

KENWOOD

SERVICE MANUAL

REMOTE CONTROL HEAD

KCH-20R

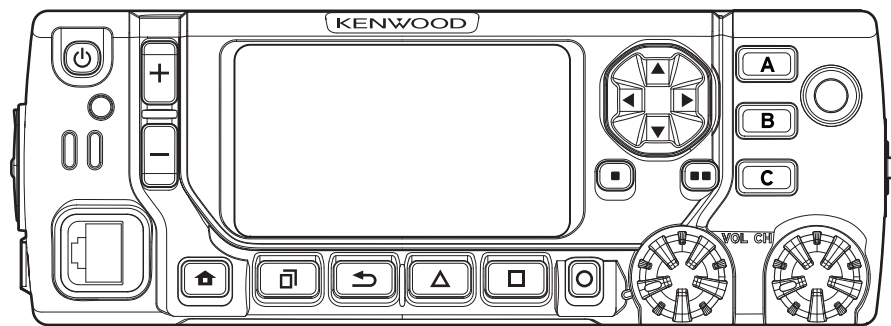


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This product complies with the **RoHS** directive for the European market.



This product uses Lead Free solder.

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SECTION 1 PRECAUTION

This service manual does not describe PRECAUTION.

SECTION 2

SPECIFIC SERVICE INSTRUCTIONS

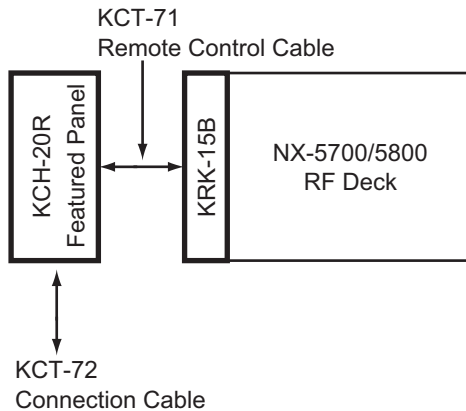
2.1 INSTALLATION

2.1.1 Installing the Remote control head (KCH-20R)

The KCH-20R control head is used to remotely operate the NX-5700/5800 series transceiver.

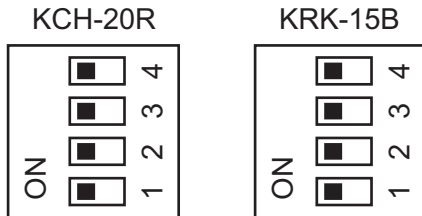
The KCH-20R is connected to the KCT-71 remote control cable. The KRK-15B is connected to the NX-5700/5800 RF Deck with the KCT-71.

2.1.2 Connection image



2.1.3 DIP Switch setting

All DIP switches for single remote (KCH-20R and KRK-15B) must be set as "ON".



2.1.4 Remove the Operation panel from the transceiver (NX-5700, NX-5800 only)

- (1) Lift the two tabs of the panel on the bottom of the transceiver with a flat-head screwdriver and remove the panel from the chassis. (Fig. 1)



Fig.1

- (2) Remove the flat cable from the display unit connector (CN6) of the panel.
- (3) Remove the cable from the display unit connector (CN2) of the panel.

2.1.5 Install the KRK-15B onto the NX-5700, NX-5800 RF Deck

- (1) Insert the cable into the interface unit (XC3-0090-20) connector (CN2) of the KRK-15B.
- (2) Insert the flat cable into the interface unit connector (CN1) of the KRK-15B. (Fig. 2)

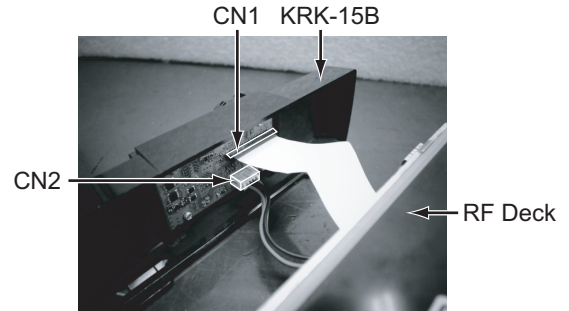


Fig.2

Note:

The blue line of the flat cable and the flap of connector are as same side.

After inserting, the flat cable should be locked with the connector (flap) surely.

- (3) Fit the KRK-15B with four tabs onto the front of the chassis. (Fig. 3)



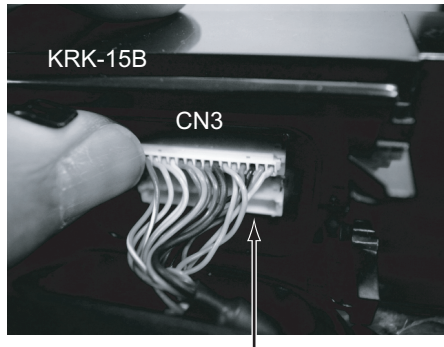
Fig.3

Note:

When installing the KRK-15B onto the front of the chassis, hold down the flat cable with your fingers to prevent it from being caught.

2.1.6 Connect the KRK-15B and KCH-20R with the KCT-71

- (1) Insert one lead wire with connector of the KCT-71 into the connector (CN3) of the KRK-15B. (Fig. 4)

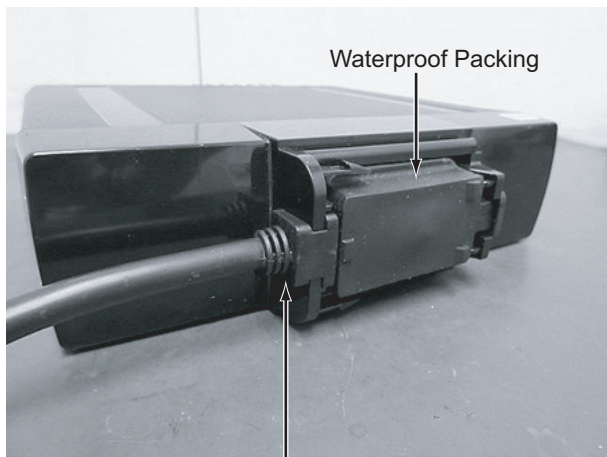


KCT-71 lead wire with connector
Fig.4

- (2) Secure the cable bush as shown in the figure 5 and attach the waterproof packing.

Note:

There is a direction to the installing of the cable bush.



Cable Bush
Fig.5

- (3) Slide the molding cover so as not to float the waterproof packing and attach so that it is locked. (Fig. 6)

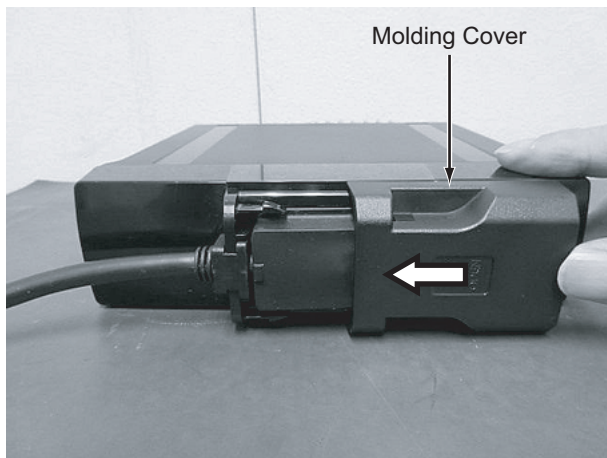


Fig.6

- (4) Insert the other lead wire with connector of the KCT-71 into the connector (CN5) of the KCH-20R. (Fig. 7)



KCT-71 lead wire with connector
Fig.7

- (5) Attach the waterproof packing and molding cover in the same way of step 2 and 3. (Fig. 8) (Fig. 9)



Fig.8



Fig.9

2.1.7 Fixing method of KCH-20R microphone cord

This mounting hardware is intended to protect the modular jack under use environment.

(Microphone can be used without this mounting hardware.)

Microphone cord should be fixed so that the curl portion is lower side.

Refer to the following figs



Fixing the Microphone cord
Fig.11



OK: Curly cord lower side NG: Curly cord upper side
Fig.12

2.2 CIRCUIT DESCRIPTION (KCH-20R)

2.2.1 Overview

KCH-20R is a remote control panel with 2.75" LCD and extended keys. KCH-20R has built-in Bluetooth and micro SD card slot. The Bluetooth supports HSP. KCH-20R has two circuit units. XC3-010 is Sub unit and XC3-011 is Interface unit. There consist of a power supply circuit, audio circuit, control circuit and the Bluetooth circuit.

2.2.2 Power supply circuit

SB is provided from Mobile Deck (NX-5700 or NX-5800) when Mobile DECK turns on. SB is connected to modular jack , IC1 and IC2. IC1 regulates SB voltage to 5.36V(53DC) and IC2 regulates SB voltage to 3.9V(39DC). Both ICs operate whenever SB is supplied.

53DC is the power supply for Class-D Audio Amplifier, CAN transceiver, IC8(50D) and each LED.

39DC is the power supply for all DC/DC and regulators except for IC1(53DC), IC2(39DC).

A1 regulates 39DC to 1.2V(12D) and 12D provides the power to MPU core.

IC5 outputs 1.8V(18D) while 12D is operating. 18D provides the power to MPU I/O, DDR, Codec DSP and enables each regulator(IC3, IC4, IC6). 18D_Flash is the power supply for Flash memory. After 33D turns on, IC10(switch IC) operates and 18D_Flash starts working.

IC8 regulates 5.36V(53DC) to 5.0V(50D) and provides the power to Level shift circuit and Audio circuit. 50D is enabled while 18D is operating.

IC3, IC4 and IC6 is provided 3.9V(39DC) and while 18D is operating, each IC outputs 3.0V(30LCD), 3.3V(33A) and 3.3V(33D). 30LCD is the power for LCD module. 33A is the power for Audio circuit and Codec analog section. 33D is the power for MPU I/O, Codec I/O, CAN transceiver and Flash memory.

IC9 regulates 3.9V(39DC) to 3.3V(33SD). 33SD is the power for SD Circuit. When SD Card is used, MPU outputs 33SDC High signal and IC9 starts working.

Power supply diagram is described Fig. 1.

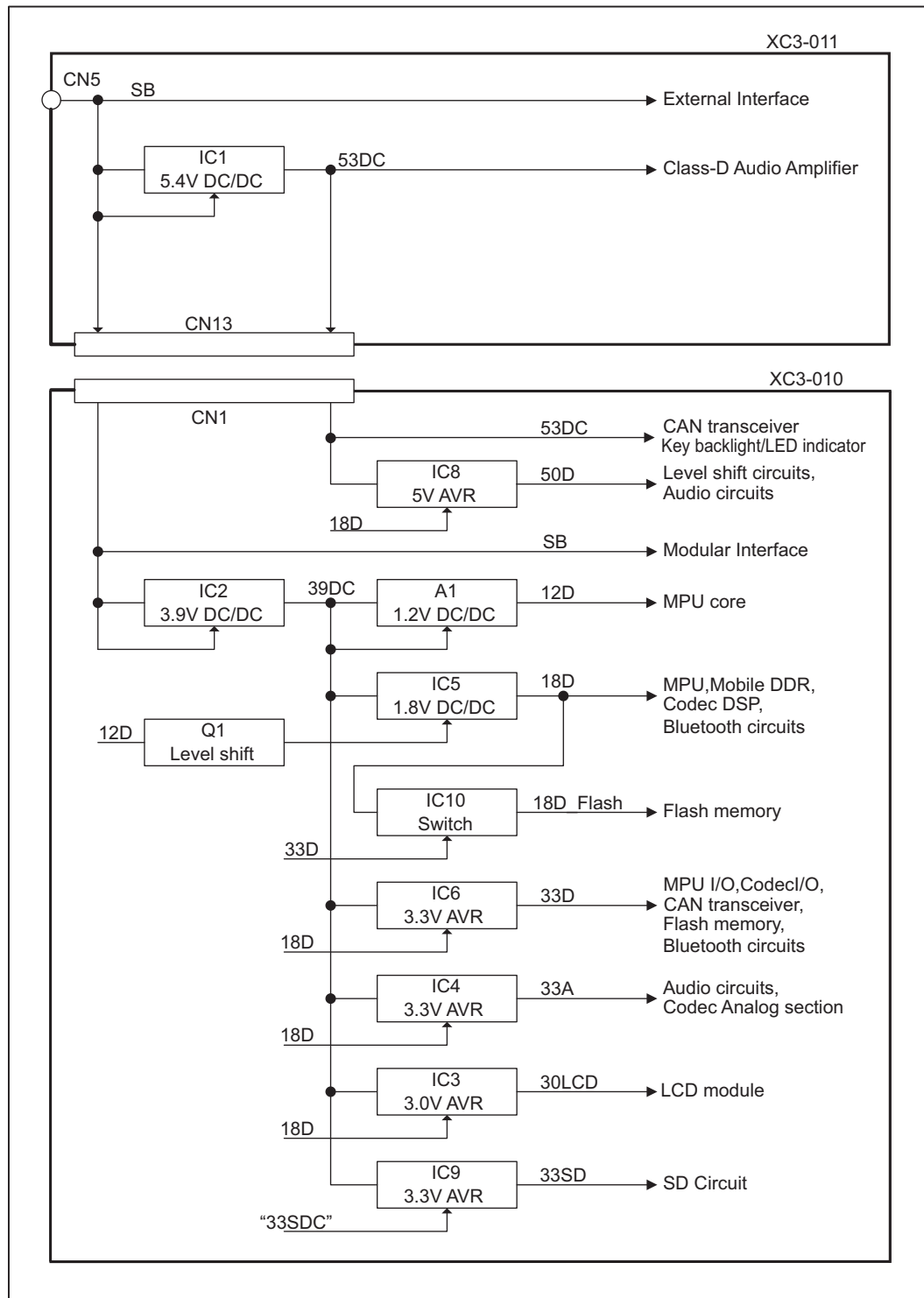


Fig.1 Power supply diagram

2.2.3 Audio circuit

2.2.3.1 RX Audio

KCH-20R has two RX Audio input channels, AFIA+/- and AFIB+/- . And the MPU selects the one of the two channels, and then applied to digital potentiometer IC (IC22/XC3-010). (The channel to use is notified by serial communication from RF Deck.)

The digital potentiometer IC adjusts RX Audio signal amplitude equal to the value of selected volume step, and output it.

RX signal through digital potentiometer IC is put into codec IC (IC17/XC3-010). KCH-20R has several output method of RX audio signal (Speaker port, Bluetooth headset, and micro SD card recording). When use speaker output path, this audio signals pass through to output port of codec IC. When use other output method, codec IC convert this signal to digital data, and transmits to the MPU (IC14/XC3-010).

That analog output signal from codec IC is converted to balanced signal by operational amplifier (IC18/XC3-010).

And converted signal goes to Class-D audio amplifier (IC2/XC3-011). The audio amplifier is controlled to shut-down or power-up, by MPU.

2.2.3.2 TX Audio

KCH-20R has four microphone input channels. First one is connected to modular interface (J2/XC3-010), second is connected to external interface connector (CN2/XC3-011). Third is Bluetooth headset. Fourth is micro SD recording playback. When use modular interface or external interface, these two microphone signals are selected by analog multiplexer IC (IC29/XC3-010), and applied to microphone amplifier. The microphone amplifier consists of operational amplifier and AGC. And its output is connected to Codec IC. The total gain of amplifiers in Codec IC is set to 0dB. The output signal of codec IC is converted to balanced signal by operational amplifier (IC28/XC3-010). The converted signals are switched by analog switch IC (IC35/XC3-010, IC36/XC3-010), and output to either MICA+/- or MICB+/- . The output channel is notified from RF Deck by serial communication.

