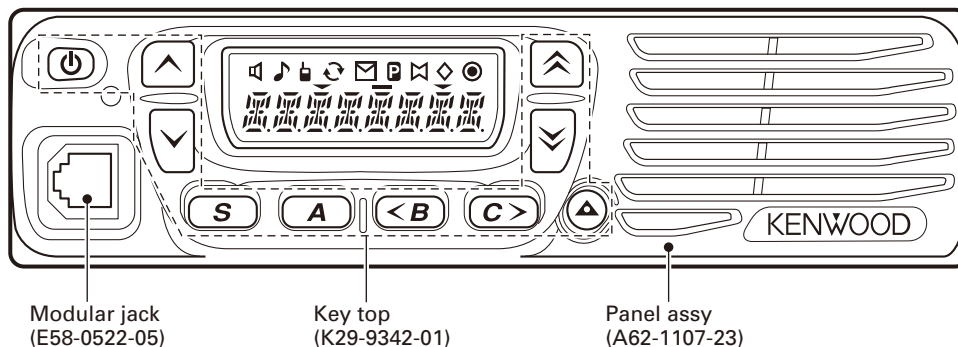
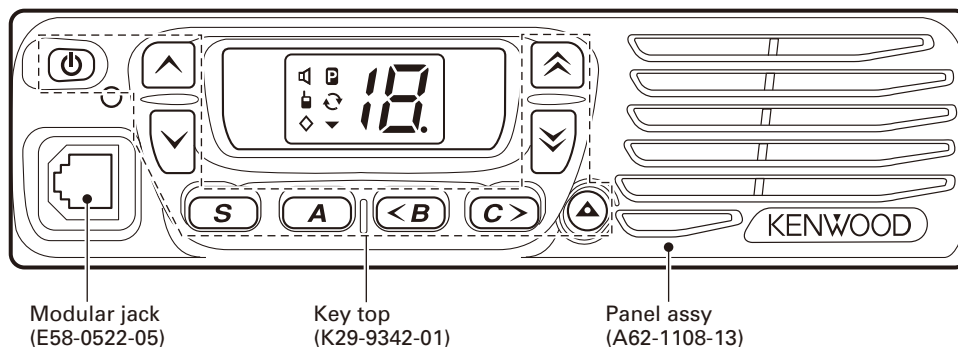


This TK-8160/8162 service manual contains a number of sections which differ from the service manual (B51-8723-00) for the TK-8160/8162. For item other than those in this TK-8160/8162 service manual, please refer to the service manual (B51-8723-00) for the TK-8160/8162.

TK-8160 E,E3,X2,E7



TK-8162 E,E3



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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 this publication date. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions, which 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, and 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 if someone is within two feet (0.6 meter) of the antenna.
- DO NOT transmit until all RF connectors are secure and any open connectors are properly terminated.
- SHUT OFF this equipment when near electrical blasting caps or while in an explosive atmosphere.
- All equipment should be properly grounded before power-up for safe operation.
- This equipment should be serviced by only qualified technicians.

PRE-INSTALLATION CONSIDERATIONS

1. UNPACKING

Unpack the radio from its shipping container and check for accessory items. If any item is missing, please contact KENWOOD immediately.

2. PRE-INSTALLATION CHECKOUT

2-1. Introduction

Each radio is adjusted and tested before shipment. However, it is recommended that receiver and transmitter operation be checked for proper operation before installation.

2-2. Testing

The radio should be tested complete with all cabling and accessories as they will be connected in the final installation. Transmitter frequency, deviation, and power output should be checked, as should receiver sensitivity, squelch operation, and audio output. Signalling equipment operation should be verified.

3. PLANNING THE INSTALLATION

3-1. General

Inspect the vehicle and determine how and where the radio antenna and accessories will be mounted.

Plan cable runs for protection against pinching or crushing wiring, and radio installation to prevent overheating.

3-2. Antenna

The favored location for an antenna is in the center of a large, flat conductive area, usually at the roof center. The trunk lid is preferred, bond the trunk lid and vehicle chassis using ground straps to ensure the lid is at chassis ground.

Service Manual List

Title	Parts number	Remarks	Market code	Display unit number	TX-RX unit number
TK-8160/8162	B51-8723-00	First edition	E,E3,X2 / E,E3	X54-3510-10 / X54-3522-70 J72-0959-09 / J72-0960-09	X57-711X-XX J72-0958-09
TK-8160/8162	B51-8836-00	SUPPLEMENT This service manual	E,E3,X2,E7 / E,E3	X54-3510-10 / X54-3522-70 J79-0213-09 / J79-0214-09	X57-711X-XX J79-0029-29

GENERAL

3-3. Radio

The universal mount bracket allows the radio to be mounted in a variety of ways. Be sure the mounting surface is adequate to support the radio's weight. Allow sufficient space around the radio for air cooling. Position the radio close enough to the vehicle operator to permit easy access to the controls when driving.

3-4. DC Power and wiring

1. This radio may be installed in negative ground electrical systems only. Reverse polarity will cause the cable fuse to blow. Check the vehicle ground polarity before installation to prevent wasted time and effort.
2. Connect the positive power lead directly to the vehicle battery positive terminal. Connecting the Positive lead to any other positive voltage source in the vehicle is not recommended.
3. Connect the ground lead directly to the battery negative terminal.
4. The cable provided with the radio is sufficient to handle the maximum radio current demand. If the cable must be extended, be sure the additional wire is sufficient for the current to be carried and length of the added lead.

4. INSTALLATION PLANNING – CONTROL STATIONS

4-1. Antenna system

Control station. The antenna system selection depends on many factors and is beyond the scope of this manual. Your KENWOOD dealer can help you select an antenna system that will best serve your particular needs.

4-2. Radio location

Select a convenient location for your control station radio which is as close as practical to the antenna cable entry point. Secondly, use your system's power supply (which supplies the voltage and current required for your system). Make sure sufficient air can flow around the radio and power supply to allow adequate cooling.

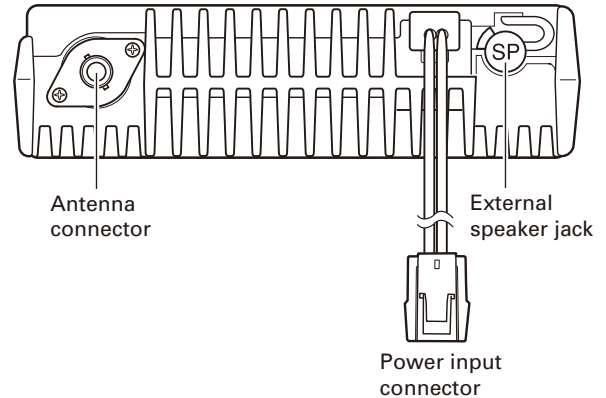
SERVICE

This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained in this manual.

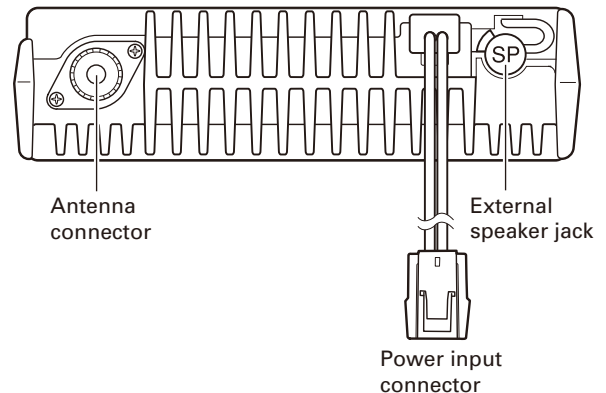
NOTE

If you do not intend to use the 3.5-mm jack for the external speaker, fit the supplied speaker-jack cap to stop dust and sand from getting in.

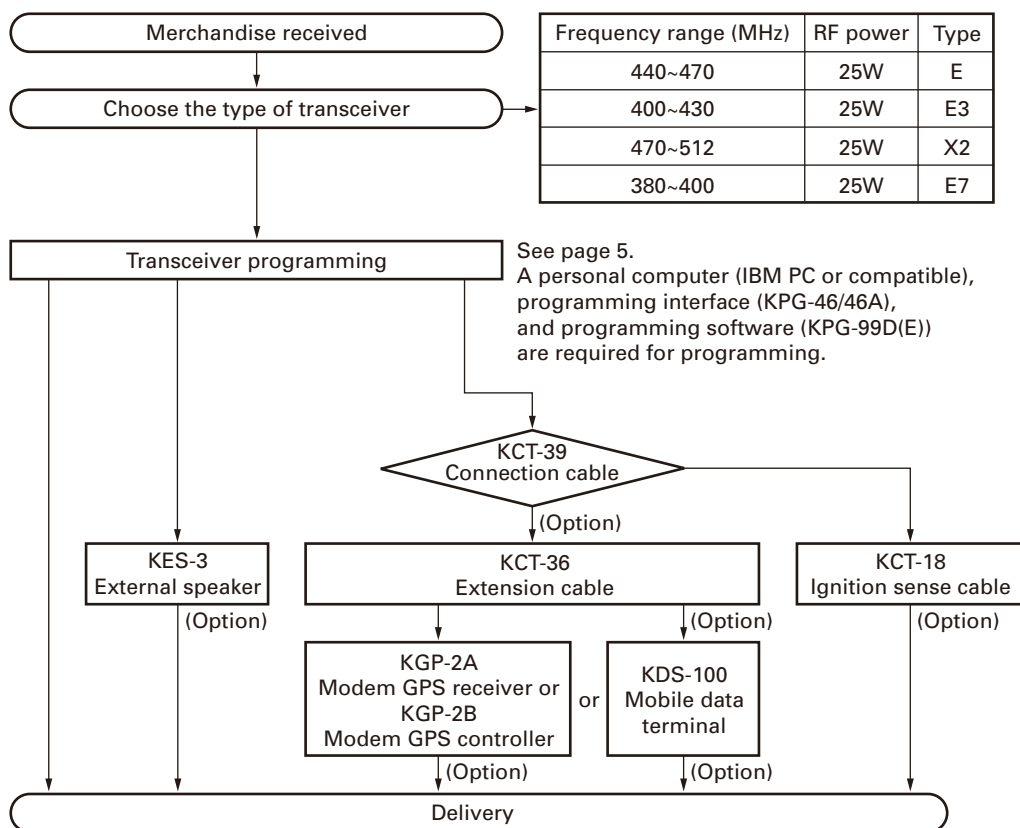
E,E3,E7



X2

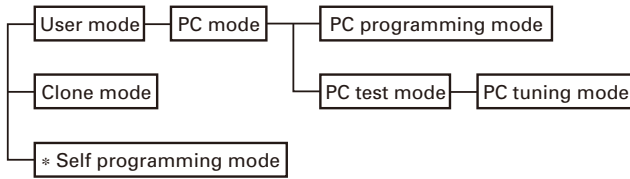


SYSTEM SET-UP



REALIGNMENT

1. Modes



Mode	Function
User mode	For normal use.
PC mode	Used for communication between the transceiver and PC.
PC 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.
PC tuning mode	Used to tune the transceiver using the PC.
Clone mode	Used to transfer programming data from one transceiver to another.
* Self programming mode	You can program the frequency, signaling and other functions using only the transceiver.

*: Only TK-8160 transceiver

2. How to Enter Each Mode

Mode	Operation
User mode	Power ON
PC mode	Received commands from PC
Clone mode	[✓]+Power ON (Two seconds)
* Self programming mode	[S]+Power ON (Two seconds)

*: Only TK-8160 transceiver

3. PC Mode

3-1. Preface

The transceiver is programmed using a personal computer, a programming interface (KPG-46/46A), USB adapter (KCT-53U) and programming software (KPG-99D(E)).

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

3-2. Connection procedure

1. Connect the transceiver to the computer using the interface cable and USB adapter (When the interface cable is KPG-46A, the KCT-53U can be used.).

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 transmitted from transceiver, the TX indicator blink.

When data is received by the transceiver, the BUSY indicator blink.

In the PC mode, "PROGRAM" (TK-8160) or "P" (TK-8162) is displayed on the LCD.

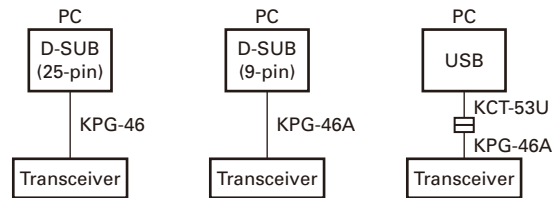
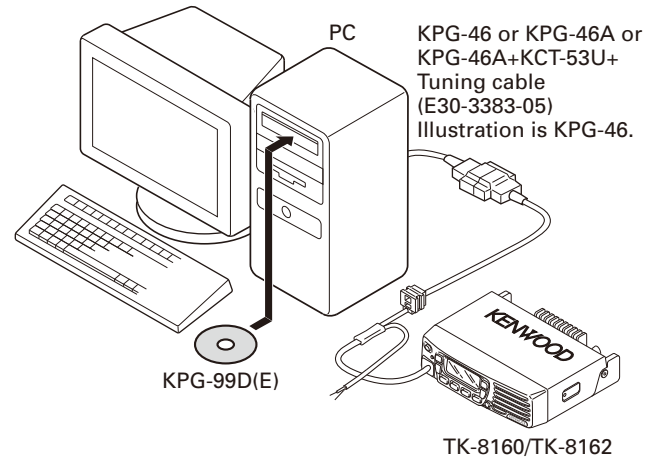


Fig. 1

3-3. KPG-46/46A description (PC programming interface cable: Option)

The KPG-46/46A is required to interface the transceiver to the computer. It has a circuit in its D-sub connector (KPG-46: 25-pin, KPG-46A: 9-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-46/46A connects the modular microphone 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-46A 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. Programming software KPG-99D(E) description

The KPG-99D(E) is the programming software for the transceiver supplied on a CD-ROM. This software runs under MS-Windows 98, ME, Windows 2000 or XP on a PC.

The data can be input to or read from the transceiver and edited on the screen. The programmed or edited data can be printed out. It is also possible to tune the transceiver.

REALIGNMENT

4. Clone Mode

Programming data can be transferred from one transceiver to another by connecting them via their modular microphone jacks. The operation is as follows (the transmit transceiver is the source and the receive transceiver is the target).

Note:

Clone mode should be enabled.

1. Turn the source transceiver power ON with the [M] key held down (2 seconds), "CLONE" (TK-8160) or "C" (TK-8162) is displayed on the LCD.
2. Power on the target transceiver.
3. Connect the cloning cable (No. E30-3382-05) to the modular microphone jacks on the source and target.
4. Press the [S] key on the source transceiver. The data of the source is sent to the target. While the source is sending data, red LED blinked. While the target is receiving the data, "PROGRAM" (TK-8160) or "P" (TK-8162) is displayed and green LED blinked. When cloning of data is completed, the source displays "END" (TK-8160) or "E" (TK-8162), and the source red LED turned off, and the target automatically operates in the User mode. The target can then be operated by the same program as the source.
5. The other target can be continuously cloned. Carry out the operation in step 2 to 4.

4-1. Adding the data password.

If the Read Authorization password is set in the optional feature menu, you must enter the password (Source transceiver) to activate a clone mode.

You can use 0~9 to configure the password. The maximum length of the password is 6 digits.

1. [M]+Power ON.
2. "CLN LOCK" (TK-8160) or "P" (TK-8162) is displayed on the LCD.
3. If the [M] and [M] keys is pressed while "CLN LOCK" (TK-8160) or "P" (TK-8162) is displayed, numbers (0 to 9) are displayed flashing. When you press the [C>] key, the currently selected number is determined. If you press the [S] key after entering the password in this procedure, "CLONE" (TK-8160) or "C" (TK-8162) is displayed if the entered password is correct. If the password is incorrect, "CLN LOCK" (TK-8160) or "P" (TK-8162) is redisplayed.

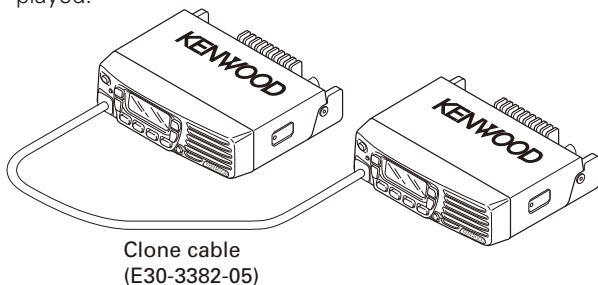
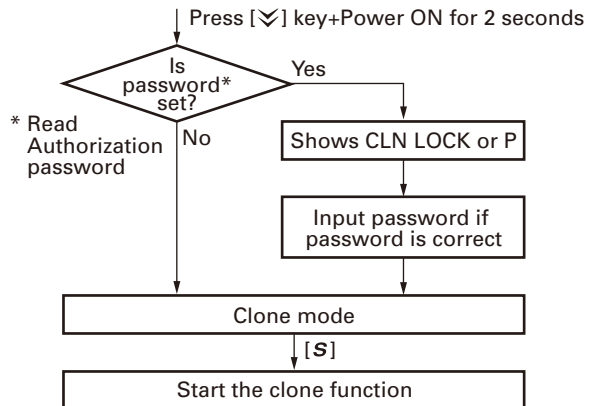


Fig. 2

■ Flow Chart (Source transceiver)



5. Self Programming Mode

Self programming mode operates with only the **TK-8160** transceiver.

Write mode for frequency data and signaling, etc. To be used ONLY by the authorized service person maintaining the user's equipment. After programming, reset the FPU to the "Self- Programming" disabled mode. Transceivers CAN-NOT be delivered to the end-user in the self-programming mode.

5-1. Enter to the Self Programming Mode

Hold down the [S] key 2 seconds and turn the power switch on. When enter the self programming mode, "1- 1" is displayed 2 seconds after "SELF" is displayed.

5-2. Adding the Data Password

If the data password is set in the optional feature menu, you must enter the password to activate a self programming mode.

You can use 0~9 to configure the password. The maximum length of the password is 6 digits.

1. [S]+Power ON.
2. "SLF.LOCK.R"* is displayed on the LCD.
3. If the [M] and [M] keys is pressed while "SLF.LOCK.R" is displayed, numbers (0 to 9) are displayed flashing. When you press the [C>] key, the currently selected number is determined. If you press the [S] key after entering the password in this procedure, "SELF" is displayed if the entered password is correct. If the password is incorrect, "SLF.LOCK.R"* is redisplayed.

* Read authorization password → "SLF.LOCK.R"
Overwrite password → "SLF.LOCK.W"

Note:

This mode (self programming mode) cannot be set when it has been disabled with the FPU.

5-3. Channel Setting Mode

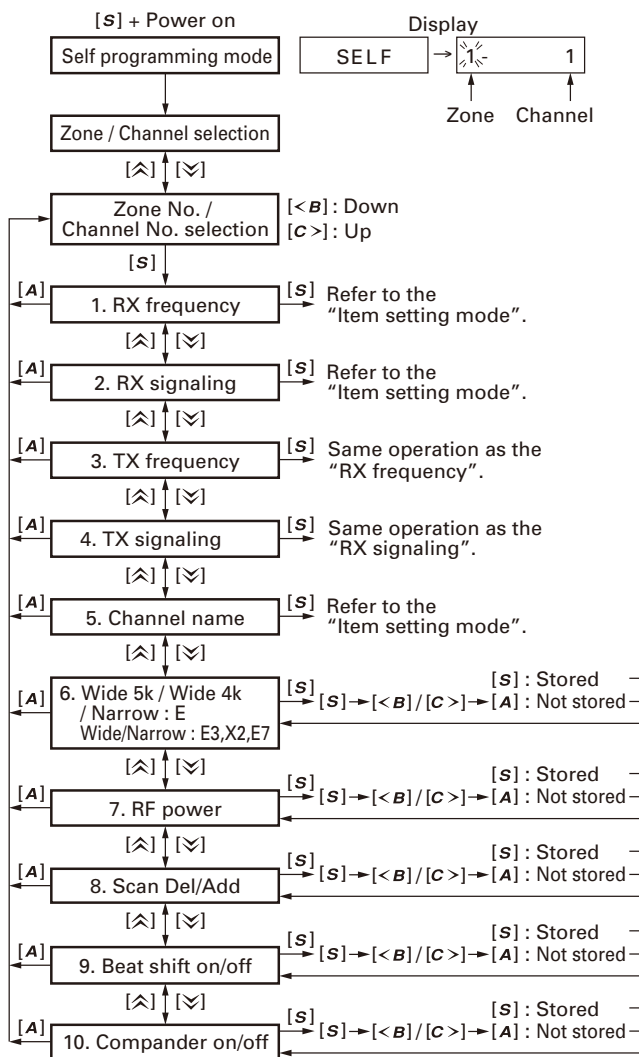
Each channel can be setup in its action mode by using the panel keys.

REALIGNMENT

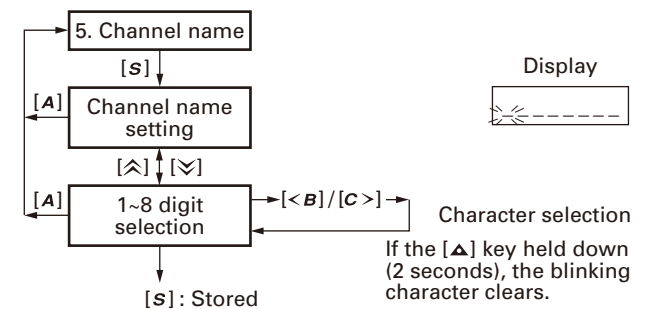
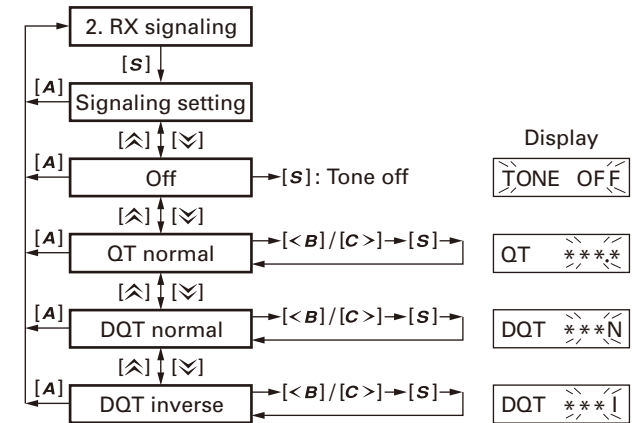
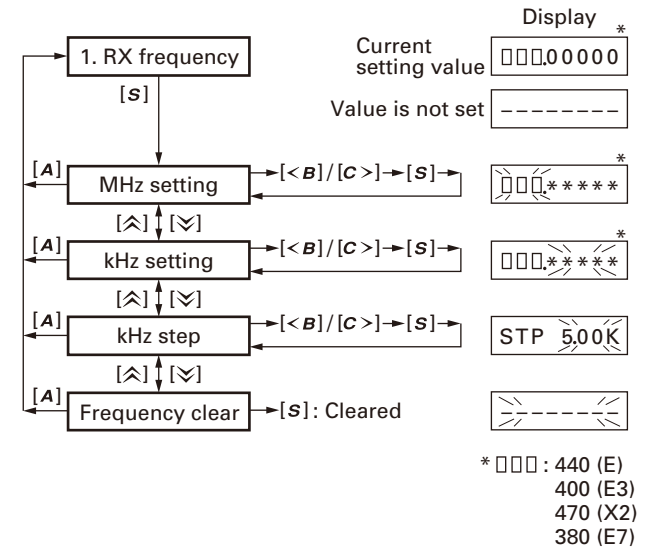
The 5-tone functions cannot be programmed in this mode.

- Pressing **[S]** when "1- 1" is displayed, sets channel setting mode.
- Select an item set using **[S]** then change the selection with the **[▲]** or **[▼]**.
- The data displayed using **[S]** is stored in the memory.
- Pressing **[▲]** proceeds to the next item without storing it in the memory.
- Press **[A]** to set the display to " SELF " and return to reset (default) status.

Item Selection Mode



Item Setting Mode

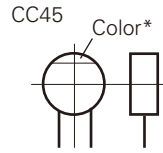


PARTS LIST

CAPACITORS

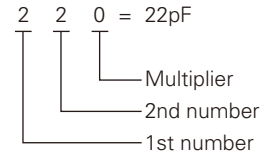
$\frac{C}{1} \frac{C}{2} \frac{45}{3} \frac{TH}{4} \frac{1H}{5} \frac{220}{6} \frac{J}{7}$

- 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

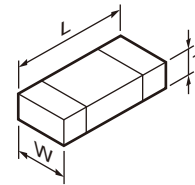
• Voltage rating

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) $\frac{C}{1} \frac{C}{2} \frac{73}{3} \frac{F}{4} \frac{SL}{5} \frac{1H}{6} \frac{000}{7} \frac{J}{8}$ → Refer to the table above.
- (Chip) (CH, RH, UJ, SL)
- 1 = Type
 - 2 = Shape
 - 3 = Dimension
 - 4 = Temp. coefficient
 - 5 = Voltage rating
 - 6 = Value
 - 7 = Tolerance
- (EX) $\frac{C}{1} \frac{K}{2} \frac{73}{3} \frac{F}{4} \frac{F}{5} \frac{1H}{6} \frac{000}{7} \frac{Z}{8}$
- (Chip) (B, F)

• 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

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

RESISTORS

• Chip resistor (Carbon)

- (EX) $\frac{R}{1} \frac{D}{2} \frac{73}{3} \frac{E}{4} \frac{B}{5} \frac{2B}{6} \frac{000}{7} \frac{J}{8}$
- (Chip) (B, F)

• Carbon resistor (Normal type)

- (EX) $\frac{R}{1} \frac{D}{2} \frac{14}{3} \frac{B}{4} \frac{B}{5} \frac{2C}{6} \frac{000}{7} \frac{J}{8}$

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

• Rating wattage

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

PARTS LIST

* New Parts. Δ indicates safety critical components.

