ORDER NO. KM41108492CE

Service Manual

Telephone Equipment

Caller ID Compatible

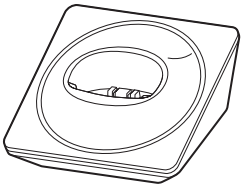
DECT 6.0

Model No. KX-TG1711MEB
KX-TG1712MEB
KX-TGA171MEB

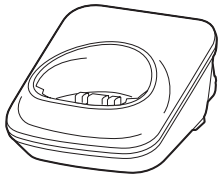
Digital Cordless Phone

B: Piano Black Version
(for Mexico)

KX-TGA171MEB
(Handset)



KX-TG1711MEB
(Base Unit)



(Charger Unit)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit
KX-TG1711	1 (TG1711)	1 (TGA171)	
KX-TG1712	1 (TG1711)	2 (TGA171)	1

Panasonic®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these cirtical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.
Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.
When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

- When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.
- The illustrations in this Service Manual may vary slightly from the actual product.

TABLE OF CONTENTS

1 Safety Precautions

1.1. For Service Technicians

- **Repair service shall be provided in accordance with repair technology information such as service manual so as to prevent fires, injury or electric shock, which can be caused by improper repair work**.
  1. When repair services are provided, neither the products nor their parts or members shall be remodeled.
  2. If a lead wire assembly is supplied as a repair part, the lead wire assembly shall be replaced.
  3. FASTON terminals shall be plugged straight in and unplugged straight out.

- **ICs and LSIs are vulnerable to static electricity.**
  When repairing, the following precautions will help prevent recurring malfunctions.
  1. Cover plastic parts boxes with aluminum foil.
  2. Ground the soldering irons.
  3. Use a conductive mat on worktable.
  4. Do not grasp IC or LSI pins with bare fingers.

2 Warning

2.1. Battery Caution

1. Danger of explosion if battery is incorrectly replaced.
2. Replace only with the same or equivalent type recommended by the manufacturer.
3. Dispose of used batteries according to the manufacture's Instructions.

2.2. About Lead Free Solder (PbF: Pb free)

Note:

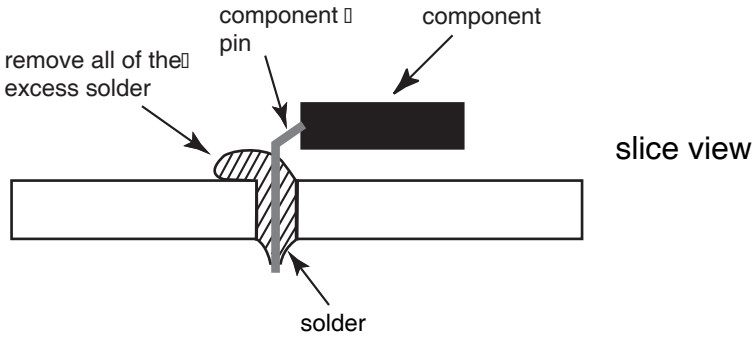
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder.

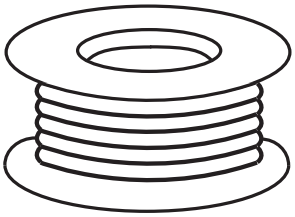
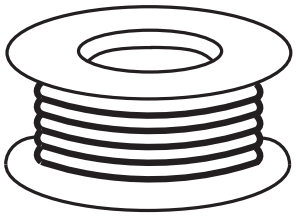
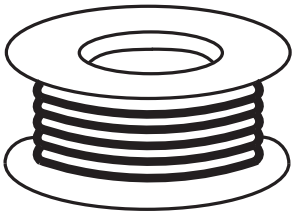
Caution

- PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C).
- Exercise care while using higher temperature soldering irons.: Do not heat the PCB for too long time in order to prevent solder splash or damage to the PCB.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).



2.2.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials. The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3 mm, 0.6 mm and 1.0 mm.

0.3 mm X 100 g	0.6 mm X 100 g	1.0 mm X 100 g
		

2.3. Discarding of P.C. Board

When discarding P. C. Board, delete all personal information such as telephone directory and caller list or scrap P. C. Board.

3 Specifications

■ **Standard:**
DECT 6.0 (Digital Enhanced Cordless Telecommunications 6.0)

■ **Number of channels:**
60 Duplex Channels

■ **Frequency range:**
1.92 GHz to 1.93 GHz

■ **Duplex procedure:**
TDMA (Time Division Multiple Access)

■ **Channel spacing:**
1,728 kHz

■ **Bit rate:**
1,152 kbit/s

■ **Modulation:**
GFSK (Gaussian Frequency Shift Keying)

■ **RF transmission power:**
Approx. 10 mW (average power per channel)

■ **Voice coding:**
ADPCM 32 kbit/s

■ **Power source (AC Adaptor):**
100-240 V AC, 50/60 Hz
Base unit: PNLV226Z
Charger: PNLV226Z

■ **Power consumption**
Base unit:
Standby: Approx. 0.6 W
Maximum: Approx. 3.3 W
Charger:
Standby: Approx. 0.1 W
Maximum: Approx. 2.2 W

■ **Operating conditions:**
0°C–40°C, 20%–80% relative air humidity (dry)

■ **Dimensions:**
Base unit: Approx. 100 mm x 96 mm x 53 mm
Handset : Approx. 47 mm x 30 mm x 159 mm
Charger: Approx. 72 mm x 76 mm x 43 mm

