio Street 63, Singapore 569110

TK-3302 PC BOARD

PC BOARD TK-3302

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Component side view (J79-0187-09)

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Component side view (J79-0187-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	9G	Q104	4M	Q304	6I	Q316	8O
IC101	4N	Q107	3M	Q305	7B	D101	4M
IC301	6B	Q108	3M	Q306	8B	D303	8S
IC303	6H	Q109	4M	Q307	8H	D304	8S
IC305	5C	Q201	5G	Q312	8P		
IC306	7D	Q301	6P	Q313	7P		
IC309	7O	Q302	6P	Q314	8O		
Q1	8H	Q303	5I	Q315	8O		

A: Green speaker wire soldering position.
B: Brown speaker wire soldering position.

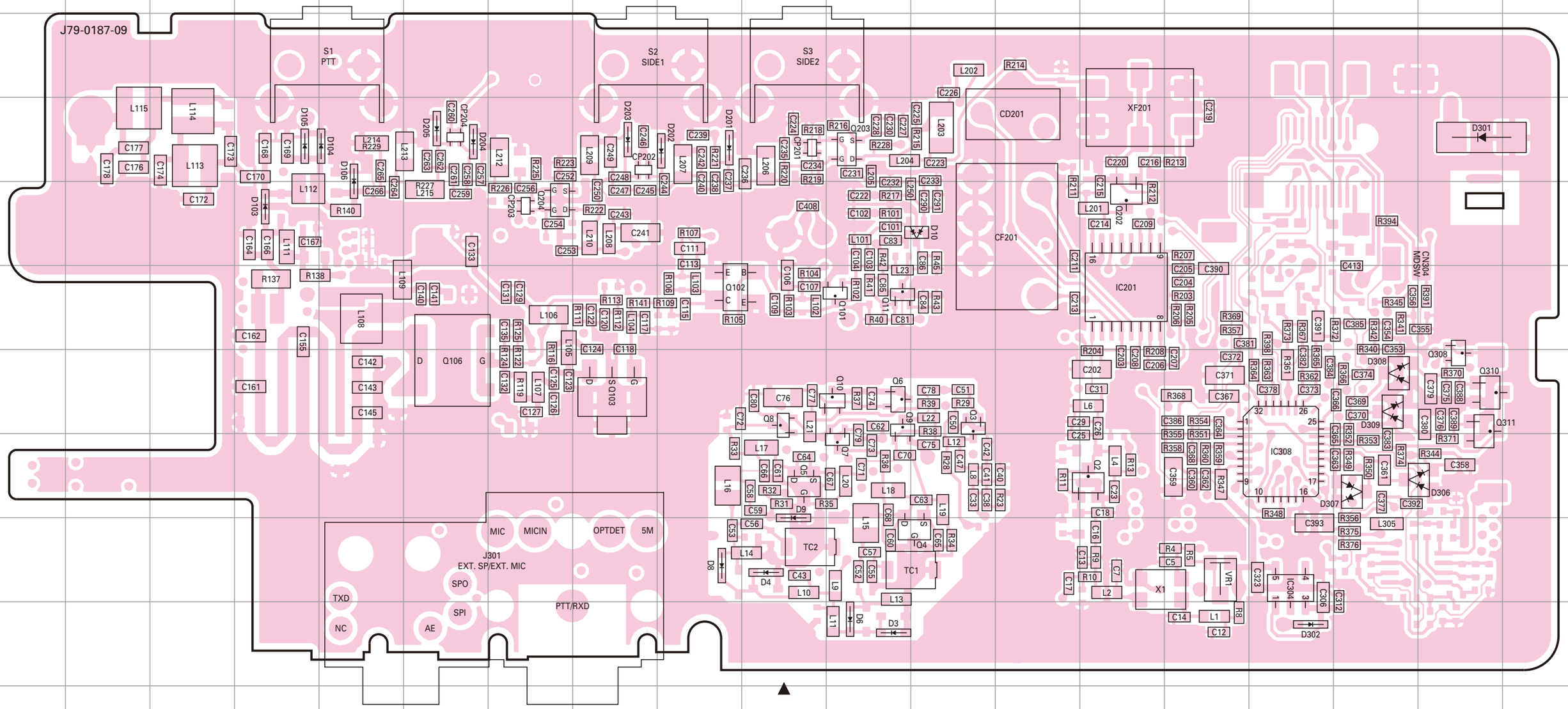
Component side
Layer 1
Layer 2
Layer 3
Layer 4
Foil side