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

TK-8160/8162 (Y51-507X-XX)
 DISPLAY UNIT (X54-3510-10): TK-8160 E,E3,X2,E7

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
TK-8160/8162						DISPLAY UNIT (X54-3510-10): TK-8160 E,E3,X2,E7					
1	1B		A02-3898-02	PLASTIC CABINET		101	2A		B11-1829-03	ILLUMINATION GUIDE	
2	3A		A62-1107-23	PANEL ASSY	60E,60E3,X2	102	2A		B38-0902-05	LCD	
2	3A		A62-1107-23	PANEL ASSY	60E7	D1-6			B30-2282-05	LED (Y)	
2	3A		A62-1108-13	PANEL ASSY	62E,62E3	D7-18			B30-2281-05	LED (Y)	
3	3A		B42-7733-04	STICKER (WEEE)	60E,60E3,62E	D22			B30-2151-05	LED (RED/GREEN)	
3	3A		B42-7733-04	STICKER (WEEE)	62E3,60E7	C1			CK73GB1H103K	CHIP C 0.010UF	K
4	1C	*	B62-1863-10	INSTRUCTION MANUAL		C6,7			CK73GB1H102K	CHIP C 1000PF	K
7	3B		E04-0167-15	RF COAXIAL RECEPTACLE (M)	X2	C9			CK73GB1H102K	CHIP C 1000PF	K
8	3B		E04-0454-15	RF COAXIAL RECEPTACLE (BNC)	60E,60E3,62E	C10			CK73GB1H103K	CHIP C 0.010UF	K
8	3B		E04-0454-15	RF COAXIAL RECEPTACLE (BNC)	62E3,60E7	C11-14			CK73GB1H102K	CHIP C 1000PF	K
9	3C		E30-3339-15	DC CORD ASSY ACCESSORY	X2	C15			CK73GB1H471K	CHIP C 470PF	K
10	2B		E30-3448-15	DC CORD		C16,17			CK73GB1A105K	CHIP C 1.0UF	K
11	3C		E30-7523-35	DC CORD ASSY ACCESSORY	60E,60E3,62E	C18			CK73GB1C104K	CHIP C 0.10UF	K
11	3C		E30-7523-35	DC CORD ASSY ACCESSORY	62E3,60E7	C19,20			CC73GCH1H101J	CHIP C 100PF	J
12	3A		E37-0962-05	LEAD WIRE WITH CONNECTOR (SP)		C21			CK73GB1H681K	CHIP C 680PF	K
13	2A	*	E37-1294-15	FLAT CABLE		C22,23			CK73GB1H102K	CHIP C 1000PF	K
15	2B		F10-2491-12	SHIELDING COVER (UPPER)		C24			CK73GB1H103K	CHIP C 0.010UF	K
16	3B		F10-3011-03	SHIELDING CASE		C25			CK73GB1H102K	CHIP C 1000PF	K
17	2B		F10-3019-03	SHIELDING CASE		C27			CC73GCH1H101J	CHIP C 100PF	J
18	2B		F10-3047-13	SHIELDING PLATE		C30			CK73GB1H102K	CHIP C 1000PF	K
19	3C		F51-0078-05	FUSE (6X30) ACCESSORY	X2	103	2A		E29-1206-05	INTER CONNECTOR	
20	3C		F52-0023-05	FUSE (BLADE TYPE) ACCESSORY	60E,60E3,62E	CN1			E40-6570-05	FLAT CABLE CONNECTOR	
20	3C		F52-0023-05	FUSE (BLADE TYPE) ACCESSORY	62E3,60E7	J1			E58-0522-05	MODULAR JACK	
22	2B		G02-1825-03	EARTH SPRING		104	2A		G10-1348-04	FIBROUS SHEET	
23	3B		G02-1826-03	EARTH SPRING		105	2A		J21-8494-03	MOUNTING HARDWARE	
24	2B		G02-1827-14	EARTH SPRING		-			J31-0553-05	COLLAR	
25	2B		G10-0792-14	FIBROUS SHEET		L1			L92-0138-05	CHIP FERRITE	
26	2A		G10-1324-04	FIBROUS SHEET (DISPLAY)		CP1			RK75GB1J102J	CHIP-COM 1.0K J 1/16W	
27	3B		G13-2003-04	CUSHION		R1			RK73GB2A101J	CHIP R 100 J 1/10W	
28	2B	*	G13-2119-14	CONDUCTIVE CUSHION		R2			RK73GB2A100J	CHIP R 10 J 1/10W	
29	1B		G53-1524-02	PACKING		R3-5			RK73GB2A102J	CHIP R 1.0K J 1/10W	
30	2B		G53-1542-03	PACKING		R6-8			RK73GB2A103J	CHIP R 10K J 1/10W	
31	3B		G53-1664-03	PACKING		R9			RK73GB2A563J	CHIP R 56K J 1/10W	
33	2C,1D		H12-3178-05	PACKING FIXTURE		R10,11			RK73FB2B331J	CHIP R 330 J 1/8W	
34	3D		H13-1190-02	CARTON BOARD		R14			RK73FB2B473J	CHIP R 47K J 1/8W	
35	1C		H25-2320-04	PROTECTION BAG		R15,16			RK73FB2B330J	CHIP R 33 J 1/8W	
36	1C		H25-2341-04	PROTECTION BAG		R17,18			RK73FB2B390J	CHIP R 39 J 1/8W	
37	2C		H52-2090-02	ITEM CARTON CASE	60E,60E3,X2	R19			RK73GB2A392J	CHIP R 3.9K J 1/10W	
37	2C		H52-2091-02	ITEM CARTON CASE	60E7	R20			RK73FB2B000J	CHIP R 0.0 J 1/8W	
39	3D		J29-0726-03	BRACKET ACCESSORY	62E,62E3	R21			RK73GB2A000J	CHIP R 0.0 J 1/10W	
41	3A		K29-9342-01	KEY TOP		R22			RK73FB2B181J	CHIP R 180 J 1/8W	
A	2B		N67-3008-48	PAN HEAD SEMS SCREW		R23			RK73FB2B820J	CHIP R 82 J 1/8W	
B	2A		N80-2008-48	PAN HEAD TAPTITE SCREW		R24,25			RK73GB2A103J	CHIP R 10K J 1/10W	
C	2B,3B		N87-2606-48	BRAZIER HEAD TAPTITE SCREW		R26,27			RK73GB2A102J	CHIP R 1.0K J 1/10W	
D	1B,2B		N87-2614-48	BRAZIER HEAD TAPTITE SCREW		R28-31			RK73GB2A390J	CHIP R 39 J 1/10W	
43	3D		N99-2048-05	SCREW SET ACCESSORY		D20,21			MC2850	DIODE	
45	3A		T07-0753-15	SPEAKER		D23			02DZ6.2F-Y	ZENER DIODE	
						IC1			PT6554LQ	MOS-IC	
						Q1			RN47A4-F	TRANSISTOR	
						Q2			2SB1132(Q,R)	TRANSISTOR	
						Q3			KRA225S	DIGITAL TRANSISTOR	

TK-8160/8162

PARTS LIST

DISPLAY UNIT (X54-3510-10): TK-8160 E,E3,X2,E7

DISPLAY UNIT (X54-3522-70): TK-8162 E,E3

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
Q4 Q7,8			KRC102S-P 2SC3928A	DIGITAL TRANSISTOR TRANSISTOR	
DISPLAY UNIT (X54-3522-70): TK-8162 E,E3					
101 102 D1-6 D7-12 D22	2A 2A		B11-1829-03 B38-0905-05 B30-2282-05 B30-2281-05 B30-2151-05	ILLUMINATION GUIDE LCD LED (Y) LED (Y) LED (RED/GREEN)	
C1 C6,7 C9 C10 C11-14			CK73GB1H103K CK73GB1H102K CK73GB1H102K CK73GB1H103K CK73GB1H102K	CHIP C 0.010UF K CHIP C 1000PF K CHIP C 1000PF K CHIP C 0.010UF K CHIP C 1000PF K	
C15 C16,17 C18 C19,20 C21			CK73GB1H471K CK73GB1A105K CK73GB1H103K CC73GCH1H101J CK73GB1H821K	CHIP C 470PF K CHIP C 1.0UF K CHIP C 0.010UF K CHIP C 100PF J CHIP C 820PF K	
C22,23 C24 C25 C27			CK73GB1H102K CK73GB1H103K CK73GB1H102K CC73GCH1H101J	CHIP C 1000PF K CHIP C 0.010UF K CHIP C 1000PF K CHIP C 100PF J	
103 CN1 J1	2A		E29-1206-05 E40-6570-05 E58-0522-05	INTER CONNECTOR FLAT CABLE CONNECTOR MODULAR JACK	
104	2A		G10-1348-04	FIBROUS SHEET	
105 -	2A		J21-8494-03 J31-0553-05	MOUNTING HARDWARE COLLAR	
L1			L92-0138-05	CHIP FERRITE	
CP1 R1 R2 R3-5 R6-8			RK75GB1J102J RK73GB2A101J RK73GB2A100J RK73GB2A102J RK73GB2A103J	CHIP-COM 1.0K J 1/16W CHIP R 100 J 1/10W CHIP R 10 J 1/10W CHIP R 1.0K J 1/10W CHIP R 10K J 1/10W	
R9 R10,11 R17,18 R19 R20			RK73GB2A683J RK73FB2B331J RK73FB2B390J RK73GB2A392J RK73FB2B000J	CHIP R 68K J 1/10W CHIP R 330 J 1/8W CHIP R 39 J 1/8W CHIP R 3.9K J 1/10W CHIP R 0.0 J 1/8W	
R21 R22 R23 R24,25 R26,27			RK73GB2A000J RK73FB2B181J RK73FB2B820J RK73GB2A103J RK73GB2A102J	CHIP R 0.0 J 1/10W CHIP R 180 J 1/8W CHIP R 82 J 1/8W CHIP R 10K J 1/10W CHIP R 1.0K J 1/10W	
R28,29			RK73GB2A390J	CHIP R 39 J 1/10W	
D20,21 D23 IC1 Q2 Q3		*	MC2850 02DZ6.2F-Y LC75893M-E 2SB1132(Q,R) KRA225S	DIODE ZENER DIODE MOS-IC TRANSISTOR DIGITAL TRANSISTOR	
Q4 Q7,8			KRC102S-P 2SC3928A	DIGITAL TRANSISTOR TRANSISTOR	
TX-RX UNIT (X57-711X-XX) 0-71: TK-8160 X2 2-70: TK-8160/8162 E 2-71: TK-8160/8162 E3 2-72: TK-8160 E7					
C10 C13-23 C24 C25 C26			CK73HB1H102K CK73HB1H471K CC73GCH1H221J CC73GCH1H101J CC73GCH1H220J	CHIP C 1000PF K CHIP C 470PF K CHIP C 220PF J CHIP C 100PF J CHIP C 22PF J	E,E3,E7 E,E3,E7 E,E3,E7
C41 C42 C43 C45 C46			CK73GB1H221K CK73GB1H471K CK73GB1H102K CK73GB1H471K CK73GB1H221K	CHIP C 220PF K CHIP C 470PF K CHIP C 1000PF K CHIP C 470PF K CHIP C 220PF K	X2 X2 X2
C47,48 C49 C50-53 C54,55 C56		*	CK73GB1H102K C92-0893-05 CK73GB1H102K CK73GB1C104K CS77AB21C220M	CHIP C 1000PF K ELECTRO 330UF 25WV CHIP C 1000PF K CHIP C 0.10UF K CHIP TNTL 22UF 16WV	
C57 C58-60 C63 C64,65 C66			CK73GB1H103K CS77AB21C220M CK73GB1E103K CK73GB1H103K CS77AA0J100M	CHIP C 0.010UF K CHIP TNTL 22UF 16WV CHIP C 0.010UF K CHIP C 0.010UF K CHIP TNTL 10UF 6.3WV	
C67,68 C69,70 C71 C81,82 C85			CK73GB1H102K CK73GB1C104K CK73GB1H102K CK73GB1H102K CK73HB1H102K	CHIP C 1000PF K CHIP C 0.10UF K CHIP C 1000PF K CHIP C 1000PF K CHIP C 1000PF K	
C86 C88 C89,90 C91 C93,94			CK73HB1A104K CC73HCH1H180J CC73HCH1H060B CC73HCH1H180J CK73GB1H102K	CHIP C 0.10UF K CHIP C 18PF J CHIP C 6.0PF B CHIP C 18PF J CHIP C 1000PF K	
C96 C101 C102 C106 C110			CK73GB1H102K CK73GB1H102K CK73GB1C104K CK73GB1C104K CK73HB1H221K	CHIP C 1000PF K CHIP C 1000PF K CHIP C 0.10UF K CHIP C 0.10UF K CHIP C 220PF K	X2
C110-117 C110-117 C112 C114-117 C201			CK73HB1C103K CK73HB1H471K CK73HB1H221K CK73HB1C103K CK73GB1C104K	CHIP C 0.010UF K CHIP C 470PF K CHIP C 220PF K CHIP C 0.010UF K CHIP C 0.10UF K	E3,E7 E X2 X2
C202 C203 C204 C206 C211			CS77AA0J4R7M CK73GB1C333K CK73GB1H102K CK73GB1H102K CK73GB1H183K	CHIP TNTL 4.7UF 6.3WV CHIP C 0.033UF K CHIP C 1000PF K CHIP C 1000PF K CHIP C 0.018UF K	
C212 C213 C214 C215 C216			CK73HB1H152K CK73GB1C104K CC73HCH1H390J CK73HB1A104K CS77AA1A2R2M	CHIP C 1500PF K CHIP C 0.10UF K CHIP C 39PF J CHIP C 0.10UF K CHIP TNTL 2.2UF 10WV	
C217 C218-221 C222,223 C224 C225			CK73HB1H471K CK73GB1C104K CK73HB1A104K CK73GB1H103K CK73GB1C104K	CHIP C 470PF K CHIP C 0.10UF K CHIP C 0.10UF K CHIP C 0.010UF K CHIP C 0.10UF K	
C226 C227 C228			CK73HB1H471K CK73HB1A104K CK73GB0J475K	CHIP C 470PF K CHIP C 0.10UF K CHIP C 4.7UF K	

PARTS LIST

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C229			CK73GB1A105K	CHIP C 1.0UF K		C326			CK73GB1H103K	CHIP C 0.010UF K	
C230			CS77AA0J100M	CHIP TNTL 10UF 6.3WV		C331-333			CK73GB1C104K	CHIP C 0.10UF K	
C231		*	CS77AA0J150M	CHIP TNTL 15UF 6.3WV		C341			CC73GCH1H101J	CHIP C 100PF J	
C233			CK73GB1H471K	CHIP C 470PF K		C343			CC73GCH1H680J	CHIP C 68PF J	
C241-245			CK73HB1H471K	CHIP C 470PF K		C344			CC73GCH1H560J	CHIP C 56PF J	
C246			CK73HB1C223K	CHIP C 0.022UF K		C345			CC73GCH1H271J	CHIP C 270PF J	
C247,248			CK73HB1H471K	CHIP C 470PF K		C346			CK73GB1H103K	CHIP C 0.010UF K	
C249,250			CC73HCH1H100D	CHIP C 10PF D		C349,350			CK73GB1E103K	CHIP C 0.010UF K	
C251			CK73HB1A473K	CHIP C 0.047UF K		C351			CC73GCH1H330J	CHIP C 33PF J	
C252			CK73HB1A104K	CHIP C 0.10UF K		C353			CK73GB1H103K	CHIP C 0.010UF K	
C253			CK73GB1H102K	CHIP C 1000PF K		C354			CC73GCH1H030B	CHIP C 3.0PF B	
C254			CK73GB1H332K	CHIP C 3300PF K		C355			CC73GCH1H180J	CHIP C 18PF J	
C255			CC73HCH1H560J	CHIP C 56PF J		C356			CC73GCH1H060B	CHIP C 6.0PF B	
C256			CK73GB1H331K	CHIP C 330PF K		C357			CK73GB1H103K	CHIP C 0.010UF K	
C257			CC73HCH1H090B	CHIP C 9.0PF B		C358			CK73GB1H471K	CHIP C 470PF K	
C259			CC73HCH1H151J	CHIP C 150PF J		C359			CC73GCH1H120J	CHIP C 12PF J	
C260			CK73GB1A474K	CHIP C 0.47UF K		C360			CC73GCH1H080B	CHIP C 8.0PF B	X2
C261			CK73HB1A104K	CHIP C 0.10UF K		C360			CC73GCH1H090B	CHIP C 9.0PF B	E3,E7
C262			CK73GB1A105K	CHIP C 1.0UF K		C360-362			CK73GB1H471K	CHIP C 470PF K	E
C263			CK73GB1H103K	CHIP C 0.010UF K		C361,362			CK73GB1H471K	CHIP C 470PF K	E3,X2
C264			CC73HCH1H330J	CHIP C 33PF J		C361,362			CK73GB1H471K	CHIP C 470PF K	E7
C265			CK73HB1H391K	CHIP C 390PF K		C363			CK73GB1H103K	CHIP C 0.010UF K	
C266			CK73GB1C104K	CHIP C 0.10UF K		C364			CK73GB1H471K	CHIP C 470PF K	
C267			CK73HB1A104K	CHIP C 0.10UF K		C366			CK73GB1C104K	CHIP C 0.10UF K	
C268			CC73HCH1H181J	CHIP C 180PF J		C367			CC73GCH1H470J	CHIP C 47PF J	X2
C269			CS77AA0J4R7M	CHIP TNTL 4.7UF 6.3WV		C367			CK73GB1H471K	CHIP C 470PF K	E,E3,E7
C270			CS77AA0J100M	CHIP TNTL 10UF 6.3WV		C368			CC73GCH1H060B	CHIP C 6.0PF B	E3,E7
C271			CK73HB1A104K	CHIP C 0.10UF K		C368			CC73GCH1H090B	CHIP C 9.0PF B	X2
C272			CS77AA0J4R7M	CHIP TNTL 4.7UF 6.3WV		C368			CC73GCH1H100C	CHIP C 10PF C	E
C273,274			CK73HB1H681K	CHIP C 680PF K		C369			CC73GCH1HR75B	CHIP C 0.75PF B	E3
C275,276			CK73HB1H102K	CHIP C 1000PF K		C369			CC73GCH1H010B	CHIP C 1.0PF B	E
C281			CK73GB1H102K	CHIP C 1000PF K		C369			CC73GCH1H020B	CHIP C 2.0PF B	E7
C282			CK73GB1A105K	CHIP C 1.0UF K		C369			CC73GCH1H050B	CHIP C 5.0PF B	X2
C283			CK73FB1C224K	CHIP C 0.22UF K		C370			CK73GB1H471K	CHIP C 470PF K	
C284			CK73GB1C104K	CHIP C 0.10UF K		C371			CC73GCH1HR75B	CHIP C 0.75PF B	E
C285			CS77AB21C4R7M	CHIP TNTL 4.7UF 16WV		C371			CC73GCH1H0R5B	CHIP C 0.5PF B	E3,X2
C286			C92-0873-05	CHIP-ELE 47UF 16WV		C371			CC73GCH1H0R5B	CHIP C 0.5PF B	E7
C287		*	C92-0892-05	ELECTRO 470UF 16WV		C372			CC73GCH1H100C	CHIP C 10PF C	X2
C288-290			CK73GB1H102K	CHIP C 1000PF K		C372			CC73GCH1H150J	CHIP C 15PF J	E,E3,E7
C291,292			CC73GCH1H220J	CHIP C 22PF J	E,E3,E7	C373			CC73GCH1H050B	CHIP C 5.0PF B	X2
C293			CK73GB1A105K	CHIP C 1.0UF K		C373			CC73GCH1H080B	CHIP C 8.0PF B	E,E3
C294			CC73GCH1H101J	CHIP C 100PF J	E,E3,E7	C373			CC73GCH1H090B	CHIP C 9.0PF B	E7
C295			CC73GCH1H470J	CHIP C 47PF J	E,E3,E7	C374			CC73GCH1H070B	CHIP C 7.0PF B	E,E3,X2
C296			CC73GCH1H220J	CHIP C 22PF J	E,E3,E7	C374			CC73GCH1H080B	CHIP C 8.0PF B	E7
C301			CS77AA0J4R7M	CHIP TNTL 4.7UF 6.3WV		C375-377			CK73GB1H471K	CHIP C 470PF K	E7
C302			CK73GB1H102K	CHIP C 1000PF K	E,X2	C375-380			CK73GB1H471K	CHIP C 470PF K	E,E3,X2
C302,303			CK73GB1H102K	CHIP C 1000PF K	E3,E7	C378			CC73GCH1H101J	CHIP C 100PF J	E7
C303			CK73GB1H472K	CHIP C 4700PF K	E,X2	C379,380			CK73GB1H471K	CHIP C 470PF K	E7
C304			CC73GCH1H331J	CHIP C 330PF J	E	C381			CC73GCH1H060B	CHIP C 6.0PF B	E
C304,305			CC73GCH1H121J	CHIP C 120PF J	E3,E7	C381			CC73GCH1H080B	CHIP C 8.0PF B	E3,X2,E7
C304,305			CC73GCH1H221J	CHIP C 220PF J	X2	C382			CK73GB1H471K	CHIP C 470PF K	
C305			CC73GCH1H391J	CHIP C 390PF J	E	C383			CC73GCH1HR75B	CHIP C 0.75PF B	E,E3,E7
C306			CK73GB1H102K	CHIP C 1000PF K		C383			CC73GCH1H0R5B	CHIP C 0.5PF B	X2
C307			CK73GB1E223K	CHIP C 0.022UF K		C384			CC73GCH1H060B	CHIP C 6.0PF B	E3,X2,E7
C308			CK73GB1H102K	CHIP C 1000PF K		C384			CC73GCH1H090B	CHIP C 9.0PF B	E
C309			CK73GB1E223K	CHIP C 0.022UF K		C385			CK73GB1H471K	CHIP C 470PF K	
C310			CK73FB1C334K	CHIP C 0.33UF K		C386			CC73GCH1HR75B	CHIP C 0.75PF B	E3
C321			CK73GB1H103K	CHIP C 0.010UF K		C386			CC73GCH1H0R5B	CHIP C 0.5PF B	E7
C322-324			CK73GB1C104K	CHIP C 0.10UF K		C386			CC73GCH1H010B	CHIP C 1.0PF B	E
C325			CS77AA1A100M	CHIP TNTL 10UF 10WV		C386,387			CC73GCH1H0R5B	CHIP C 0.5PF B	X2

PARTS LIST

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C387			CC73GCH1H0R5B	CHIP C 0.5PF B	E,E3	C455			CC73GCH1H0R5B	CHIP C 0.5PF B	
C387			CC73GCH1H020B	CHIP C 2.0PF B	E7	C456			CK73GB1H471K	CHIP C 470PF K	
C388			CC73GCH1H030B	CHIP C 3.0PF B	E	C457			CC73GCH1H1R5B	CHIP C 1.5PF B	E,X2
C388			CC73GCH1H040B	CHIP C 4.0PF B	E3	C457,458			CC73GCH1H020B	CHIP C 2.0PF B	E3,E7
C388			CC73GCH1H050B	CHIP C 5.0PF B	X2	C458			CC73GCH1H020B	CHIP C 2.0PF B	X2
C388			CC73GCH1H4R5B	CHIP C 4.5PF B	E7	C458,459			CC73GCH1H050B	CHIP C 5.0PF B	E
C389			CK73GB1H103K	CHIP C 0.010UF K		C459			CC73GCH1H030B	CHIP C 3.0PF B	E3,X2,E7
C390			CC73GCH1H050B	CHIP C 5.0PF B	X2,E7	C460			CC73GCH1H0R3B	CHIP C 0.3PF B	
C390			CC73GCH1H080B	CHIP C 8.0PF B	E	C461			CS77AA0J100M	CHIP TNL 10UF 6.3WV	
C390			CC73GCH1H100C	CHIP C 10PF C	E3	C463,464			CK73GB1H471K	CHIP C 470PF K	
C391			CK73GB1H471K	CHIP C 470PF K		C465			CS77AB21C220M	CHIP TNL 22UF 16WV	
C392			CC73GCH1H040B	CHIP C 4.0PF B	E3	C466,467			CK73GB1H471K	CHIP C 470PF K	
C392			CC73GCH1H050B	CHIP C 5.0PF B	X2,E7	C469			CC73GCH1H060B	CHIP C 6.0PF B	
C392			CC73GCH1H4R5B	CHIP C 4.5PF B	E	C470			CC73GCH1H040B	CHIP C 4.0PF B	
C393			CC73GCH1H030B	CHIP C 3.0PF B	E3	C471			CC73GCH1H020B	CHIP C 2.0PF B	
C393			CC73GCH1H040B	CHIP C 4.0PF B	E7	C477			CK73GB1H471K	CHIP C 470PF K	
C393			CC73GCH1H070B	CHIP C 7.0PF B	X2	C480			CC73GCH1H050B	CHIP C 5.0PF B	
C394			CC73GCH1HR75B	CHIP C 0.75PF B	E	C481-483			CK73GB1H471K	CHIP C 470PF K	
C394			CC73GCH1H2R5B	CHIP C 2.5PF B	E3,E7	C484			CC73GCH1H060B	CHIP C 6.0PF B	E3,E7
C395			CC73GCH1H030B	CHIP C 3.0PF B	E3	C484			CC73GCH1H090B	CHIP C 9.0PF B	E
C401,402			CK73GB1H102K	CHIP C 1000PF K		C486			CC73GCH1H050B	CHIP C 5.0PF B	E
C403			CC73GCH1H101J	CHIP C 100PF J		C486			CC73GCH1H2R5B	CHIP C 2.5PF B	E3,E7
C404,405			CC73HCH1H101J	CHIP C 100PF J		C488			CC73GCH1H0R5B	CHIP C 0.5PF B	E
C406			CC73GCH1H020B	CHIP C 2.0PF B		C488			CC73GCH1H100C	CHIP C 10PF C	E3,E7
C407			CK73GB1H102K	CHIP C 1000PF K		C489			CC73GCH1H020B	CHIP C 2.0PF B	E
C409			CC73HCH1H220J	CHIP C 22PF J		C501			CK73GB1H471K	CHIP C 470PF K	
C410,411			CK73GB1C104K	CHIP C 0.10UF K		C502			CC73GCH1H020B	CHIP C 2.0PF B	E,X2
C412			CS77AA0J100M	CHIP TNL 10UF 6.3WV		C502			CC73GCH1H050B	CHIP C 5.0PF B	E3,E7
C413			CK73GB1C104K	CHIP C 0.10UF K		C503			CK73GB1H681K	CHIP C 680PF K	X2
C414			CS77AA0J100M	CHIP TNL 10UF 6.3WV		C504,505			CK73GB1H471K	CHIP C 470PF K	
C415			CK73HB1C103K	CHIP C 0.010UF K		C507			CK73GB1H471K	CHIP C 470PF K	
C416			CK73GB1C104K	CHIP C 0.10UF K		C509			CC73GCH1H050B	CHIP C 5.0PF B	E,E3,X2
C422,423			CK73HB1H471K	CHIP C 470PF K		C509			CC73GCH1H100C	CHIP C 10PF C	E7
C424			CK73GB1H471K	CHIP C 470PF K		C510-515			CK73GB1H471K	CHIP C 470PF K	
C425			C92-0863-05	CHIP TNL 0.047UF 35WV		C516			CC73GCH1H080B	CHIP C 8.0PF B	
C426			CS77AA1DR68M	CHIP TNL 0.68UF 20WV	E3,E7	C517			CK73GB1H471K	CHIP C 470PF K	
C426			CS77CA1C010M	CHIP TNL 1.0UF 16WV	X2	C520,521			CK73GB1H471K	CHIP C 470PF K	X2
C426			CS77CA1ER47M	CHIP TNL 0.47UF 25WV	E	C522			CK73GB1C104K	CHIP C 0.10UF K	X2
C427			CS77CA1V0R1M	CHIP TNL 0.1UF 35WV		C523			CC73GCH1H470J	CHIP C 47PF J	E3,X2,E7
C431			CK73GB1H102K	CHIP C 1000PF K		C523			CC73GCH1H680J	CHIP C 68PF J	E
C434			CK73GB1H471K	CHIP C 470PF K		C526,527			CC73FCH1H090D	CHIP C 9.0PF D	E
C441			CC73GCH1H060B	CHIP C 6.0PF B	E7	C526,527			CC73FCH1H120J	CHIP C 12PF J	E3,E7
C441			CC73GCH1H080B	CHIP C 8.0PF B	E3,X2	C528			C93-0550-05	CHIP C 1.0PF C	E7
C441			CC73GCH1H150J	CHIP C 15PF J	E	C528			C93-0552-05	CHIP C 2.0PF C	X2
C442			CC73GCH1H040B	CHIP C 4.0PF B	X2	C531			CS77AA0J470M	CHIP TNL 47UF 6.3WV	E,E3,E7
C442			CC73GCH1H070B	CHIP C 7.0PF B	E3,E7	C532			CK73GB1H471K	CHIP C 470PF K	
C442			CC73GCH1H120G	CHIP C 12PF G	E	C534			CK73FB1H471K	CHIP C 470PF K	
C443			CK73GB1H471K	CHIP C 470PF K		C535			CK73GB1H221K	CHIP C 220PF K	
C444			CC73GCH1H030B	CHIP C 3.0PF B	E	C536			CK73GB1H471K	CHIP C 470PF K	
C444,445			CC73GCH1H020B	CHIP C 2.0PF B	E3,X2,E7	C537			CE32BD1E470M	CHIP EL 47UF 25WV	
C445			CC73GCH1H040B	CHIP C 4.0PF B	E	C538			CK73GB1H102K	CHIP C 1000PF K	E,E3,E7
C446			CC73GCH1H030B	CHIP C 3.0PF B	E3,X2,E7	C539			CK73GB1H221K	CHIP C 220PF K	E,E3,E7
C446			CC73GCH1H050B	CHIP C 5.0PF B	E	C540			CK73GB1H102K	CHIP C 1000PF K	E,E3,E7
C447			CC73GCH1H0R5B	CHIP C 0.5PF B		C541			CK73GB1C104K	CHIP C 0.10UF K	
C451,452			CK73GB1H471K	CHIP C 470PF K		C542			CC73GCH1H101J	CHIP C 100PF J	E,E3,E7
C453			CC73GCH1H040B	CHIP C 4.0PF B	E7	C543			CC73GCH1H470J	CHIP C 47PF J	E,E3,E7
C453			CC73GCH1H050B	CHIP C 5.0PF B	E3,X2	C544			CC73GCH1H220J	CHIP C 22PF J	E,E3,E7
C453			CC73GCH1H070B	CHIP C 7.0PF B	E	C545			CC73GCH1H101J	CHIP C 100PF J	E,E3,E7
C454			CC73GCH1H030B	CHIP C 3.0PF B	X2	C546			CC73GCH1H470J	CHIP C 47PF J	E,E3,E7
C454			CC73GCH1H060B	CHIP C 6.0PF B	E,E3,E7	C547			CC73GCH1H220J	CHIP C 22PF J	E,E3,E7