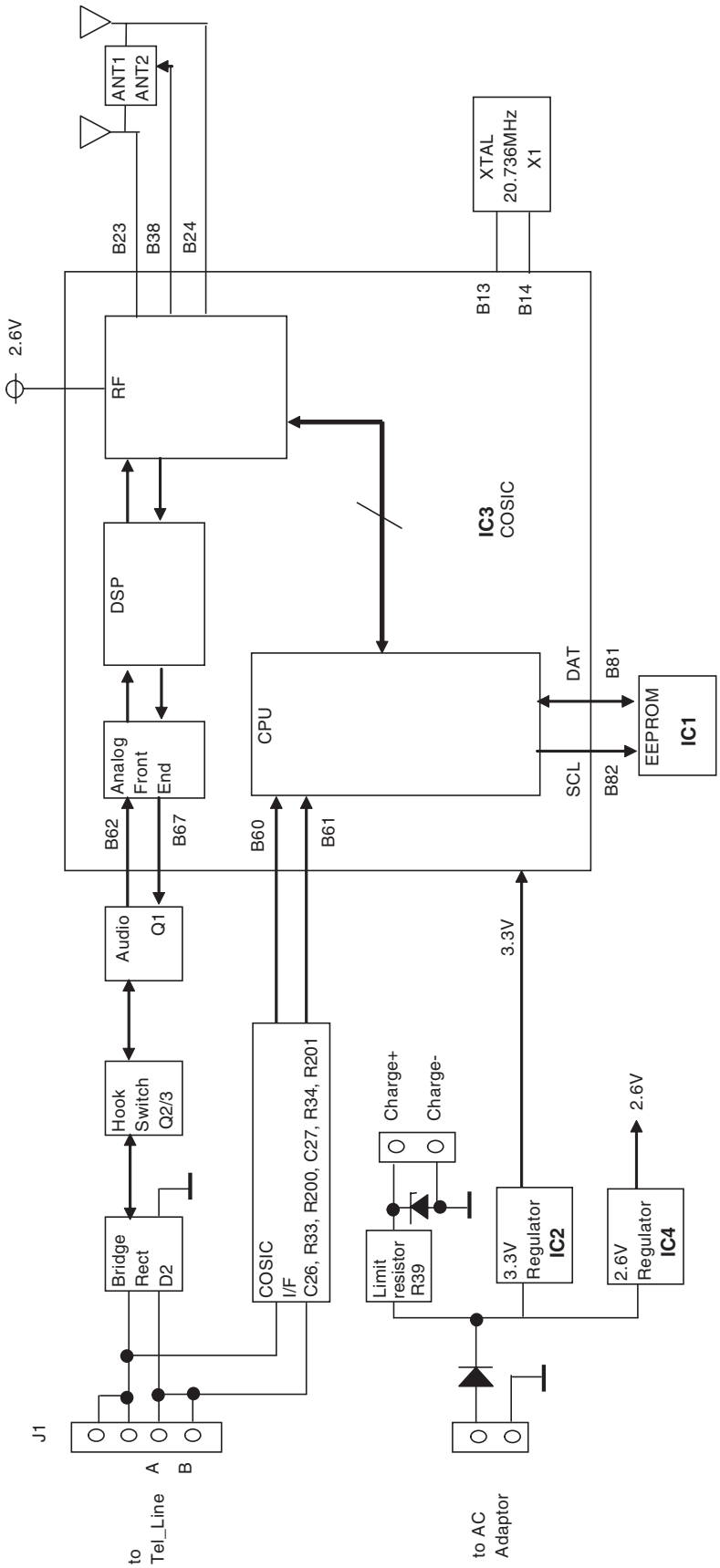
■ **Mass (weight):**
Base unit: Approx. 110 g
Handset: Approx. 130 g
Charger: Approx. 50 g

Note:
- Design and specifications are subject to change without notice.

Note for Service:
- Operation range: Up to 300 m outdoors, Up to 50 m indoors, depending on condition
- Analog telephone connection: Telephone Line

4 Technical Descriptions

4.1. Block Diagram (Base Unit)



KX-TG1711/1712 BLOCK DIAGRAM (BASE UNIT)

4.2. Circuit Operation (Base Unit)

4.2.1. Outline

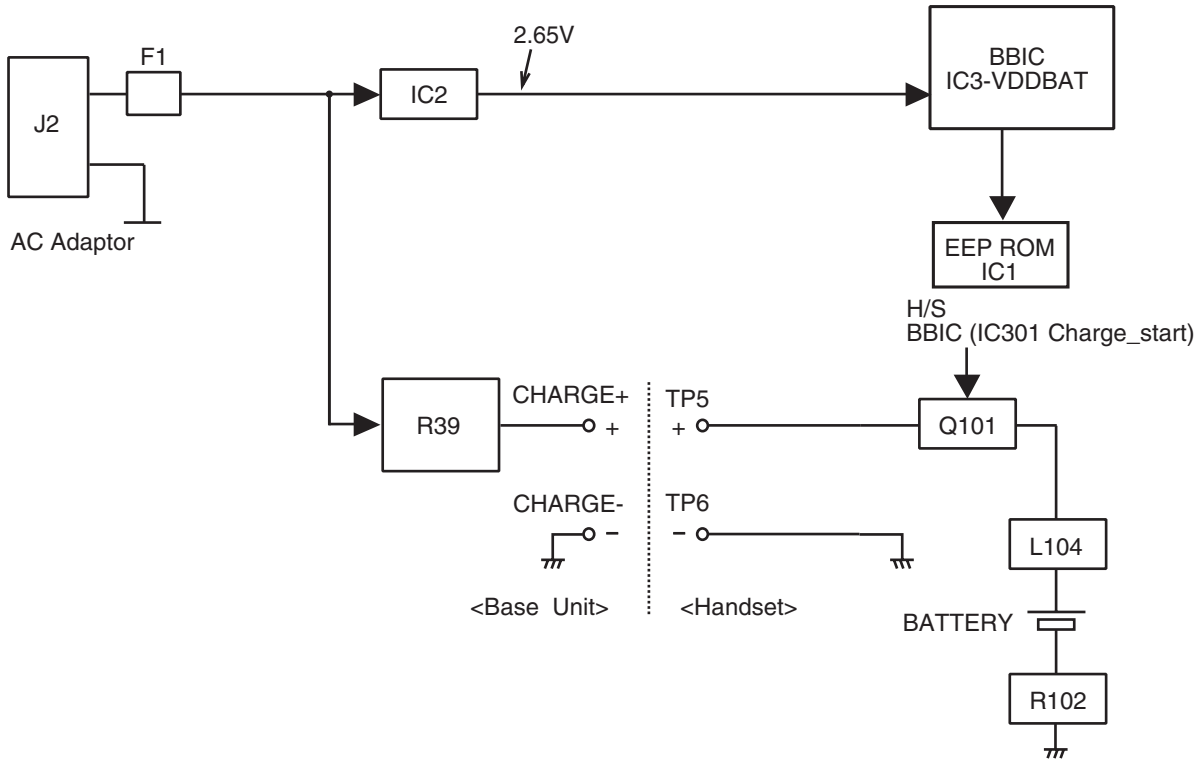
Base Unit consists of the following ICs as shown in **Block Diagram (Base Unit)** (P.7).