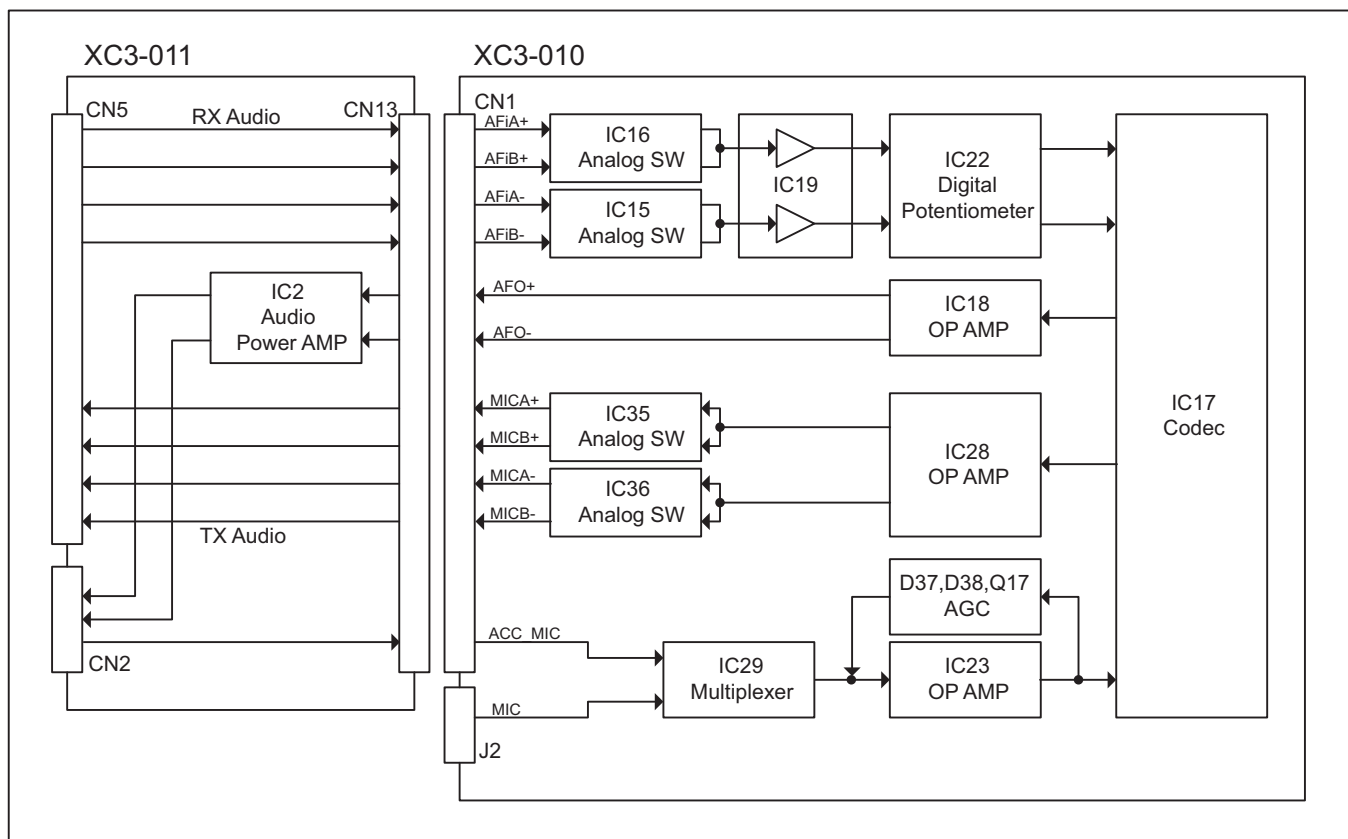


Fig.2 Audio Circuit

2.2.4 Control circuit

The control circuit consists of MPU (IC14/XC3-010) and its peripheral circuits. IC14(XC3-010) mainly performs the followings;

- (1) Serial communication between RF deck and KCH-20R.
- (2) Controlling the audio circuits including codec IC.
- (3) Controlling the display, and micro SD card.
- (4) Controlling the Bluetooth circuit.

2.2.4.1 MPU

The MPU is 32bit RISC processor, equipped with peripheral functions. The maximum operating clock of MPU is 288MHz, and power source are 3.3V/1.8V/1.2V DC. The MPU controls the flash memory, Mobile DDR, the audio circuits, the key-matrix, external I/O circuit, the display (LCD), the Bluetooth, and the micro SD card.

2.2.4.2 Memory Circuit

Memory circuit consists of the MPU and the Mobile DDR (IC23/XC3-010), the flash memory (IC29/XC3-010). The flash memory has capacity of 256Mbit that contains the program for the MPU and stores the data. That program can be easily updated from external devices. The Mobile DDR has capacity of 512Mbit. The MPU copies the program from the flash memory to the Mobile DDR. The MPU uses the Mobile DDR as a work area.

2.2.4.3 Serial interface between RF deck and KCH-20R

KCH-20R is controlled by serial interface from RF deck. That interface consists of CAN transceiver (IC1/XC3-010), but that does not support CAN protocol. UART communication is used between CAN transceiver and MPU.

2.2.4.4 LCD control interface

The MPU controls LCD through the LCD interface connector (CN57/XC3-010). LCD is controlled by parallel bus with 16bit data width.

2.2.4.5 Key detection

KCH-20R has 19 keys. The keys except the AUX key and Power key is included in key-matrix circuit. Key-matrix consists of 4 input ports and 5 output ports. When key is pressed, the MPU starts scanning the keys and detects which key was pressed.

AUX key is connected to MPU independently. The power key is connected to RF deck through the RF deck interface connector (CN5/XC3-011).

2.2.4.6 External I/O

KCH-20R has external interface connector (CN2/XC3-011). That interface has two output and two input terminals. The output terminal is open collector type. The input terminal has level shift circuit, it permits input the 5V signal.

2.2.4.7 micro SD circuit

The micro SD card interface consists of 4bit data bus and control signals. Maximum data transfer speed is 36MHz.

2.2.5 Bluetooth Circuit

The main component of the Bluetooth circuit is Bluetooth IC (IC12/XC3-010) and level converter circuit.

The clocks of Bluetooth IC requires 19.2MHz for core and 32.768kHz slow clock (X1/XC3-010 and X2/XC3-010) for UART.

Bluetooth IC communicates to the MPU (IC14/XC3-010) on the HCI UART. Interface of UART & Digital audio (I2S) between the MPU and the Bluetooth IC, have level conversion at the level converter IC (IC13/XC3-010 and IC11/XC3-010).

The Bluetooth IC is powered by 1.8V and 3.3V which are supplied from 2 discrete external regulators (IC5/XC3-010 and IC6/XC3-010).

TX/RX frequency is 2400-2483.5MHz (79ch Hopping, 2402-2480MHz, 1MHz step). Transmitting power is +2dBm at Bluetooth antenna input.

Bluetooth antenna is surface mount chip antenna (ANT1/XC3-010), and that is connected to the Bluetooth IC through the LC filter (L30/XC3-010).

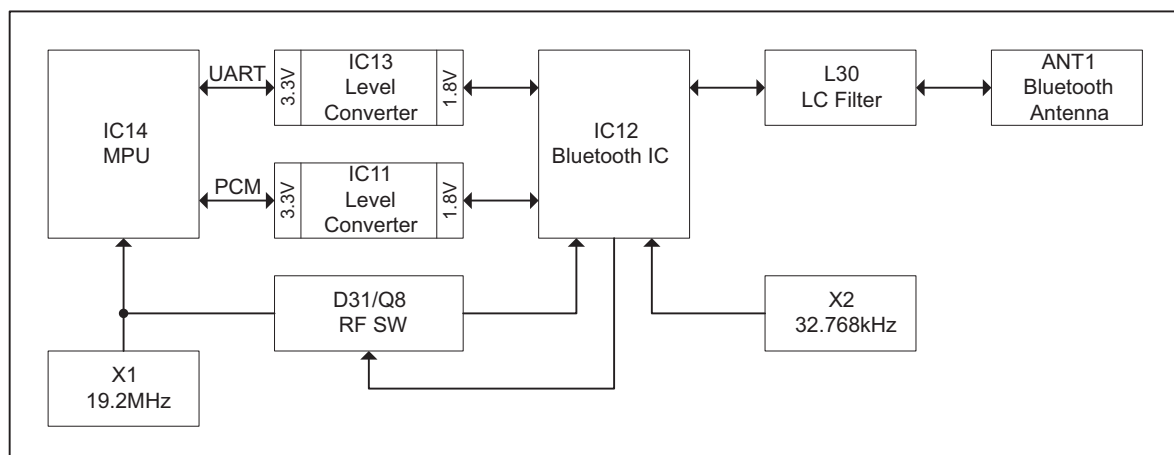


Fig.3 Bluetooth Circuit

Frequency configuration for Bluetooth is following:

There are two LO modes: 2X and Offset LO (OSLO). 2X where LO is $2 \times \text{RF_FREQ}$ (e.g. when transmitting at 2441MHz it is at 4882MHz). OSLO where LO is at $(2/3) \times \text{RF_FREQ}$ (e.g. when transmitting at 2441MHz it is at 1627.333MHz).

In RX the 2X is always used.

In GFSK TX if power is 10dBm or more then OSLO is used.

In EDR2 TX if power is -12dBm or more then OSLO is used.

In EDR3 TX if power is -12dBm or more then OSLO is used.

Otherwise 2X is used for TX as well.

2.3 COMPONENTS DESCRIPTION

2.3.1 Sub unit (XC3-0100-20)

Ref. No.	Part Name	Description
A1	DC-DC CONVERTER	DC-DC CONVERTER (12DC)
IC1	MOS IC	CAN transceiver IC
IC2	MOS IC	DC-DC Converter (39DC)
IC3	MOS IC	Voltage regulator (30LCD)
IC4	MOS IC	Voltage regulator (33A)
IC5	MOS IC	Voltage regulator (18D)
IC6	MOS IC	Voltage regulator (33D)
IC7	MOS IC	Voltage detector IC
IC8	MOS IC	Voltage regulator (50D)
IC9	ANALOG IC	Voltage regulator (33SD)
IC10	MOS IC	DC switch
IC11	MOS IC	Level converter IC
IC12	MOS IC	Bluetooth IC
IC13	MOS IC	Level converter IC
IC14	MPU IC	MPU
IC15,16	MOS IC	Analog switch (AF)
IC17	MOS IC	Codec IC
IC18,19	MOS IC	AF amplifier
IC20	MOS IC	Logic control
IC21	MOS IC	Logic control
IC22	MOS IC	D/A Converter IC
IC23	MOS IC	DC/AF amplifier (Vref/AF)
IC24	SRAM IC	SDRAM
IC25	MOS IC	A/D Converter IC
IC26	MOS IC	Analog switch
IC27,28	MOS IC	AF amplifier
IC29	MOS IC	Analog switch (AF)
IC30	ROM IC	Flash memory
IC31	MOS IC	Analog switch
IC32	MOS IC	Logic control
IC34	MOS IC	DC amplifier (Buffer/Vref)
IC35,36	MOS IC	Analog switch (AF)
IC37	MOS IC	Logic control
IC38	MOS IC	LED Driver IC (LCD backlight)
PH1	PHOT TRANSISTOR	Illuminance sensor
Q1	FET	DC switch
Q2,Q3	FET	DC switch (Open drain)
Q4	DIGI TRANSISTOR	DC switch
Q5	TRANSISTOR	Buffer amprifier (TCXO)
Q6	DIGI TRANSISTOR	DC switch
Q7-Q14	FET	DC switch

Ref. No.	Part Name	Description
Q15,Q16	FET	DC switch
Q17	TRANSISTOR	Mic AGC
Q18	FET	DC switch
D1, 2	VARISTOR	ESD protection
D3	DIODE	Reverse current prevention
D4-6	LED	LED_Key Backlight
D7	DIODE	Reverse current prevention
D8-10	LED	LED_Key Backlight
D11	DIODE	Reverse current prevention
D12-15	LED	LED_Key Backlight
D16	DIODE	DC-DC Converter (39DC)
D17	DIODE	Reverse current prevention
D18-21	LED	LED_Key Backlight
D22	DIODE	Reverse current prevention
D23,24	ZENER DIODE	Overvoltage protection
D25-28	LED	LED_Key Backlight
D29,30	DIODE	Reverse current prevention
D31	DIODE	DC switch
D32	LED	Green-LED_Indicator
D33	LED	3colors-LED_Indicator
D34	DIODE	DC Level shifter
D36	DIODE	DC Level shifter
D37,38	DIODE ARRAY	Mic AGC Detection
D39	DIODE	Overvoltage protection
D40	DIODE	DC Level shifter
D41	ZENER DIODE	Overvoltage protection
D42,43	VARISTOR	ESD protection
D44	VARISTOR	Current protection
D45,46	VARISTOR	ESD protection
D47-51	ZENER DIODE	ESD protection
D57	DIODE	DC discharge
D58	LED	Red-LED_Indicator
D59	DIODE	DC smoothing

2.3.2 Interface unit (XC3-0110-20)

Ref. No.	Part Name	Description
IC1	MOS IC	DC-DC CONVERTER (53DC)
IC2	ANALOG IC	Audio power amplifier (class D)
D1	VARISTOR	Current protection
D4	DIODE	DC-DC CONVERTER (53DC)
D5	DIODE	Reverse current prevention
D6	VARISTOR	ESD protection
D7	VARISTOR	ESD protection
D8	VARISTOR	ESD protection
D9	VARISTOR	ESD protection

2.4 TERMINAL FUNCTION

2.4.1 Sub unit (XC3-0100-20)

Pin No.	Name	I/O	Function
CN1			
1	SB	I	Switched power supply
2	SB	I	Switched power supply
3	SB	I	Switched power supply
4	SB	I	Switched power supply
5	NC	-	No connection
6	GND	-	Ground
7	GND	-	Ground
8	GND	-	Ground
9	AFo+	O	AF signal output plus
10	ACC_ME	-	AUX MIC ground
11	AFo-	O	AF signal output minus
12	ACC_MIC	I	AUX MIC signal input
13	AFiA+	I	AF signal input plus_A
14	MICA+	O	MIC signal output plus_A
15	AFiA-	I	AF signal input minus_A
16	MICA-	O	MIC signal output minus_A
17	AFiB+	I	AF signal input plus_B
18	MICB+	O	MIC signal output plus_B
19	AFiB-	I	AF signal input minus_B
20	MICB-	O	MIC signal output minus_B
21	/PRST	I	Reset signal
22	/PSW	O	Detection signal output of power switch
23	AUXI0	I	AUX input_0
24	AUXI1	I	AUX input_1
25	AUXO0	O	AUX output_0
26	AUXO1	O	AUX output_1
27	H_1/2	I	Head Number setting terminal
28	/AMP_PD	I	Power-Down signal of the Audio Amplifier
29	GND	-	Ground
30	GND	-	Ground
31	CAN+	I/O	CAN data plus
32	CAN-	I/O	CAN data minus
33	GND	-	Ground
34	GND	-	Ground
35	53DC	I	5.4V input
36	53DC	I	5.4V input
CN57			
1	VSSA	-	Ground
2	VSSA	-	Ground
3	VSSA	-	Ground
4	VCC	O	3V output
5	VCC	O	3V output
6	VSSD	-	Ground