PARTS LIST

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C570			C93-0553-05	CHIP C 3.0PF C	E7	L356			L40-2275-92	SMALL FIXED INDUCTOR (22NH)	E3,E7
C571			CK73GB1H471K	CHIP C 470PF K		L357			L40-3375-92	SMALL FIXED INDUCTOR (33NH)	E7
C572,573			CK73GB1H103K	CHIP C 0.010UF K		L357			L40-3975-92	SMALL FIXED INDUCTOR (39NH)	E,E3,X2
C601			CC73GCH1H010B	CHIP C 1.0PF B	X2	L358	*		L34-4603-15	AIR-CORE COIL	X2,E
C601			CC73GCH1H050B	CHIP C 5.0PF B	E3	L358,359	*		L34-4605-15	AIR-CORE COIL	E3,E7
C603			C93-0603-05	CHIP C 1000PF K		L359-361	*		L34-4604-15	AIR-CORE COIL	E,X2
C606			CC73GCH1H0R5B	CHIP C 0.5PF B		L360,361	*		L34-4604-15	AIR-CORE COIL	E3,E7
C607			CC73GCH1H020B	CHIP C 2.0PF B	E3,X2,E7	L402			L41-1005-08	SMALL FIXED INDUCTOR (10UH)	
C607			CC73GCH1H1R5B	CHIP C 1.5PF B	E	L404			L92-0442-05	CHIP FERRITE	
C608			C93-0550-05	CHIP C 1.0PF C	X2	L421			L92-0443-05	CHIP FERRITE	
C608			C93-0552-05	CHIP C 2.0PF C	E3,E7	L441,442			L40-2785-92	SMALL FIXED INDUCTOR (270NH)	E3,X2,E7
C608			C93-0555-05	CHIP C 5.0PF C	E	L441,442			L40-4791-86	SMALL FIXED INDUCTOR (4.7UH)	E
C609			C93-0554-05	CHIP C 4.0PF C	X2	L443			L41-2778-14	SMALL FIXED INDUCTOR (27NH)	E
C609			C93-0557-05	CHIP C 7.0PF D	E,E3,E7	L443			L41-3978-14	SMALL FIXED INDUCTOR (39NH)	X2
C610			CC73GCH1H0R5B	CHIP C 0.5PF B	E,E3,E7	L443			L41-5678-14	SMALL FIXED INDUCTOR (56NH)	E3
C611			CC73GCH1H020B	CHIP C 2.0PF B	E,E3,E7	L443			L41-6878-14	SMALL FIXED INDUCTOR (68NH)	E7
C612			C93-0550-05	CHIP C 1.0PF C	E,E3,E7	L444			L40-1885-92	SMALL FIXED INDUCTOR (180NH)	X2
C612,613			C93-0550-05	CHIP C 1.0PF C	X2	L444-447			L40-2785-92	SMALL FIXED INDUCTOR (270NH)	E3,E7
C613			C93-0553-05	CHIP C 3.0PF C	E	L444-447			L40-4791-86	SMALL FIXED INDUCTOR (4.7UH)	E
C613			C93-0556-05	CHIP C 6.0PF D	E3,E7	L445-447			L40-2785-92	SMALL FIXED INDUCTOR (270NH)	X2
C614			CC73GCH1H0R5B	CHIP C 0.5PF B		L448			L41-2778-14	SMALL FIXED INDUCTOR (27NH)	E
C615			CC73GCH1H020B	CHIP C 2.0PF B		L448			L41-3378-14	SMALL FIXED INDUCTOR (33NH)	X2
C616			C93-0550-05	CHIP C 1.0PF C	E3,X2,E7	L448			L41-4778-14	SMALL FIXED INDUCTOR (47NH)	E3
C616			C93-0551-05	CHIP C 1.5PF C	E	L448			L41-5678-14	SMALL FIXED INDUCTOR (56NH)	E7
C617			C93-0550-05	CHIP C 1.0PF C	E	L449			L40-1885-92	SMALL FIXED INDUCTOR (180NH)	E3,X2,E7
C617			C93-0552-05	CHIP C 2.0PF C	E3,X2,E7	L449,450			L40-4791-86	SMALL FIXED INDUCTOR (4.7UH)	E
C618			CK73GB1H471K	CHIP C 470PF K	X2	L450			L40-2785-92	SMALL FIXED INDUCTOR (270NH)	E3,X2,E7
C618,619			CK73GB1H471K	CHIP C 470PF K	E,E3,E7	L451,452			L92-0443-05	CHIP FERRITE	
C620			CK73GB1H102K	CHIP C 1000PF K		L454			L41-2775-06	SMALL FIXED INDUCTOR (27NH)	
C651			CK73GB1H103K	CHIP C 0.010UF K		L456			L41-2775-06	SMALL FIXED INDUCTOR (27NH)	
C652			CK73GB1H471K	CHIP C 470PF K		L460			L40-1875-92	SMALL FIXED INDUCTOR (18NH)	E,E3,E7
C672,673			CK73GB1H471K	CHIP C 470PF K		L461			L41-2775-06	SMALL FIXED INDUCTOR (27NH)	E
TC441			C05-0245-05	CERAMIC TRIMMER CAPACITOR (10PF)	E3,E7	L501			L41-2775-06	SMALL FIXED INDUCTOR (27NH)	
TC441,442			C05-0245-05	CERAMIC TRIMMER CAPACITOR (10PF)	E,X2	L502			L41-1875-08	SMALL FIXED INDUCTOR (18NH)	
TC442			C05-0399-05	CERAMIC TRIMMER CAPACITOR (6PF)	E3,E7	L503,504			L41-3363-08	SMALL FIXED INDUCTOR (3.3NH)	X2
CN1			E40-6571-05	FLAT CABLE CONNECTOR		L504			L41-3363-08	SMALL FIXED INDUCTOR (3.3NH)	E3,E7
CN2			E40-6653-05	PIN ASSY		L504			L41-6865-08	SMALL FIXED INDUCTOR (6.8NH)	E
CN3			E40-6682-05	PIN ASSY		L506			L92-0179-05	CHIP FERRITE	
CN5			E41-1682-05	PIN ASSY		L507			L34-1039-05	AIR-CORE COIL	E7
CN301-304			E23-1278-05	TERMINAL		L508			L41-1078-14	SMALL FIXED INDUCTOR (10NH)	E,E3,E7
CN501-503			E23-1278-05	TERMINAL		L509			L34-4753-05	AIR-CORE COIL	
CN504-506			E23-1262-05	TERMINAL	E,E3,E7	L601			L34-4757-05	AIR-CORE COIL	
CN510,511			E23-1262-05	TERMINAL	E,E3,E7	L603,604			L34-4754-05	AIR-CORE COIL	E3,X2,E7
J1			E11-0425-05	3.5D PHONE JACK (3P)		L603,604			L34-4757-05	AIR-CORE COIL	E
F41	*		F53-0327-05	FUSE (4A)		L605			L34-4753-05	AIR-CORE COIL	
CF331			L72-0993-05	CERAMIC FILTER		X86	*		L77-3040-05	CRYSTAL RESONATOR (12.0MHZ)	
CF332			L72-0959-05	CERAMIC FILTER		X241	*		L77-3039-05	CRYSTAL RESONATOR (3.6864MHZ)	
L1,2			L92-0179-05	CHIP FERRITE		X401	*		L77-1944-05	TCXO (16.8MHZ)	
L101			L92-0443-05	CHIP FERRITE		XF351	*		L71-0638-15	MCF (49.95MHZ)	
L211			L92-0443-05	CHIP FERRITE		CP1-7			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L321			L34-4797-05	COIL		R1			RK73GB2A000J	CHIP R 0.0 J 1/10W	
L341			L41-3385-08	SMALL FIXED INDUCTOR (330NH)		R2			RK73HB1J101J	CHIP R 100 J 1/16W	
L342,343			L40-3381-86	SMALL FIXED INDUCTOR (0.33UH)		R3			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L351,352		*	L41-3385-39	SMALL FIXED INDUCTOR (0.33UH)	X2	R4			RK73HB1J332J	CHIP R 3.3K J 1/16W	
L351,352		*	L41-4785-39	SMALL FIXED INDUCTOR (0.47UH)	E,E3,E7	R5			RK73HB1J223J	CHIP R 22K J 1/16W	
L354	*		L34-4603-15	AIR-CORE COIL	X2	R41			RK73GB2A473J	CHIP R 47K J 1/10W	
L354,355	*		L34-4604-15	AIR-CORE COIL	E,E3,E7	R42			RK73RB2H221J	CHIP R 220 J 1/2W	
L355	*		L34-4605-15	AIR-CORE COIL	X2	R43			RK73GB2A473J	CHIP R 47K J 1/10W	
L356			L40-1875-92	SMALL FIXED INDUCTOR (18NH)	E,X2	R44			RK73GB2A472J	CHIP R 4.7K J 1/10W	

PARTS LIST

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R45			RK73GB2A473J	CHIP R 47K J 1/10W		R229			RK73HB1J683J	CHIP R 68K J 1/16W	
R46			RK73GB2A152J	CHIP R 1.5K J 1/10W		R230			RK73HB1J333J	CHIP R 33K J 1/16W	E
R47			RK73GB2A103J	CHIP R 10K J 1/10W		R230			RK73HB1J393J	CHIP R 39K J 1/16W	E3,X2
R48			RK73HB1J334J	CHIP R 330K J 1/16W		R230			RK73HB1J393J	CHIP R 39K J 1/16W	E7
R49			RK73HB1J474J	CHIP R 470K J 1/16W		R231			RK73GB2A683J	CHIP R 68K J 1/10W	
R50			RK73HB1J394J	CHIP R 390K J 1/16W		R232,233			RK73HB1J683J	CHIP R 68K J 1/16W	
R51			RK73HB1J334J	CHIP R 330K J 1/16W		R240-245			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R81,82			RK73GB2A103J	CHIP R 10K J 1/10W		R246			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R83			RK73GB2A000J	CHIP R 0.0 J 1/10W		R247,248			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R84			RK73HB1J000J	CHIP R 0.0 J 1/16W		R249			RK73HB1J102J	CHIP R 1.0K J 1/16W	E3,X2,E7
R85			RK73HB1J473J	CHIP R 47K J 1/16W		R249			RK73HB1J562J	CHIP R 5.6K J 1/16W	E
R86			RK73GB2A471J	CHIP R 470 J 1/10W		R250			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R87			RK73GB2A000J	CHIP R 0.0 J 1/10W		R251			RK73HB1J473J	CHIP R 47K J 1/16W	
R88			RK73GB2A473J	CHIP R 47K J 1/10W		R252			RK73HB1J104J	CHIP R 100K J 1/16W	
R90			RK73GB2A102J	CHIP R 1.0K J 1/10W		R253			RK73GB2A562J	CHIP R 5.6K J 1/10W	
R91			RK73HB1J000J	CHIP R 0.0 J 1/16W		R254			RK73HB1J474J	CHIP R 470K J 1/16W	
R92			RK73GH2A183D	CHIP R 18K D 1/10W		R255			RK73HB1J154J	CHIP R 150K J 1/16W	
R93			RK73GH2A134D	CHIP R 130K D 1/10W		R256			RK73HB1J473J	CHIP R 47K J 1/16W	
R94			RK73GB2A102J	CHIP R 1.0K J 1/10W		R257			RK73HB1J104J	CHIP R 100K J 1/16W	
R95			RK73GB2A472J	CHIP R 4.7K J 1/10W		R258			RK73HH1J204D	CHIP R 200K D 1/16W	
R96			RK73GB2A105J	CHIP R 1.0M J 1/10W		R259			RK73HB1J274J	CHIP R 270K J 1/16W	
R97			RK73GB2A104J	CHIP R 100K J 1/10W		R260			RK73GB2A683J	CHIP R 68K J 1/10W	
R98			RK73GB2A473J	CHIP R 47K J 1/10W		R261			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R99			RK73GB2A102J	CHIP R 1.0K J 1/10W		R262			RK73HB1J563J	CHIP R 56K J 1/16W	
R100			RK73HB1J102J	CHIP R 1.0K J 1/16W		R263			RK73HB1J334J	CHIP R 330K J 1/16W	
R101			RK73GB2A473J	CHIP R 47K J 1/10W		R264,265			RK73HB1J473J	CHIP R 47K J 1/16W	
R102			RK73HB1J473J	CHIP R 47K J 1/16W		R266			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R103-105			RK73GB2A102J	CHIP R 1.0K J 1/10W		R267			RK73HH1J683D	CHIP R 68K D 1/16W	
R108,109			RK73HB1J473J	CHIP R 47K J 1/16W		R268			RK73HH1J154D	CHIP R 150K D 1/16W	
R110			RK73GB2A152J	CHIP R 1.5K J 1/10W		R269			RK73HH1J683D	CHIP R 68K D 1/16W	
R111			RK73GB2A473J	CHIP R 47K J 1/10W		R270			RK73HB1J183J	CHIP R 18K J 1/16W	
R112			RK73HB1J102J	CHIP R 1.0K J 1/16W		R271			RK73HB1J563J	CHIP R 56K J 1/16W	
R113			RK73HB1J473J	CHIP R 47K J 1/16W		R272			RK73HH1J563D	CHIP R 56K D 1/16W	
R115			RK73HB1J473J	CHIP R 47K J 1/16W		R273			RK73HH1J184D	CHIP R 180K D 1/16W	
R124			RK73GB2A000J	CHIP R 0.0 J 1/10W		R274			RK73HH1J332D	CHIP R 3.3K D 1/16W	
R125			RK73GB2A473J	CHIP R 47K J 1/10W		R275			RK73HH1J563D	CHIP R 56K D 1/16W	
R126,127			RK73HB1J102J	CHIP R 1.0K J 1/16W		R276,277			RK73HB1J223J	CHIP R 22K J 1/16W	
R128			RK73GB2A123J	CHIP R 12K J 1/10W		R278,279			RK73HB1J823J	CHIP R 82K J 1/16W	
R129			RK73GB2A153J	CHIP R 15K J 1/10W		R281			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R130			RK73GB2A000J	CHIP R 0.0 J 1/10W		R282			RK73GB2A473J	CHIP R 47K J 1/10W	
R201			RK73GB2A124J	CHIP R 120K J 1/10W		R283			RK73GB2A823J	CHIP R 82K J 1/10W	
R202			RK73GB2A561J	CHIP R 560 J 1/10W		R284			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R203			RK73GB2A913J	CHIP R 91K J 1/10W		R285			RK73FB2B000J	CHIP R 0.0 J 1/8W	
R204-206			RK73GB2A102J	CHIP R 1.0K J 1/10W		R286			RK73GB2A391J	CHIP R 390 J 1/10W	
R207			RK73HB1J000J	CHIP R 0.0 J 1/16W		R301			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R208			RK73GB2A000J	CHIP R 0.0 J 1/10W		R302,303			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R211			RK73GB2A303J	CHIP R 30K J 1/10W		R304			RK73GB2A223J	CHIP R 22K J 1/10W	
R212,213			RK73GB2A753J	CHIP R 75K J 1/10W		R305			RK73GB2A182J	CHIP R 1.8K J 1/10W	E,X2
R214			RK73GB2A334J	CHIP R 330K J 1/10W		R305			RK73GB2A183J	CHIP R 18K J 1/10W	E3,E7
R215			RK73HB1J222J	CHIP R 2.2K J 1/16W		R306			RK73GB2A123J	CHIP R 12K J 1/10W	E3,E7
R216			RK73HB1J000J	CHIP R 0.0 J 1/16W		R306			RK73GB2A472J	CHIP R 4.7K J 1/10W	X2
R217			RK73HB1J101J	CHIP R 100 J 1/16W		R306			RK73GB2A822J	CHIP R 8.2K J 1/10W	E
R218			RK73HB1J821J	CHIP R 820 J 1/16W		R307			RK73GB2A224J	CHIP R 220K J 1/10W	E3,E7
R219			RK73GB2A223J	CHIP R 22K J 1/10W		R307			RK73GB2A274J	CHIP R 270K J 1/10W	E,X2
R220			RK73GB2A681J	CHIP R 680 J 1/10W		R309			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R221			RK73GB2A472J	CHIP R 4.7K J 1/10W		R310			RK73GB2A334J	CHIP R 330K J 1/10W	
R222			RK73HB1J223J	CHIP R 22K J 1/16W		R311			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R223			RK73GB2A102J	CHIP R 1.0K J 1/10W		R312			RK73GB2A273J	CHIP R 27K J 1/10W	X2
R224			RK73GB2A561J	CHIP R 560 J 1/10W		R312			RK73GB2A333J	CHIP R 33K J 1/10W	E3,E7
R225-228			RK73GB2A223J	CHIP R 22K J 1/10W		R313			RK73GB2A154J	CHIP R 150K J 1/10W	X2

PARTS LIST

TX-RX UNIT (X57-711X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R313			RK73GB2A473J	CHIP R 47K J 1/10W	E,E3,E7	R424			RK73HB1J000J	CHIP R 0.0 J 1/16W	
R314			RK73GB2A104J	CHIP R 100K J 1/10W		R425			RK73GB2A103J	CHIP R 10K J 1/10W	
R321			RK73GB2A333J	CHIP R 33K J 1/10W		R426,427			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R322			RK73GB2A183J	CHIP R 18K J 1/10W		R428			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R323			RK73GB2A222J	CHIP R 2.2K J 1/10W		R429			RK73GB2A152J	CHIP R 1.5K J 1/10W	
R324			RK73GB2A000J	CHIP R 0.0 J 1/10W		R430			RK73GB2A103J	CHIP R 10K J 1/10W	
R331-336			RK73GB2A103J	CHIP R 10K J 1/10W		R431			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R341			RK73GB2A101J	CHIP R 100 J 1/10W		R432			RK73GB2A471J	CHIP R 470 J 1/10W	
R342			RK73GB2A224J	CHIP R 220K J 1/10W		R433			RK73GB2A224J	CHIP R 220K J 1/10W	
R351			RK73GB2A471J	CHIP R 470 J 1/10W		R441			RK73GB2A221J	CHIP R 220 J 1/10W	E
R352			RK73GB2A101J	CHIP R 100 J 1/10W		R441			RK73GB2A271J	CHIP R 270 J 1/10W	X2
R353			RK73GB2A103J	CHIP R 10K J 1/10W		R441			RK73GB2A331J	CHIP R 330 J 1/10W	E3,E7
R354			RK73GB2A471J	CHIP R 470 J 1/10W		R442,443			RK73GB2A101J	CHIP R 100 J 1/10W	
R355			RK73GB2A331J	CHIP R 330 J 1/10W		R444			RK73GB2A104J	CHIP R 100K J 1/10W	
R358			RK73GB2A470J	CHIP R 47 J 1/10W		R445			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R359			RK73GB2A184J	CHIP R 180K J 1/10W	X2	R446			RK73GB2A181J	CHIP R 180 J 1/10W	E
R359			RK73GB2A224J	CHIP R 220K J 1/10W	E	R446			RK73GB2A221J	CHIP R 220 J 1/10W	X2
R359			RK73GB2A912J	CHIP R 9.1K J 1/10W	E3,E7	R446			RK73GB2A271J	CHIP R 270 J 1/10W	E3,E7
R360			RK73GB2A393J	CHIP R 39K J 1/10W	E3,E7	R447			RK73GB2A473J	CHIP R 47K J 1/10W	
R360			RK73GB2A394J	CHIP R 390K J 1/10W	X2	R448			RK73GB2A393J	CHIP R 39K J 1/10W	
R360			RK73GB2A824J	CHIP R 820K J 1/10W	E	R449			RK73GB2A104J	CHIP R 100K J 1/10W	
R361			RK73GB2A151J	CHIP R 150 J 1/10W	X2	R450			RK73GB2A473J	CHIP R 47K J 1/10W	
R361			RK73GB2A181J	CHIP R 180 J 1/10W	E	R451			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R361			RK73GB2A220J	CHIP R 22 J 1/10W	E3,E7	R452			RK73GB2A124J	CHIP R 120K J 1/10W	
R362			RK73GB2A394J	CHIP R 390K J 1/10W	E	R453			RK73GB2A101J	CHIP R 100 J 1/10W	
R362			RK73GB2A474J	CHIP R 470K J 1/10W	E3,X2,E7	R454			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R363			RK73GB2A154J	CHIP R 150K J 1/10W		R457			RK73GB2A124J	CHIP R 120K J 1/10W	
R364			RK73GB2A000J	CHIP R 0.0 J 1/10W		R458			RK73GB2A101J	CHIP R 100 J 1/10W	
R365,366			RK73GB2A105J	CHIP R 1.0M J 1/10W		R459			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R367			RK73GB2A101J	CHIP R 100 J 1/10W		R460			RK73GB2A000J	CHIP R 0.0 J 1/10W	
R369			RK73GB2A151J	CHIP R 150 J 1/10W	X2	R461			RK73GB2A101J	CHIP R 100 J 1/10W	
R369			RK73GB2A271J	CHIP R 270 J 1/10W	E7	R462			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R369			RK73GB2A820J	CHIP R 82 J 1/10W	E,E3	R463			RK73GB2A000J	CHIP R 0.0 J 1/10W	X2
R370			RK73GB2A473J	CHIP R 47K J 1/10W		R464			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R371			RK73GB2A393J	CHIP R 39K J 1/10W		R465			RK73GB2A000J	CHIP R 0.0 J 1/10W	E3,X2,E7
R372			RK73GB2A473J	CHIP R 47K J 1/10W	E3	R501			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R372			RK73GB2A683J	CHIP R 68K J 1/10W	E,X2,E7	R503			RK73GB2A101J	CHIP R 100 J 1/10W	X2
R373			RK73GB2A153J	CHIP R 15K J 1/10W	X2	R503,504			RK73GB2A000J	CHIP R 0.0 J 1/10W	E,E3,E7
R373			RK73GB2A223J	CHIP R 22K J 1/10W	E3	R504			RK73GB2A000J	CHIP R 0.0 J 1/10W	X2
R373			RK73GB2A333J	CHIP R 33K J 1/10W	E7	R505			RK73GB2A102J	CHIP R 1.0K J 1/10W	E7
R373		*	RK73GB2A363J	CHIP R 36K J 1/10W	E	R505			RK73GB2A152J	CHIP R 1.5K J 1/10W	E,E3,X2
R374			RK73GB2A105J	CHIP R 1.0M J 1/10W		R506			RK73GB2A563J	CHIP R 56K J 1/10W	
R375			RK73GB2A000J	CHIP R 0.0 J 1/10W	X2	R507			RK73GB2A101J	CHIP R 100 J 1/10W	E
R376			RK73GB2A105J	CHIP R 1.0M J 1/10W		R507			RK73GB2A181J	CHIP R 180 J 1/10W	E3,X2,E7
R377			RK73GB2A000J	CHIP R 0.0 J 1/10W	E,X2,E7	R509			RK73GB2A101J	CHIP R 100 J 1/10W	
R378			RK73GB2A104J	CHIP R 100K J 1/10W	E7	R510			RK73GB2A000J	CHIP R 0.0 J 1/10W	E,E3,E7
R378			RK73GB2A105J	CHIP R 1.0M J 1/10W	E,E3,X2	R511			RK73GB2A471J	CHIP R 470 J 1/10W	
R380			RK73GB2A000J	CHIP R 0.0 J 1/10W		R512			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R381			RK73GB2A104J	CHIP R 100K J 1/10W		R513			RK73GB2A682J	CHIP R 6.8K J 1/10W	
R392,393			RK73GB2A000J	CHIP R 0.0 J 1/10W		R514			RK73FB2B470J	CHIP R 47 J 1/8W	
R401-403			RK73HB1J102J	CHIP R 1.0K J 1/16W		R515			RK73GB2A100J	CHIP R 10 J 1/10W	
R404			RK73GB2A000J	CHIP R 0.0 J 1/10W		R516			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R405			RK73GB2A103J	CHIP R 10K J 1/10W		R517			RK73GB2A100J	CHIP R 10 J 1/10W	
R406			RK73GB2A152J	CHIP R 1.5K J 1/10W		R518			RK73GB2A223J	CHIP R 22K J 1/10W	X2
R407			RK73HB1J100J	CHIP R 10 J 1/16W		R519			RK73GB2A220J	CHIP R 22 J 1/10W	X2
R408			RK73HB1J104J	CHIP R 100K J 1/16W		R520			RK73GB2A822J	CHIP R 8.2K J 1/10W	X2
R409			RK73GB2A101J	CHIP R 100 J 1/10W		R521			RK73GB2A101J	CHIP R 100 J 1/10W	
R421			RK73GB2A103J	CHIP R 10K J 1/10W		R522			RK73RB2H000J	CHIP R 0.0 J 1/2W	X2
R422			RK73GB2A123J	CHIP R 12K J 1/10W		R524			RK73FB2B821J	CHIP R 820 J 1/8W	X2
R423			RK73GB2A103J	CHIP R 10K J 1/10W		R525			RK73FB2B5R6J	CHIP R 5.6 J 1/8W	X2

PARTS LIST

TX-RX UNIT (X57-711X-XX)

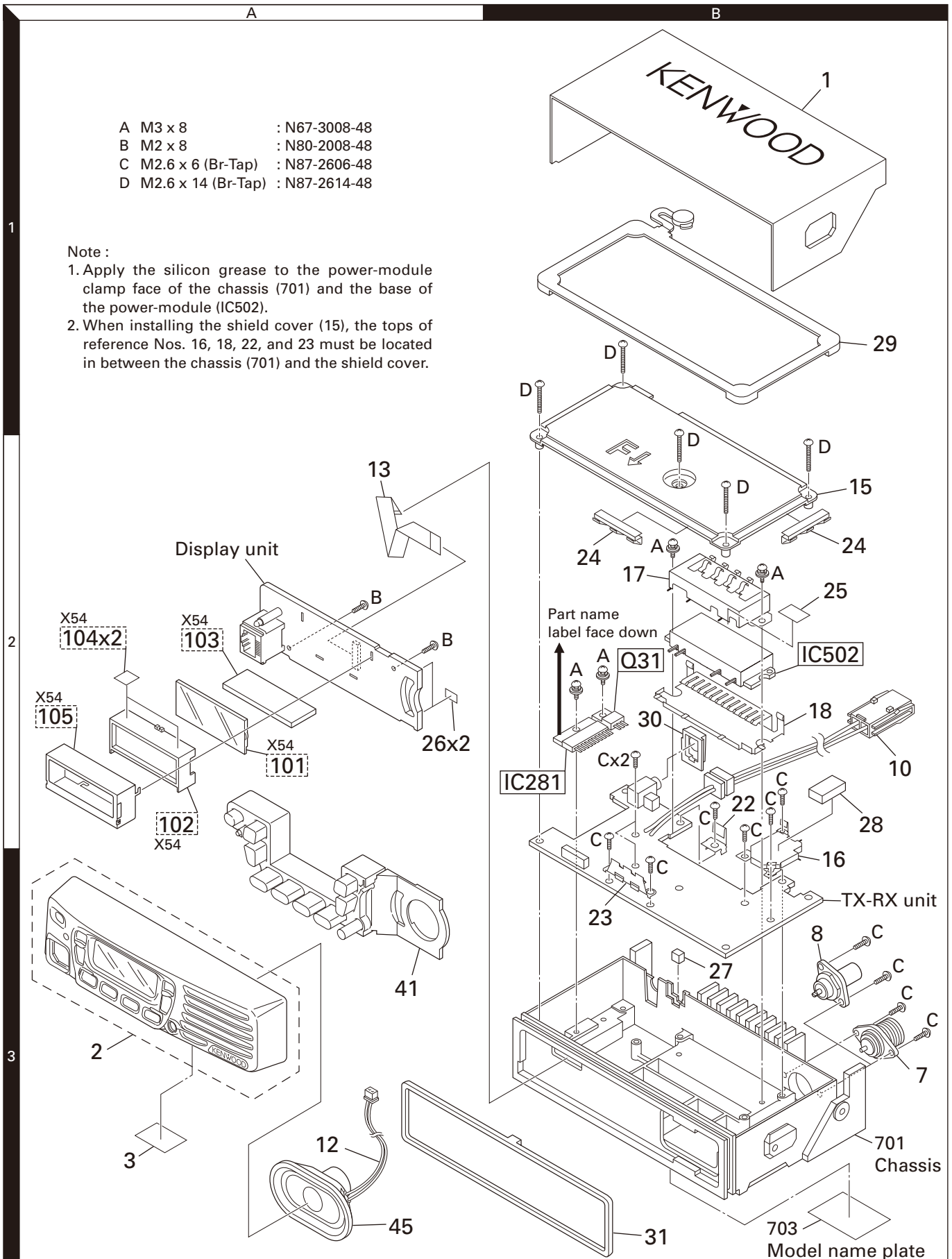
Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R526			RK73FB2B821J	CHIP R 820 J 1/8W	X2	IC201			M622364FP-F	MOS-IC	
R534			RK73GB2A153J	CHIP R 15K J 1/10W	X2	IC211			NJM2100V-ZB	MOS-IC	
R534			RK73GB2A822J	CHIP R 8.2K J 1/10W	E,E3,E7	IC213			BU4066BCFV	MOS-IC	
R535			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC214,215			BA10358FV	MOS-IC	
R536			RK73EB2E470J	CHIP R 47 J 1/4W		IC241			AQUA-L	MOS-IC	
R538			RK73EB2E000J	CHIP R 0.0 J 1/4W	E,E3,X2	IC281	2B		LA4600	BI-POLAR IC	
R539			RK73RB2H101J	CHIP R 100 J 1/2W		IC321			TK14489V-G	BI-POLAR IC	
R601			RK73GB2A223J	CHIP R 22K J 1/10W	X2	IC401			MB15A02PFV2E1	MOS-IC	
R601-603			RK73GB2A223J	CHIP R 22K J 1/10W	E,E3,E7	IC502	2B		RA30H3340M131	MOS-IC	E7
R603			RK73GB2A223J	CHIP R 22K J 1/10W	X2	IC502	2B		RA30H4047M131	MOS-IC	E3
R651			RK73GB2A474J	CHIP R 470K J 1/10W		IC502	2B		RA30H4452M131	MOS-IC	E,X2
R652			RK73GB2A103J	CHIP R 10K J 1/10W		IC651			TA75W01FUF	MOS-IC	
R653			RK73GB2A000J	CHIP R 0.0 J 1/10W		Q31	2B		2SJ650	TRANSISTOR	
R654			RK73GB2A102J	CHIP R 1.0K J 1/10W		Q42			2SD1757K	TRANSISTOR	
R655			RK73GB2A473J	CHIP R 47K J 1/10W		Q43			2SA1745E(6,7)	TRANSISTOR	
R659			RK73GB2A103J	CHIP R 10K J 1/10W		Q44			KRC102S-P	DIGITAL TRANSISTOR	
R660			RK73GB2A562J	CHIP R 5.6K J 1/10W		Q45			KTA1664(Y)	TRANSISTOR	
R661			RK73GB2A473J	CHIP R 47K J 1/10W		Q46			KRC102S-P	DIGITAL TRANSISTOR	
R662			RK73GB2A000J	CHIP R 0.0 J 1/10W		Q81			RT1N441U	TRANSISTOR	
R800			R92-1061-05	JUMPER REST 0 OHM		Q82,83			2SK1830F	FET	
R824			RK73HB1J104J	CHIP R 100K J 1/16W		Q84			KRC414RTK	DIGITAL TRANSISTOR	
R825			RK73GB2A223J	CHIP R 22K J 1/10W	X2	Q201			2SC2412K	TRANSISTOR	
D1-11			DA221	DIODE		Q211			2SC4919	TRANSISTOR	
D41			ZSH5MA27	SURGE ABSORBER		Q212,213			2SK1830F	FET	
D42			1812L110PR	VARIATOR		Q241			RT1P141U	TRANSISTOR	
D81			02D218F-X,Y	ZENER DIODE		Q281			DTC363EU	DIGITAL TRANSISTOR	
D82			1SS355	DIODE		Q282			KRC102S-P	DIGITAL TRANSISTOR	
D211			1SS372F	DIODE		Q301			2SC2412K	TRANSISTOR	
D212			MC2858	DIODE		Q341			2SC2412K	TRANSISTOR	
D301			MA3J742	DIODE		Q351			2SC5108(Y)F	TRANSISTOR	
D331,332			MC2858	DIODE		Q352			3SK318	FET	
D351			HVC376B	VARIABLE CAPACITANCE DIODE	X2	Q353		*	3SK255-A	FET	
D351-355			HVC350B	VARIABLE CAPACITANCE DIODE	E	Q406			2SK508NV(K52)	FET	
D351,352			HVC350B	VARIABLE CAPACITANCE DIODE	E3,E7	Q421			2SA1832(GR)F	TRANSISTOR	
D352			HVC355B	VARIABLE CAPACITANCE DIODE	X2	Q422			2SC4738(GR)F	TRANSISTOR	
D353			HVC355B	VARIABLE CAPACITANCE DIODE	E3,E7	Q431			2SC4649(N,P)	TRANSISTOR	
D353,354			HVC376B	VARIABLE CAPACITANCE DIODE	X2	Q441			2SK508NV(K52)	FET	
D354,355			HVC350B	VARIABLE CAPACITANCE DIODE	E3,E7	Q442			2SJ347F	FET	
D355			HVC355B	VARIABLE CAPACITANCE DIODE	X2	Q443			KRX102U	TRANSISTOR	
D401			1SS355	DIODE		Q445			2SC2412K	TRANSISTOR	
D421			HZU5ALL	DIODE		Q446,447			2SC5108(Y)F	TRANSISTOR	
D441-444			MA2S304	VARIABLE CAPACITANCE DIODE		Q500			2SC5108(Y)F	TRANSISTOR	
D445			1SV278F	VARIABLE CAPACITANCE DIODE		Q501		*	2SC3357-A(RF)	TRANSISTOR	
D446			1SS355	DIODE		Q502			RD00HVS1-T113	FET	X2
D447,448			HSC277	DIODE		TH301			B57331V2104J	THERMISTOR	
D502			DA221	DIODE		TH351			NCP18XW332J03	THERMISTOR	
D503			02D25.1F-Y	ZENER DIODE		TH441			NCP18XH103K03	THERMISTOR	E
D602			MA4PH633	DIODE		TH672,673			B57331V2104J	THERMISTOR	
D604,605			L7091CER	DIODE							
D606			MA3J742	DIODE	X2						
D606-608			MA3J742	DIODE	E,E3,E7						
D608			MA3J742	DIODE	X2						
D609,610			1SS355	DIODE							
IC41			KIA7808AF	ANALOGUE IC							
IC42,43			NJM78L05UA-ZB	BI-POLAR IC							
IC44,45			BD4740G	MOS-IC							
IC81			CAT24C128WI-G	ROM IC							
IC101		*	30622MEP416GU	MICROCONTROLLER IC	E,E3,X2						
IC101		*	30622MEP450GU	MICROCONTROLLER IC	E7						