- DECT BBIC (**B**ase **B**and IC): IC3 (career module)
  - Handling all the audio, signal and data processing needed in a DECT base unit
  - Controlling the DECT specific physical layer and radio section (**B**urst **M**odule **C**ontroller section)
  - ADPCM codec filter for speech encoding and speech decoding (DSP section)
  - Echo-cancellation and Echo-suppression (DSP section)
  - Any tones (tone, sidetone, ringing tone, etc.) generation (DSP section)
  - DTMF receiver (DSP section)
  - Clock Generation for RF Module
  - ADC, DAC, timer, and power control circuitry
  - All interfaces (ex: RF module, EEPROM, LED, Analog Front End, etc.)
  - PLL Oscillator
  - Detector
  - Compress/Expander
  - First/Second Mixer
  - Amplifier for transmission and reception
- EEPROM: IC1
  - Temporary operating parameters (for RF, etc.)
- Additionally,
  - Power Supply Circuit (+2.65V output)
  - Crystal Circuit (20.736MHz)
  - Charge Circuit
  - Telephone Line Interface Circuit

4.2.2. Power Supply Circuit

The power is supplied to the DECT BBIC, RF Module, EEPROM, Relay Coil, LED and Charge Contact from AC Adaptor as shown in Fig.101. The power supply is as follows:

- DECT BBIC (IC3): J2 → F1→IC2 →IC3-VDDBAT
- EEPROM (IC1): J2 → F1 →IC2 → IC3 → IC1
- Charge Contact (CHARGE+): J2 → F1 → R39 → CHARGE+



<Fig.101>

4.2.3. Telephone Line Interface

<Function>

- Bell signal detection
- Clip signal detection
- ON/OFF hook circuit
- Audio circuits

Bell & Clip (: Calling Line Identification Presentation: Caller ID) signal detection:

In the standby mode, Q3 is open to cut the DC loop current and decrease the ring load.

When ring voltage appears at the L1T and L1R leads (when the telephone rings), the signal is transferred as follows;

- A → C26 → R33 → R50, C70 → R16, R30 → R200 → LINEN [**BELL & CLIP**]
- B → C27 → R34 → R51, C71 → R19, R31 → R201 → LINEP [**BELL & CLIP**]

ON/OFF hook circuit:

In the standby mode, Q3 is open, and connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an **off-hook condition**.

When IC3 detects a ring signal or press the TALK Key onto the handset, Q2 turns on and then Q3 turns on, thus providing an **off-hook condition** (active DC current flow through the circuit) and the following signal flow is for the loop current.

- A → D2 → Q3 → Q1 → R9 → R10 → D2→ B [**OFF HOOK**]

Audio circuits:

Refer to **Signal Route** (P.12).

4.2.4. Transmitter/Receiver

Base Unit and Handset mainly consist of RF Module and DECT BBIC.

Base Unit and Handset transmit/receive voice signal and data signal through the antenna on carrier frequency.

Signal Path:

*Refer to **Signal Route** (P.12).

4.2.4.1. Transmitter Block

The voice signal input from the TEL LINE interface goes to DECT BBIC (IC3) as shown in **Block Diagram (Base Unit)** (P.7)

The voice signal passes through the analog part of IC3 where it is amplified and converted to a digital audio stream signal. The burst switch controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP (**G**eneric **A**ccess **P**rofile) standard DECT frame, assigning to a time slot and channel etc.

In IC3, the carrier frequency is changing, and frequency modulated RF signal is generated and amplified, and radiated from antenna. Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

4.2.4.2. Receiver Block

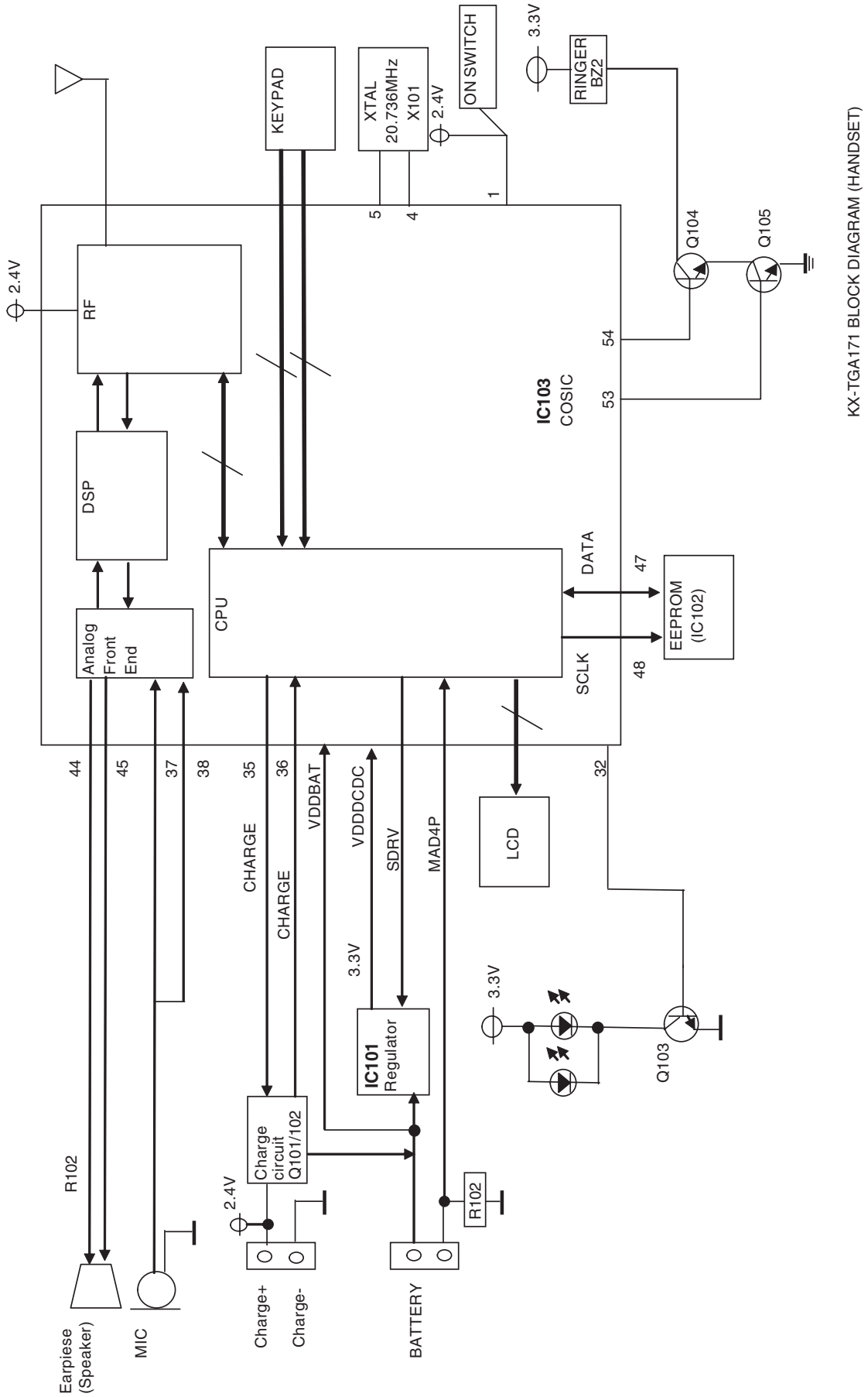
The signal of 1.9 GHz band (1.881792 GHz ~ 1.897344 GHz) which is input from antenna is input to IC3 as shown in **Block Diagram (Base Unit)** (P.7).