Pin No.	Name	I/O	Function
7	VSSD	-	Ground
8	VSSD	-	Ground
9	IOVCC	O	1.8V output
10	IOVCC	O	1.8V output
11	RDX	O	LCD driver RD signal
12	WRX	O	LCD driver WR signal
13	DCX	O	LCD driver data/command switch signal
14	CSX	O	LCD driver chip select signal
15	DB1	I/O	LCD driver data output
16	DB2	I/O	LCD driver data output
17	DB3	I/O	LCD driver data output
18	DB4	I/O	LCD driver data output
19	DB5	I/O	LCD driver data output
20	DB6	I/O	LCD driver data output
21	DB7	I/O	LCD driver data output
22	DB8	I/O	LCD driver data output
23	DB10	I/O	LCD driver data output
24	DB11	I/O	LCD driver data output
25	DB12	I/O	LCD driver data output
26	DB13	I/O	LCD driver data output
27	DB14	I/O	LCD driver data output
28	DB15	I/O	LCD driver data output
29	DB16	I/O	LCD driver data output
30	DB17	I/O	LCD driver data output
31	CABC	-	No connection
32	RESX	O	LCD driver reset signal
33	IM0	O	Interface mode select
34	LEDA	O	54M output (LED light anode)
35	LED1	I	LED light cathode 1
36	LED2	I	LED light cathode 2
37	LED3	I	LED light cathode 3
38	LED4	I	LED light cathode 4
CN60			
1	ENC3	I	Rotary Switch Input
2	ENC2	I	Rotary Switch Input
3	ENC0	I	Rotary Switch Input
4	ENC1	I	Rotary Switch Input
5	GND	-	Ground
6	GND	-	Ground
7	50D	O	5.0V output
8	VOLDET	I	Volume Level Input
J1 (microSD)			
1	DAT2	I/O	Data 2
2	CD/DAT3	I/O	Data 3
3	CMD	I/O	Command input/output
4	VDD	O	3.3V output

Pin No.	Name	I/O	Function
5	CLK	O	Clock output
6	VSS	-	Ground
7	DAT0	I/O	Data 0
8	DAT1	I/O	Data 1
9	CD	I/O	Card detect switch
10	COMMON	-	Ground
11	GND1	-	Ground
12	GND2	-	Ground
J2 (MIC jack)			
1	BLC_4/ D+2	I/O	Back light control signal / USB PHY data plus
2	SB_2	O	Switched power supply
3	GND	-	Ground
4	PTT/ TXD_3	I/O	PTT input / Serial data output
5	ME_3	-	MIC ground
6	MIC_3	I	MIC signal input
7	HOOK/ RXD/D-2	I/O	Hook detection / Serial data input / USB PHY data minus
8	DM/ KVL_3	I/O	MIC data detection

2.4.2 Interface unit (XC3-0110-20)

Pin No.	Name	I/O	Function
CN13			
1	53DC	O	5.4V output
2	53DC	O	5.4V output
3	GND	-	Ground
4	GND	-	Ground
5	CAN-	I/O	CAN data minus
6	CAN+	I/O	CAN data plus
7	GND	-	Ground
8	GND	-	Ground
9	/AMP_PD	O	Power-Down signal of the Audio Amplifier
10	H_1/2	O	Head Number setting terminal
11	AUXO1	I	AUX output_1
12	AUXO0	I	AUX output_0
13	AUXI1	O	AUX input_1
14	AUXI0	O	AUX input_0
15	/PSW	I	Detection signal input of power switch
16	/PRST	O	Reset signal
17	MICB-	I	MIC signal input minus_B
18	AFoB-	O	AF signal output minus_B
19	MICB+	I	MIC signal input plus_B
20	AFoB+	O	AF signal output plus_B
21	MICA-	I	MIC signal input minus_A
22	AFoA-	O	AF signal output minus_A

Pin No.	Name	I/O	Function
23	MICA+	I	MIC signal input plus_A
24	AFoA+	O	AF signal output plus_A
25	ACC_MIC	O	AUX MIC signal output
26	AFi-	I	AF signal input minus
27	ACC_ME	-	AUX MIC ground
28	AFi+	I	AF signal input plus
29	GND	-	Ground
30	GND	-	Ground
31	GND	-	Ground
32	NC	-	No connection
33	SB	O	Switched power supply
34	SB	O	Switched power supply
35	SB	O	Switched power supply
36	SB	O	Switched power supply
CN2 (ACC Interface)			
1	GND	-	Ground
2	SP+	O	Speaker output
3	SP-	O	Speaker output
4	Ao2	O	AUX output 2
5	Ao1	O	AUX output 1
6	Ai2	I	AUX input 2
7	Ai1	I	AUX input 1
8	AUX_ME	-	AUX MIC ground
9	AUX_MIC	I	AUX MIC signal input
10	GND	-	Ground
11	SB	O	Switched power supply
12	IGN	I	Ignition sense input
13	GND	-	Ground
CN5			
1	/PRST	I	Reset signal
2	/PSW	O	Detection signal output of power switch
3	MICA+	O	MIC signal output plus_A
4	MICA-	O	MIC signal output minus_A
5	MICB+	O	MIC signal output plus_B
6	MICB-	O	MIC signal output minus_B
7	GND	-	Ground
8	NC	-	No connection
9	SB	I	Switched power supply
10	NC(IGN)	-	No connection (Ignition sense output)
11	AFiA+	I	AF signal input plus_A
12	AFiA-	I	AF signal input minus_A
13	AFiB+	I	AF signal input plus_B
14	AFiB-	I	AF signal input minus_B
15	CAN+	I/O	CAN data plus
16	CAN-	I/O	CAN data minus

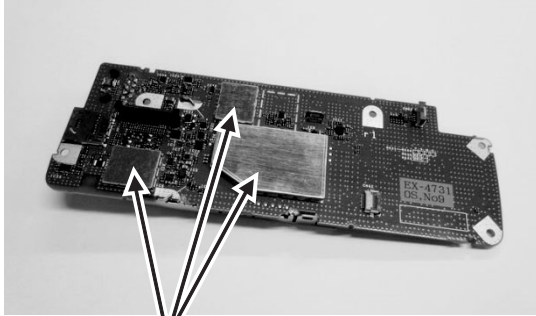
SECTION 3 DISASSEMBLY

3.1 Precautions for Disassembly

3.1.1 Remove the top cover from the shield cover

- (1) There are four shield covers on the Sub unit and interface unit, the top covers can be removed.

Subunit

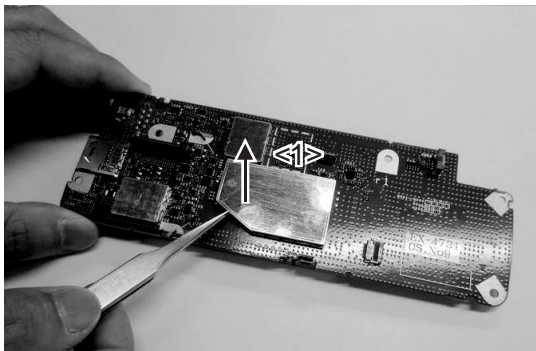


Shield cover

Interface unit

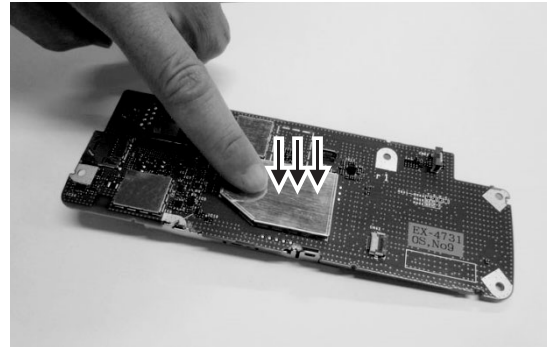


- (2) Use tweezers to slightly lift the edge of the top cover. <1>



Note:

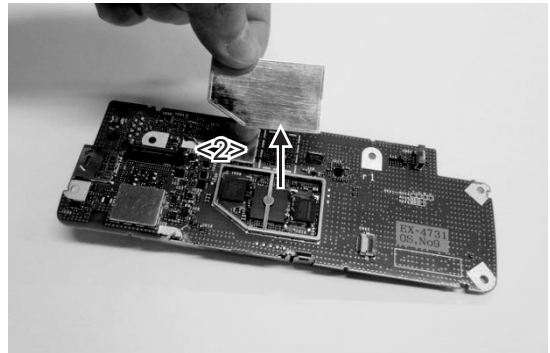
Push evenly on the top cover and be careful that you do not bend it as you install it on the shield cover.



- (3) As you do step 2 above, vary the position you hold the top cover as you lift it, and remove the top cover <2>.

Note:

Once the top cover is removed, it cannot be used again.



SECTION 4 ADJUSTMENT

This service manual does not describe ADJUSTMENT.
(There is no adjustment item on KCH-20R.)

SECTION 5

TROUBLESHOOTING

5.1 Fault Diagnosis of the BGA (Ball Grid Array) IC

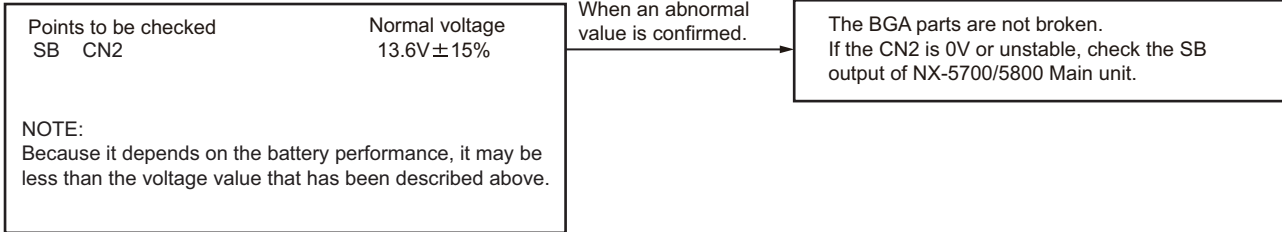
■Overview

A flowchart for determining whether or not the transceiver can be powered on (the LCD does not function even if the power switch is turned on) due to broken BGA parts.

■BGA parts

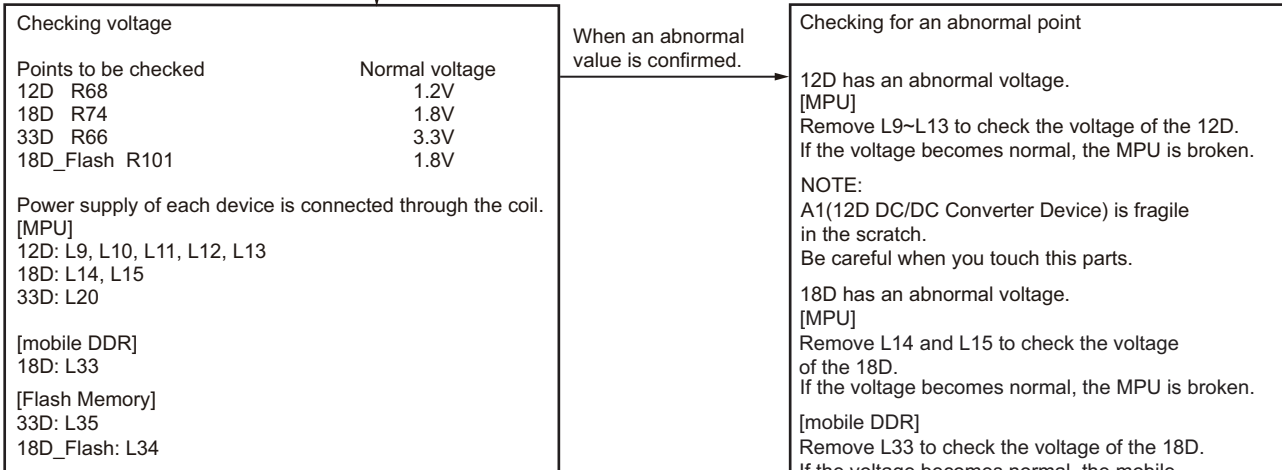
MPU (IC14), mobile DDR (IC24), Flash memory (IC30)

● Checking SB (Battery) voltage



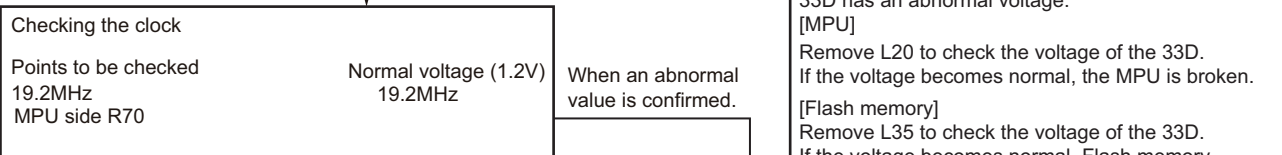
When a normal value is confirmed.

● Checking power supply voltage

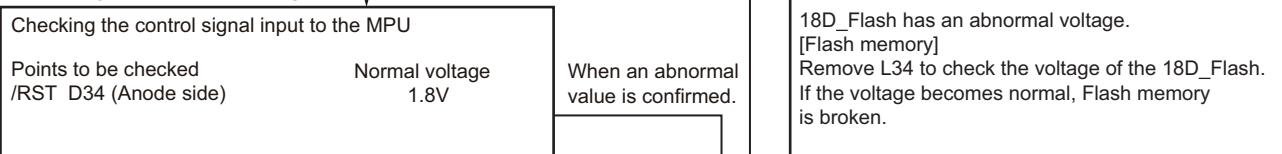


When a normal value is confirmed.

● Checking the clock

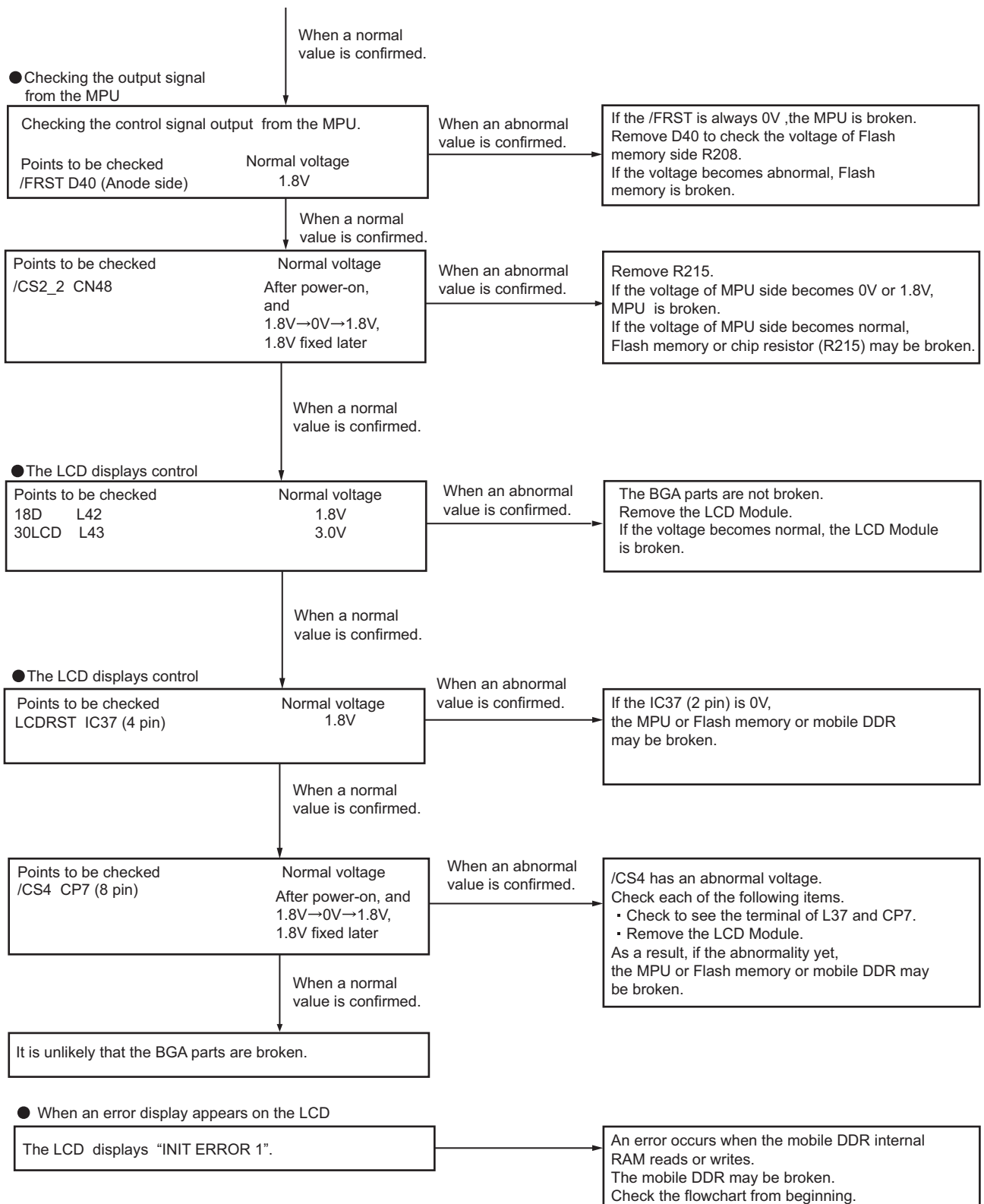


● Checking the Reset/Control signal



When a normal value is confirmed.