EXPLODED VIEW

A	M3 x 8	:	N67-3008-48
B	M2 x 8	:	N80-2008-48
C	M2.6 x 6 (Br-Tap)	:	N87-2606-48
D	M2.6 x 14 (Br-Tap)	:	N87-2614-48

Note :

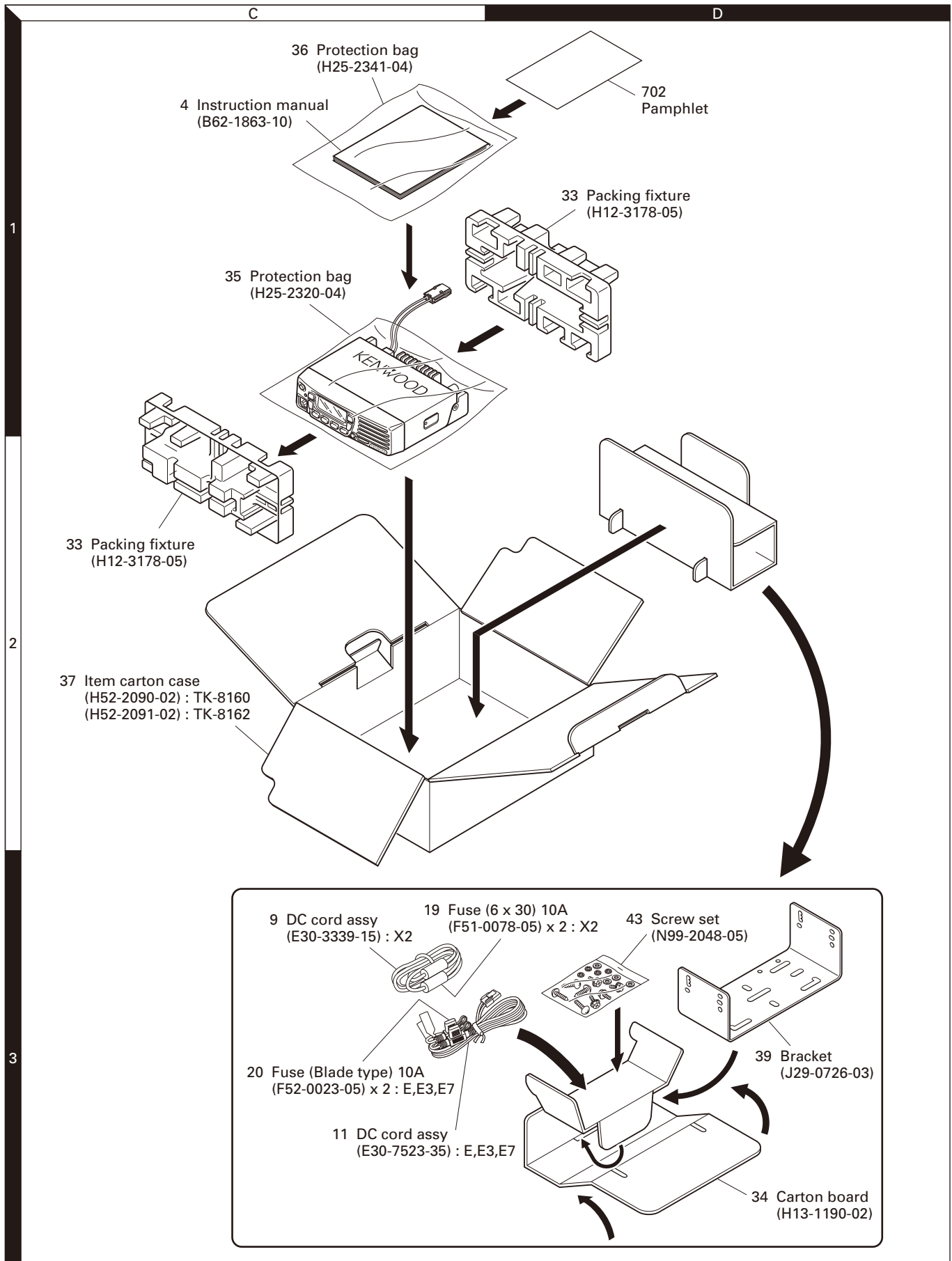
1. Apply the silicon grease to the power-module clamp face of the chassis (701) and the base of the power-module (IC502).
2. When installing the shield cover (15), the tops of reference Nos. 16, 18, 22, and 23 must be located in between the chassis (701) and the shield cover.



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

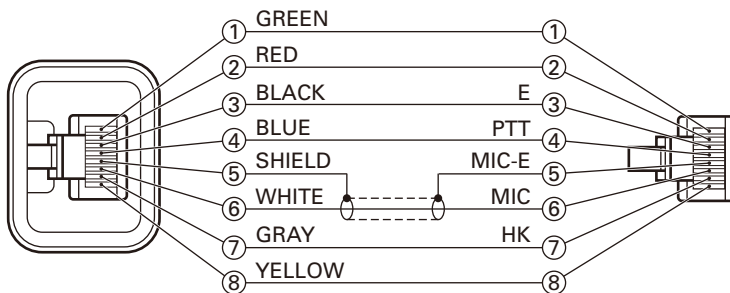


ADJUSTMENT

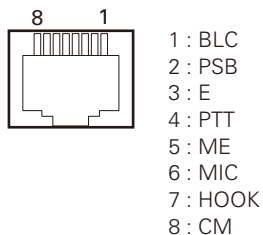
Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range Modulation Output	380 to 520MHz Frequency modulation and external modulation -127dBm/0.1μV to greater than -7dBm/100mV
2. Power Meter	Input Impedance Operation Frequency Measurement Capability	50Ω 380 to 520MHz or more Vicinity of 100W
3. Deviation Meter	Frequency Range	380 to 520MHz
4. Digital Volt Meter (DVM)	Measuring Range Input Impedance	1 to 20V 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. Ammeter		20A
8. AF Volt Meter (AF VTVM)	Frequency Range Voltage Range	50Hz to 10kHz 1mV to 3V
9. Audio Generator (AG)	Frequency Range Output	20Hz to 20kHz or more 0 to 1V
10. Distortion Meter	Capability Input Level	3% or less at 1kHz 50mV to 10Vrms
11. 4Ω Dummy Load		Approx. 4Ω, 10W or more
12. Regulated Power Supply		13.6V, approx. 20A (adjustable from 9 to 17V) Useful if ammeter equipped
13. Spectrum Analyzer	Center frequency	50kHz to 600MHz
14. Tracking Generator	Output Voltage	100mV or more

Test cable for microphone input (E30-3360-08)

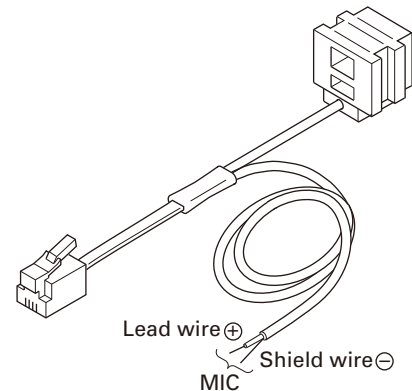


MIC connector (Front view)



Tuning cable (E30-3383-05)

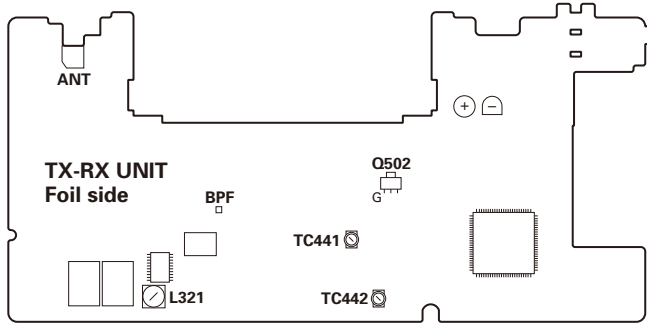
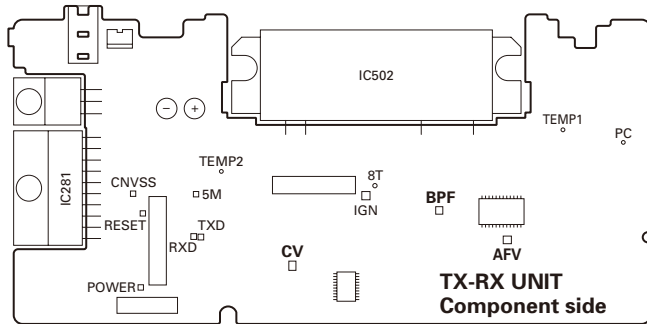
Adapter cable (E30-3383-05) is required for injecting an audio if PC tuning is used. See "PC Mode" section for the connection.



ADJUSTMENT

Adjustment Location

■ Adjustment Points



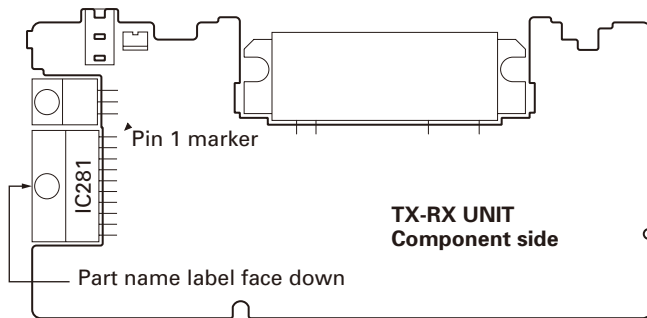
■ Notes

• EEPROM

The tuning data (Deviation, Squelch, etc.) for the EEPROM, is stored in memory. When parts are changed, re-adjust the transceiver.

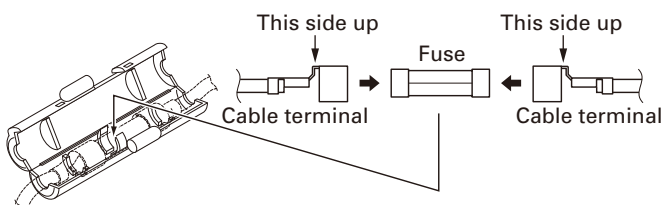
• AF PA IC (IC281)

How to mount the IC281.



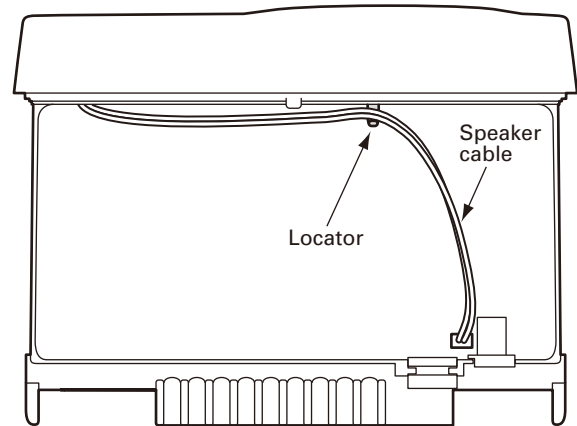
• Fuse (TK-8160 X2 only)

To mount the fuse, the cable terminal direction must be as follows.



• Speaker Cable

The speaker cable should be formed before mounting the shield cover as below.



Test Frequency

Channel	E		E3		X2		E7	
	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)
1	455.05	455.10	415.05	415.10	491.05	491.10	390.05	390.10
2	440.05	440.10	400.05	400.10	470.05	470.10	380.05	380.10
3	469.95	469.90	429.95	429.90	511.95	511.90	399.95	399.90
4	455.00	455.00	415.00	415.00	491.00	491.00	390.00	390.00
5	455.20	455.20	415.20	415.20	491.20	491.20	390.20	390.20
6	455.40	455.40	415.40	415.40	491.40	491.40	390.40	390.40

Test Signaling

	RX	TX
1	None	None
2	None	10Hz Square Wave
3	QT: 67.0Hz	QT: 67.0Hz
4	QT: 151.4Hz	QT: 151.4Hz
5	QT: 210.7Hz	QT: 210.7Hz
6	QT: 254.1Hz	QT: 254.1Hz
7	DQT: D023N	DQT: D023N
8	DQT: D754I	DQT: D754I
9	DTMF Decode (Code: 159D)	DTMF Encode (Code: 159D)
10	None	DTMF (Code: 9)
11	None	MSK 1200 bps
12	None	MSK 2400 bps
13	FleetSync 1200 bps : 100~1000	FleetSync 1200 bps : 100~1000
14	FleetSync 2400 bps : 100~1000	FleetSync 2400 bps : 100~1000
15	None	Single Tone: 1000Hz
16	5-tone (CCIR 12345)	5-tone (CCIR 12345)

ADJUSTMENT

3 or 5 Reference Level Adjustment Frequency

Tuning point	E		E3		X2		E7	
	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)	RX (MHz)	TX (MHz)
Low	440.05	440.10	400.05	400.10	470.05	470.10	380.05	380.10
Low'	447.55	447.60	407.55	407.60	480.55	480.60	385.05	385.10
Center	455.05	455.10	415.05	415.10	491.05	491.10	390.05	390.10
High'	462.55	462.60	422.55	422.60	501.55	501.60	395.05	395.10
High	469.95	469.90	429.95	429.90	511.95	511.90	399.95	399.90

Note: The single reference level adjustment uses the center frequency in the above table.

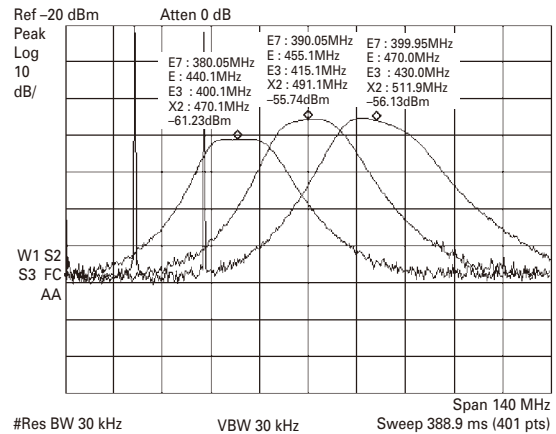


Fig. 1

PCB Section (Note: The market code of the E3,X2 and E7 do not perform "Wide 4k" adjustment)

Item	Condition	Measurement		Adjustment		Specifications / Remarks	
		Test equipment	Terminal	Parts	Method		
1. Setting	1) Power supply voltage DC Power supply terminal: 13.6V						
2. VCO lock voltage	1) CH: TX high	DVM	CV	TC442	5.5V	±0.1V	
	2) CH: RX high				TC441	4.0V E 5.5V E3,X2,E7	±0.1V
	3) CH: TX low				Check	0.7V or more	
	4) CH: RX low						
3. IF coil	1) CH: RX center (Wide) 2) SSG output: -53dBm (501µV) Mod: 1kHz, Dev: 3kHz	SSG DVM	AFV	L321	3.25~3.35V (DC)		
4. RF bandpass filter	1) CH: RX center (Wide) CH: RX low (Wide) CH: RX high (Wide) 2) Tracking generator output : -30dBm Connect the spectrum analyzer to BPF terminal.	Tracking generator Spectrum analyzer	ANT BPF	PC key	Adjust the BPF waveform to Fig. 1		

Receiver Section (Note: The market code of the E3,X2 and E7 do not perform "Wide 4k" adjustment)

Item	Condition	Measurement		Adjustment		Specifications / Remarks
		Test equipment	Terminal	Parts	Method	
1. Sensitivity	1) CH: RX low (Wide/Wide 4k/Narrow) CH: RX center (Wide/Wide 4k/Narrow) CH: RX high (Wide/Wide 4k/Narrow) 2) SSG output : -118dBm (0.28µV) (Wide/Wide 4k) : -116dBm (0.35µV) (Narrow) Mod: 1kHz Dev: ±3.0kHz (Wide) Dev: ±2.4kHz (Wide 4k) Dev: ±1.5kHz (Narrow)	SSG Oscilloscope AF VTVM Distortion meter	ANT EXT. SP		Check	SINAD : 12dB or higher


ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications / Remarks
		Test equipment	Terminal	Parts	Method	
2. Squelch tight	1) CH: RX low (Wide) CH: RX center (Wide/Wide 4k/Narrow) CH: RX high (Wide) 2) SSG output : 12dB SINAD+7dB Mod: 1kHz Dev: ±3.0kHz (Wide) Dev: ±2.4kHz (Wide 4k) Dev: ±1.5kHz (Narrow)	SSG Oscilloscope AF VTVM Distortion meter	ANT EXT. SP	PC key	Adjust to open the squelch.	Squelch open
3. Squelch open	1) CH: RX low (Wide) CH: RX center (Wide/Wide 4k/Narrow) CH: RX high (Wide) 2) SSG output : 12dB SINAD+2dB Mod: 1kHz Dev: ±3.0kHz (Wide) Dev: ±2.4kHz (Wide 4k) Dev: ±1.5kHz (Narrow)					
4. RSSI (-80dBm)	1) CH: RX low CH: RX center CH: RX high 2) SSG output : -80dBm (22.4μV) Dev: OFF					
5. RSSI (-120dBm)	1) CH: RX low CH: RX center CH: RX high 2) SSG output : -120dBm (0.22μV) Dev: OFF					

Transmitter Section (Note: The market code of the E3,X2 and E7 do not perform "Wide 4k" adjustment)

Item	Condition	Measurement		Adjustment		Specifications / Remarks
		Test equipment	Terminal	Parts	Method	
1. Frequency adjustment	1) CH: TX center 2) Transmit	Frequency counter	ANT	PC key	Adjust to center frequency.	Within ±100Hz
2. High transmit power	1) CH: TX low CH: TX low' CH: TX center CH: TX high' CH: TX high 2) Transmit	Power meter			25W	±1.0W
3. Low transmit power	1) CH: TX low CH: TX low' CH: TX center CH: TX high' CH: TX high 2) Transmit				5W	±1.0W

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications / Remarks
		Test equipment	Terminal	Parts	Method	
4. DQT balance	1) CH: TX low (Wide) CH: TX center (Wide/Wide 4k/Narrow) CH: TX high (Wide) 2) Transmit	Deviation meter (LPF: 3kHz) Oscilloscope	ANT	PC key	Adjust the waveform as shown to the right.	
5. Maximum deviation	1) CH: TX low (Wide) CH: TX center (Wide/Wide 4k/Narrow) CH: TX high (Wide) 2) AG: 1kHz/50mV 3) Transmit	Deviation meter (LPF: 15kHz) Oscilloscope AG AF VTVM	ANT MIC		±4.0kHz (Wide) ±3.2kHz (Wide 4k) ±2.0kHz (Narrow) According to the large +, -	±0.05kHz
6. MIC sensitivity	1) CH: TX center (Wide/Wide 4k/Narrow) 2) AG: 1kHz/5mV 3) Transmit				Check	±3kHz±0.2kHz (Wide) ±2.4kHz±0.2kHz (Wide 4k) ±1.5kHz±0.1kHz (Narrow)
7. DQT fine deviation	1) CH: TX center (Wide/Wide 4k/Narrow) 2) Transmit	Deviation meter (LPF: 3kHz) Oscilloscope		PC key	±0.75kHz (Wide) ±0.60kHz (Wide 4k) ±0.35kHz (Narrow)	±0.05kHz
8. QT fine deviation	1) CH: TX center (Wide/Wide 4k/Narrow) 2) Transmit				±0.75kHz (Wide) ±0.60kHz (Wide 4k) ±0.35kHz (Narrow)	±0.05kHz
9. DTMF fine /MSK deviation	1) CH: TX center (Wide/Wide 4k/Narrow) 2) Transmit	Deviation meter (LPF: 15kHz) Oscilloscope			±3.0kHz (Wide) ±2.4kHz (Wide 4k) ±1.5kHz (Narrow)	±0.2kHz
10. Single tone deviation	1) CH: TX center (Wide/Wide 4k/Narrow) 2) Transmit					

If normal power is not obtained, please follow the step below

Open the shielding cover (upper), and screw 3 locations around ANT pin.

1. Switch off the transceiver. (CAUTION)

Impedance of Power module (IC502) can be measured easily using DVM Ω mode.

Normal condition

Input : 20k Ω ~50k Ω , Output : 1M Ω ~2M Ω

The above impedance values are rough estimations.

2. Switch on the transceiver.

Check input power level at Drive FET (Q502) gate location.

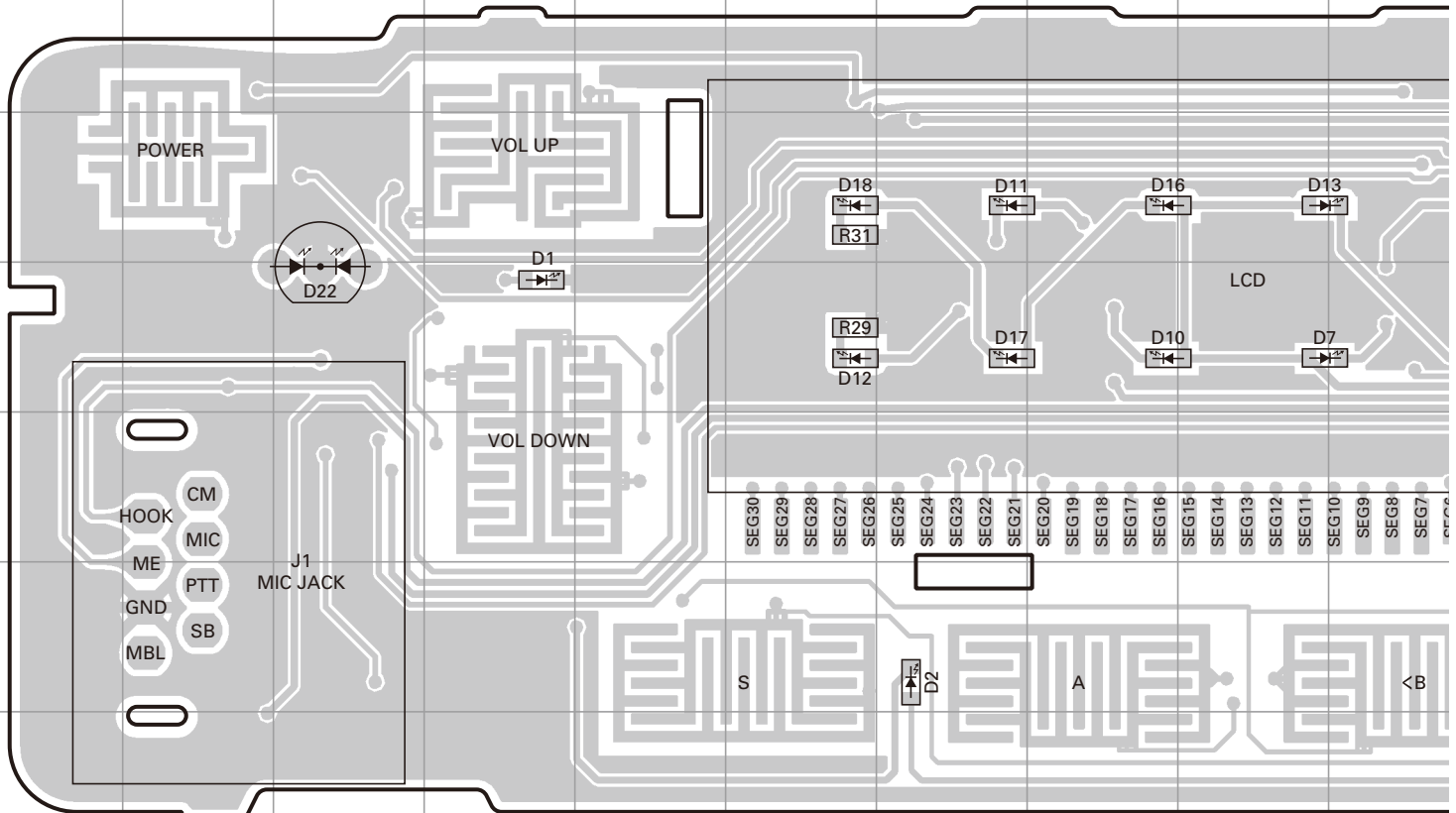
Connect the wire to [RF] location.

Transmit and check for power to be within the range of 0.3W~0.6W.

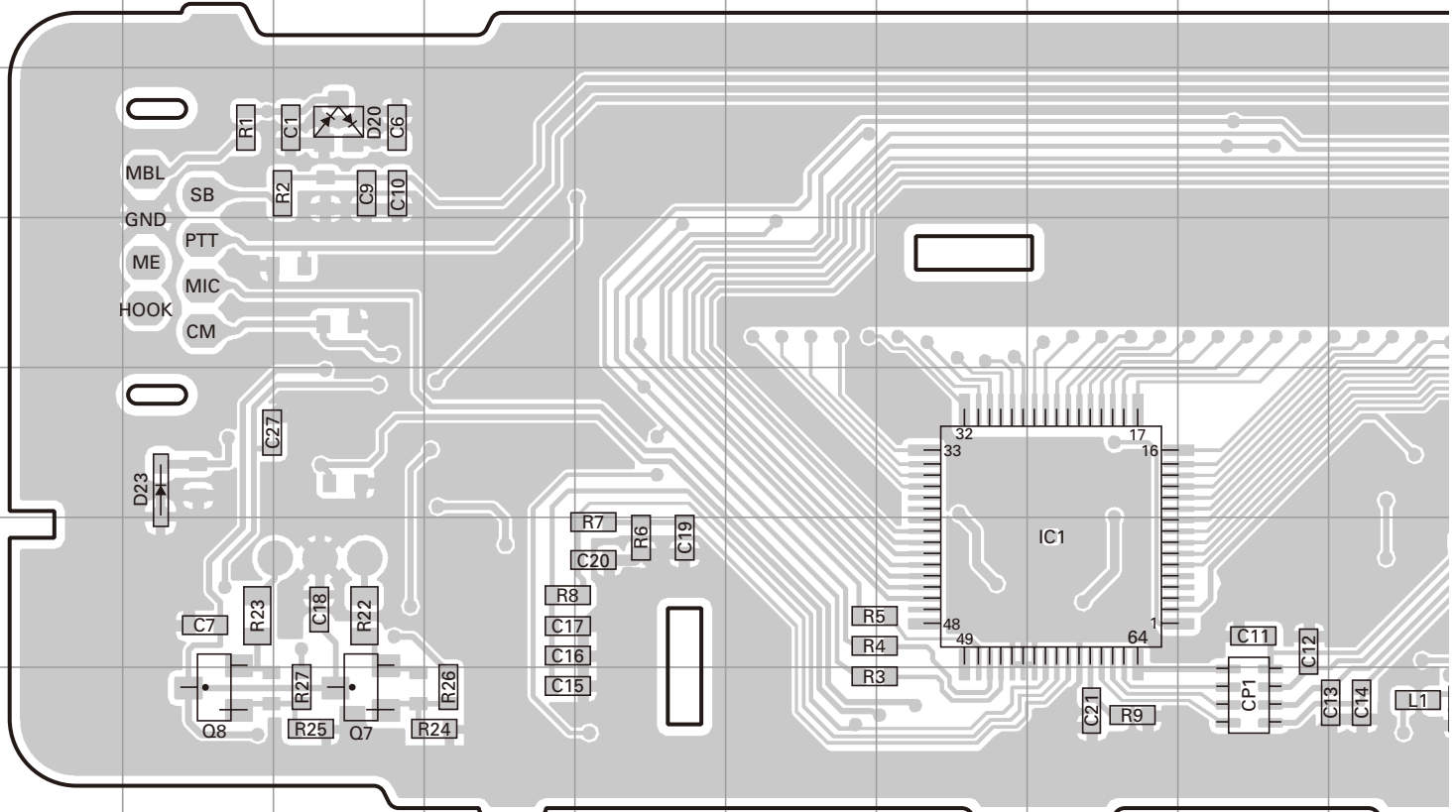
If power found is less than 0.3W, check the circuit before the Drive FET.