In IC3, the signal of 1.9 GHz band is demodulated, and goes to IC2 as GAP (**G**eneric **A**ccess **P**rofile) standard DECT frames. It passes through the decoding section burst switch controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP section where it is turned back into analog audio. This is amplified by the analog front end, and goes to the TEL LINE Interface.

4.2.5. Pulse Dialling

During pulse dialing the hookswitch (Q3, Q4) is used to generate the pulses using the HOOK control signal, which is set high during pulses. To force the line impedance low during the “pause” intervals between dial pulses, the PULSE_DIAL signal turns on Q2.

4.3. Block Diagram (Handset)



KX-TGA171 BLOCK DIAGRAM (HANDSET)

4.4. Circuit Operation (Handset)

4.4.1. Outline

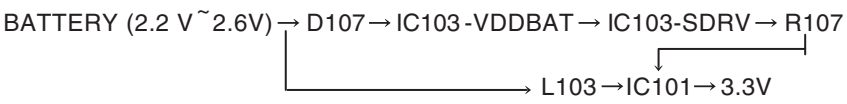
Handset consists of the following ICs as shown in **Block Diagram (Handset)** (P.10).

- DECT BBIC (**B**ase **B**and IC): IC103
  - All data signals (forming/analyzing ACK or CMD signal)
  - All interfaces (ex: Key, Detector Circuit, Charge, DC/DC Converter, EEPROM, LCD)
  - PLL Oscillator
  - Detector
  - Compress/Expander
  - Amplifier for transmission and reception
- EEPROM: IC102
  - Temporary operating parameters

4.4.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

When power on the Handset, the voltage is as follows;



The Reset signal generates R121, C186 and ≒2.6V.

4.4.3. Charge Circuit

Circuit Operation:

When charging the handset on the Base Unit, the charge current is as follows;

DC+ → F1 → R39 → CHARGE+ (Base) → CHARGE+ (Handset) → Q101 → L104 → BATTERY+... Battery...

BATTERY- → R102 → GND → CHARGE- (Handset)→ CHARGE- (Base) → GND → DC- (GND)

In this way, the BBIC on Handset detects the fact that the battery is charged.

The charge current is controlled by switching Q101 of Handset.

Refer to Fig.101 in **Power Supply Circuit** (P.8).

4.4.4. Battery Low/Power Down Detector

Circuit Operation:

"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.

The detected voltage is as follows;

- Battery Low

  Battery voltage: V (Batt) < 2.20V

  The BBIC detects this level and "▭" is displayed on LCD and "battery alarm" starts ringing.
- Power Down

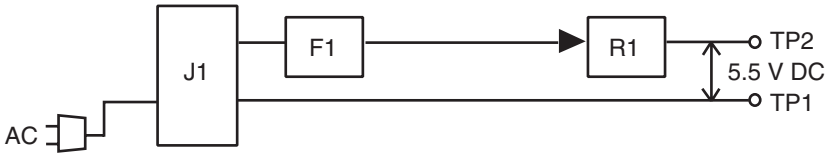
  Battery voltage: V (Batt) < 2.05V

  The BBIC detects this level and power down.