The BGA parts are not broken.



■ Descriptions of signal names

1) /RST	:MPU reset signal	LOW → Reset
2) /FRST	:Flash memory reset signal	LOW → Reset
3) /CS2_2	:Flash memory chip select signal	LOW → Active
4) LCDRST	:LCD reset signal	LOW → Reset
5) /CS_4	:LCD controller chip select signal	LOW → Active

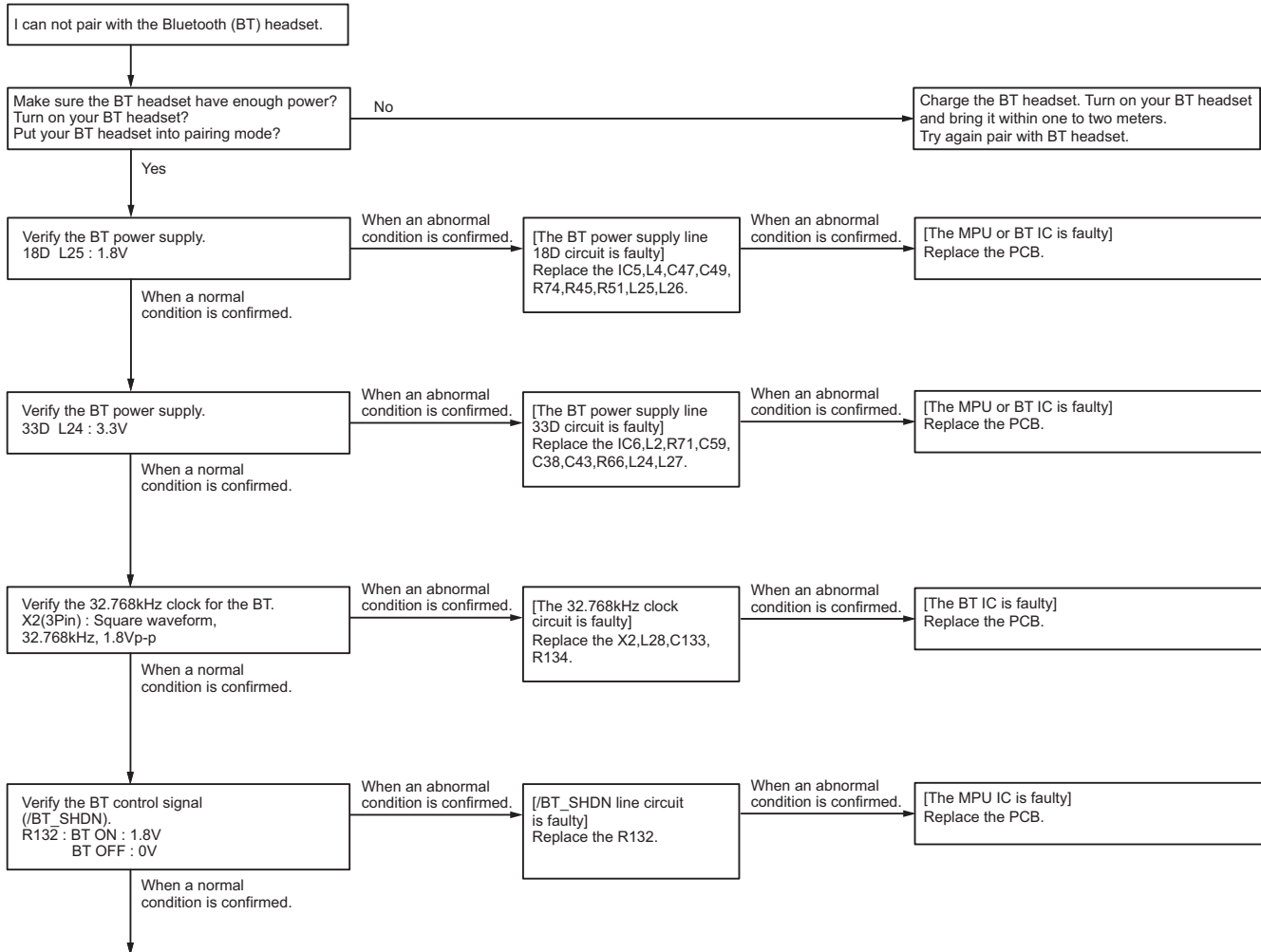
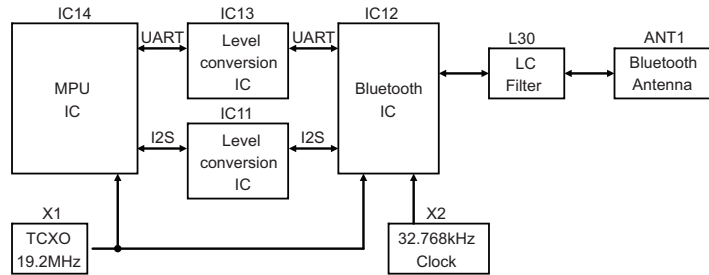
5.2 Failure diagnosis of the Bluetooth section

Overview:

When the Bluetooth function does not operate, use this flowchart to determine the problem.

Major parts for a Bluetooth circuit

- Bluetooth antenna (ANT1)
- LC filter (L30)
- Bluetooth IC (IC12)
- Level conversion IC (IC11, IC13)
- TCXO 19.2MHz (X1)
- 32.768kHz clock (X2)
- 18D Regulator (IC5)
- 33D Regulator (IC6)
- MPU IC (IC14)

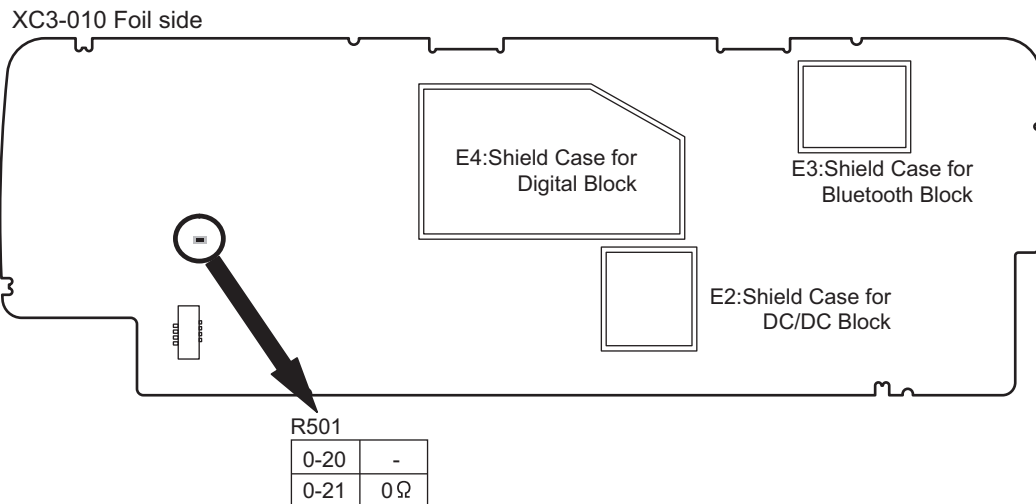


5.3 Replacing Sub Unit

■Sub Unit Information

Model Name	Orginal Sub Unit Number	For Service Sub Unit Number
KCH-20R	XC3-0100-20	XC3-0100-21

■Method of confirming "Original Separate Unit" and "Service Separate Unit"



■Supplied Accessories of "Service Sub Unit"

Item (Including Parts Number)	Quantity
Sub Unit (XC3-010)	1
Protecting Sheet (H21-0792-04)	1
Individual Box (H5A-0312-00)	1

■"Service Separate Unit" Data

The following data is written on the service unit.

- Firmware

■After Changing the PCB

After changing the printed circuit board, update Firmware following the instructions.

If you write different Market Firmware, there are times communication with the FPU is not possible.

(1) Connection procedure

Connect the transceiver to the personal computer using the programming interface (KPG-46U or KPG-46X).

(2) Programming

a) Start up the firmware programming software (KENWOOD Firmware Loder).

The KFL.exe exists in the KPG-D1/D1N installed folder.

b) Set the baud rate to "auto" or 1152000, 576000, 115200, and 57600.

c) Set the firmware to be upgrade by file name item.

d) Turn the transceiver power ON, and enter the firmware programming mode. *Note

e) Check the connection between the transceiver and the personal computer, and make sure that the transceiver is in the Programming mode.

f) Press "Write" button in the window.

When the transceiver starts to receive data, the [LOADING] display on LCD.

The Firmware is written to DECK (NX-5700/NX-5800) and KCH-20R at the same time.

g) If writing ends successfully, the checksum is calculated and a result is displayed.

*Note:

Mode	Operation
Firmware programming mode	• [AUX (Orange)] + Power ON
	• [] + Power ON Select the "Firmware Prog" using the [▲] / [▼] key. Press the [] key.
	• If Write is performed by KFL, Firmware programming mode will start automatically.

SCHEMATIC DIAGRAM

■ SUB UNIT (XC3-0100-20)

SUB UNIT XC3-0100-20

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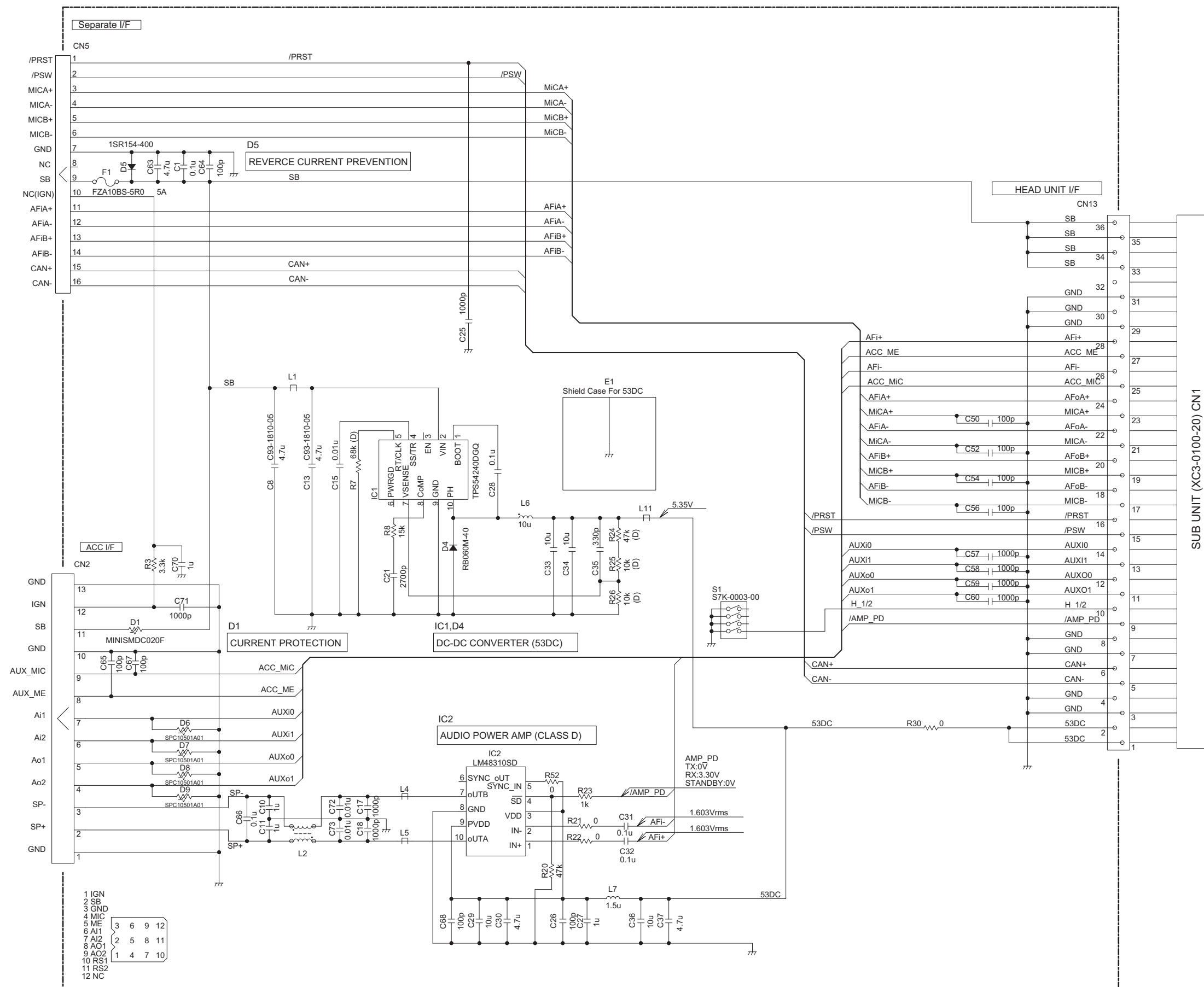
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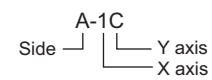
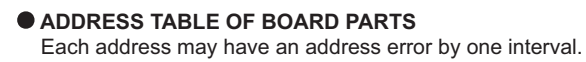
P

Q

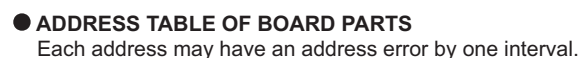
■ INTERFACE UNIT (XC3-0110-20)



--- Component side view (J7C-0041-00) ---

[illegible]