TK-3302 PC BOARD

PC BOARD TK-3302

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Foil side view (J79-0187-09)

TX-RX UNIT (X57-7580-XX) -22: K2,M2 -23: K3
Foil side view (J79-0187-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC201	6N	Q8	7J	Q203	4K	D9	8J	D204	4F
IC304	9P	Q9	7K	Q204	5G	D10	5L	D205	4F
IC308	8P	Q10	7K	Q308	7R	D103	5D	D301	4R
Q2	8N	Q11	6K	Q310	7R	D104	4E	D302	10P
Q3	7L	Q101	6K	Q311	7R	D105	4D	D306	8R
Q4	9L	Q102	6I	D3	10K	D106	4E	D307	8Q
Q5	8J	Q103	7H	D4	9J	D201	4I	D308	7Q
Q6	7K	Q106	7F	D6	10K	D202	4I	D309	7Q
Q7	8K	Q202	5N	D8	9I	D203	4H		

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

X57-7580-XX		R3	R9	R11	R16	R17	R23	C6	C11	C15	C30	C35	C38	C51
-20	K,M,P	180k	820	270k	0	1.8k	NO	0.01u	10u	0.01u	470p	0.1u	NO	10p
-22	K2,M2	180k	2.2k	330k	180	1.2k	NO	0.01u	10u	0.01u	100p	0.047u	NO	10p
-23	K3	150k	820	270k	180	1.2k	47	470p	470p	470p	470p	0.047u	470p	3p

X57-7580-XX		L15	L16	R32	R33	R34	R35	R40	C43	C52	C53	C55	C56	C57	C58	C59	C60	C61	C63	C64	C65	C67	C69	C71	C78
-20	K,M,P	27n	18n	470k	100	100	100	4.7k	NO	9p	11p	0.5p	12p	4p	1p	1p	2p	3p	6p	5p	6p	5p	470p	0.5p	33p
-22	K2,M2	22n	18n	470k	100	180	82	4.7k	NO	11p	8p	NO	6p	9p	1p	1p	3p	3p	5p	4p	6p	4p	NO	0.3p	33p
-23	K3	27n	22n	390k	10	100	100	NO	100p	15p	9p	2p	8p	10p	1.5p	1.5p	4p	7p	6p	3.5p	4p	4p	NO	0.3p	30p

X57-7580-XX		Q102	Q104	L102	L103	L104	L105	L107	L108	R104	R105	R107	R111	R116	R118	R121	R122	R124	R135	R201	R210	R212	C103	C104	C109	C115	C117	C118	C122	C123	C125	C126	C127	C132	C219
-20	K,M,P	2SC4926YD	NO	39n	15n	8.2n	22n	2.7n	2T	47	27k	56	39k	330	NO	10k	27k	22	180k	82k	3.9K	220K	30p	4p	6p	11p	11p	NO	NO	NO	10p	11p	16p	NO	1p
-22	K2,M2	2SC5455-A	RT1N441U	39n	22n	3.3n	22n	8.2n	3T	47	27k	56	39k	330	O	4.7k	27k	22	100k	82k	3.9K	180K	12p	NO	6p	5p	2p	NO	1u	NO	10p	6p	18p	56p	NO
-23	K3	2SC5455-A	RT1N441U	27n	18n	8.2n	4.7n	2.2n	2T	39	18k	39	47k	NO	330	15k	68k	100	100k	180k	4.7K	220K	12p	16p	18p	5p	NO	9p	1u	0.5p	15p	NO	47p	NO	1p