4.5. Circuit Operation (Charger Unit)

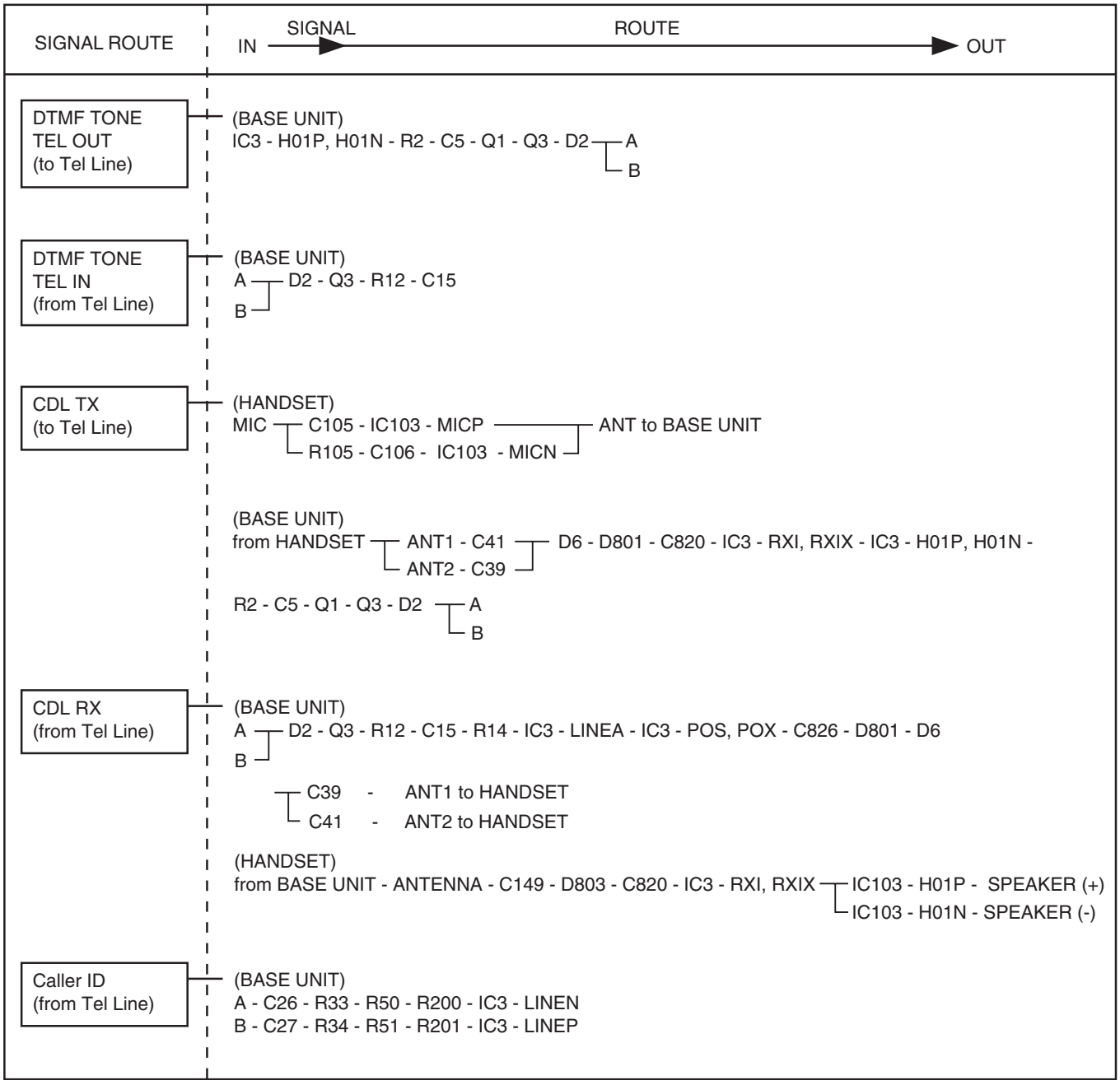
4.5.1. Power Supply Circuit

The power supply is as shown.



AC Adaptor

4.6. Signal Route



5 Location of Controls and Components

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

6 Installation Instructions

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

7 Operating Instructions

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

7.1. For Service Hint

Items	Contents
Battery	You could use other rechargeable batteries sold in a market, but the unit is not guaranteed to work properly.
	The battery strength may not be indicated correctly if the battery is disconnected and connected again, even after it is fully charged. In that case, by recharging the battery as mentioned in the Operating Instructions, you will get a correct indication of the battery strength.
PIN Code	**Base unit PIN** **1** 【▤/OK】 **2** 【▲▼】: “Setup” →【▤/OK】 **3** 【▲▼】: “Change PIN”→【▤/OK】 **4** Old PIN → Input Current PIN **5** New PIN → Input New PIN **6** Re-enter PIN → Input New PIN **7** Saved **8** 【⏻】

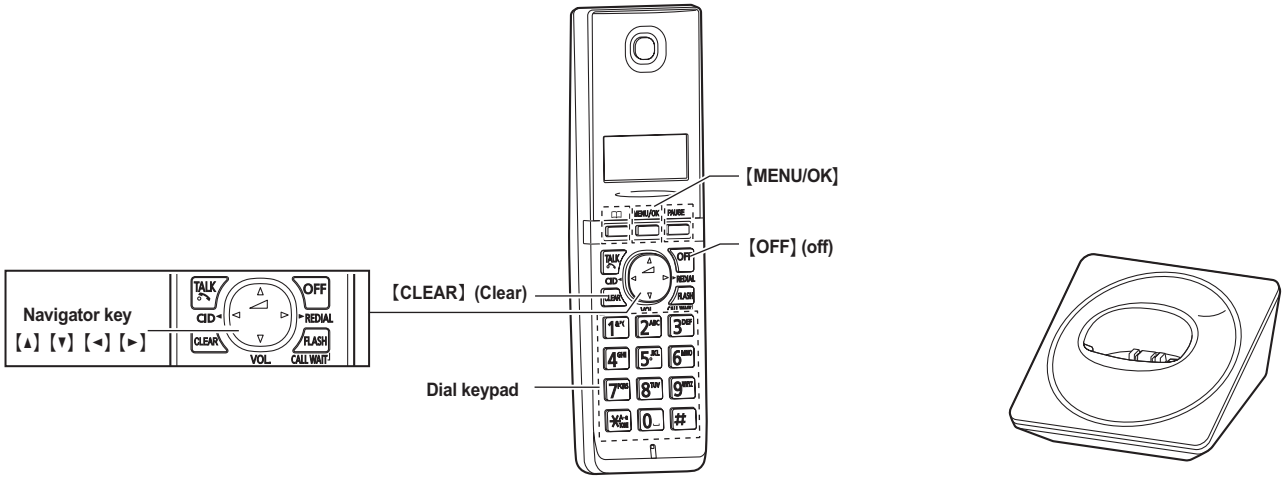
8 Service Mode

8.1. Engineering Mode

8.1.1. Base Unit

Important:

Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation	H/S LCD
1). Register a Handset to a Base Unit.	
2). Press **【MENU/OK】** key.	Ringer Setup
3). Press "#004". A is Address D is data	A:0000 D:00
4). Press "XXXX"(Address) , then press **【MENU/OK】** key. D is current setting data	A:XXXX D:XX
5). Press "YY"(Data) , then press **【MENU/OK】** key. D is new setting data	A:XXXX D:YY
6). Repeat from Step 4).	A:XXXX D:XX

If press **【OFF】** (Off) twice anytime, return to standby mode.

Note:

(*1) Refer to **For Service Hint** (P.13).

Frequency Used Items (Base Unit)

Note:

*: When you enter the address, please refer to the table below.

Desired Number (hex)	Input Keys	Desired Number (hex)	Input Keys
0	0	A	Press and keep 1
1	1	B	Press and keep 2
.	.	C	Press and keep 3
.	.	D	Press and keep 4
.	.	E	Press and keep 5
9	9	F	Press and keep 6

ex.)

Items (*2)	**Address**	**Default Data**	**New Data**		**Remarks**
C-ID (FSK) sensitivity	01 C1~ 01 C2	00 28	(3dB up) 00 A4	(6dB up) 00 E7	When hex changes from “0028” to “00A4” or “00E7”, gain increases by 3dB or 6dB.
C-ID (DTMF) sensitivity	01 B7	34	(3dB up) 38	(6dB up) 3C	When hex changes from “34” to “38” or “3C”, gain increases by 3dB or 6dB.
Frequency	01 63~ 01 64	Given value	-	-	Use these items in a **READ-ONLY** mode to confirm the contents. Careless rewriting may cause serious damage to the computer system.
ID	00 10~ 00 14	Given value	-	-	
Bell length	015D~015E	05 5F(11sec)(*1)	01 77(3sec)	00 FA (2sec)	This is time until bell stops ringing. (Unit:8ms)
PULSE Dial speed (10PPS -> 20PPS)	0129~012A	01 90(40msec) (*3)	00 C8(20msec)	-	This is pulse make time. (Unit:0.1ms)
	012B~012C	02 58(60msec) (*3)	01 2C(30msec)	-	This is pulse break time. (Unit:0.1ms)
	012D~012E	23 28(900msec) (*3)	11 30(440msec)	-	This is inter-digit time in pulse mode. (Unit:0.1ms)

(*1)