TK-8160/8162 PC BOARD

DISPLAY UNIT (X54-3510-10): TK-8160
Component side view (J79-0213-09)

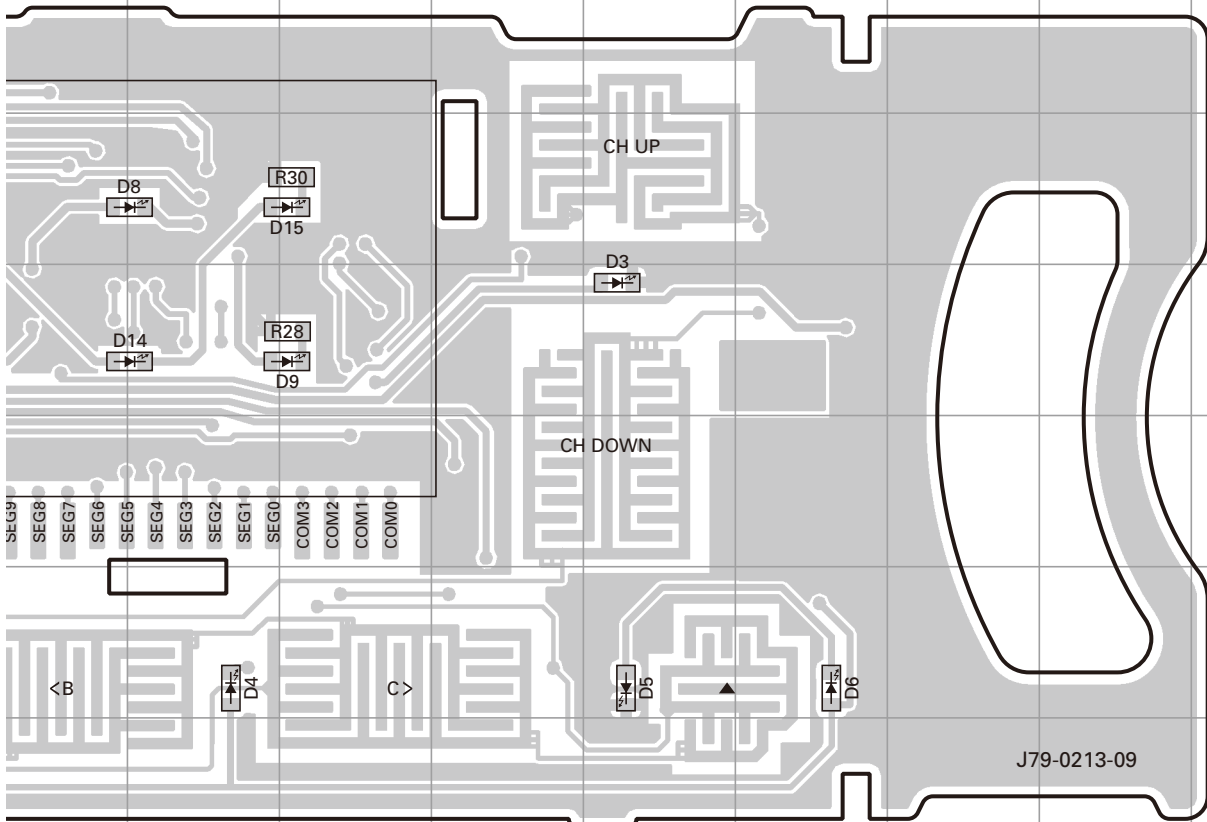


DISPLAY UNIT (X54-3510-10): TK-8160
Foil side view (J79-0213-09)

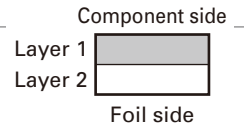


PC BOARD TK-8160/8162

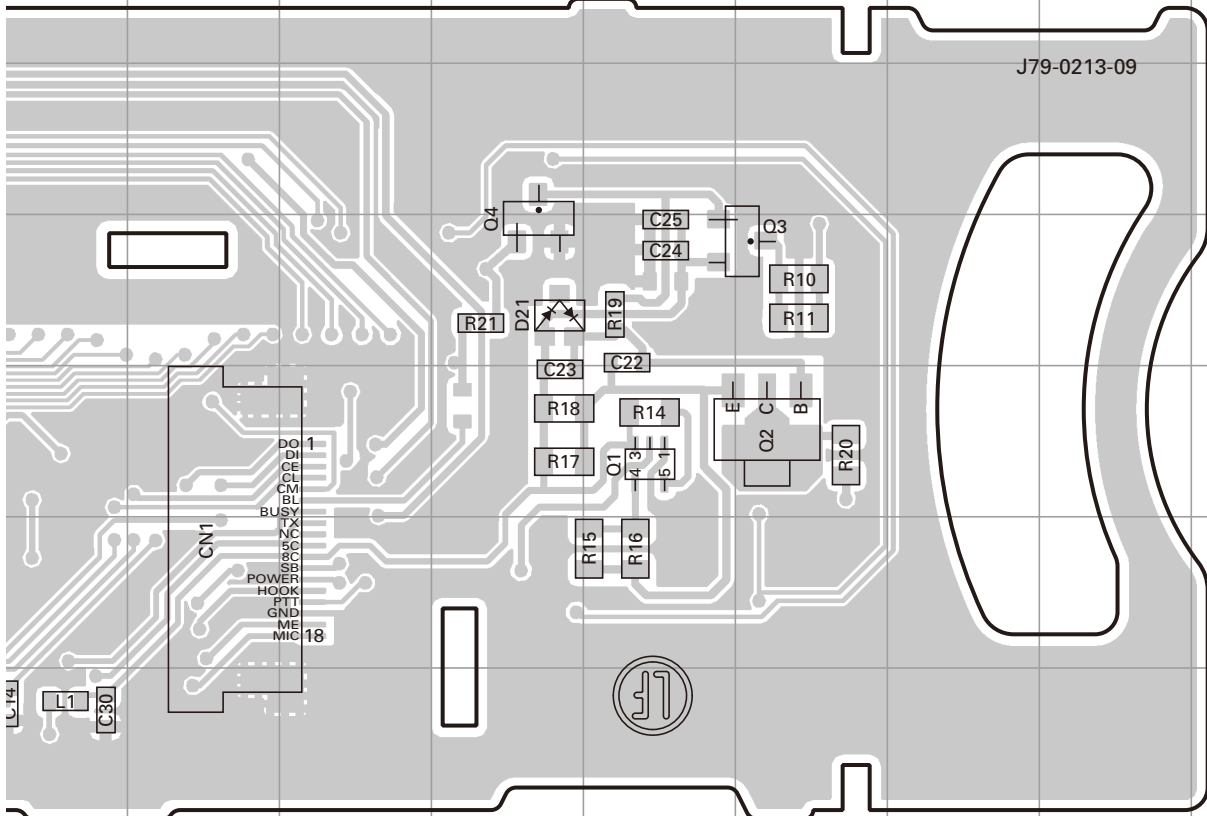
DISPLAY UNIT (X54-3510-10): TK-8160
Component side view (J79-0213-09)



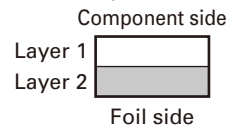
Ref. No.	Address
D1	4D
D2	6G
D3	4N
D4	6K
D5	6N
D6	6O
D7	4I
D8	3K
D9	4L
D10	4H
D11	3G
D12	4F
D13	3I
D14	4K
D15	3L
D16	3H
D17	4G
D18	3F
D22	4C



DISPLAY UNIT (X54-3510-10): TK-8160
Foil side view (J79-0213-09)



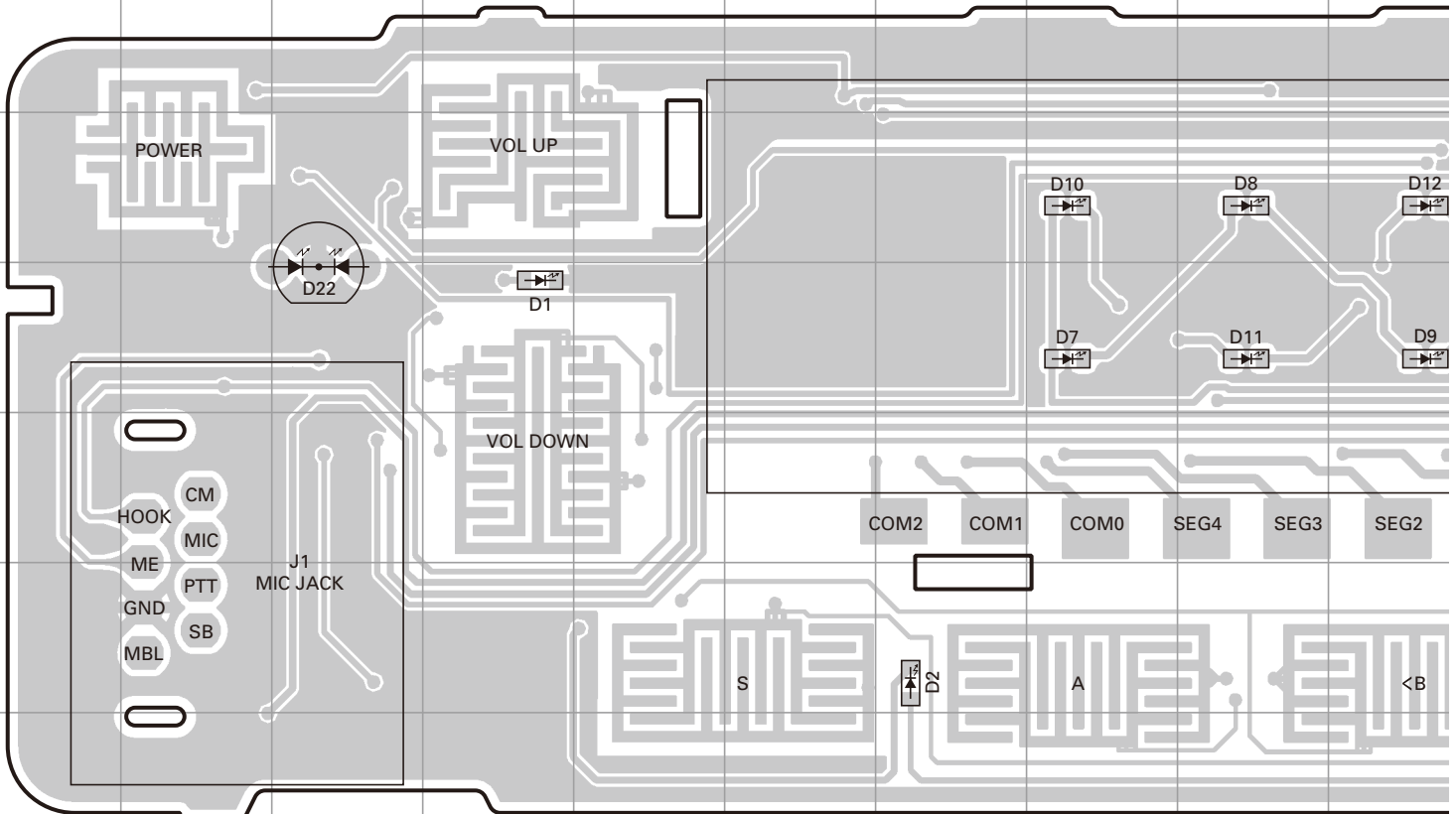
Ref. No.	Address
IC1	12H
Q1	11N
Q2	11O
Q3	10O
Q4	10M
Q7	13C
Q8	13B
D20	9C
D21	10M
D23	11B



TK-8160/8162 PC BOARD

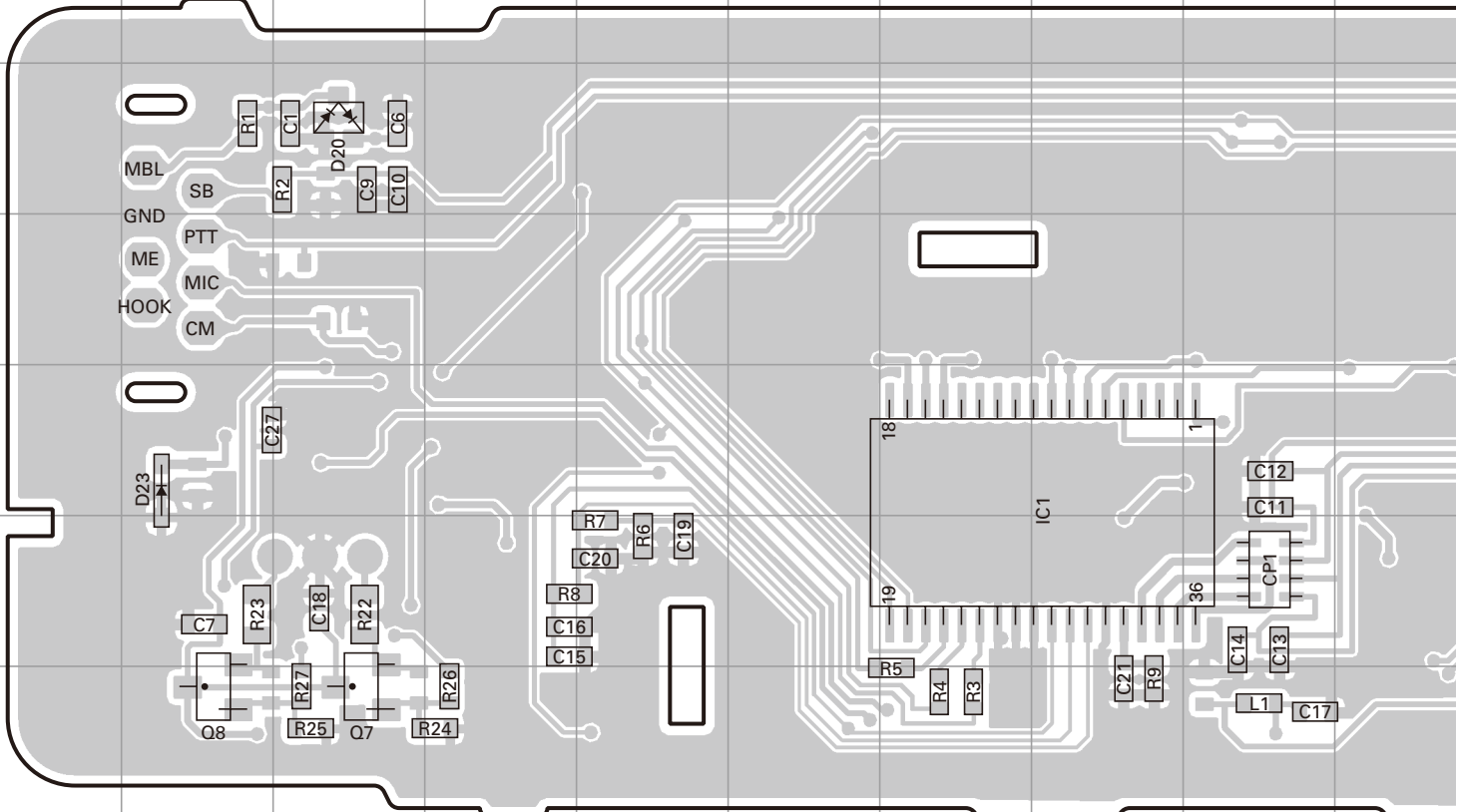
DISPLAY UNIT (X54-3522-70): TK-8162

Component side view (J79-0214-09)



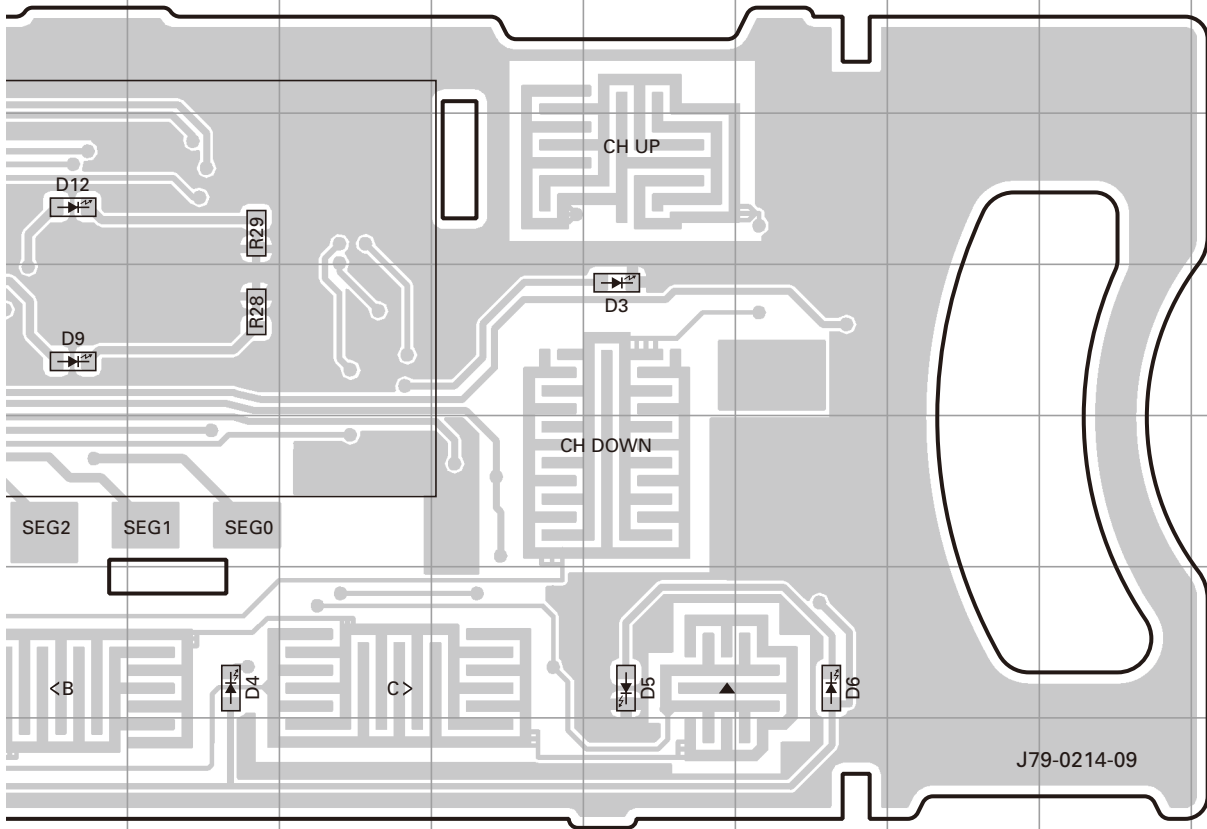
DISPLAY UNIT (X54-3522-70): TK-8162

Foil side view (J79-0214-09)

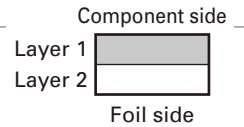


PC BOARD TK-8160/8162

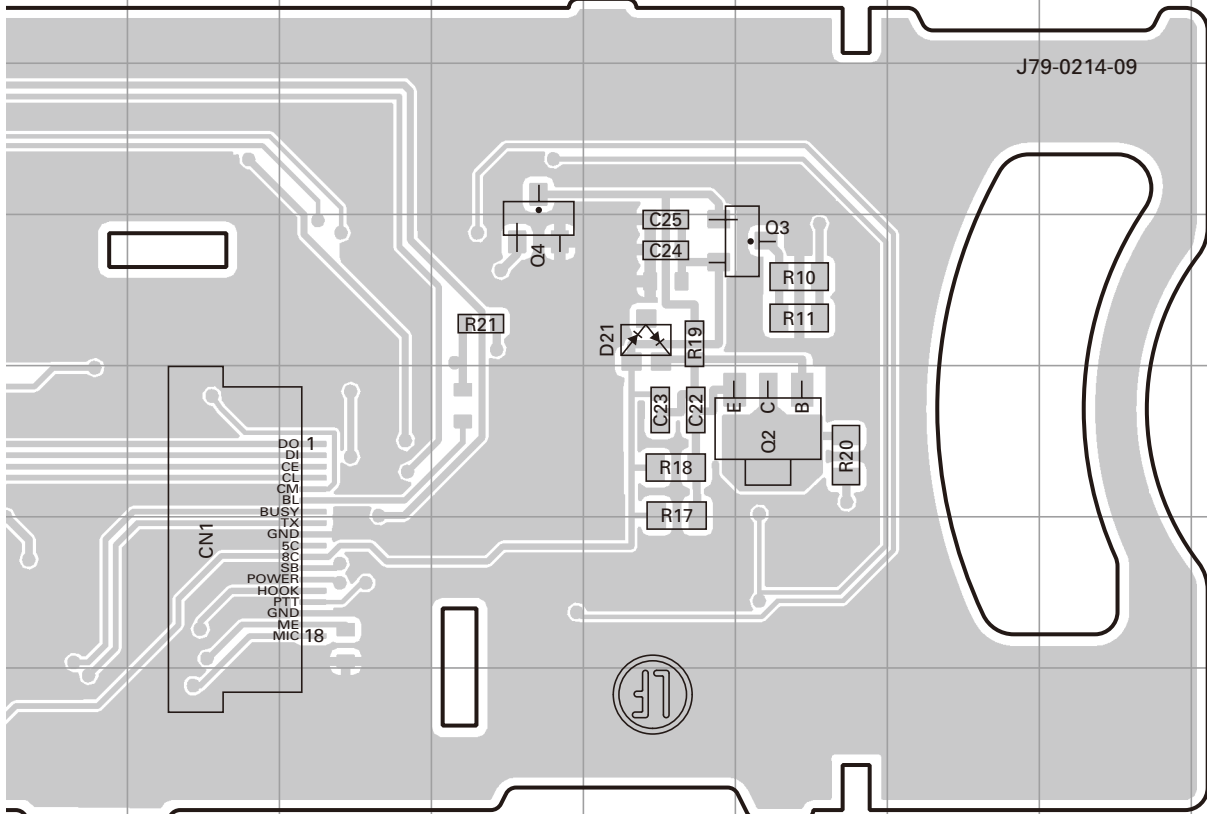
DISPLAY UNIT (X54-3522-70): TK-8162
Component side view (J79-0214-09)



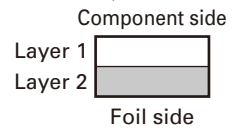
Ref. No.	Address
D1	4D
D2	6G
D3	4N
D4	6K
D5	6N
D6	6O
D7	4I
D8	3K
D9	4L
D10	4H
D11	3G
D12	4F
D22	4C



DISPLAY UNIT (X54-3522-70): TK-8162
Foil side view (J79-0214-09)



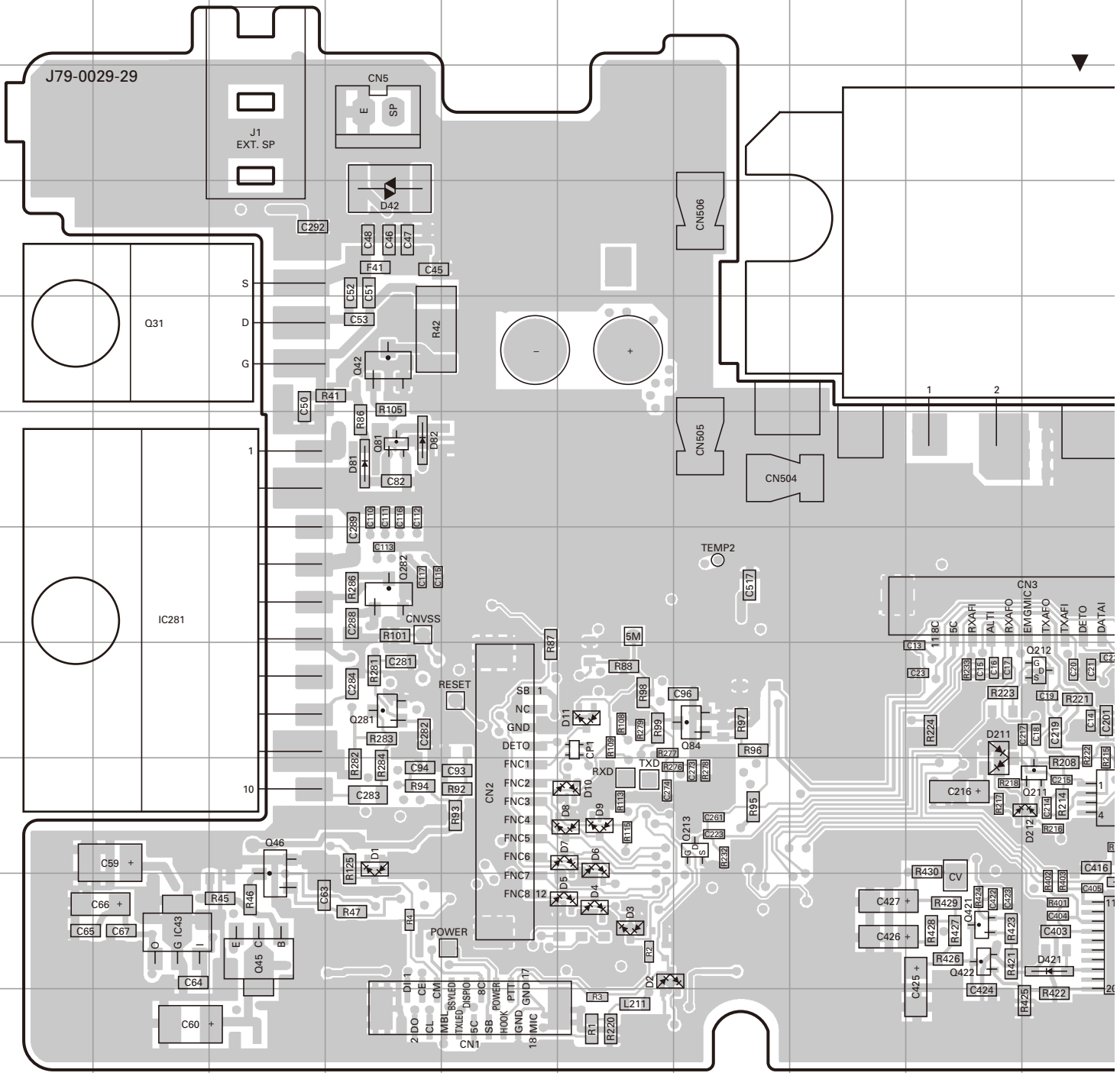
Ref. No.	Address
IC1	12H
O2	11O
O3	10O
Q4	10M
Q7	13C
Q8	13B
D20	9C
D21	10M
D23	11B



TK-8160/8162 PC BOARD

TX-RX UNIT (X57-711X-XX) Component side view (J79-0029-29)