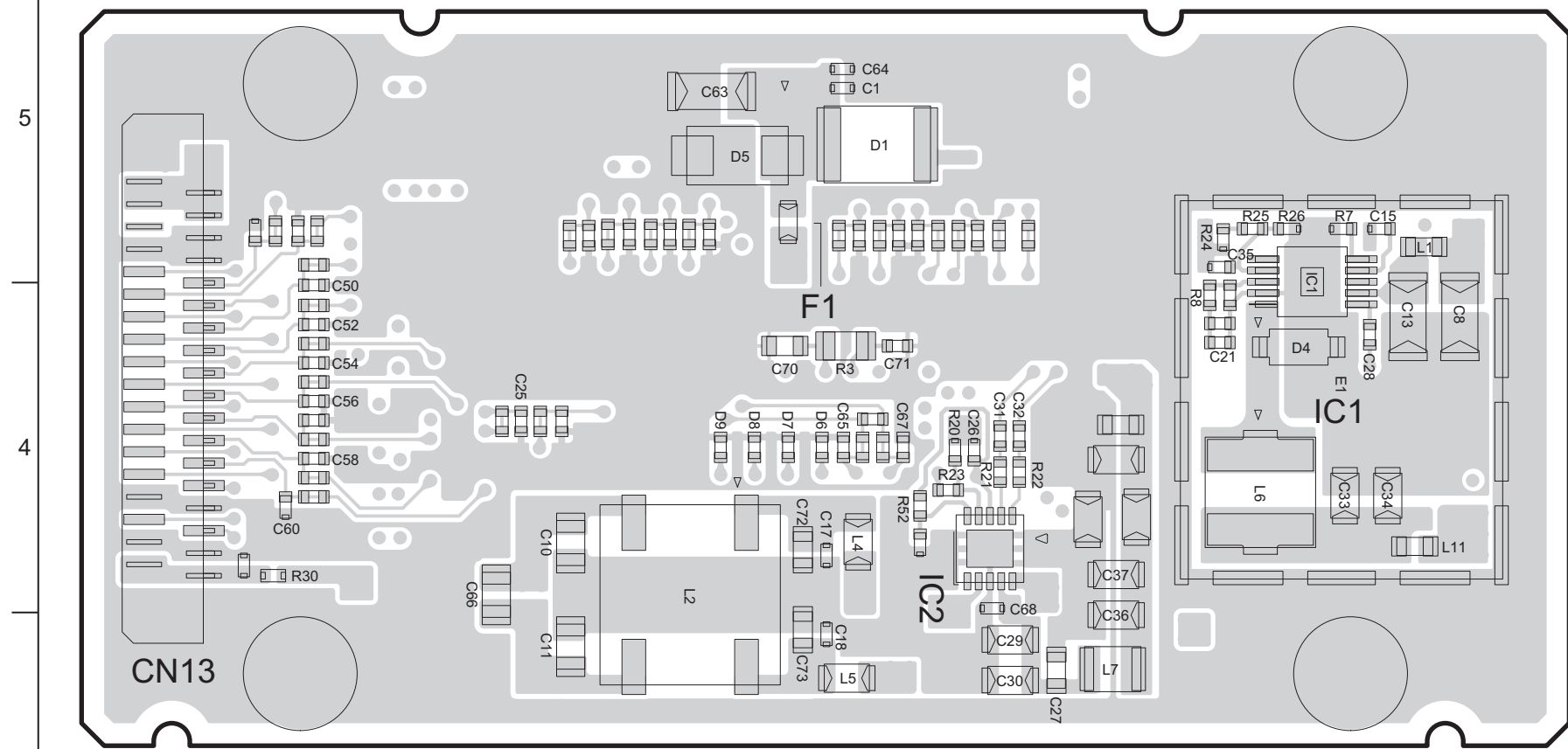
--- Foil side view (J7C-0041-00) ---



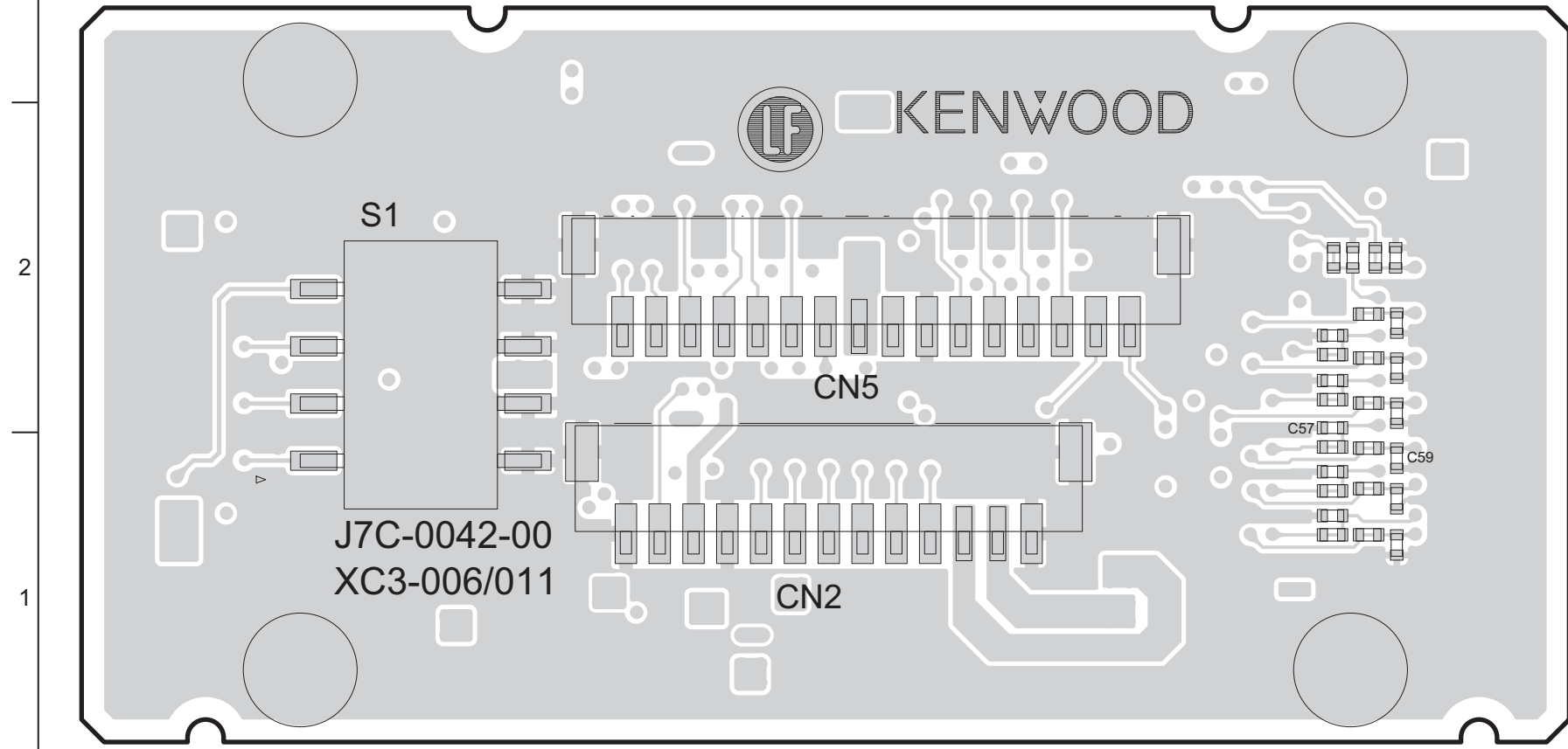
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■ INTERFACE UNIT (XC3-0110-20)

--- Component side view (J7C-0042-00) ---



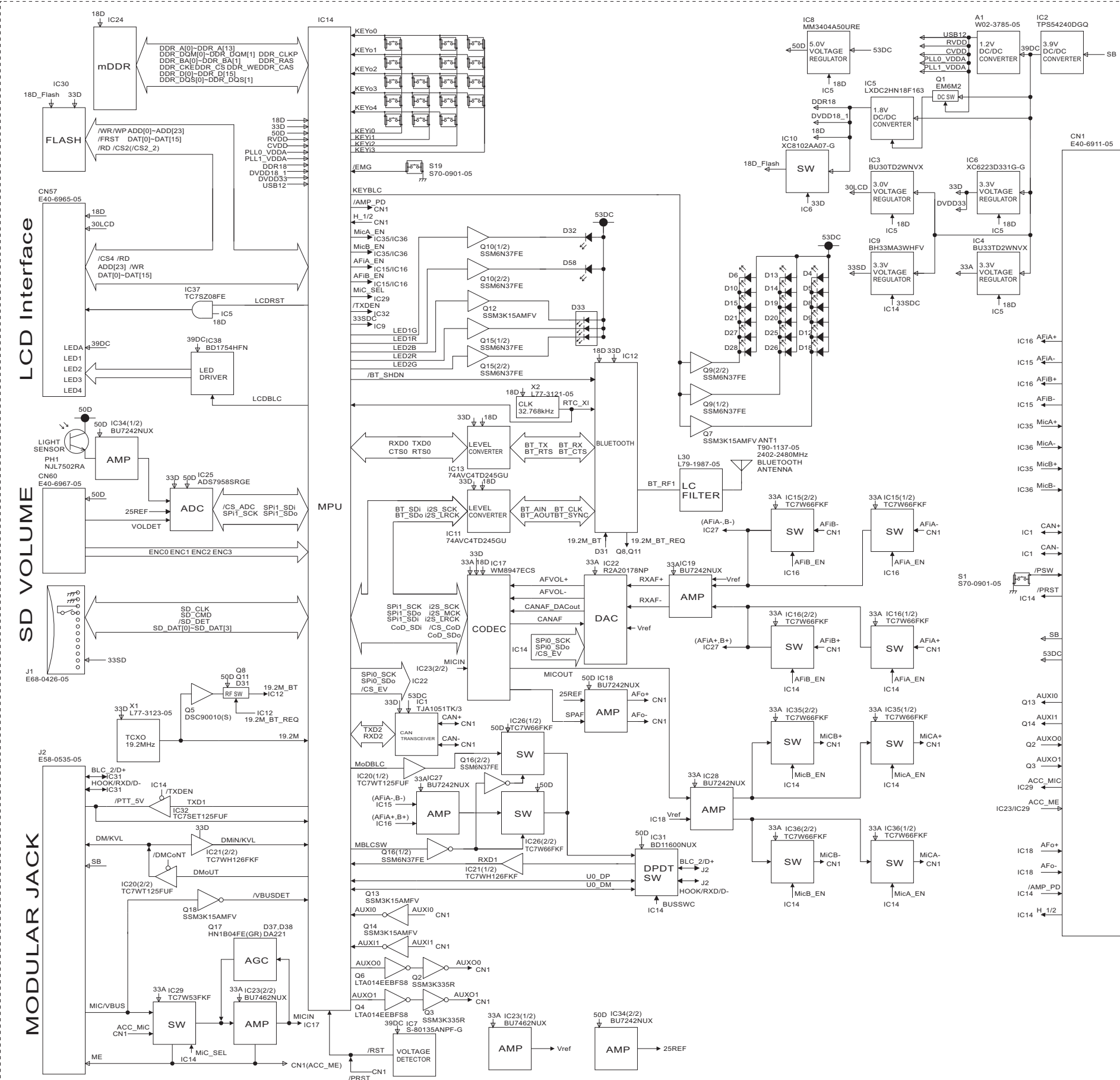
--- Foil side view (J7C-0042-00) ---



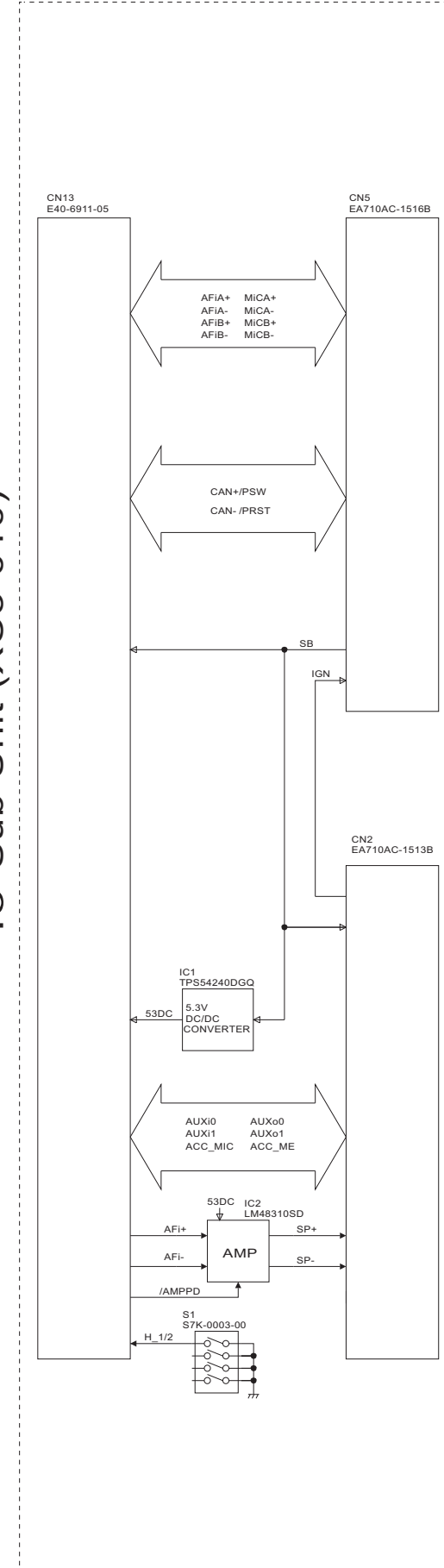


BLOCK DIAGRAM

Sub Unit (XC3-010)



Interface Unit (XC3-011)



To KRK-15B

AUX PORT

PARTS LIST

[KCH-20R]

* SAFETY PRECAUTION

Parts identified by the ! symbol are critical for safety. Replace only with specified part numbers.

* BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine parts be used.

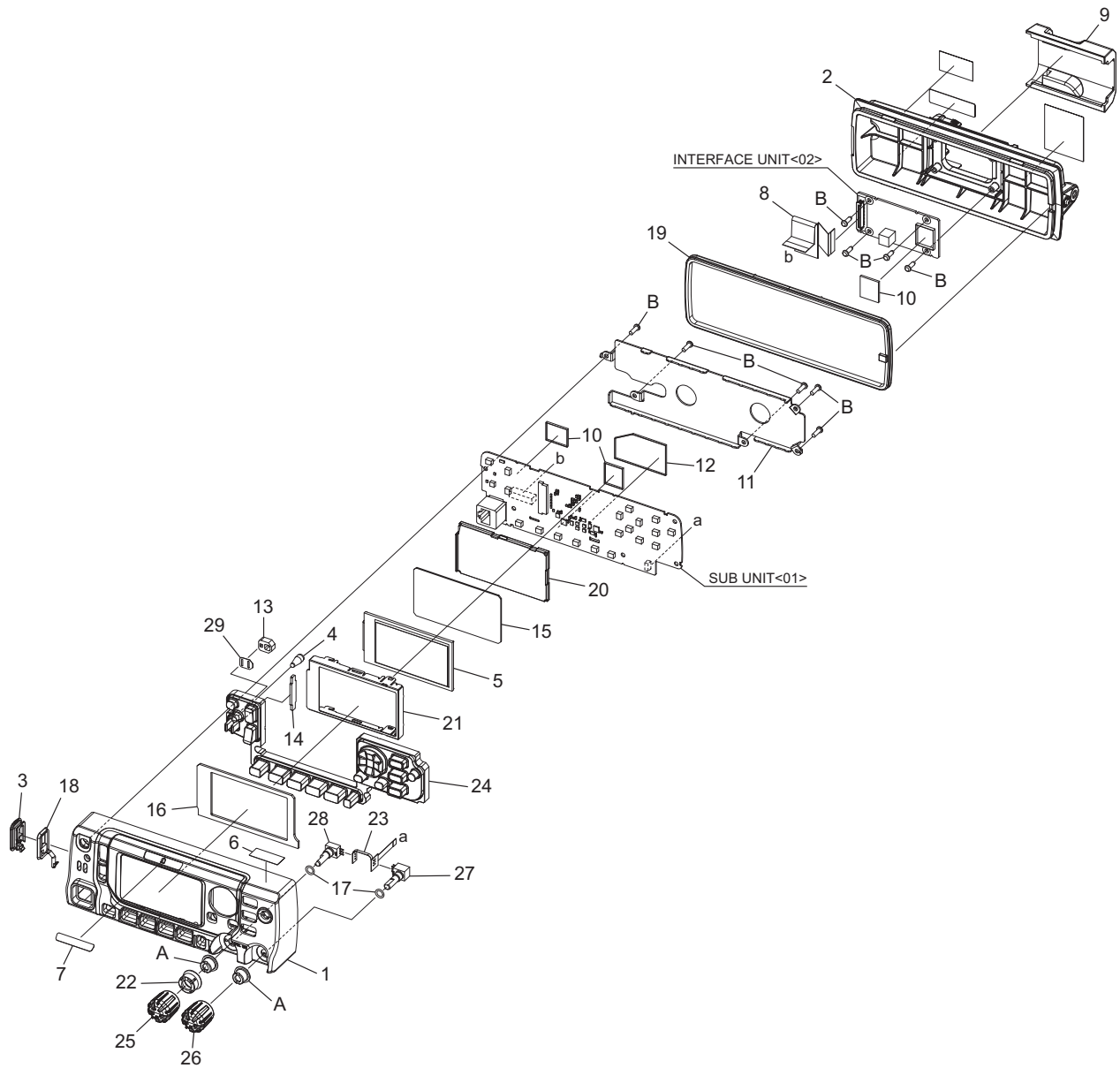
* (x_) in a description column shows the number of the used part.