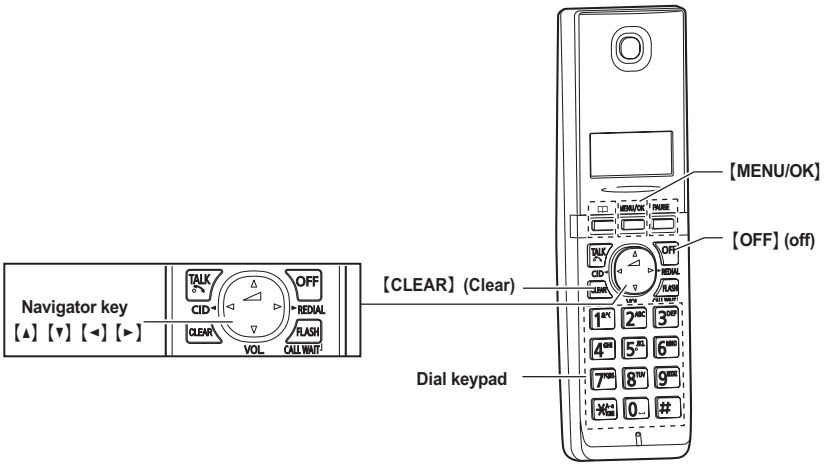
Bell length	055F(hex) = 1375(dec) → 1375 x 8msec = 11000msec(11sec)
PULSE Dial speed (10PPS -> 20PPS)	0190(hex) = 400(dec) → 400 x 0.1msec = 40msec
	0258(hex) = 600(dec) → 600 x 0.1msec = 60msec
	2328(hex) = 9000(dec) → 9000 x 0.1msec = 900msec

(*2)

Items	Description
C-ID (FSK) sensitivity	FSKGain_shiftgain
C-ID (DTMF) sensitivity	Foutgains:HPFilter Foutgains
Frequency	Setting value of FREQ_TRIM_REG
ID	ID
Bell length	Time until it stops bell.

8.1.2. Handset

Important:
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation	H/S LCD
1). Press 【**MENU/OK**】 key.	Ringer Setup
2). Press "#003". A is Address D is data	A:0000 D:00
3). Press "XXXX"(Address) , then press 【**MENU/OK**】 key. D is current setting data	A:XXXX D:XX
4). Press "YY"(Data) , then press 【**MENU/OK**】 key. D is new setting data	A:XXXX D:YY
5). Repeat from Step 3).	A:XXXX D:YY

If press 【**OFF**】(Off) twice anytime, return to standby mode.

Note:
(*1) Refer to **For Service Hint** (P.13).

Frequency Used Items (Handset)

Note:

*: When you enter the address, please refer to the table in **Note:** (P.14) of **Engineering Mode**.

ex.)

Items (*2)	**Address**	**Default Data**	**New Data**	**Remarks**
Sending level	01 31	07 (36 dB)	06 (30 dB) 05 (24 dB) 04 (18 dB) 03 (12 dB)	(*1)
Receiving level	01 3D	2A10 (-4.1dB)		Volume 5
	01 3B	9B93 (-6.5dB)		Volume 4
	01 39	9995 (-8.4 dB)		Volume 3... default setting
	01 37	99C2 (-11.4 dB)		Volume 2
	01 35	9924 (-14.7dB)		Volume 1

(*1) This model has already been setting Max.

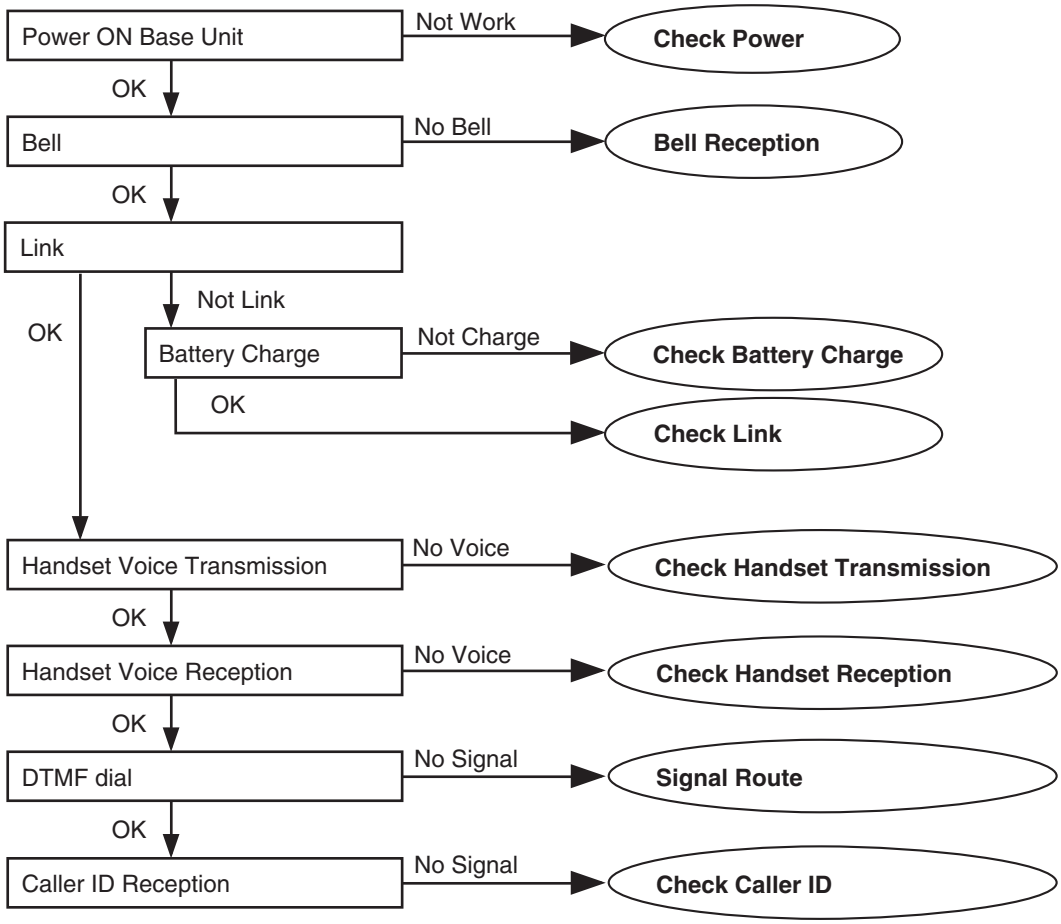
(*2)

Items	**Description**
Sending level	Analog Front End MIC Setting for Handset Mode
Receiving level	Analog Front End LSR Setting for Handset Mode