2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7

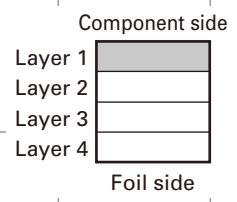
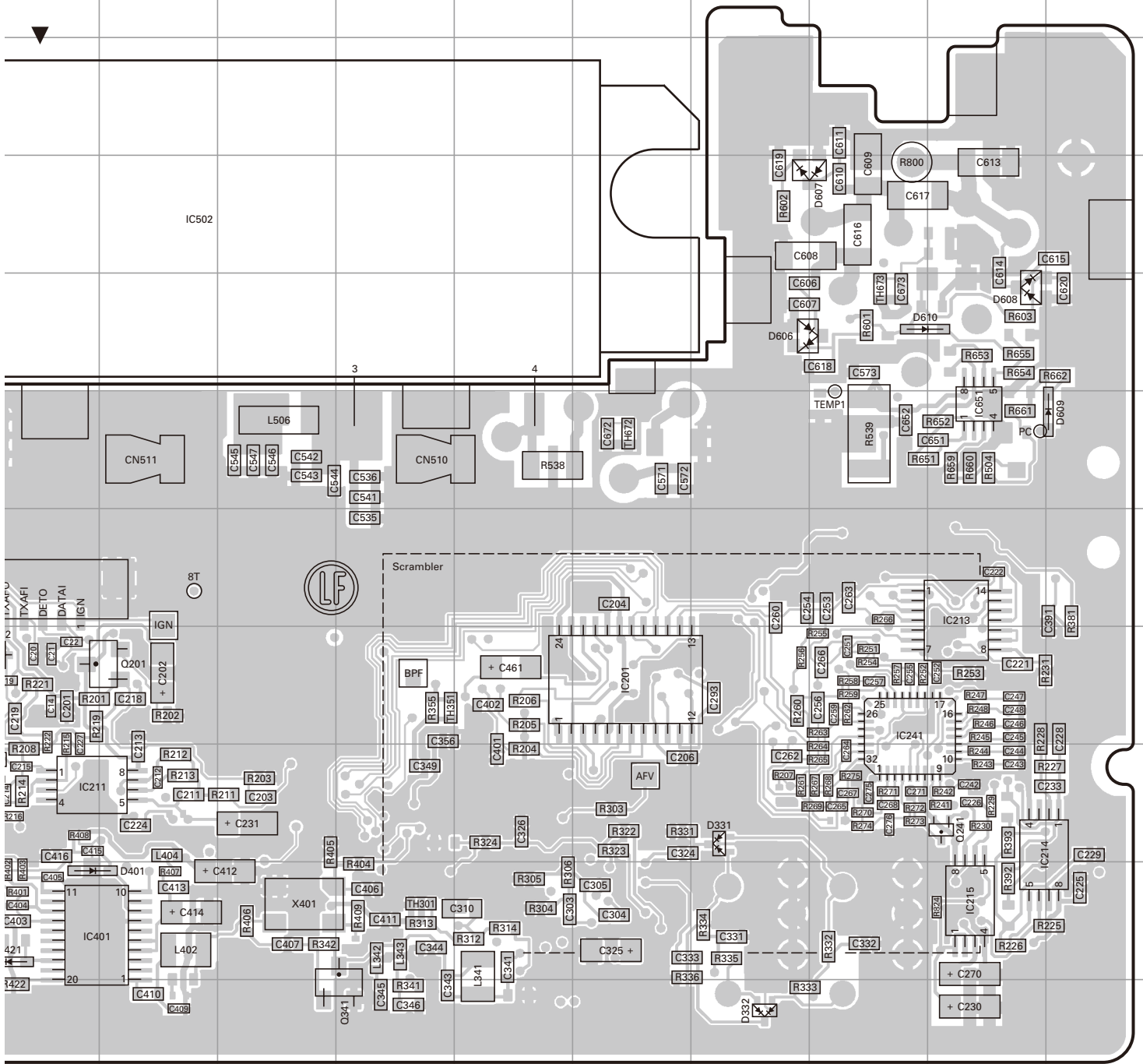


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC43	10B	IC502	4K	Q211	9J	D1	9D	D10	9F	D401	10J
IC201	8O	IC651	6R	Q212	8J	D2	10F	D11	8F	D421	10J
IC211	9J	Q31	5B	Q213	9G	D3	10F	D42	4D	D606	5P
IC213	7R	Q42	5D	Q241	9R	D4	10F	D81	6D	D607	4Q
IC214	9R	Q45	10C	Q281	8D	D5	10F	D82	6D	D608	5R
IC215	10R	Q46	9C	Q282	7D	D6	9F	D211	8I	D609	6S
IC241	8Q	Q81	6D	Q341	11M	D7	9F	D212	9J	D610	5Q
IC281	7B	Q84	8G	Q421	10I	D8	9F	D331	9P		
IC401	10J	Q201	8K	Q422	10I	D9	9F	D332	11P		

PC BOARD TK-8160/8162

TX-RX UNIT (X57-711X-XX) Component side view (J79-0029-29)

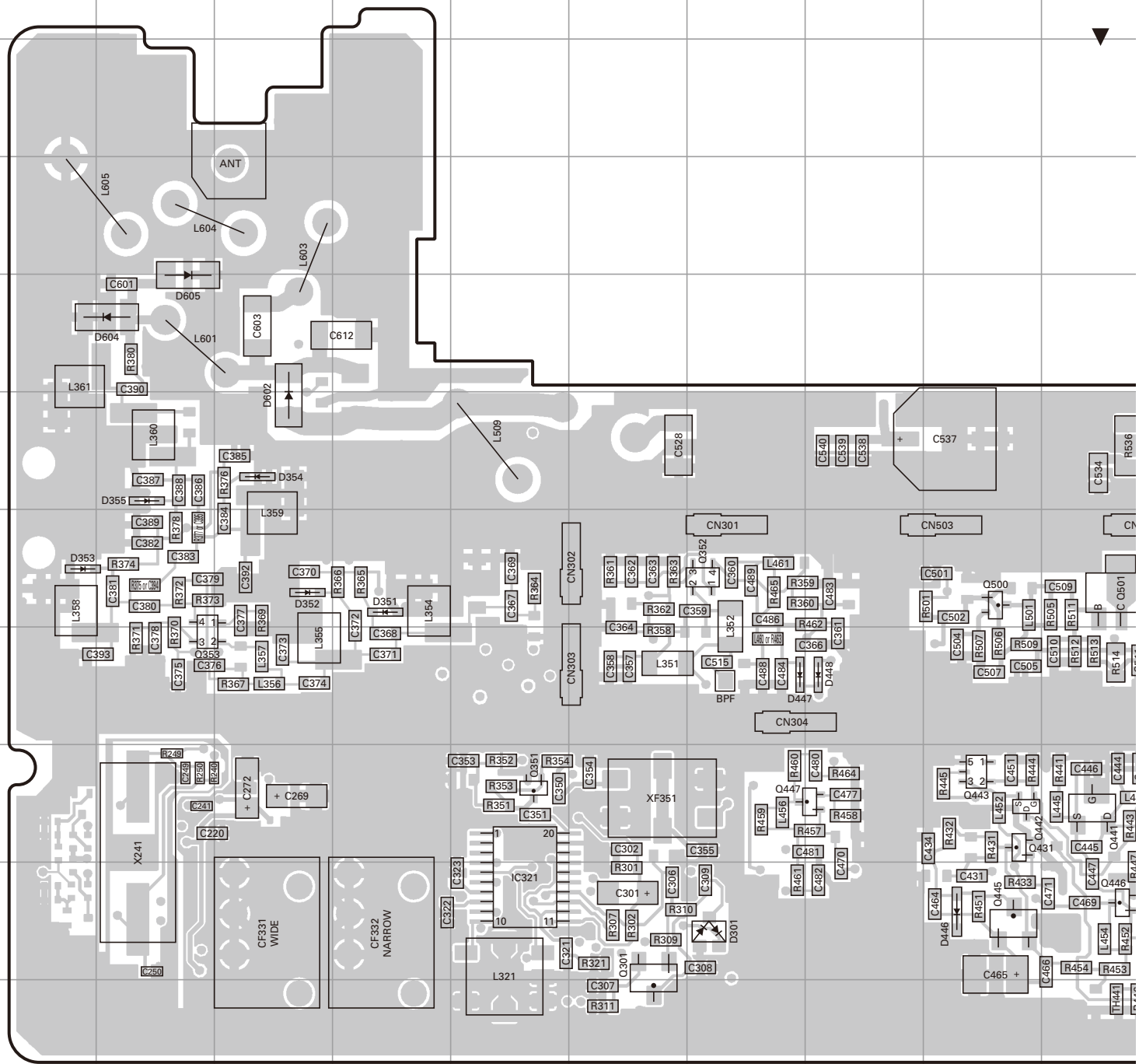
2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7



TK-8160/8162 PC BOARD

TX-RX UNIT (X57-711X-XX) Foil side view (J79-0029-29)

2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7

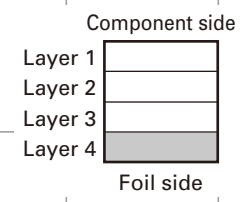
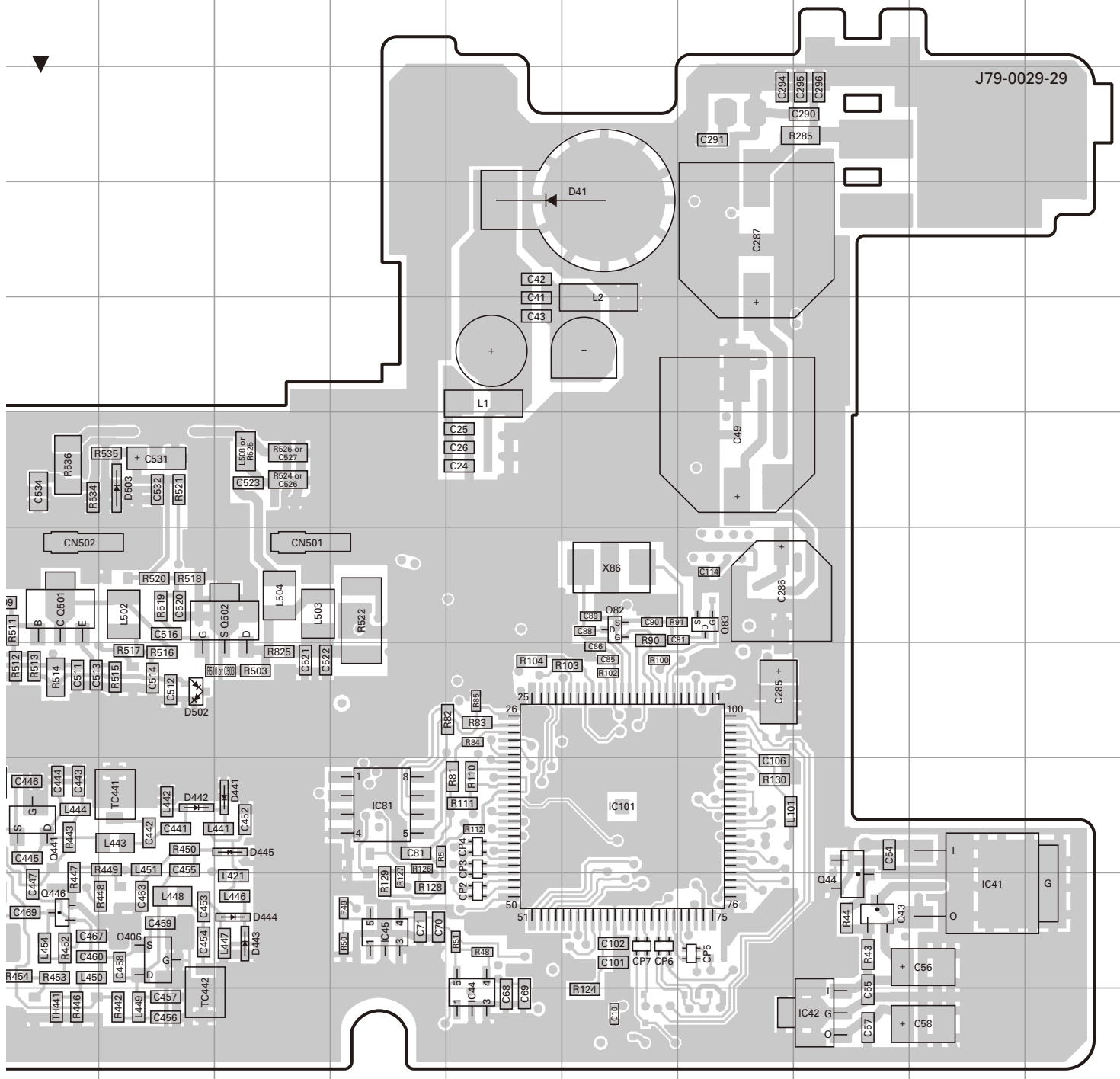


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC41	10R	Q44	10Q	Q431	9I	Q501	7J	D355	6B	D448	8H
IC42	11Q	Q82	7O	Q441	9J	Q502	7L	D441	9L	D502	8K
IC44	11N	Q83	7P	Q442	9I	D41	4O	D442	9K	D503	6K
IC45	10M	Q301	10F	Q443	9I	D301	10G	D443	10L	D602	6C
IC81	9M	Q351	9E	Q445	10I	D351	7D	D444	10L	D604	5B
IC101	9O	Q352	7G	Q446	10J	D352	7C	D445	9L	D605	5B
IC321	10E	Q353	8B	Q447	9H	D353	7A	D446	10I		
Q43	10Q	Q406	10K	Q500	7I	D354	6C	D447	8G		

PC BOARD TK-8160/8162

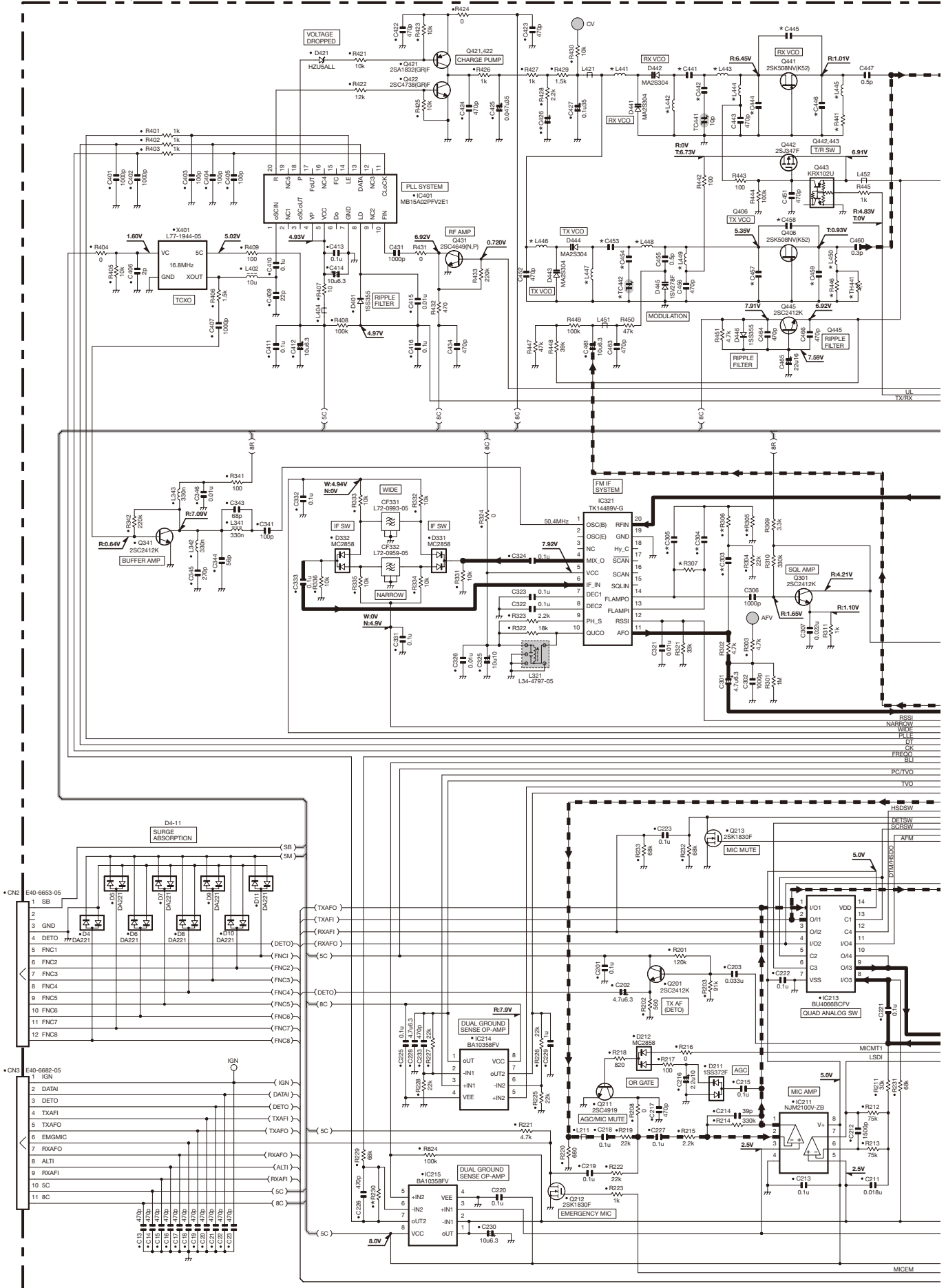
TX-RX UNIT (X57-711X-XX) Foil side view (J79-0029-29)

2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7



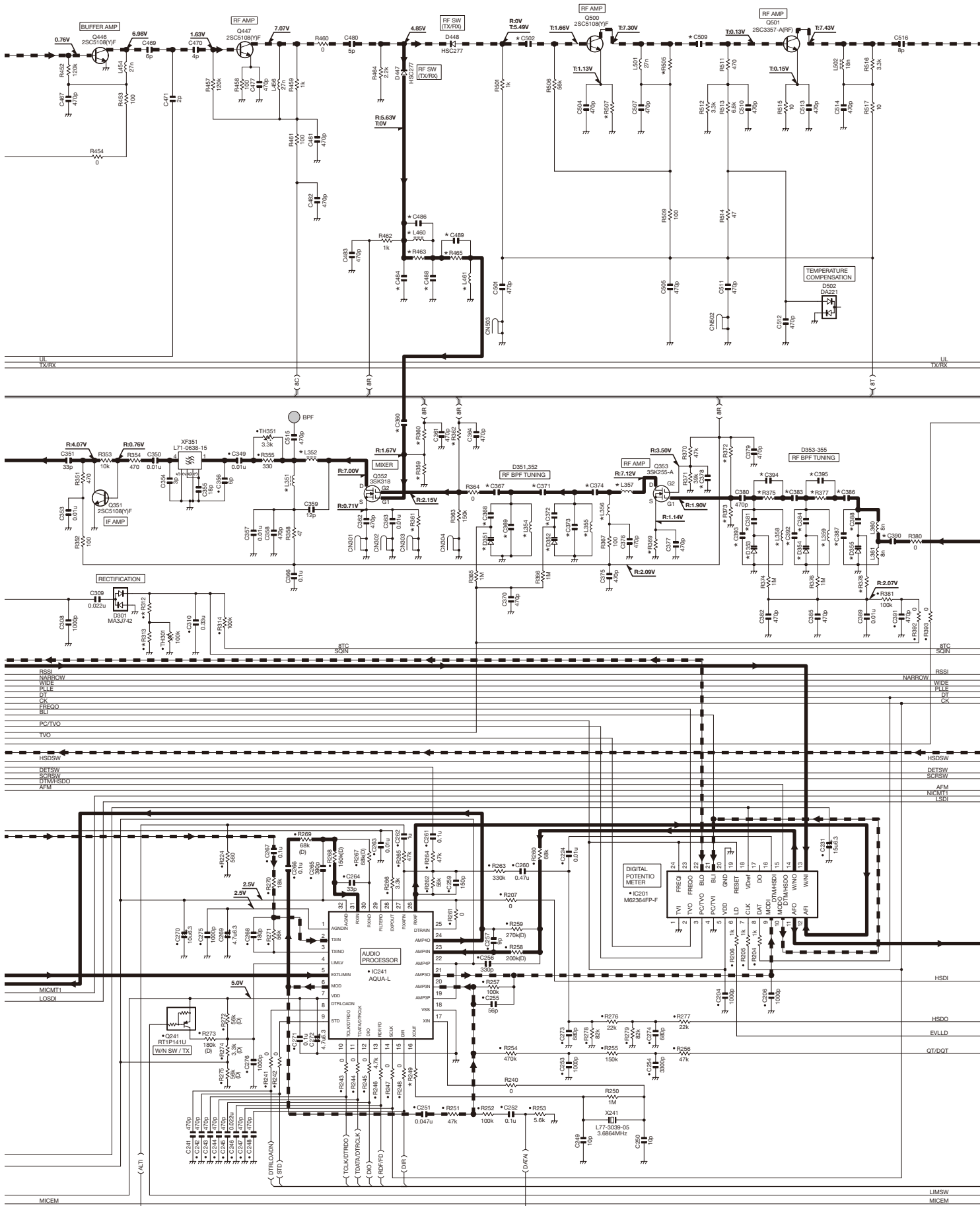
TK-8160/8162 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-711X-XX)



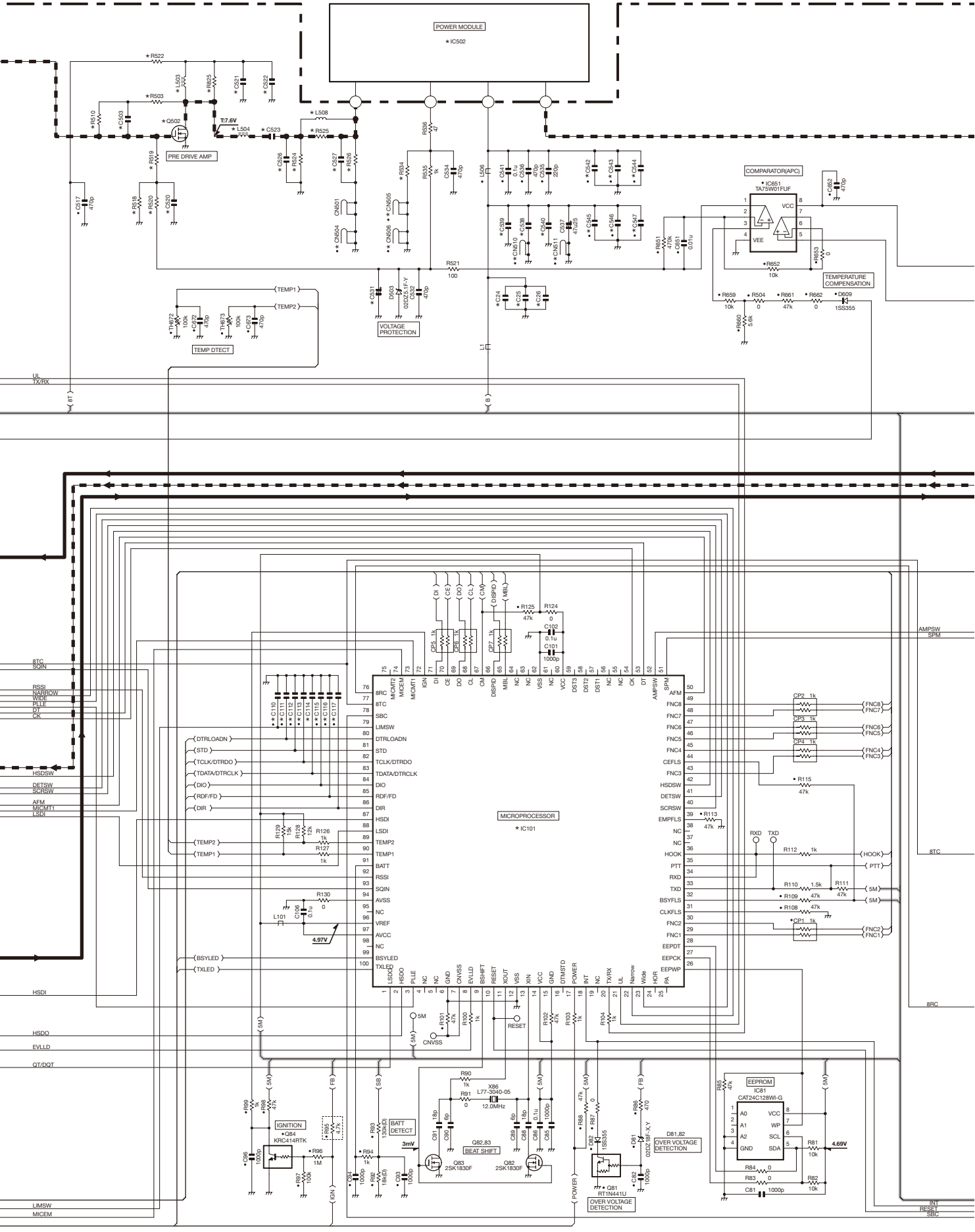
SCHEMATIC DIAGRAM TK-8160/8162

TX-RX UNIT (X57-711-XX)



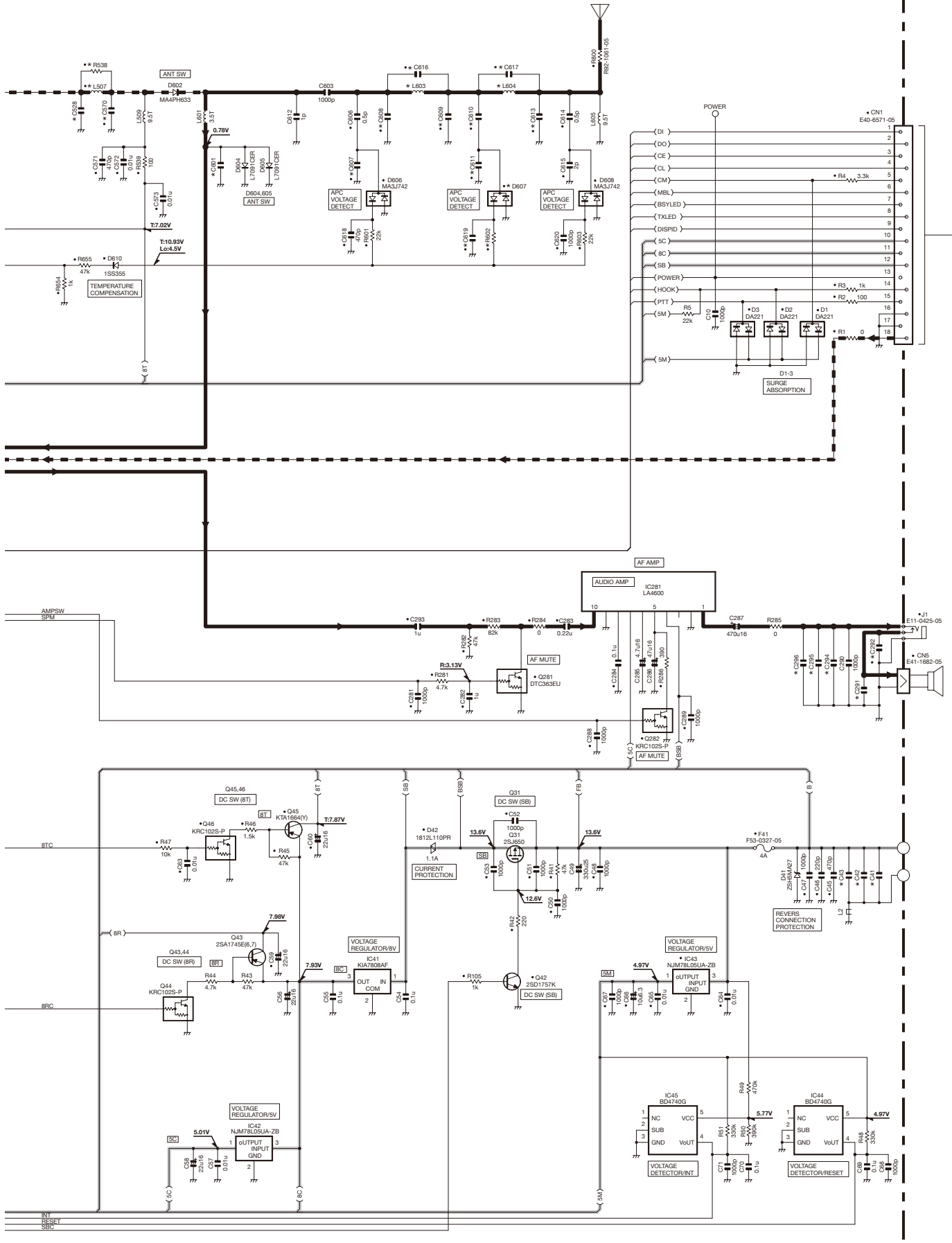
TK-8160/8162 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-711X-XX)



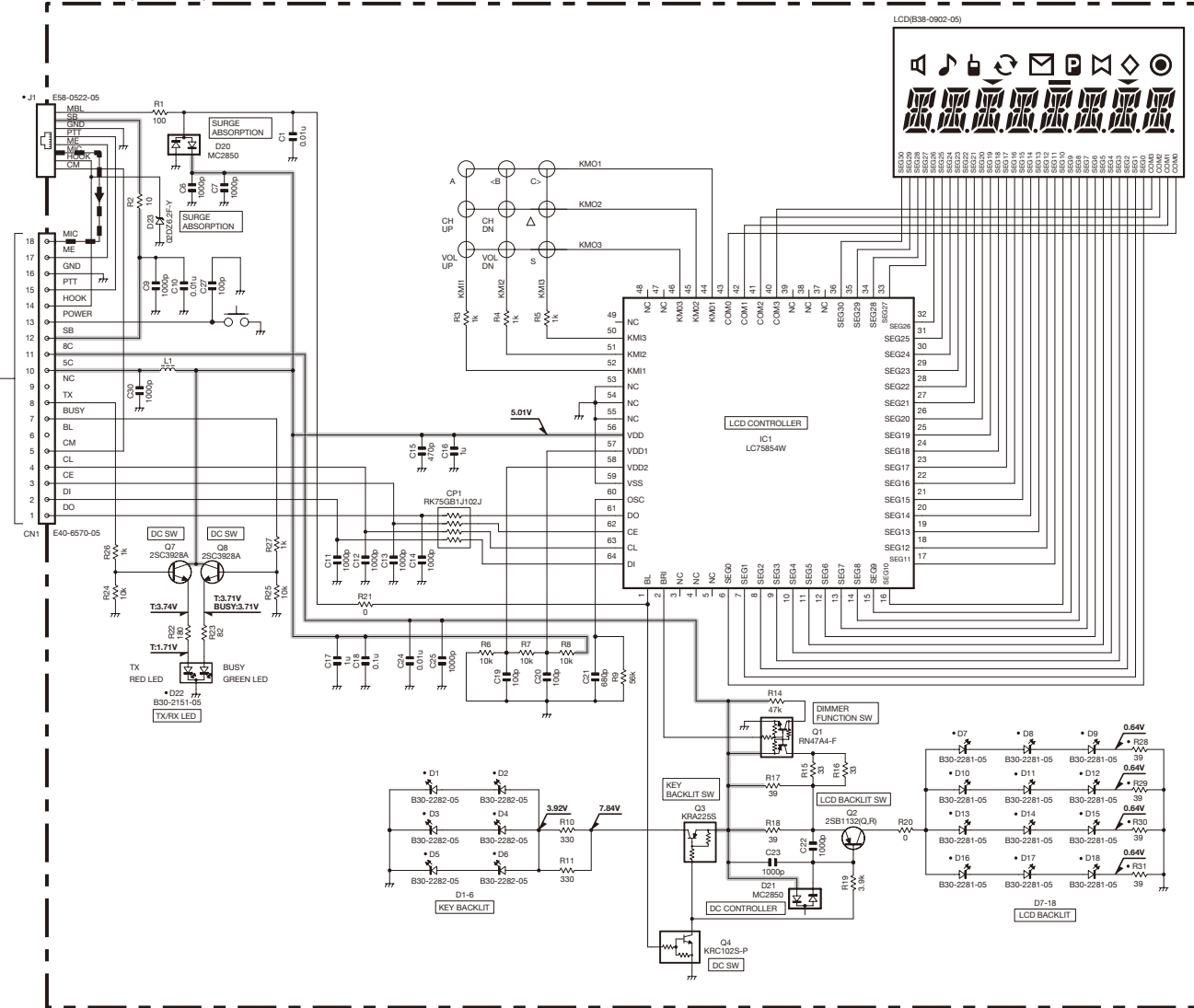
SCHEMATIC DIAGRAM TK-8160/8162

TX-RX UNIT (X57-711X-XX)