- Contents -

Exploded view of general assembly and parts list	3-2
Electrical parts list	3-4
Packing materials and accessories parts list	3-10

Exploded view of general assembly and parts list

Block No.M1MM



General assembly

Block No. [M][1][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	A6C-0013-10	PANEL ASSEMBLY		
2	A2D-0010-00	REAR PANEL		
3	B0K-0025-00	CAP	SD CARD CAP	
4	B1B-0040-00	ILLUMINATION GUIDE		
5	B3H-0005-10	LCD ASSEMBLY		
6	B4B-0008-00	CAUTION STICKER	FCC PANEL	
7	B4D-0029-00	BADGE	KENWOOD LOGO	
8	E3F-0050-00	FLAT CABLE	36PIN	
9	F0G-0002-00	MOLDING COVER		
10	F10-3225-05	SHIELDING COVER	BLS 14.4x16.9(x3)	
11	F1A-0016-10	SHIELDING COVER	SPCC	
12	F1B-0027-00	SHIELDING COVER	BLS 41.1x25.1	
13	F1E-0017-10	SHADE	TX/BUSY LED	
14	G1B-0111-00	SHEET	KEYTOP/LIGHT SENSOR	
15	G1D-0042-00	CUSHION	LCD-LCD HOLDER	
16	G1D-0043-00	CUSHION	LCD-F.LASS	
17	G53-2206-04	O RING	VOL/CH(x2)	
18	G5D-0011-00	PACKING	SD CARD CAP	
19	G5D-0050-00	PACKING	ZENSU	
20	J1K-0148-00	HOLDER	LCD	
21	J2B-0050-00	MOUNTING HARDWARE	LCD	
22	J3K-0015-00	SPACER	VOL TORQUE UP	
23	J8C-0004-00	FLEX PRINTED BOARD	VOL/CH	
24	K2K-0139-00	KEY TOP		
25	K2K-0185-00	KNOB	VOL	
26	K2K-0179-00	KNOB	CH	
27	S6A-0001-00	ROTARY SWITCH	CH	
28	R3B-0001-00	ROTARY TYPE VARIABLE RESISTOR	VOL	
29	G1B-0070-00	SHEET(TX/BUSY LED)		
A	N1X-0009-10	CIRCULAR NUT	(x2)	
B	N80-2608-48	PAN HEAD TAPTITE SCREW	XC3 SUB(x9)	
-	XC3-0100-21	SUB UNIT(FOR SERVICE)		
-	XC3-0110-20	INTERFACE UNIT		

Electrical parts list

SUB UNIT

XC3-0100-20

***Note : This part cannot be replaced. Therefore, this part is not supplied as a service part.**

Block No. [0][1]

△ Symbol No.	Part No.	Part Name	Description	Local
IC1	TJA1051TK/3	IC		
IC2	TPS54240DGQ	IC		
IC3	BU30TD2WNVX	IC		
IC4	BU33TD2WNVX	IC		
IC5	LXDC2HN18F163	IC		
IC6	XC6223D331G-G	IC		
IC7	S-80135ANPF-G	IC		
IC8	MM3404A50URE	IC		
IC9	BH33MA3WHFV	IC		
IC10	XC8102AA07-G	IC		
IC11	74AVC4TD245GU	IC		
IC12	-----	IC	*Note	
IC13	74AVC4TD245GU	IC		
IC14	-----	IC	*Note	
IC15	TC7W66FKF	IC		
IC16	TC7W66FKF	IC		
IC17	WM8947ECS	IC		
IC18	BU7242NUX	IC		
IC19	BU7242NUX	IC		
IC20	TC7WT125FUF	IC		
IC21	TC7WH126FK	IC		
IC22	R2A20178NP	IC		
IC23	BU7462NUX	IC		
IC24	-----	IC	*Note	
IC25	ADS7958SRGE	IC		
IC26	TC7W66FKF	IC		
IC27	BU7242NUX	IC		
IC28	BU7242NUX	IC		
IC29	TC7W53FKF	IC		
IC30	-----	IC	*Note	
IC31	BD11600NUX	IC		
IC32	TC7SET125FUF	IC		
IC34	BU7242NUX	IC		
IC35	TC7W66FKF	IC		
IC36	TC7W66FKF	IC		
IC37	TC7SZ08FE	IC		
IC38	BD1754HFN	IC		
Q1	EM6M2	FET		
Q2	SSM3K335R	FET		
Q3	SSM3K335R	FET		
Q4	LTA014EEBFS8	DIGI TRANSISTOR		
Q5	DSC90010(S)	TRANSISTOR		
Q6	LTA014EEBFS8	DIGI TRANSISTOR		
Q7	SSM3K15AMFV	FET		
Q8	EM6M2	FET		
Q9	SSM6N37FE	FET		
Q10	SSM6N37FE	FET		
Q11	SSM3K15AMFV	FET		
Q12	SSM3K15AMFV	FET		
Q13	SSM3K15AMFV	FET		
Q14	SSM3K15AMFV	FET		
Q15	SSM6N37FE	FET		
Q16	SSM6N37FE	FET		
Q17	HN1B04FE(GR)	TRANSISTOR		
Q18	SSM3K15AMFV	FET		
D1	SPC10501A01	VARISTOR		
D2	SPC10501A01	VARISTOR		
D3	RB521CM-30	DIODE		
D4	B30-2365-05	LED	WHITE/R/8	
D5	B30-2365-05	LED	WHITE/R/8	
D6	B30-2365-05	LED	WHITE/R/8	
D7	RB521CM-30	DIODE		
D8	B30-2365-05	LED	WHITE/R/8	
D9	B30-2365-05	LED	WHITE/R/8	
D10	B30-2365-05	LED	WHITE/R/8	

△ Symbol No.	Part No.	Part Name	Description	Local
D11	RB521CM-30	DIODE		
D12	B30-2365-05	LED	WHITE/R/8	
D13	B30-2365-05	LED	WHITE/R/8	
D14	B30-2365-05	LED	WHITE/R/8	
D15	B30-2365-05	LED	WHITE/R/8	
D16	RB060M-40	DIODE		
D17	RB521CM-30	DIODE		
D18	B30-2365-05	LED	WHITE/R/8	
D19	B30-2365-05	LED	WHITE/R/8	
D20	B30-2365-05	LED	WHITE/R/8	
D21	B30-2365-05	LED	WHITE/R/8	
D22	RB521CM-30	DIODE		
D23	DZ2J180(M)	ZENER DIODE		
D24	DZ2J180(M)	ZENER DIODE		
D25	B30-2365-05	LED	WHITE/R/8	
D26	B30-2365-05	LED	WHITE/R/8	
D27	B30-2365-05	LED	WHITE/R/8	
D28	B30-2365-05	LED	WHITE/R/8	
D29	RB521CM-30	DIODE		
D30	RB521CM-30	DIODE		
D31	RN262CS	DIODE		
D32	SMLP13EC8T	LED	GREEN	
D33	B30-2364-05	LED	RGB/TOP/6P/12	
D34	RB521CM-30	DIODE		
D36	RB521CM-30	DIODE		
D37	DA221	MULTIPLE DIODE		
D38	DA221	MULTIPLE DIODE		
D39	RB521CM-30	DIODE		
D40	RB521CM-30	DIODE		
D41	DZ2J062(M)	ZENER DIODE		
D42	SPC10501A01	VARISTOR		
D43	SPC10501A01	VARISTOR		
D44	MINISMDC020F	VARISTOR		
D45	SPC10501A01	VARISTOR		
D46	SPC10501A01	VARISTOR		
D47	DZ2S068M	ZENER DIODE		
D48	DZ2S068M	ZENER DIODE		
D49	DZ2S068M	ZENER DIODE		
D50	DZ2S068M	ZENER DIODE		
D51	EMZ6.8N	ZENER DIODE		
D57	RB521CM-30	DIODE		
D58	SML-P12U	LED	RED	
D59	RB521CM-30	DIODE		
C3	CC73HCH1H101J	C CAPACITOR	100PF J	
C4	CC73HCH1H101J	C CAPACITOR	100PF J	
C23	CK73GBB1H104K	C CAPACITOR	0.1UF K	
C24	CK73HB1E104K	C CAPACITOR	0.10UF K	
C25	C93-1810-05	C CAPACITOR	4.7UF K	
C26	CK73FB1C106K	C CAPACITOR	10UF K	
C27	C93-1810-05	C CAPACITOR	4.7UF K	
C28	C93-1810-05	C CAPACITOR	4.7UF K	
C29	CK73HB1E104K	C CAPACITOR	0.10UF K	
C30	CK73HB1H103K	C CAPACITOR	10000PF K	
C31	CK73HB1H103K	C CAPACITOR	10000PF K	
C32	CK73HB1E104K	C CAPACITOR	0.10UF K	
C33	CC73HCH1H390J	C CAPACITOR	39PF J	
C34	CC73HCH1H101J	C CAPACITOR	100PF J	
C35	CK73HB1E104K	C CAPACITOR	0.10UF K	
C36	CC73HCH1H101J	C CAPACITOR	100PF J	
C37	CK73FB1C106K	C CAPACITOR	10UF K	
C38	CK73GB1E105K	C CAPACITOR	1.0UF K	
C39	CK73HB1H103K	C CAPACITOR	10000PF K	
C40	CK73FB1C106K	C CAPACITOR	10UF K	
C41	CK73HB1H182K	C CAPACITOR	1800PF K	
C42	CC73HCH1H101J	C CAPACITOR	100PF J	
C43	CK73GB1E105K	C CAPACITOR	1.0UF K	
C44	CK73GB1E105K	C CAPACITOR	1.0UF K	
C46	CK73GB1E105K	C CAPACITOR	1.0UF K	
C47	CK73FXR1E475K	C CAPACITOR	4.7UF K	
C48	CK73FB1C106K	C CAPACITOR	10UF K	
C49	CK73GB0J106K	C CAPACITOR	10UF K	
C51	CK73GB0J106K	C CAPACITOR	10UF K	
C52	CK73HB1H103K	C CAPACITOR	10000PF K	
C53	CK73GB1E105K	C CAPACITOR	1.0UF K	
C54	CK73GB1E105K	C CAPACITOR	1.0UF K	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C58	CC73HCH1H101J	C CAPACITOR	100PF J		C138	CC73HCH1H220J	C CAPACITOR	22PF J	
C59	CK73HB1E104K	C CAPACITOR	0.10UF K		C140	CK73HB1C105K	C CAPACITOR	1.0UF K	
C60	CC73HCH1H101J	C CAPACITOR	100PF J		C141	CK73HB1C105K	C CAPACITOR	1.0UF K	
C61	CC73HCH1H101J	C CAPACITOR	100PF J		C142	CK73HB1C105K	C CAPACITOR	1.0UF K	
C62	CC73HCH1H101J	C CAPACITOR	100PF J		C143	CK73HB1C105K	C CAPACITOR	1.0UF K	
C63	CC73HCH1H101J	C CAPACITOR	100PF J		C144	CK73HB0J475M	C CAPACITOR	4.7UF M	
C64	CC73HCH1H101J	C CAPACITOR	100PF J		C145	CK73HB1C105K	C CAPACITOR	1.0UF K	
C65	CK73HB1H103K	C CAPACITOR	10000PF K		C146	CK73HB1E104K	C CAPACITOR	0.10UF K	
C66	CK73HB1H103K	C CAPACITOR	10000PF K		C147	CK73GXR1C225K	C CAPACITOR	2.2UF K	
C67	CC73HCH1H100C	C CAPACITOR	10PF C		C148	CK73HB0J475M	C CAPACITOR	4.7UF M	
C68	CK73GXR1C225K	C CAPACITOR	2.2UF K		C149	CK73HB1C105K	C CAPACITOR	1.0UF K	
C69	CK73GXR1C225K	C CAPACITOR	2.2UF K		C150	CC73HCH1H0R5B	C CAPACITOR	0.5PF B	
C71	CK73HB1H103K	C CAPACITOR	10000PF K		C153	CK73HB0J475M	C CAPACITOR	4.7UF M	
C72	CK73HB1H103K	C CAPACITOR	10000PF K		C154	CK73HB1H103K	C CAPACITOR	10000PF K	
C73	CK73GB0J106K	C CAPACITOR	10UF K		C155	CK73HB1H103K	C CAPACITOR	10000PF K	
C74	CK73GB1E105K	C CAPACITOR	1.0UF K		C156	CC73HCH1HR75B	C CAPACITOR	0.75PF B	
C75	CK73GB1E105K	C CAPACITOR	1.0UF K		C157	CK73HB0J475M	C CAPACITOR	4.7UF M	
C76	CK73HB1E104K	C CAPACITOR	0.10UF K		C158	CC73HCH1H100B	C CAPACITOR	10PF B	
C77	CK73HB1E104K	C CAPACITOR	0.10UF K		C159	CC73HCH1H100B	C CAPACITOR	10PF B	
C78	CK73GB0J106K	C CAPACITOR	10UF K		C160	CK73HB1C105K	C CAPACITOR	1.0UF K	
C79	CK73GB0J106K	C CAPACITOR	10UF K		C161	CK73HB1C105K	C CAPACITOR	1.0UF K	
C80	CK73HB1H103K	C CAPACITOR	10000PF K		C162	CC73HCH1H101J	C CAPACITOR	100PF J	
C81	CK73HB1H103K	C CAPACITOR	10000PF K		C163	CK73HB1C105K	C CAPACITOR	1.0UF K	
C82	CK73HB1H103K	C CAPACITOR	10000PF K		C164	CK73HB1C105K	C CAPACITOR	1.0UF K	
C83	CK73HB1H103K	C CAPACITOR	10000PF K		C165	CK73HB1C105K	C CAPACITOR	1.0UF K	
C84	CK73HB1H103K	C CAPACITOR	10000PF K		C166	CK73HB1H103K	C CAPACITOR	10000PF K	
C85	CK73GB0J106K	C CAPACITOR	10UF K		C167	CK73HB1H103K	C CAPACITOR	10000PF K	
C86	CK73HB1H103K	C CAPACITOR	10000PF K		C168	CC73HCH1H100B	C CAPACITOR	10PF B	
C87	CK73HB1E104K	C CAPACITOR	0.10UF K		C169	CC73HCH1H101J	C CAPACITOR	100PF J	
C88	CK73GB0J106K	C CAPACITOR	10UF K		C170	CK73HB1E104K	C CAPACITOR	0.10UF K	
C89	CC73HCH1H101J	C CAPACITOR	100PF J		C172	CK73GB0J106K	C CAPACITOR	10UF K	
C90	CK73GB0J106K	C CAPACITOR	10UF K		C173	CK73HB1E104K	C CAPACITOR	0.10UF K	
C91	CC73HCH1H101J	C CAPACITOR	100PF J		C174	CC73HCH1H101J	C CAPACITOR	100PF J	
C92	CK73HB1H103K	C CAPACITOR	10000PF K		C175	CK73HB1E104K	C CAPACITOR	0.10UF K	
C93	CK73GB1E105K	C CAPACITOR	1.0UF K		C177	CC73HCH1H101J	C CAPACITOR	100PF J	
C94	CK73HB1E104K	C CAPACITOR	0.10UF K		C178	CK73HB1E104K	C CAPACITOR	0.10UF K	
C95	CK73GB1E105K	C CAPACITOR	1.0UF K		C179	CK73FXR0J226M	C CAPACITOR	22UF M	
C96	CK73HB1H103K	C CAPACITOR	10000PF K		C180	CK73HB1E104K	C CAPACITOR	0.10UF K	
C97	CC73HCH1H101J	C CAPACITOR	100PF J		C181	CK73HB1H103K	C CAPACITOR	10000PF K	
C98	CK73GB1E105K	C CAPACITOR	1.0UF K		C182	CK73HB1E104K	C CAPACITOR	0.10UF K	
C99	CK73HB1H103K	C CAPACITOR	10000PF K		C183	CK73HB1E104K	C CAPACITOR	0.10UF K	
C100	CK73HB1E104K	C CAPACITOR	0.10UF K		C184	CK73HB1E104K	C CAPACITOR	0.10UF K	
C102	CC73HCH1H101J	C CAPACITOR	100PF J		C185	CK73HB1E104K	C CAPACITOR	0.10UF K	
C103	CK73HB1E104K	C CAPACITOR	0.10UF K		C186	CK73GBB1H102K	C CAPACITOR	1000PF K	
C104	CC73HCH1H101J	C CAPACITOR	100PF J		C187	CK73HB1E104K	C CAPACITOR	0.10UF K	
C105	CK73GB0J106K	C CAPACITOR	10UF K		C188	CK73HB1E104K	C CAPACITOR	0.10UF K	
C106	CK73HB1E104K	C CAPACITOR	0.10UF K		C189	CC73HCH1H221J	C CAPACITOR	220PF J	
C107	CK73HB1E104K	C CAPACITOR	0.10UF K		C190	CC73HCH1H221J	C CAPACITOR	220PF J	
C108	CK73HB1H103K	C CAPACITOR	10000PF K		C191	CK73HB1E104K	C CAPACITOR	0.10UF K	
C109	CK73HB1E104K	C CAPACITOR	0.10UF K		C192	CK73HB1E104K	C CAPACITOR	0.10UF K	
C110	CC73HCH1H101J	C CAPACITOR	100PF J		C193	CK73HB1E104K	C CAPACITOR	0.10UF K	
C111	CK73HB1E104K	C CAPACITOR	0.10UF K		C194	CK73HB1E104K	C CAPACITOR	0.10UF K	
C112	CK73HB1E104K	C CAPACITOR	0.10UF K		C195	CC73HCH1H220G	C CAPACITOR	22PF G	
C113	CK73HB1C105K	C CAPACITOR	1.0UF K		C196	CK73HB1H103K	C CAPACITOR	10000PF K	
C114	CK73HB1A224K	C CAPACITOR	0.22UF K		C197	CK73HB1H103K	C CAPACITOR	10000PF K	
C115	CC73HCH1H101J	C CAPACITOR	100PF J		C198	CK73HBB1H152K	C CAPACITOR	1500PF K	
C116	CK73HB1C105K	C CAPACITOR	1.0UF K		C199	CK73GBB1H102K	C CAPACITOR	1000PF K	
C117	CK73HB1E104K	C CAPACITOR	0.10UF K		C200	CK73HB1C105K	C CAPACITOR	1.0UF K	
C118	CK73HB1E104K	C CAPACITOR	0.10UF K		C201	CK73HB1C105K	C CAPACITOR	1.0UF K	
C119	CK73HB1E104K	C CAPACITOR	0.10UF K		C202	CK73HB1A224K	C CAPACITOR	0.22UF K	
C120	CK73HB1E104K	C CAPACITOR	0.10UF K		C203	CK73HB1E104K	C CAPACITOR	0.10UF K	
C121	CK73HB1C105K	C CAPACITOR	1.0UF K		C204	CK73HB0J475M	C CAPACITOR	4.7UF M	
C122	CK73HB1E104K	C CAPACITOR	0.10UF K		C205	CC73HCH1H100D	C CAPACITOR	10PF D	
C123	CK73HB1C105K	C CAPACITOR	1.0UF K		C206	CK73HB1C105K	C CAPACITOR	1.0UF K	
C124	CC73HCH1H470J	C CAPACITOR	47PF J		C207	CK73HB0J225K	C CAPACITOR	2.2UF K	
C125	CK73HB1E104K	C CAPACITOR	0.10UF K		C208	CK73HB0J225K	C CAPACITOR	2.2UF K	
C126	CK73HB1C105K	C CAPACITOR	1.0UF K		C209	CK73HB1E104K	C CAPACITOR	0.10UF K	
C127	CC73HCH1H101J	C CAPACITOR	100PF J		C210	CK73HB1E104K	C CAPACITOR	0.10UF K	
C128	CK73HB1C105K	C CAPACITOR	1.0UF K		C211	CK73HB1H103K	C CAPACITOR	10000PF K	
C129	CK73HB1E104K	C CAPACITOR	0.10UF K		C212	CK73HB1E104K	C CAPACITOR	0.10UF K	
C130	CK73HB1C105K	C CAPACITOR	1.0UF K		C213	CC73HCH1H100D	C CAPACITOR	10PF D	
C131	CK73HB1E104K	C CAPACITOR	0.10UF K		C214	CK73HB1E104K	C CAPACITOR	0.10UF K	
C132	CK73HB1E104K	C CAPACITOR	0.10UF K		C215	CK73HB1E104K	C CAPACITOR	0.10UF K	
C133	CK73HB1E104K	C CAPACITOR	0.10UF K		C216	CK73GB1E105K	C CAPACITOR	1.0UF K	
C134	CK73HB1E104K	C CAPACITOR	0.10UF K		C217	CK73HB1E104K	C CAPACITOR	0.10UF K	
C135	CK73HB1E104K	C CAPACITOR	0.10UF K		C218	CC73HCH1H100D	C CAPACITOR	10PF D	
C136	CK73HB1E104K	C CAPACITOR	0.10UF K		C219	CK73HB1C105K	C CAPACITOR	1.0UF K	
C137	CK73HB1E104K	C CAPACITOR	0.10UF K		C220	CK73GB1E105K	C CAPACITOR	1.0UF K	