9 Troubleshooting Guide

9.1. Troubleshooting Flowchart

Flow Chart



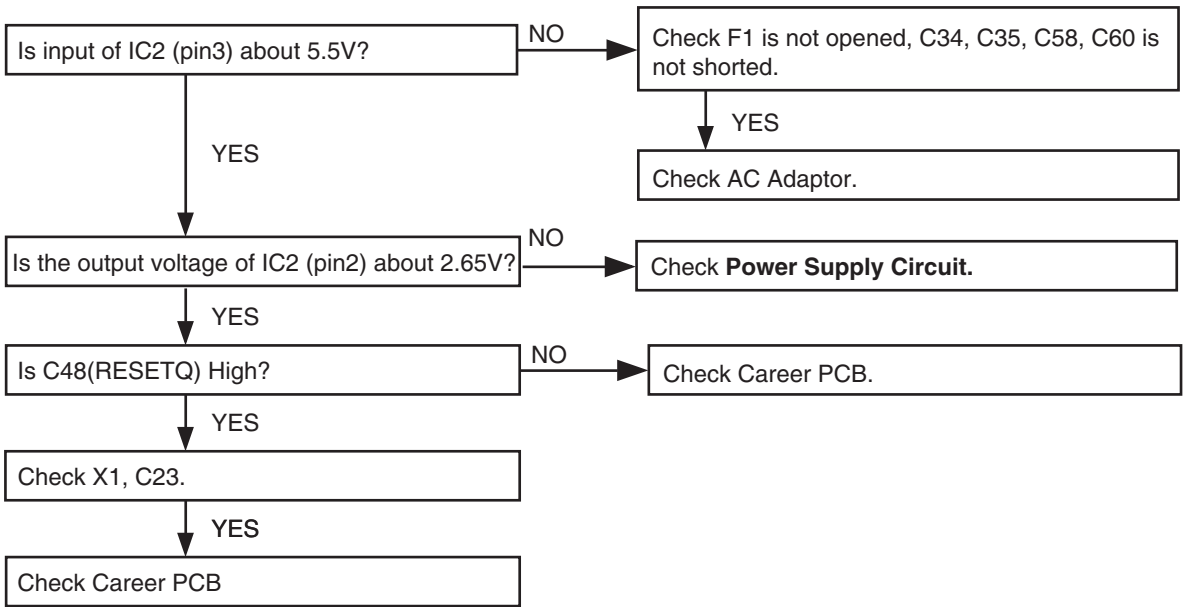
Cross Reference:

Check Power (P.19)
Bell Reception (P.23)
Check Battery Charge (P.20)
Check Link (P.21)
Check Handset Transmission (P.23)
Check Handset Reception (P.23)
Signal Route (P.12)
Check Caller ID (P.23)

9.1.1. Check Power

9.1.1.1. Base Unit

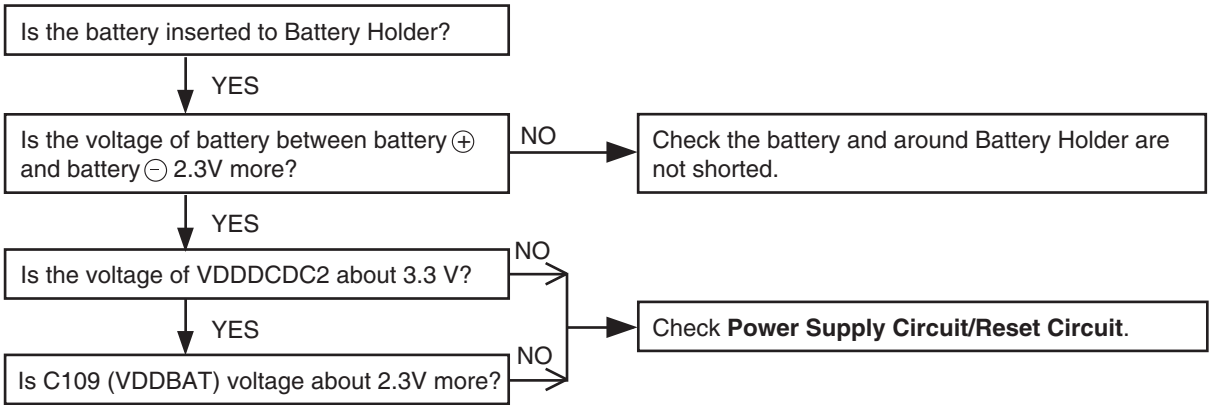
Is the AC Adaptor inserted into AC outlet? (Check AC Adaptor's specification.)



Cross Reference

Power Supply Circuit (P.8)

9.1.1.2. Handset

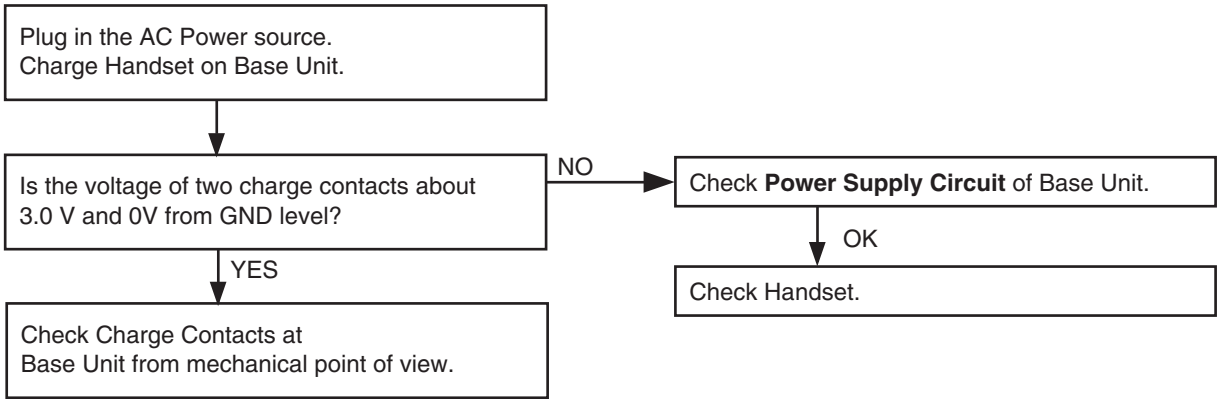


Cross Reference

Power Supply Circuit/Reset Circuit (P.11)