X57-7580-XX		L205	L213	L214	L215	R218	R222	R223	R227	R229	C142	C143	C145	C146	C155	C161	C162	C164	C166	C168	C169	C172	C173	C174	C175	C176	C177	C178
-20	K,M,P	27n	8.2n	47n	NO	56k	22	220	0	NO	43p	NO	NO	12p	NO	1p	2p	NO	6p	4p	2.5p	3p	0.5p	5p	2p	5p	2p	3p
-22	K2,M2	27n	3.9n	NO	3.9n	56k	22	220	NO	0	NO	30p	1p	NO	NO	NO	1p	NO	5p	2.5p	4p	6p	NO	11p	NO	7p	0.5p	2p
-23	K3	33n	8.2n	47n	NO	82k	15	120	0	NO	47p	NO	36p	NO	0.3p	1.5p	NO	3p	7p	4p	2.5p	1p	0.5p	10p	NO	10p	0.3p	6p

X57-7580-XX		C231	C232	C235	C236	C237	C240	C242	C244	C245	C247	C248	C249	C257	C258	C259	C261	C262	C263	C264	C265	C266	C409	C411	D105	D106
-20	K,M,P	470p	3.5p	NO	4p	22p	2p	6p	22p	1p	2p	22p	4p	3.5p	22p	2p	3p	22p	1p	3.5p	3p	5p	470p	470p	HVC131	NO
-22	K2,M2	470p	4p	NO	2.5p	30p	1.5p	4p	30p	0.75p	2p	30p	3p	2.5p	30p	1.5p	1.5p	30p	2p	22p	8p	6p	NO	NO	NO	HVC131
-23	K3	1000p	3.5p	0.75p	7p	27p	4p	8p	27p	1p	4p	27p	8p	8p	22p	1.5p	2p	22p	6p	2p	5p	7p	470p	NO	NO	HVC131

X57-7580-XX (TX-RX UNIT)

Fuse 2.5A
Battery
Protector
D301:GN1G
Voltage Regulator
IC303: XC6209B502PR
Rectifier
D302: HRC0203C
Voltage Regulator
IC304: XC6209B502MR
Voltage Detector
IC301: BD4840FVE
Switch
Q304:DTB723YE
Switch
Q303:RT1P141U
B
5C
5T
5R
5M
Reset
5C_C
5T_C
5R_C

Power Switch/ AF Volium R31-0670-15
1 B
2 SB
3 AFVOL_IN
4 AFVOL_OUT
5
6 EN1
7 EN2
8
9 EN3
10 EN4
11 EN5
Channel Selector S60-0440-05
CN301 E40-6573-05

SB
LED D303:B30-2315-05
LED D304:B30-2314-05
Switch ← LEDTX
Switch ← LEDRX
Q301:RT1N441U
Q302:RT1N441U

PLL_UL TH_DET
BATT BUSY
EN1 RSSI
EN2 VOX
EN3 STD
EN4 RDF/FD
EN5 QT/DQT_IN
Reset OPTDET
RXD

SB
R301
BATT
R305
5M
MCU
IC306:R5F212CCKCMB
PTT
SIDE1
SIDE2
PTT SIDE1 SIDE2
14.746MHz
BSHIFT
Shift Switch
Ceramic Oscillator
Q305,Q306:2SC4919
X301:L78-1433-05
DI/O EEPDAT

QTTCXO APC_SW
QTVCO PCTV
TX_SW W/N
RX_SW TXD
5T_C AF_CONT
5C_C DTMF
5R_C DTRLOADN
PLL_DAT TDATA/DTRCLK
PLL_CLK SCLK
PLL_STB 1/2_OSC
LEDTX MIC_MUTE
LEDRX EEPCLK
BSHIFT DC_SW