△ Symbol No.	Part No.	Part Name	Description	Local
C221	CK73HB1E104K	C CAPACITOR	0.10UF K	
C222	CK73HB1E104K	C CAPACITOR	0.10UF K	
C224	CK73HB1E104K	C CAPACITOR	0.10UF K	
C225	CK73HB1E104K	C CAPACITOR	0.10UF K	
C226	CK73HB1E104K	C CAPACITOR	0.10UF K	
C227	CK73HB1C105K	C CAPACITOR	1.0UF K	
C228	CK73HB1C105K	C CAPACITOR	1.0UF K	
C229	CK73HB1C105K	C CAPACITOR	1.0UF K	
C230	CK73HB1H103K	C CAPACITOR	10000PF K	
C231	CK73HB1H103K	C CAPACITOR	10000PF K	
C232	CK73GB0J106K	C CAPACITOR	10UF K	
C233	CK73GB0J106K	C CAPACITOR	10UF K	
C234	CC73HCH1H101J	C CAPACITOR	100PF J	
C235	CC73HCH1H101J	C CAPACITOR	100PF J	
C236	CK73HB1E104K	C CAPACITOR	0.10UF K	
C237	CC73HCH1H101J	C CAPACITOR	100PF J	
C238	CK73GB1E105K	C CAPACITOR	1.0UF K	
C239	CK73HB1C105K	C CAPACITOR	1.0UF K	
C240	CK73HB1C105K	C CAPACITOR	1.0UF K	
C241	CK73HB1C105K	C CAPACITOR	1.0UF K	
C242	CK73HB1C105K	C CAPACITOR	1.0UF K	
C243	CK73HB1E104K	C CAPACITOR	0.10UF K	
C245	CC73HCH1H471J	C CAPACITOR	470PF J	
C246	CK73HB1E104K	C CAPACITOR	0.10UF K	
C248	CK73HB1E104K	C CAPACITOR	0.10UF K	
C249	CK73HB1E104K	C CAPACITOR	0.10UF K	
C250	CK73GBB1H102K	C CAPACITOR	1000PF K	
C251	CK73GBB1H104K	C CAPACITOR	0.1UF K	
C253	CK73GBB1H102K	C CAPACITOR	1000PF K	
C255	CK73GBB1H102K	C CAPACITOR	1000PF K	
C256	CK73GBB1H102K	C CAPACITOR	1000PF K	
C257	CK73HB1C105K	C CAPACITOR	1.0UF K	
C258	CK73HB1C105K	C CAPACITOR	1.0UF K	
C259	CK73HB1C105K	C CAPACITOR	1.0UF K	
C260	CK73HB1E104K	C CAPACITOR	0.10UF K	
C262	CK73HB1H103K	C CAPACITOR	10000PF K	
C263	CK73HBB1H332K	C CAPACITOR	3300PF K	
C265	CK73HB1E104K	C CAPACITOR	0.10UF K	
C268	CC73HCH1H101J	C CAPACITOR	100PF J	
C269	CC73HCH1H101J	C CAPACITOR	100PF J	
C270	CC73HCH1H101J	C CAPACITOR	100PF J	
C271	CC73HCH1H101J	C CAPACITOR	100PF J	
C272	CC73HCH1H101J	C CAPACITOR	100PF J	
C273	CC73HCH1H101J	C CAPACITOR	100PF J	
C274	CC73HCH1H101J	C CAPACITOR	100PF J	
C275	CC73HCH1H101J	C CAPACITOR	100PF J	
C276	CC73HCH1H101J	C CAPACITOR	100PF J	
C278	CC73HCH1H470J	C CAPACITOR	47PF J	
C279	CC73HCH1H470J	C CAPACITOR	47PF J	
C280	CC73HCH1H470J	C CAPACITOR	47PF J	
C281	CC73HCH1H470J	C CAPACITOR	47PF J	
C282	CC73HCH1H470J	C CAPACITOR	47PF J	
C283	CC73HCH1H470J	C CAPACITOR	47PF J	
C284	CC73HCH1H470J	C CAPACITOR	47PF J	
C286	CC73HCH1H470J	C CAPACITOR	47PF J	
C287	CC73HCH1H470J	C CAPACITOR	47PF J	
C288	CC73HCH1H470J	C CAPACITOR	47PF J	
C289	CC73HCH1H470J	C CAPACITOR	47PF J	
C290	CC73HCH1H470J	C CAPACITOR	47PF J	
C292	CC73HCH1H470J	C CAPACITOR	47PF J	
C293	CC73HCH1H470J	C CAPACITOR	47PF J	
C294	CC73HCH1H101J	C CAPACITOR	100PF J	
C296	CC73HCH1H101J	C CAPACITOR	100PF J	
C297	CC73HCH1H101J	C CAPACITOR	100PF J	
C298	CK73HB1E104K	C CAPACITOR	0.10UF K	
R19	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R20	RK73FB2B121J	MG RESISTOR	120 J 1/8W	
R21	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R22	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R23	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R24	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R25	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R27	RK73HH1J823D	MG RESISTOR	82K D 1/16W	
R28	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R29	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R30	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R31	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local
R32	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R34	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R35	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R36	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R37	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R38	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R39	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R40	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R41	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R42	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R43	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R44	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R45	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R46	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R47	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R48	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R49	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R50	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R51	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R52	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R53	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R54	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R55	RK73HH1J123D	MG RESISTOR	12K D 1/16W	
R56	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R57	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R58	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R59	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R60	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R61	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R62	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R64	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R65	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R66	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R67	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R68	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R69	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R70	RK73HB1J220J	MG RESISTOR	22 J 1/16W	
R71	RK73HB1J223J	MG RESISTOR	22K J 1/16W	
R72	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R73	RK73HB1J333J	MG RESISTOR	33K J 1/16W	
R74	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R75	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R76	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R77	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R78	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R79	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R80	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R81	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R82	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R83	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R84	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R85	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R86	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R88	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R89	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R90	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R91	RK73HB1J221J	MG RESISTOR	220 J 1/16W	
R92	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R93	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R94	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R95	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R96	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R97	RK73HB1J391J	MG RESISTOR	390 J 1/16W	
R98	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R99	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R100	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R101	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R102	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R103	RK73HB1J222J	MG RESISTOR	1.2K J 1/10W	
R105	RK73HB1J272J	MG RESISTOR	10K J 1/10W	
R106	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R107	RK73HB1J272J	MG RESISTOR	2.7K J 1/16W	
R108	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R109	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R110	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R111	RK73HH1J683D	MG RESISTOR	68K D 1/16W	
R112	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R113	RK73HB1J103J	MG RESISTOR	10K J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R114	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R203	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R115	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R204	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R116	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R205	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R117	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R206	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R118	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R207	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R119	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R208	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R120	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R209	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R121	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R210	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R122	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R212	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R123	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R213	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R124	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R214	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R125	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R215	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R126	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R216	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R130	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R217	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R132	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R218	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R133	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R219	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R134	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R220	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R135	RK73HB1J393J	MG RESISTOR	39K J 1/16W		R221	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R136	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R222	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R139	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R223	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R140	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R224	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R141	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R225	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R142	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R226	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R143	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R227	RK73HB1J682J	MG RESISTOR	6.8K J 1/16W	
R145	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R228	RK73GB2A151J	MG RESISTOR	150 J 1/10W	
R146	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R229	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R147	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R230	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R148	RK73GH2A49R9D	MG RESISTOR	49.9 D 1/10W		R231	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R149	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R232	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R150	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R235	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R151	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R236	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R152	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R237	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R153	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R238	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R154	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R239	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R156	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R240	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R157	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R241	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R158	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R243	RK73HH1J274D	MG RESISTOR	270K D 1/16W	
R159	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R247	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R160	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R248	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R161	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R250	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R162	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R251	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R163	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R252	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R164	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R253	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R165	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R256	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R167	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R257	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R168	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R258	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R169	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R259	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R170	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R260	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R171	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R261	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R172	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R262	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R173	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R263	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R174	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R264	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R175	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R265	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R176	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R266	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R177	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R267	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R179	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R268	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R180	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R269	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R181	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R270	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R182	RK73HB1J183J	MG RESISTOR	18K J 1/16W		R271	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R183	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R273	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
R184	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R274	RK73HB1J393J	MG RESISTOR	39K J 1/16W	
R185	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R275	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R186	RK73HH1J123D	MG RESISTOR	12K D 1/16W		R276	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R187	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R277	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R189	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R278	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R190	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R279	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R191	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R280	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R192	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W		R281	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R193	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R282	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R194	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R283	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R195	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R284	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R196	RK73HB1J183J	MG RESISTOR	18K J 1/16W		R286	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R197	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R287	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R198	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R288	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R199	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R289	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R200	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R290	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R201	RK73HB1J103J	MG RESISTOR	10K J 1/16W						
R202	RK73HB1J223J	MG RESISTOR	22K J 1/16W						
					L1	LB73G0AM-004	CHIP FERRITE BEADS		