TK-8160/8162 SCHEMATIC DIAGRAM

DISPLAY UNIT (X54-3510-10): TK-8160



TX-RX UNIT (X57-711X-XX)

	C24	C25	C26	C41	C42	C43	C110	C111	C112	C113	C114	C115	C116	C117	C291	C292	C294	C295	C296	C303	C304	C305	C360	C367	C368	C369	C371	C372	C373	C374	C378
2-70	E	440-470MHz	220p	100p	22p	NO	NO	NO	470p	470p	470p	470p	470p	470p	22p	22p	100p	47p	22p	470p	330p	390p	470p	470p	10p	1p	0.75p	15p	8p	7p	470p
2-71	E3	400-430MHz	220p	100p	22p	NO	NO	NO	0.01u	0.01u	0.01u	0.01u	0.01u	0.01u	22p	22p	100p	47p	22p	1000p	120p	120p	9p	470p	6p	0.75p	0.5p	15p	8p	7p	470p
0-71	X2	470-512MHz	NO	NO	NO	220p	470p	1000p	220p	NO	0.01u	0.01u	0.01u	0.01u	NO	NO	NO	NO	NO	470p	220p	220p	8p	47p	9p	5p	0.5p	10p	5p	7p	470p
2-72	E7	380-400MHz	220p	100p	22p	NO	NO	NO	0.01u	0.01u	0.01u	0.01u	0.01u	0.01u	22p	22p	100p	47p	22p	1000p	120p	120p	9p	470p	6p	2p	0.5p	15p	8p	7p	470p

	C381	C383	C384	C386	C387	C388	C390	C392	C393	C394	C395	C426	C441	C442	C444	C445	C446	C453	C454	C457	C458	C459	C484	C486	C488	C489	C502	C503	C509	C520	C521	
2-70	E	440-470MHz	6p	0.75p	8p	1p	0.5p	3p	8p	4.5p	NO	0.75p	15p	12p	3p	4p	5p	7p	6p	1.5p	5p	5p	9p	5p	5p	2p	2p	NO	NO	NO	NO	NO
2-71	E3	400-430MHz	8p	0.75p	8p	0.75p	0.5p	4p	10p	4p	3p	2.5p	3p	0.68u/20	8p	7p	2p	2p	3p	5p	6p	2p	2p	3p	6p	2.5p	10p	NO	NO	NO	NO	NO
0-71	X2	470-512MHz	8p	0.5p	8p	0.5p	0.5p	5p	5p	7p	NO	5p	7p	NO	5p	3p	1.5p	2p	3p	3p	1.5p	2p	3p	NO	NO	NO	NO	NO	NO	680p	5p	470p
2-72	E7	380-400MHz	8p	0.75p	6p	0.5p	2p	4.5p	5p	5p	4p	2.5p	NO	0.68u/20	6p	7p	2p	2p	3p	4p	6p	2p	2p	3p	6p	2.5p	10p	NO	NO	5p	NO	NO

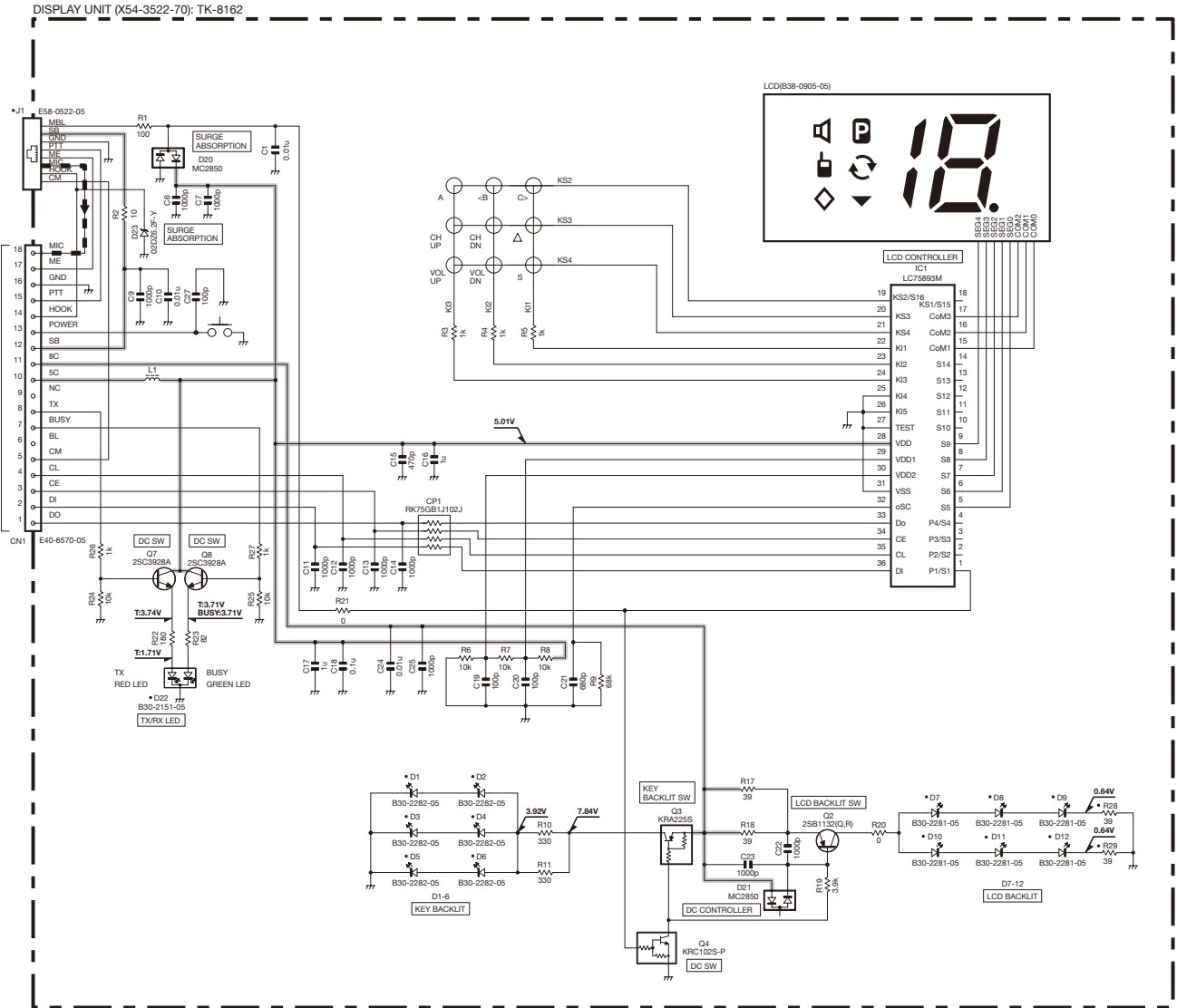
	C522	C523	C526	C527	C528	C531	C538	C539	C540	C542	C543	C544	C545	C546	C547	C570	C601	C607	C608	C609	C610	C611	C613	C618	C617	C619	L351	L352	L354	L355	L356		
2-70	E	440-470MHz	NO	68p	9p	9p	NO	47u/6.3	1000p	220p	1000p	100p	47p	22p	100p	47p	22p	NO	NO	1.5p	5p	7p	0.5p	2p	3p	1.5p	1p	470p	470p	8n	8n	18n	
2-71	E3	400-430MHz	NO	47p	12p	12p	NO	47u/6.3	1000p	220p	1000p	NO	47p	22p	100p	47p	22p	NO	NO	5p	2p	2p	7p	0.5p	2p	6p	1p	2p	470p	470p	12.5n	12.5n	22n
0-71	X2	470-512MHz	0.1u	47p	NO	NO	2p	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1p	2p	1p	4p	NO	NO	1p	1p	2p	NO	330n	330n	5n	12.5n	18n
2-72	E7	380-400MHz	NO	47p	12p	12p	1p	47u/6.3	1000p	220p	1000p	100p	47p	22p	100p	47p	22p	3p	NO	2p	2p	7p	0.5p	2p	6p	1p	2p	470p	470p	12.5n	12.5n	22n	

	L357	L358	L359	L441	L442	L443	L444	L445	L446	L447	L448	L449	L450	L460	L461	L503	L504	L507	L508	L603	L604	R230	R249	R305	R306	R307	R312	R313	
2-70	E	440-470MHz	39n	12.5n	8n	4.7u	4.7u	4.7u	4.7u	4.7u	4.7u	4.7u	18n	27n	27n	3p	4p	5p	10n	L34-4757-05	L34-4757-05	33k	5.6k	1.8k	8.2k	270k	33k	47k	
2-71	E3	400-430MHz	39n	12.5n	12.5n	270n	270n	56n	270n	270n	270n	47n	180n	270n	18n	NO	NO	NO	10n	L34-4754-05	L34-4754-05	39k	1k	18k	12k	220k	33k	47k	
0-71	X2	470-512MHz	39n	5n	8n	270n	270n	39n	180n	270n	270n	33n	180n	270n	NO	NO	3.3n	3.3n	NO	NO	L34-4754-05	L34-4754-05	39k	1k	1.8k	4.7k	270k	27k	150k
2-72	E7	380-400MHz	33n	12.5n	12.5n	270n	270n	68n	270n	270n	270n	56n	180n	270n	18n	NO	NO	3.3n	L34-1039-05	10n	L34-4754-05	L34-4754-05	39k	1k	1.8k	12k	220k	33k	47k

	R399	R360	R361	R362	R369	R372	R373	R375	R377	R378	R441	R446	R463	R465	R503	R505	R507	R510	R518	R519	R520	R522	R524	R525	R526	R534	R538	R602	R825	TC442	TH401		
2-70	E	440-470MHz	220k	820k	180	390k	82	68k	36k	NO	0	1M	220	180	NO	0	0	1.5k	100	0	NO	NO	NO	NO	NO	NO	8.2	0	22k	NO	10p	10k	
2-71	E3	400-430MHz	9.1k	39k	22	470k	82	47k	22k	NO	NO	1M	330	270	NO	0	0	1.5k	180	0	NO	NO	NO	NO	NO	NO	8.2	0	22k	NO	NO	6p	NO
0-71	X2	470-512MHz	180k	390k	150	470k	150	68k	15k	0	0	1M	270	220	0	0	100	1.5k	180	NO	22k	22	8.2k	0	820	5.6	820	15k	0	22k	10p	NO	NO
2-72	E7	380-400MHz	9.1k	39k	22	470k	270	68k	33k	NO	0	100k	330	270	NO	0	0	1k	180	0	NO	NO	NO	NO	NO	NO	8.2	NO	22k	NO	NO	6p	NO

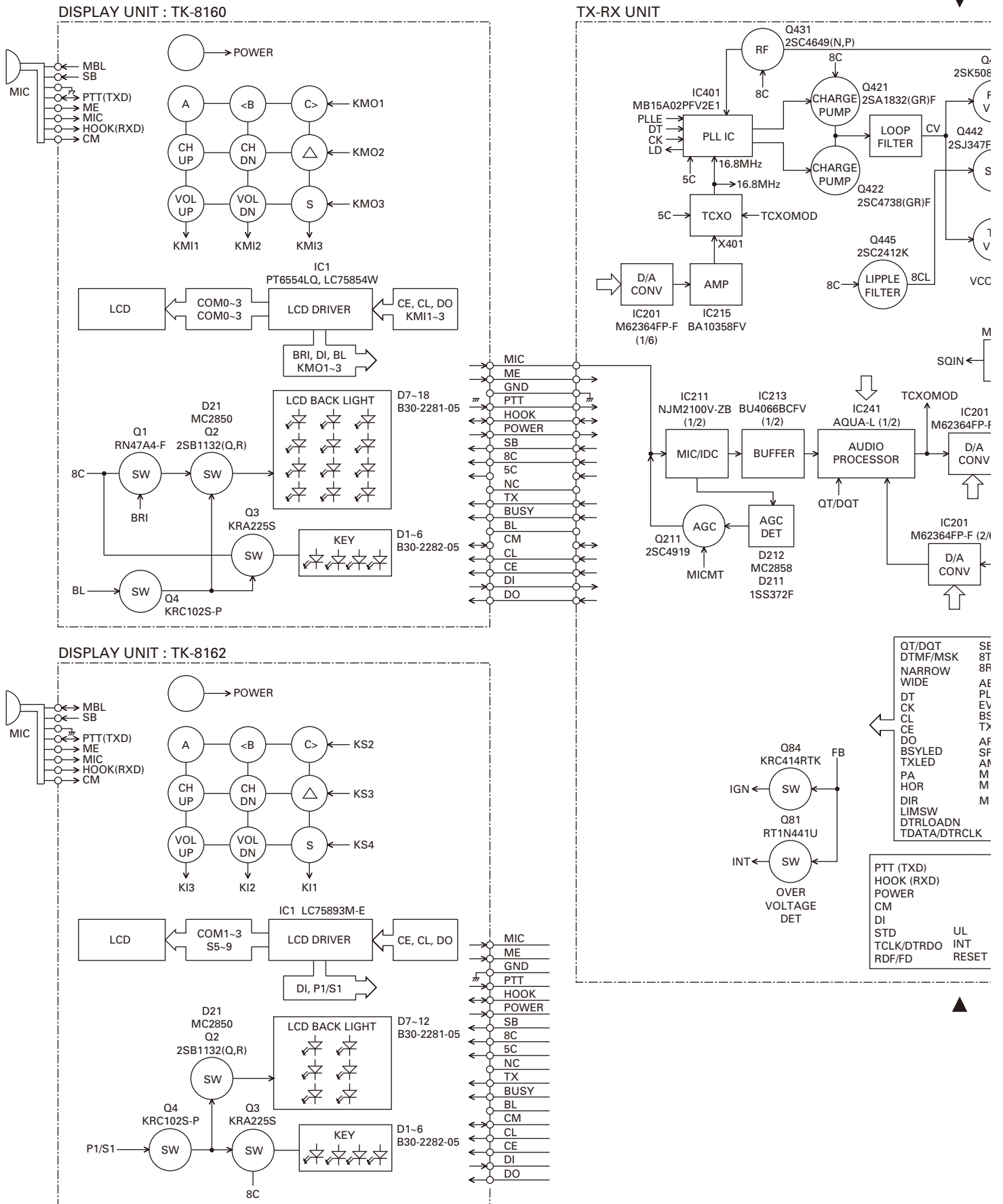
	CN504	CN505	CN506	CN510	CN511	IC101	IC502	Q502	D351	D352	D353	D354	D355	D607
2-70	E	440-470MHz	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	30622MEP416GU	RA30H4452M131	NO	HVC350B	HVC350B	HVC350B	HVC350B
2-71	E3	400-430MHz	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	30622MEP416GU	RA30H44047M131	NO	HVC350B	HVC350B	HVC355B	HVC350B
0-71	X2	470-512MHz	NO	NO	NO	NO	NO	30622MEP416GU	RA30H4452M131	RD00HV51-T113	NO	HVC376B	HVC355B	HVC376B
2-72	E7	380-400MHz	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	E23-1262-05	30622MEP450GU	RA30H3340M131	NO	HVC350B	HVC350B	HVC355B	HVC350B

SCHEMATIC DIAGRAM TK-8160/8162

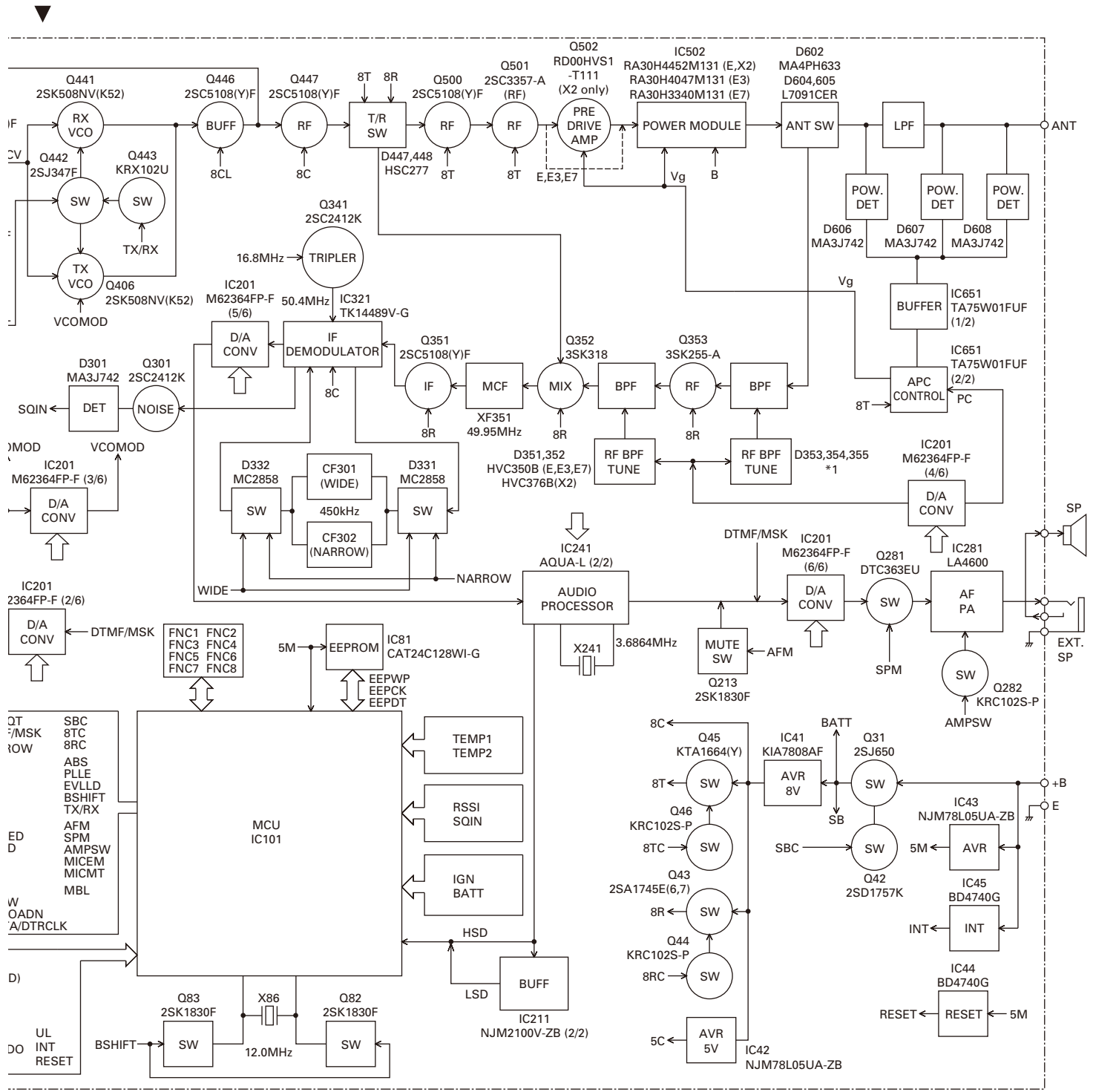


Note : The components marked with a dot (•) are parts of layer 1.

BLOCK DIAGRAM



BLOCK DIAGRAM



- *1
D353 HVC350B (E)
D354 HVC350B (E,E3,E7)
D355 HVC350B (E,E3,E7)
- D353 HVC350B (E)
D354 HVC350B (E,E3,E7)
D355 HVC350B (E,E3,E7)
- D353 HVC350B (E)
D354 HVC350B (E,E3,E7)
D355 HVC350B (E,E3,E7)

TK-8160/8162

SPECIFICATIONS (E,E3,X2 TYPE)

GENERAL

Frequency range.....	E: 440~470MHz	E3: 400~430MHz	X2: 470~512MHz
Number of channels			
TK-8160 (E,E3,X2)	Max. 128 ch's Total per Radio		
	Zone: Max. 128 per Radio		
	Channel: Max. 128 per Zone		
TK-8162 (E,E3)	Max. 16 channels		
Channel spacing	Wide 5k: 25kHz	*Wide 4k: 20kHz	Narrow: 12.5kHz
Operating voltage	13.6 V DC \pm 15%		
Current drain			
Standby	0.4A		
Receive	1.0A		
Transmit	8.0A		
Operating temperature range	$-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$		
Frequency stability.....	$\pm 2.5\text{ppm}$ ($-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$)		
Antenna impedance.....	50 Ω		
Channel frequency spread.....	E,E3: 30MHz	X2: 42MHz	
Dimensions (W x H x D Projections not included).....	160 x 43 x 107 mm		
Weight (net).....	1.0kg		

RECEIVER (Measurements made per EN standard)

Sensitivity			
EIA 12dB SINAD	Wide 5k: 0.28 μV	* Wide 4k: 0.28 μV	Narrow: 0.35 μV
EN 20dB SINAD	Wide 5k: $-3\text{dB}\mu\text{V}$	* Wide 4k: $-3\text{dB}\mu\text{V}$	Narrow: $-2\text{dB}\mu\text{V}$
Adjacent channel selectivity			
E,E3.....	Wide 5k: 70dB	* Wide 4k: 70dB	Narrow: 60dB
X2.....	Wide: 73dB	Narrow: 65dB	
Intermodulation	E,E3: 65dB	X2: 70dB	
Spurious response rejection	70dB		
Audio output (4 Ω impedance).....	4W with less than 5% distortion		

TRANSMITTER (Measurements made per EN standard)

RF output power.....	E,E3: 5~25W	X2: 5W/25W	
Modulation limiting	Wide 5k: $\pm 5.0\text{kHz}$ at 25kHz		
	* Wide 4k: $\pm 4.0\text{kHz}$ at 20kHz		
	Narrow: $\pm 2.5\text{kHz}$ at 12.5kHz		
Spurious emission	$-36\text{dBm} \leq 1\text{GHz}$, $-30\text{dBm} > 1\text{GHz}$ (X2 type: -30dBm)		
FM noise (EIA)	Wide 5k: 45dB	Narrow: 40dB	
Modulation distortion.....	Wide 5k: 3%	Narrow: 5%	

*: E type only

E,E3 type transceivers comply with the 1999/5/EC Directive.

E,E3 and X2 type transceivers comply with the AS-4295.

SPECIFICATIONS (E7 TYPE)**GENERAL**

Frequency range.....	380~400MHz
Number of channels	Zone: Max. 128 per Radio Channel: Max. 128 per Zone
Channel spacing	Wide: 25kHz Narrow: 12.5kHz
Operating voltage	13.6 V DC \pm 15%
Current drain	
Standby	0.4A
Receive	1.0A
Transmit	8.0A
Operating temperature range.....	-30°C~+60°C
Frequency stability.....	\pm 2.5ppm (-30°C~+60°C)
Antenna impedance.....	50 Ω
Channel frequency spread.....	20MHz
Dimensions (W x H x D Projections not included).....	160 x 43 x 107 mm
Weight (net).....	1.0kg

RECEIVER (Measurements made per TIA/EIA-603)

Sensitivity (12dB SINAD).....	Wide: 0.28 μ V Narrow: 0.35 μ V
Selectivity	Wide: 73dB Narrow: 65dB
Intermodulation distortion	Wide: 70dB Narrow: 60dB
Spurious response.....	75dB
Audio output (4 Ω impedance).....	4W with less than 5% distortion

TRANSMITTER (Measurements made per TIA/EIA-603)

RF output power.....	5W/25W
Spurious response.....	70dB
FM hum & noise.....	Wide: 45dB Narrow: 40dB
Audio distortion	Wide: 3% Narrow: 5%

E7 type transceivers do not comply with the 1999/5/EC Directive.

TK-8160/8162

Kenwood Corporation

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

Kenwood U.S.A. Corporation

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

Kenwood Electronics Canada Inc.

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

Kenwood Electronics Deutschland GmbH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

Kenwood Electronics Belgium N.V.

Leuvensesteenweg 248 J, 1800 Vilvoorde, Belgium

Kenwood Electronics France S.A.

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

Kenwood Electronics UK Limited

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

Kenwood Electronics Europe B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

Kenwood Electronics Italia S.p.A.

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

Kenwood Ibérica, S.A.

Bolivia, 239-08020 Barcelona, Spain

Kenwood Electronics Australia Pty. Ltd.

(A.C.N. 001 499 074)

16 Giffnock Avenue, Centrecourt Estate, North Ryde, N.S.W. 2113 Australia

Kenwood Electronics (Hong Kong) Ltd.