5M
EEPCLK
EEPDAT
EEPROM
IC305:BR24L16F-W

Q7:RT1P430U
RX_SW
Switch
Oscillator: ②
Rx VCO
Q4:2SK1875-F(V)
D3,D6:1SV325F
Lipple Filter
Q6,Q10: KTC4075E(Y,GR)
5C
Q8:RT1P430U
Switch
TX_SW
Oscillator: ①
Tx VCO
MOD
QTVCO
Q5:2SK1875-F(V)
D4,D8:1SV325F
D9:KDV214E-P
PLL_UL
Rectifier
Q1:KTC4075E(Y,GR)
5C
PLL IC
IC1: MB15A02PFV2E1
PLL_DAT
PLL_CLK
PLL_STB
Loop Filter
Low Pass Filter
QTTCXO 5M
TCXO
X1:L77-3042-05
12.8MHz
5R
Tripler
Q2:2SC4774
Buffer Amp
Q9:2SC5636
RF Amp
Q3:2SC5636
5C
RF Amp
Q11:2SC5636
5C
Tx/Rx Switch
D10:MC2858
5T 5R
Tx: ①
1st Local: ②
5R
Q203: 3SK318
1st Mixer
1st IF:38.85MHz
MCF
XF201:L71-0619-05
5R
IF Amp
Q202:2SC4774
5C
2nd Local:38.40MHz
2nd IF:450kHz
Ceramic Filter
CF201:L72-0973-05
FM IF IC
RSSI
BUSY
DET
IC201: TA31136FNG
5R
Discrimi-nator
CD201:L79-1866-05
5R
Switch
W/N
Q201:RT1P441U
TH_DET
Tempera-ture Detector
TH101
5T

PCTV
APC_SW
Switch
Q108:2SK1824-A
B
APC
IC101: BA2904FVM
DC_SW
Switch
Q104:RT1N441U
APC_SW
Switch
Q107:RT1N441U
Switch
Q109:RT1P441U
Protector
D101:UDZW5.1(B)
Tx/Rx: ①
5T
RF Amp
Q101:2SC5636
5T
Pre-drive Amp
Q102: 2SC5455-A
B
Drive Amp
Q103: RQA0004PXDQS
B
Final Amp
Q106: RD07MVS1BT122
5T
ANT Switch
D103:HSC277
D104,D106:HVC131
Low Pass Filter
PCTV
Band Pass Filter
D201,D202,D203: HVC355B
5R
RF Amp
Q204:3SK318
PCTV
Band Pass Filter
D204,D205:HVC355B
Rx: ①

① 470~512MHz: K2,M2
400~430MHz: K3
② 431.15~473.15MHz: K2,M2
361.15~391.15MHz: K3

SB
Q313: 2SB1694
Switch
Switch
AF_CONT
Q312:RT1N441U
AFVOL_OUT
AF Power Amp
IC309: TA7368FG
Mute Switch
Q314:RT1N441U
Q315,Q316:2SK3577-A
Speaker T07-0369-15
TXD
RXD
OPTDET
5M
SP/MIC Jacks E11-0703-05
Mic
MIC301: T91-0651-15

5M STD DI/O DIR DTMF DET
RDF/FD
TCLK/DTRDO
QT/DQT_IN
AFVOL_IN
Audio Prosessor
IC308:AQUA-L
SCLK
TDATA/DTRCLK
DTRLOADN
MOD
W/N
Switch
Q307:RT1N441U
1/2_OSC
MIC_MUTE
Mic AGC/ Mute
Q308:KTC4075E(Y,GR)
Q310:2SC4116(GR)F
Q311:2SA1586(Y,GR)F
D308,D309:KDR731
VOX
Detector
D306:KDR731
Limiter
D307:MC2850