△ Symbol No.	Part No.	Part Name	Description	Local
L2	LB73G0AM-004	CHIP FERRITE BEADS		
L3	LR79Z0EZ120M	CHIP INDUCTOR		
L4	LB73G0AM-004	CHIP FERRITE BEADS		
L5	LB73G0AM-004	CHIP FERRITE BEADS		
L6	LB73G0AM-004	CHIP FERRITE BEADS		
L7	LB73G0AM-004	CHIP FERRITE BEADS		
L8	LR77Z0AE4R7J	CHIP INDUCTOR		
L9	LB73H0AV-003	CHIP FERRITE		
L10	LB73H0AV-003	CHIP FERRITE		
L11	LB73G0AM-004	CHIP FERRITE BEADS		
L12	L92-1101-05	CHIP FERRITE		
L13	L92-1101-05	CHIP FERRITE		
L14	LB73G0AM-004	CHIP FERRITE BEADS		
L15	LB73G0AM-004	CHIP FERRITE BEADS		
L19	LB73G0AM-004	CHIP FERRITE BEADS		
L20	LB73G0AM-004	CHIP FERRITE BEADS		
L21	L92-1101-05	CHIP FERRITE		
L22	L92-1101-05	CHIP FERRITE		
L23	LB73G0AM-004	CHIP FERRITE BEADS		
L24	LB73G0AM-004	CHIP FERRITE BEADS		
L25	LB73G0AM-004	CHIP FERRITE BEADS		
L26	LB73G0AM-004	CHIP FERRITE BEADS		
L27	LB73G0AM-004	CHIP FERRITE BEADS		
L28	LB73H0AV-003	CHIP FERRITE		
L29	LB73H0AV-003	CHIP FERRITE		
L30	L79-1987-05	FILTER		
L31	LB73H0AV-003	CHIP FERRITE		
L32	LB73H0AV-003	CHIP FERRITE		
L33	LB73G0AM-004	CHIP FERRITE BEADS		
L34	LB73G0AM-004	CHIP FERRITE BEADS		
L35	LB73G0AM-004	CHIP FERRITE BEADS		
L36	LB73G0AM-004	CHIP FERRITE BEADS		
L37	L79-1984-05	FILTER		
L38	L79-1984-05	FILTER		
L39	L79-1984-05	FILTER		
L40	L79-1984-05	FILTER		
L41	L79-1984-05	FILTER		
L42	LB73H0AV-003	CHIP FERRITE		
L43	LB73H0AV-003	CHIP FERRITE		
L44	LB73G0AM-004	CHIP FERRITE BEADS		
L45	LK73H0AM5N6S	M.CHIP INDUCTOR		
L46	LB73H0AV-003	CHIP FERRITE		
L47	LB73H0AV-003	CHIP FERRITE		
L48	LB73H0AV-003	CHIP FERRITE		
L49	LB73H0AV-003	CHIP FERRITE		
L50	LB73H0AV-003	CHIP FERRITE		
L51	LB73H0AV-003	CHIP FERRITE		
L52	LB73H0AV-003	CHIP FERRITE		
L53	LB73H0AV-003	CHIP FERRITE		
L54	LB73H0AV-003	CHIP FERRITE		
L55	LB73H0AV-003	CHIP FERRITE		
L56	LB73H0AV-003	CHIP FERRITE		
L57	LB73H0AV-003	CHIP FERRITE		
L58	LB73H0AV-003	CHIP FERRITE		
A1	W02-3785-05	DC-DC CONVERTER		
ANT1	T90-1137-05	CHIP ANTENNA		
CN1	E40-6911-05	FLAT CABLE CONNECTOR		
CN57	E40-6965-05	FLAT CABLE CONNECTOR		
CN60	E40-6967-05	FLAT CABLE CONNECTOR		
CP1	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP2	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP3	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP4	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP5	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP6	RK74HB1J100J	NET RESISTOR	10 J 1/16W	
CP7	RK74HB1J470J	NET RESISTOR	47 J 1/16W	
CP8	RK74HB1J470J	NET RESISTOR	47 J 1/16W	
CP9	RK74HB1J470J	NET RESISTOR	47 J 1/16W	
CP10	RK74HB1J470J	NET RESISTOR	47 J 1/16W	
CP11	RK74HB1J470J	NET RESISTOR	47 J 1/16W	
E2	F10-3226-05	SHIELDING CASE		
E3	F10-3226-05	SHIELDING CASE		
E4	F1B-0026-00	SHIELDING CASE		
J1	E68-0426-05	JACK	OTHERS	
J2	E58-0535-05	MODULAR JACK		
J3	J3K-0014-00	SPACER	MODULAR JACK	
PH1	NJL7502RA	PHOTO TRANSISTOR		

△ Symbol No.	Part No.	Part Name	Description	Local
S1	S70-0901-05	TACT SWITCH		
S2	S70-0901-05	TACT SWITCH		
S3	S70-0901-05	TACT SWITCH		
S4	S70-0901-05	TACT SWITCH		
S5	S70-0901-05	TACT SWITCH		
S6	S70-0901-05	TACT SWITCH		
S7	S70-0901-05	TACT SWITCH		
S8	S70-0901-05	TACT SWITCH		
S9	S70-0901-05	TACT SWITCH		
S10	S70-0901-05	TACT SWITCH		
S11	S70-0901-05	TACT SWITCH		
S12	S70-0901-05	TACT SWITCH		
S13	S70-0901-05	TACT SWITCH		
S14	S70-0901-05	TACT SWITCH		
S15	S70-0901-05	TACT SWITCH		
S16	S70-0901-05	TACT SWITCH		
S17	S70-0901-05	TACT SWITCH		
S18	S70-0901-05	TACT SWITCH		
S19	S70-0901-05	TACT SWITCH		
X1	L77-3123-05	TCXO	19.2MHZ	
X2	L77-3121-05	CRYSTAL RESONATOR	32.768KHZ	

INTERFACE UNIT

XC3-0110-20

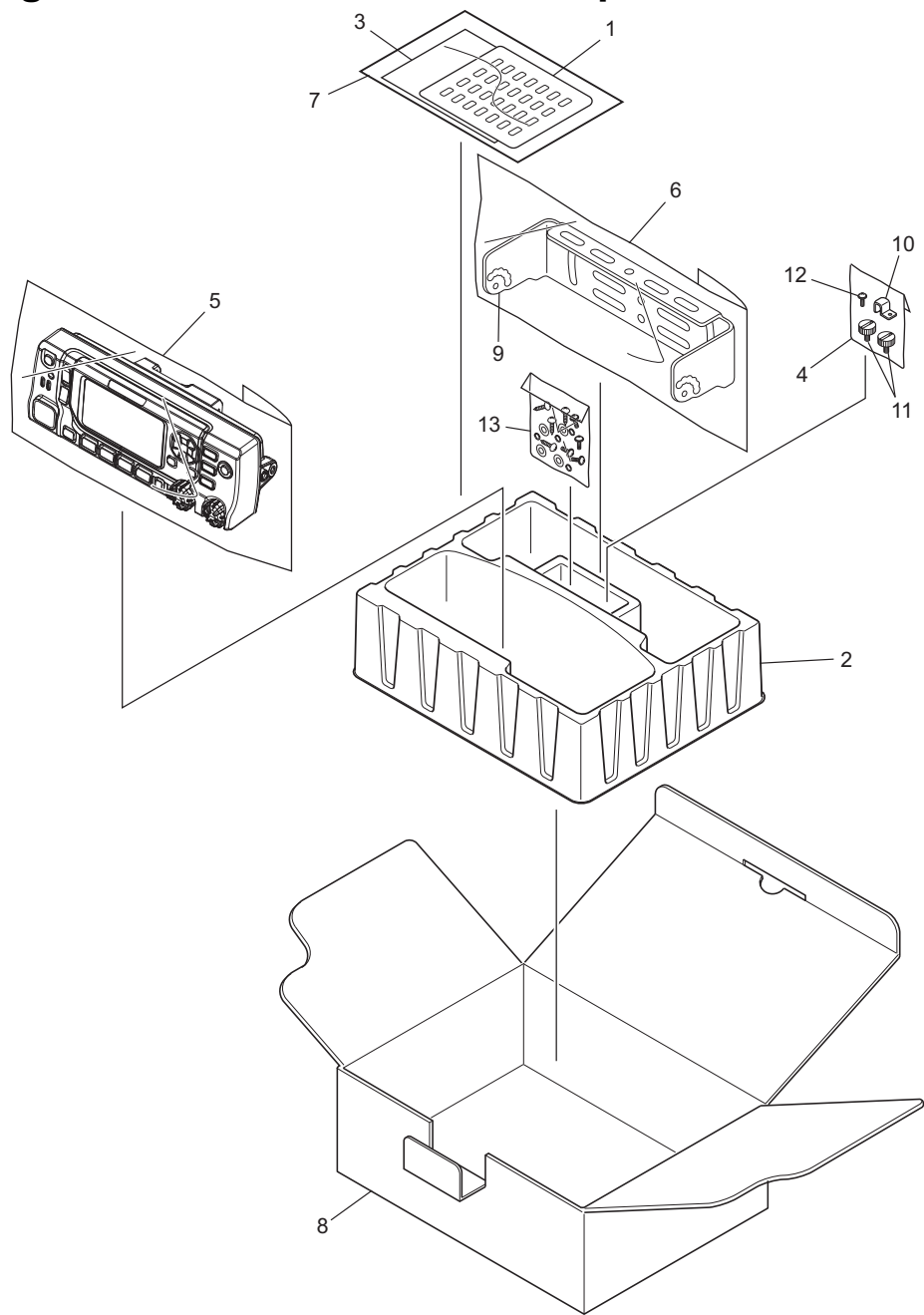
Block No. [0][2]

△ Symbol No.	Part No.	Part Name	Description	Local
IC1	TPS54240DGQ	IC		
IC2	LM48310SD	IC		
D1	MINISMD C020F	VARISTOR		
D4	RB060M-40	DIODE		
D5	1SR154-400	DIODE		
D6	SPC10501A01	VARISTOR		
D7	SPC10501A01	VARISTOR		
D8	SPC10501A01	VARISTOR		
D9	SPC10501A01	VARISTOR		
C1	CK73HB1E104K	C CAPACITOR	0.10UF K	
C8	C93-1810-05	C CAPACITOR	4.7UF K	
C10	CK73FB1E105K	C CAPACITOR	1.0UF K	
C11	CK73FB1E105K	C CAPACITOR	1.0UF K	
C13	C93-1810-05	C CAPACITOR	4.7UF K	
C15	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C17	CK73HBB1H102K	C CAPACITOR	1000PF K	
C18	CK73HBB1H102K	C CAPACITOR	1000PF K	
C21	CK73HB1H272K	C CAPACITOR	2700PF K	
C25	CK73HBB1H102K	C CAPACITOR	1000PF K	
C26	CC73HCH1H101J	C CAPACITOR	100PF J	
C27	CK73GB1E105K	C CAPACITOR	1.0UF K	
C28	CK73HB1E104K	C CAPACITOR	0.10UF K	
C29	CK73FB1C106K	C CAPACITOR	10UF K	
C30	CK73FXR1E475K	C CAPACITOR	4.7UF K	
C31	CK73HB1E104K	C CAPACITOR	0.10UF K	
C32	CK73HB1E104K	C CAPACITOR	0.10UF K	
C33	CK73FB1C106K	C CAPACITOR	10UF K	
C34	CK73FB1C106K	C CAPACITOR	10UF K	
C35	CK73HB1H331K	C CAPACITOR	330PF K	
C36	CK73FB1C106K	C CAPACITOR	10UF K	
C37	CK73FXR1E475K	C CAPACITOR	4.7UF K	
C50	CC73HCH1H101J	C CAPACITOR	100PF J	
C52	CC73HCH1H101J	C CAPACITOR	100PF J	
C54	CC73HCH1H101J	C CAPACITOR	100PF J	
C56	CC73HCH1H101J	C CAPACITOR	100PF J	
C57	CK73HBB1H102K	C CAPACITOR	1000PF K	
C58	CK73HBB1H102K	C CAPACITOR	1000PF K	
C59	CK73HBB1H102K	C CAPACITOR	1000PF K	
C60	CK73HBB1H102K	C CAPACITOR	1000PF K	
C63	C93-1810-05	C CAPACITOR	4.7UF K	
C64	CC73HCH1H101J	C CAPACITOR	100PF J	
C65	CC73HCH1H101J	C CAPACITOR	100PF J	
C66	CK73FB1H104K	C CAPACITOR	0.10UF K	

△ Symbol No.	Part No.	Part Name	Description	Local
C67	CC73HCH1H101J	C CAPACITOR	100PF J	
C68	CC73HCH1H101J	C CAPACITOR	100PF J	
C70	CK73GB1H105K	C CAPACITOR	1.0UF K	
C71	CK73HBB1H102K	C CAPACITOR	1000PF K	
C72	CK73GBB1H103K	C CAPACITOR	0.01UF K	
C73	CK73GBB1H103K	C CAPACITOR	0.01UF K	
R3	RK73FB2B332J	MG RESISTOR	3.3K J 1/8W	
R7	RK73HH1J683D	MG RESISTOR	68K D 1/16W	
R8	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R20	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R21	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R22	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R23	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R24	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R25	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
R26	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
R30	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R52	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
L1	LB73G0AM-004	CHIP FERRITE BEADS		
L2	L7K-0009-00	LINE FILTER		
L4	LB73F0AH-003	CHIP FERRITE		
L5	LB73F0AH-003	CHIP FERRITE		
L6	LR79Z0FQ100M	CHIP INDUCTOR		
L7	L41-1592-71	SMALL FIXED INDUCTOR 1.5UH		
L11	LB73G0AM-004	CHIP FERRITE BEADS		
CN2	EA710AC-1513B	WIRE TO BOARD CONNECTOR SMD		
CN5	EA710AC-1516B	WIRE TO BOARD CONNECTOR SMD		
CN13	E40-6911-05	FLAT CABLE CONNECTOR		
E1	F10-3226-05	SHIELDING CASE		
F1	FZA10BS-5R0	FUSE		
S1	S7K-0003-00	DIP SWITCHES		

Packing materials and accessories parts list

Block No.M2MM



Packing and accessories

Block No. [M][2][M][M]

Symbol No.	Part No.	Part Name	Description	Local
1	B1B-0047-00	FILTER		
2	-----	PACKING FIXTURE		
3	-----	PAMPHLET	FCC	
4	-----	PROTECTION BAG	60/110/0.07	
5	-----	PROTECTION BAG	200X350	
6	-----	PROTECTION BAG	100/250/0.07	
7	-----	PROTECTION BAG		
8	-----	ITEM CARTON		
9	J1K-0003-00	BRACKET		
10	J2B-0051-00	MOUNTING HARDWARE		
11	N08-0550-14	DRESSED SCREW	(x2)	
12	N67-3006-43	PAN HEAD SEMS SCREW		
13	N9X-0009-00	SCREW SET		

MEMO



KENWOOD

JVC KENWOOD Corporation
Communications Systems Business Operation

(No.RA027<Rev.001>)

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