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

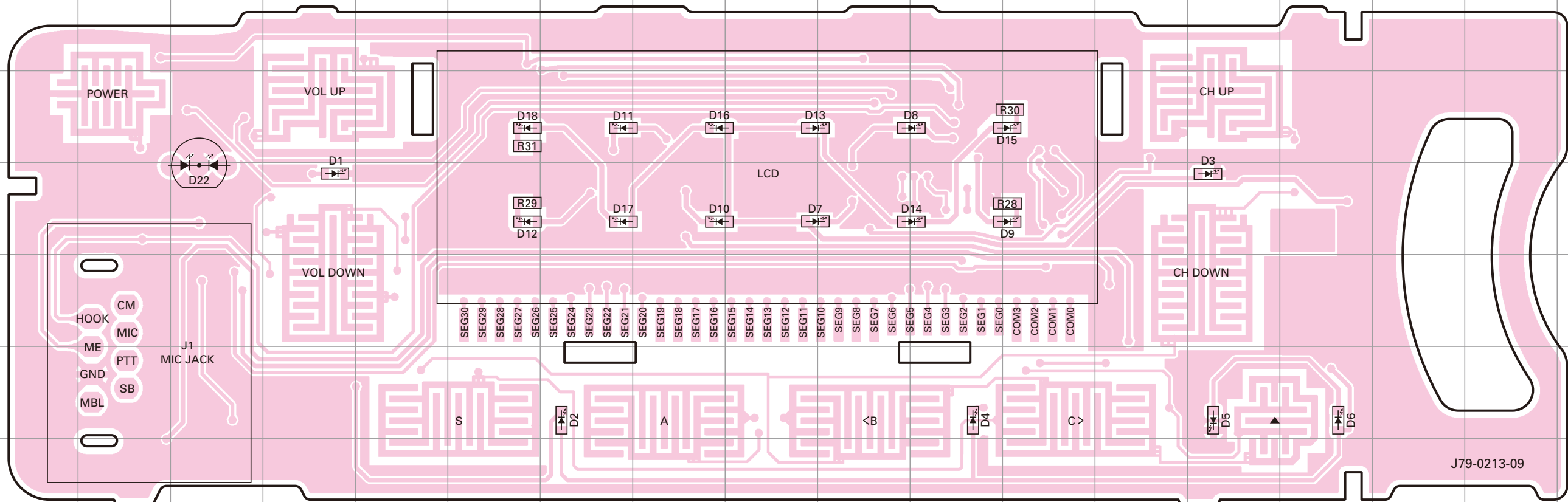
Kenwood Electronics Singapore Pte Ltd

1 Ang Mo Kio Street 63, Singapore 569110

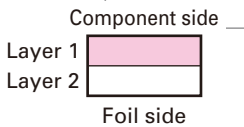


TK-8160/8162 PC BOARD

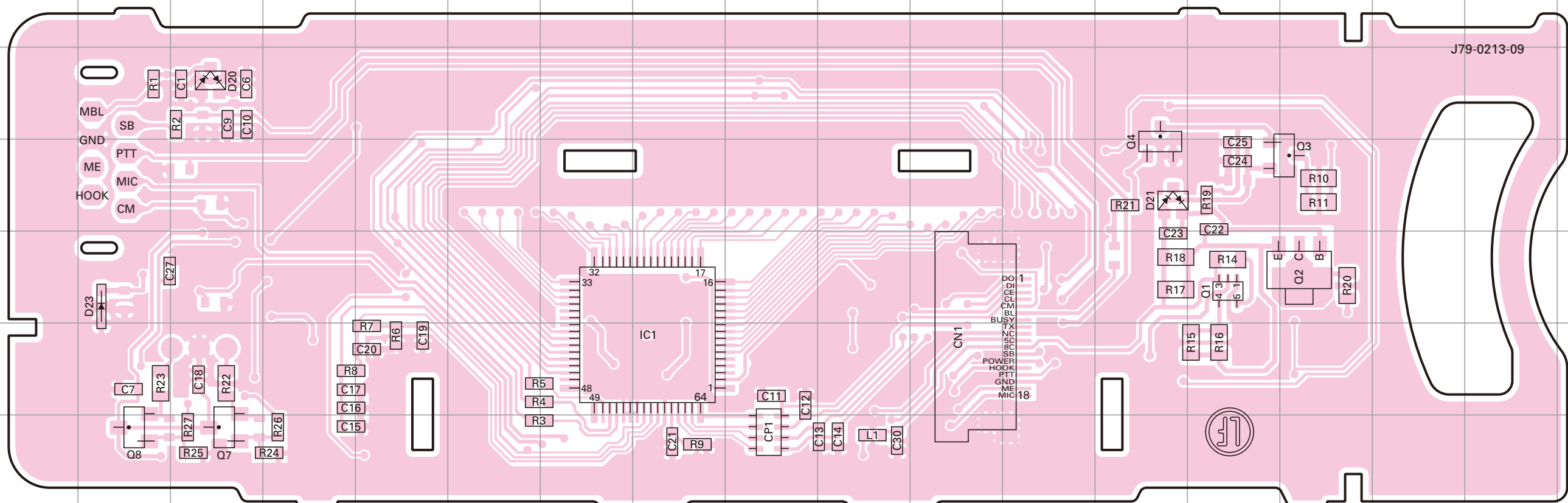
DISPLAY UNIT (X54-3510-10): TK-8160
Component side view (J79-0213-09)



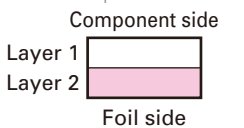
Ref. No.	Address
D1	4D
D2	6G
D3	4N
D4	6K
D5	6N
D6	6O
D7	4I
D8	3K
D9	4L
D10	4H
D11	3G
D12	4F
D13	3I
D14	4K
D15	3L
D16	3H
D17	4G
D18	3F
D22	4C



DISPLAY UNIT (X54-3510-10): TK-8160
Foil side view (J79-0213-09)

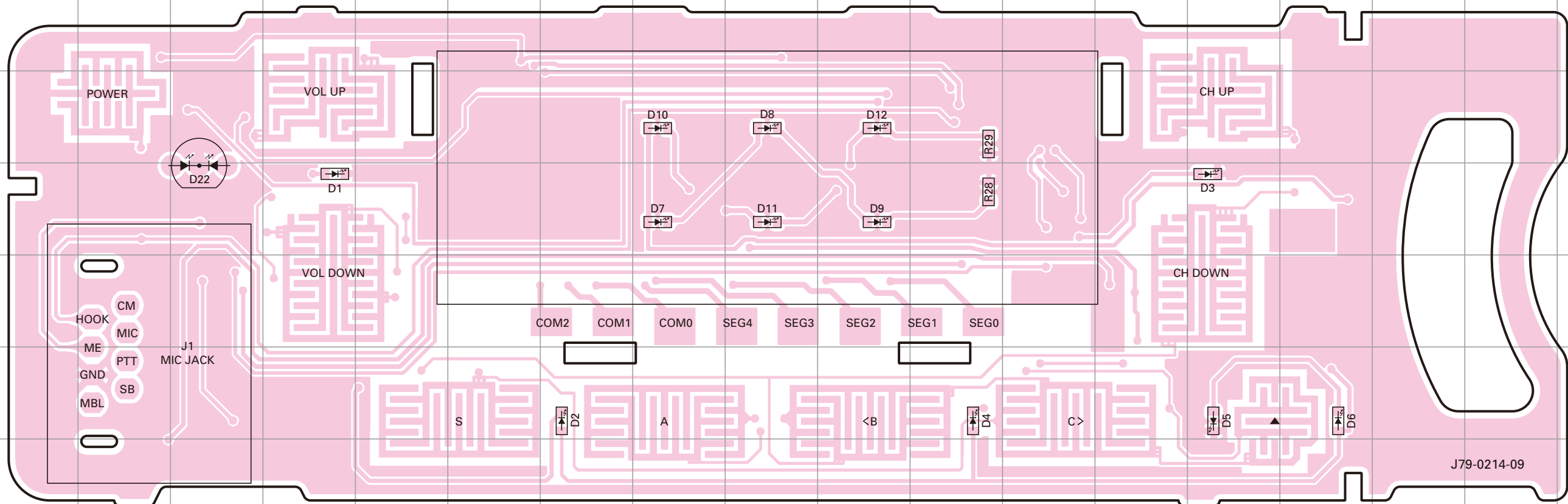


Ref. No.	Address
IC1	12H
Q1	11N
Q2	11O
Q3	10O
Q4	10M
Q7	13C
Q8	13B
D20	9C
D21	10M
D23	11B

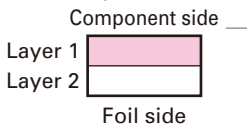


TK-8160/8162 PC BOARD

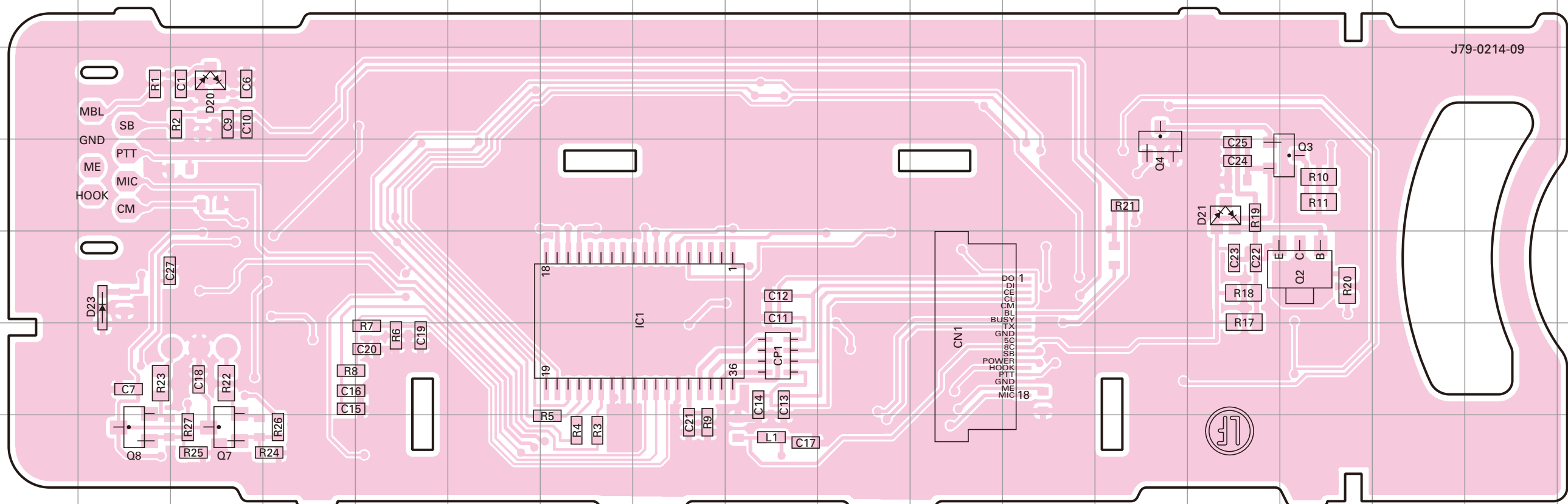
DISPLAY UNIT (X54-3522-70): TK-8162
Component side view (J79-0214-09)



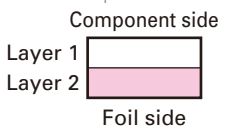
Ref. No.	Address
D1	4D
D2	6G
D3	4N
D4	6K
D5	6N
D6	6O
D7	4I
D8	3K
D9	4L
D10	4H
D11	3G
D12	4F
D22	4C



DISPLAY UNIT (X54-3522-70): TK-8162
Foil side view (J79-0214-09)

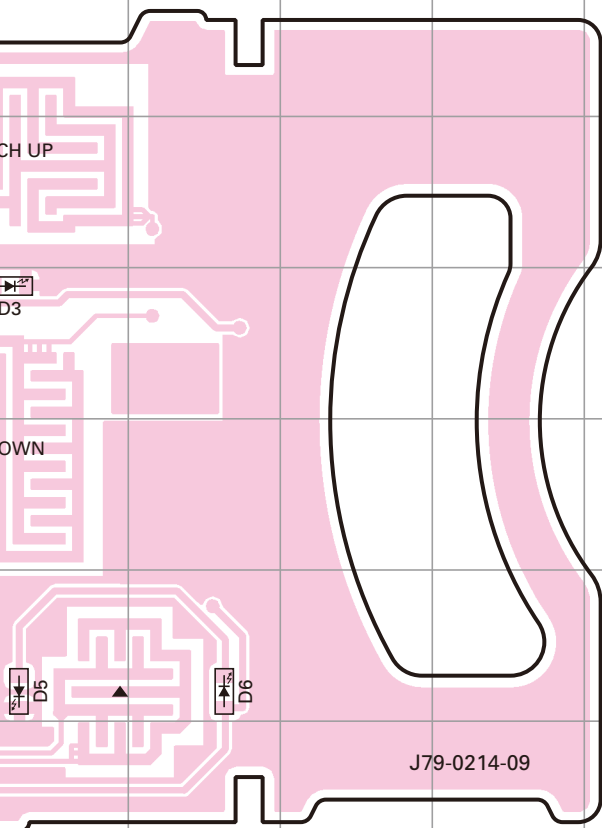


Ref. No.	Address
IC1	12H
Q2	11O
Q3	10O
Q4	10M
Q7	13C
Q8	13B
D20	9C
D21	10M
D23	11B

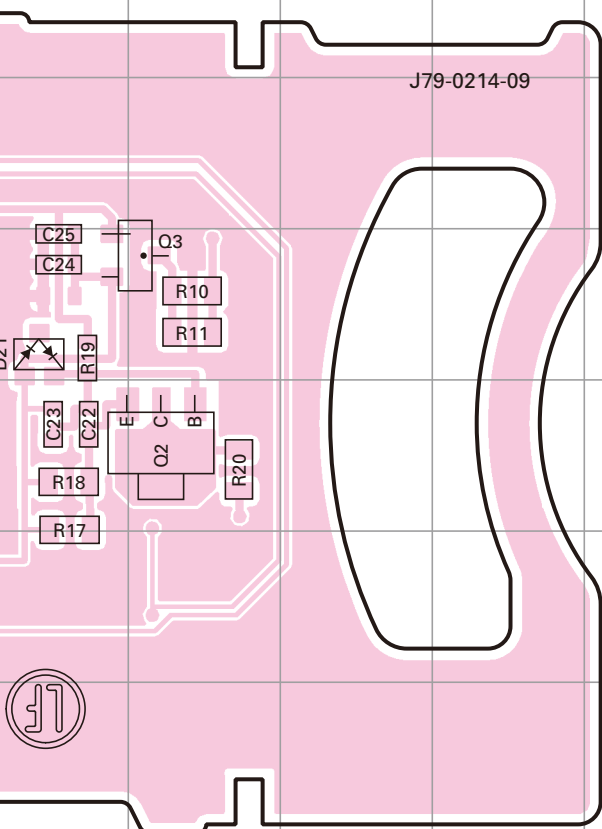


PC BOARD TK-8160/8162

DISPLAY UNIT (X54-3522-70): TK-8162
Component side view (J79-0214-09)



DISPLAY UNIT (X54-3522-70): TK-8162
Foil side view (J79-0214-09)

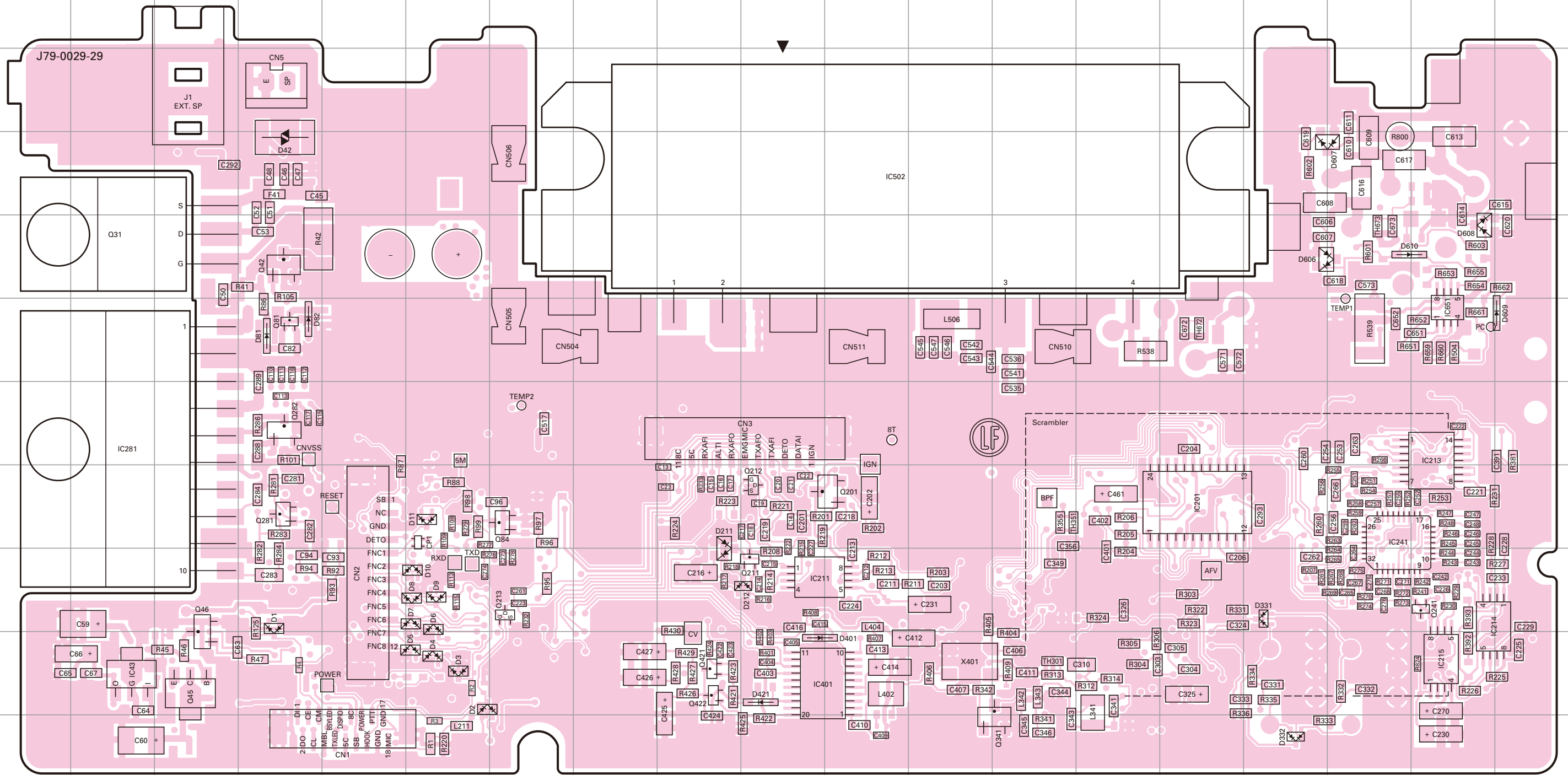


TK-8160/8162 PC BOARD

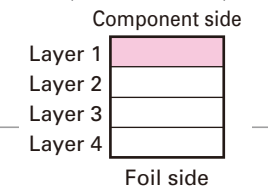
PC BOARD TK-8160/8162

TX-RX UNIT (X57-711X-XX) Component side view (J79-0029-29)
 2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7

TX-RX UNIT (X57-711X-XX) Component side view (J79-0029-29)
 2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC43	10B	IC502	4K	Q211	9J	D1	9D	D10	9F	D401	10J
IC201	8O	IC651	6R	Q212	8J	D2	10F	D11	8F	D421	10J
IC211	9J	Q31	5B	Q213	9G	D3	10F	D42	4D	D606	5P
IC213	7R	Q42	5D	Q241	9R	D4	10F	D81	6D	D607	4Q
IC214	9R	Q45	10C	Q281	8D	D5	10F	D82	6D	D608	5R
IC215	10R	Q46	9C	Q282	7D	D6	9F	D211	8I	D609	6S
IC241	8Q	Q81	6D	Q341	11M	D7	9F	D212	9J	D610	5Q
IC281	7B	Q84	8G	Q421	10I	D8	9F	D331	9P		
IC401	10J	Q201	8K	Q422	10I	D9	9F	D332	11P		

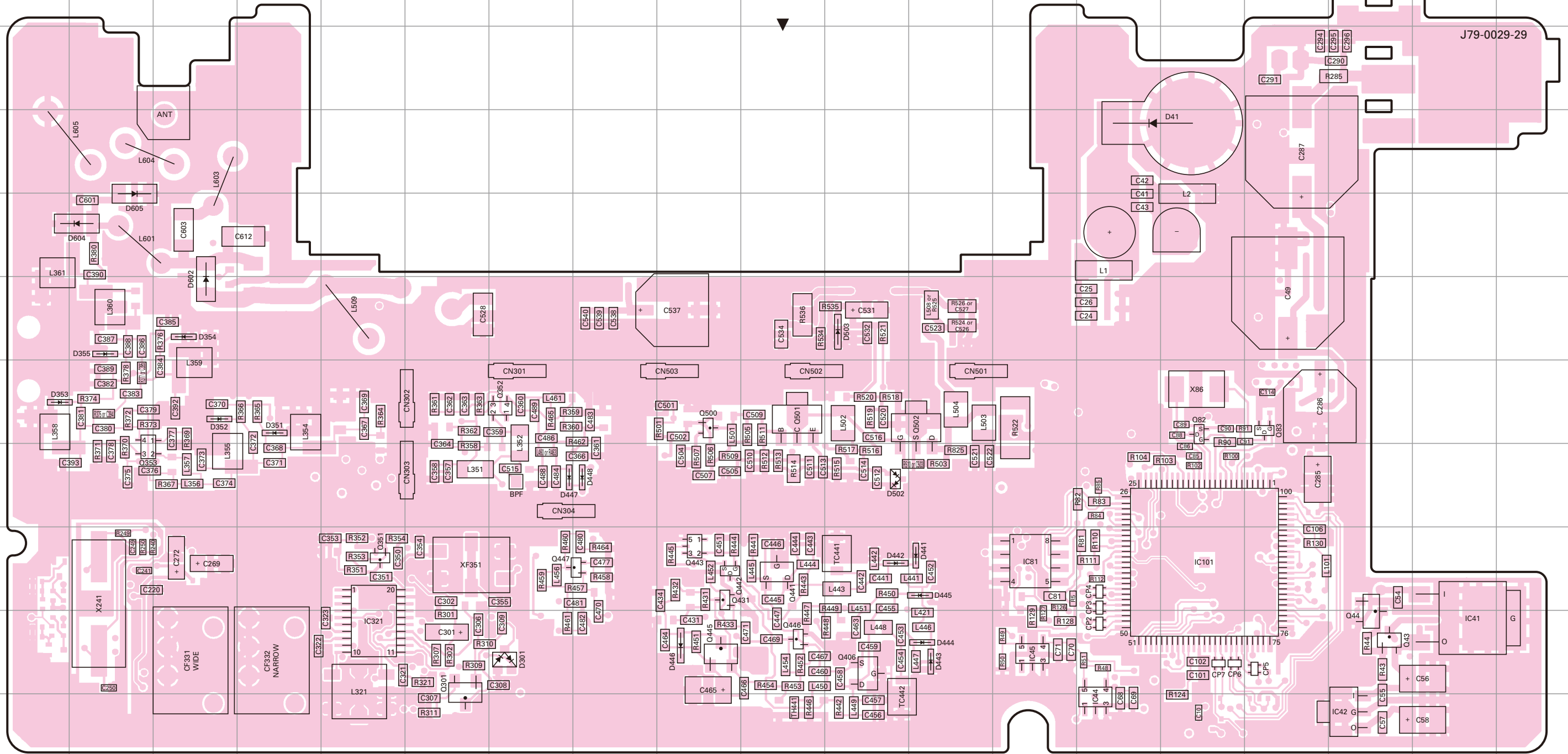


TK-8160/8162 PC BOARD

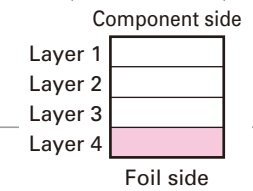
PC BOARD TK-8160/8162

TX-RX UNIT (X57-711X-XX) Foil side view (J79-0029-29)
 2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7

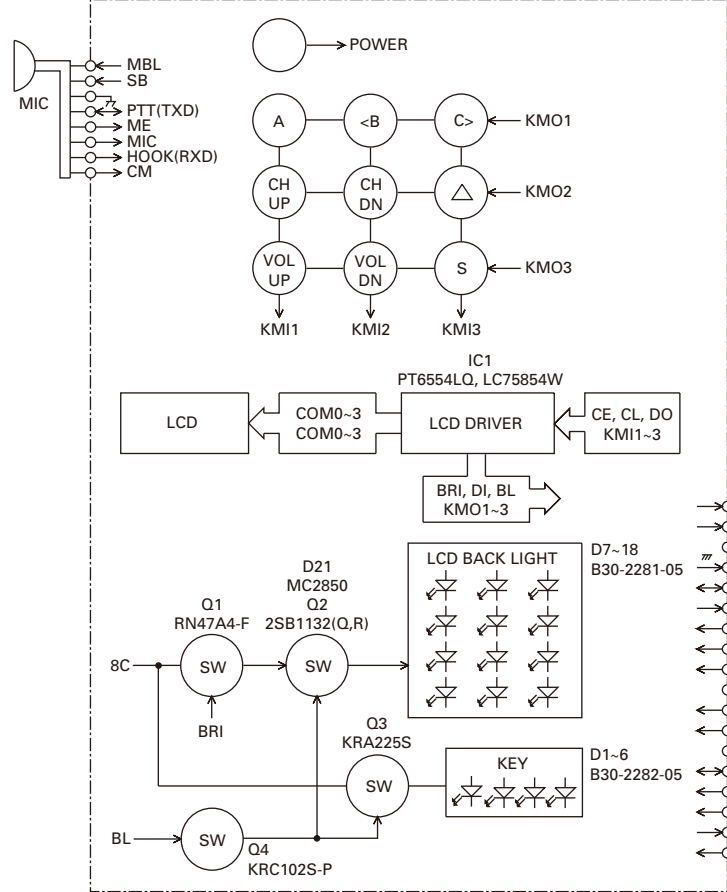
TX-RX UNIT (X57-711X-XX) Foil side view (J79-0029-29)
 2-70 : TK-8160/8162 E 2-71 : TK-8160/8162 E3 0-71 : TK-8160 X2 2-72 : TK-8160 E7



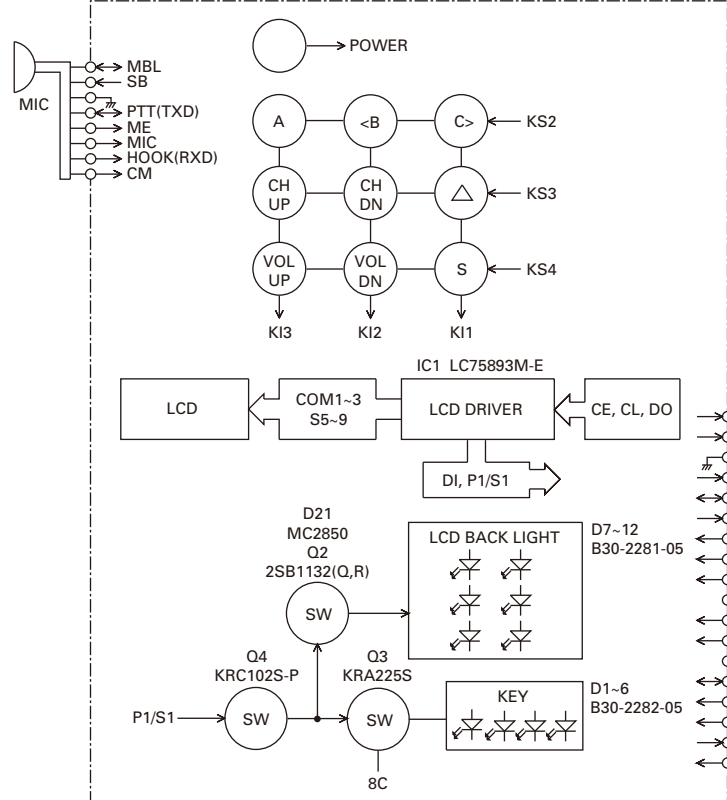
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC41	10R	Q44	10Q	Q431	9I	Q501	7J	D355	6B	D448	8H
IC42	11Q	Q82	7O	Q441	9J	Q502	7L	D441	9L	D502	8K
IC44	11N	Q83	7P	Q442	9I	D41	4O	D442	9K	D503	6K
IC45	10M	Q301	10F	Q443	9I	D301	10G	D443	10L	D602	6C
IC81	9M	Q351	9E	Q445	10I	D351	7D	D444	10L	D604	5B
IC101	9O	Q352	7G	Q446	10J	D352	7C	D445	9L	D605	5B
IC321	10E	Q353	8B	Q447	9H	D353	7A	D446	10I		
Q43	10Q	Q406	10K	Q500	7I	D354	6C	D447	8G		



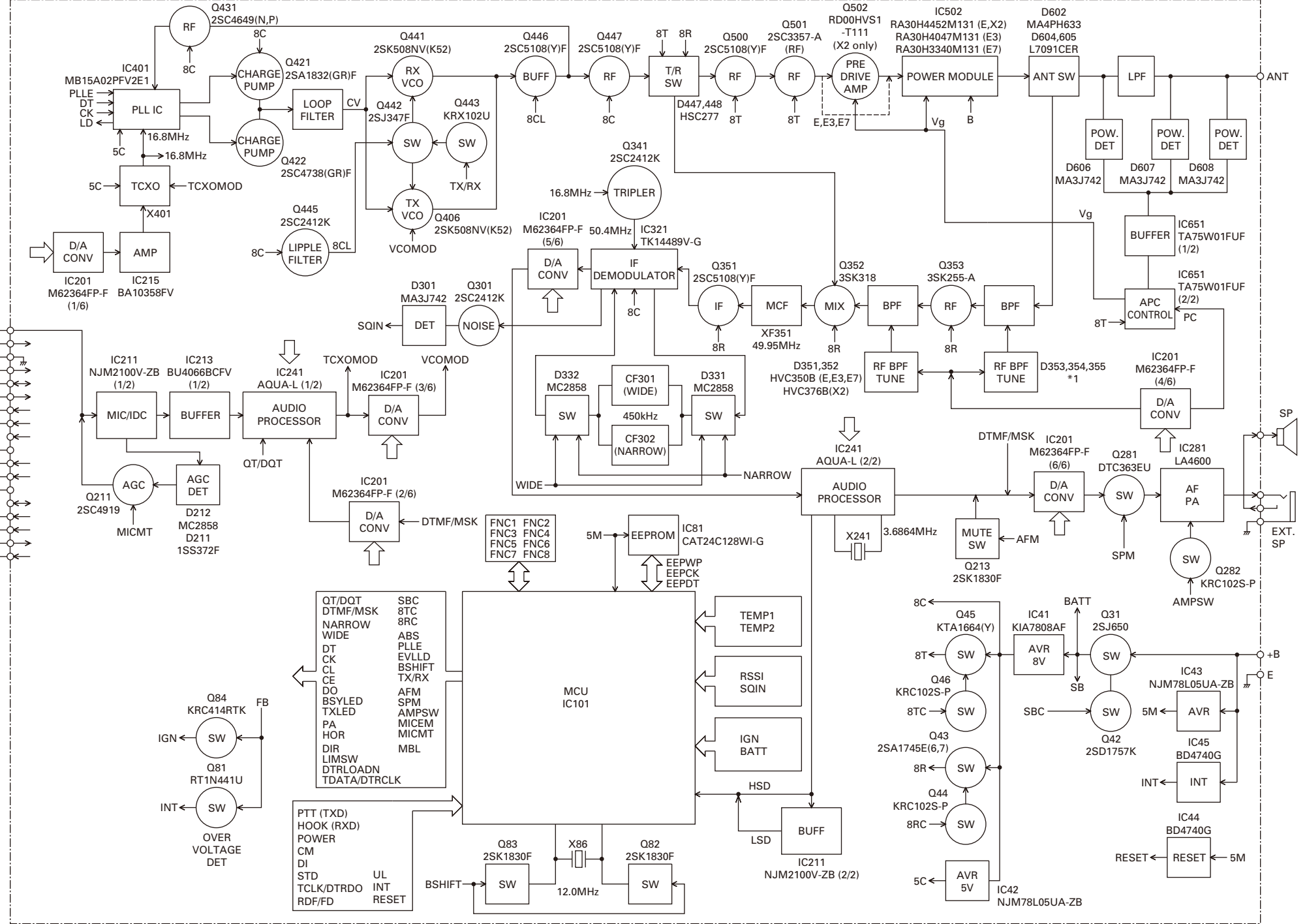
DISPLAY UNIT : TK-8160



DISPLAY UNIT : TK-8162



TX-RX UNIT



*1
 D353 HVC350B (E)
 D354 HVC350B (E,E3,E7)
 D355 HVC350B (E,E3,E7)