9.1.2. Check Battery Charge

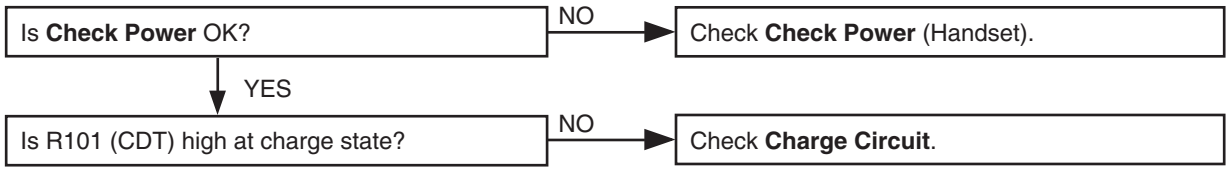
9.1.2.1. Base Unit



Cross Reference:

Power Supply Circuit (P.8)

9.1.2.2. Handset

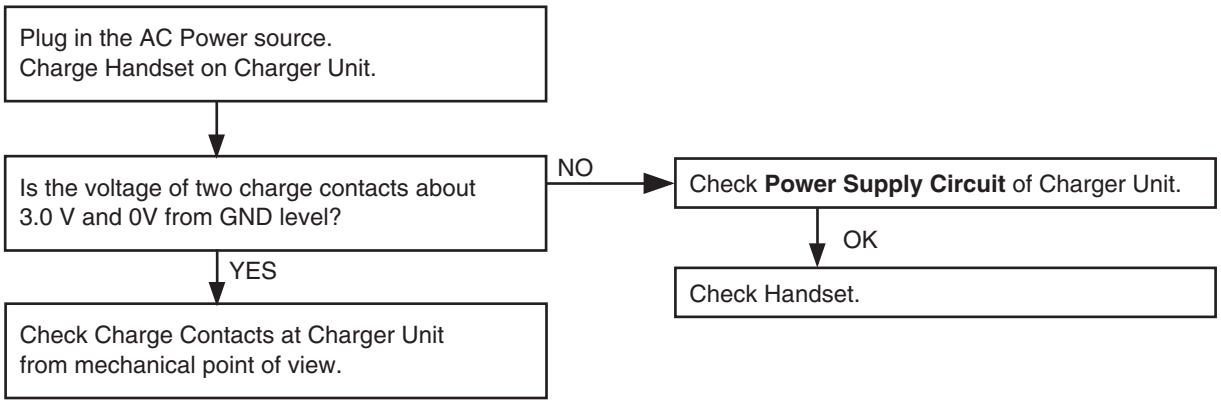


Cross Reference:

Check Power (P.19)

Charge Circuit (P.11)

9.1.2.3. Charger Unit

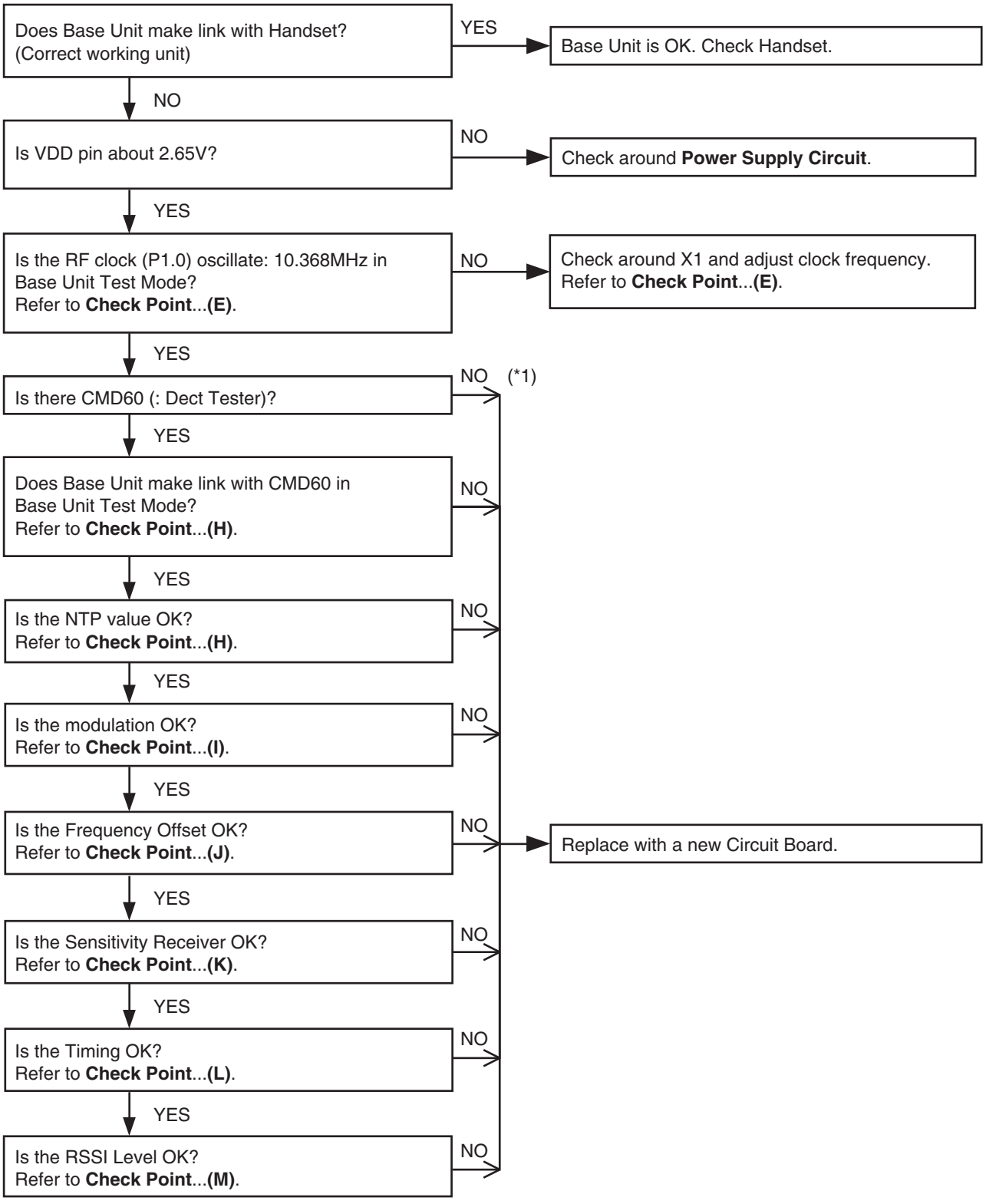


Cross Reference:

Power Supply Circuit (P.11)

9.1.3. Check Link

9.1.3.1. Base Unit



Cross Reference:

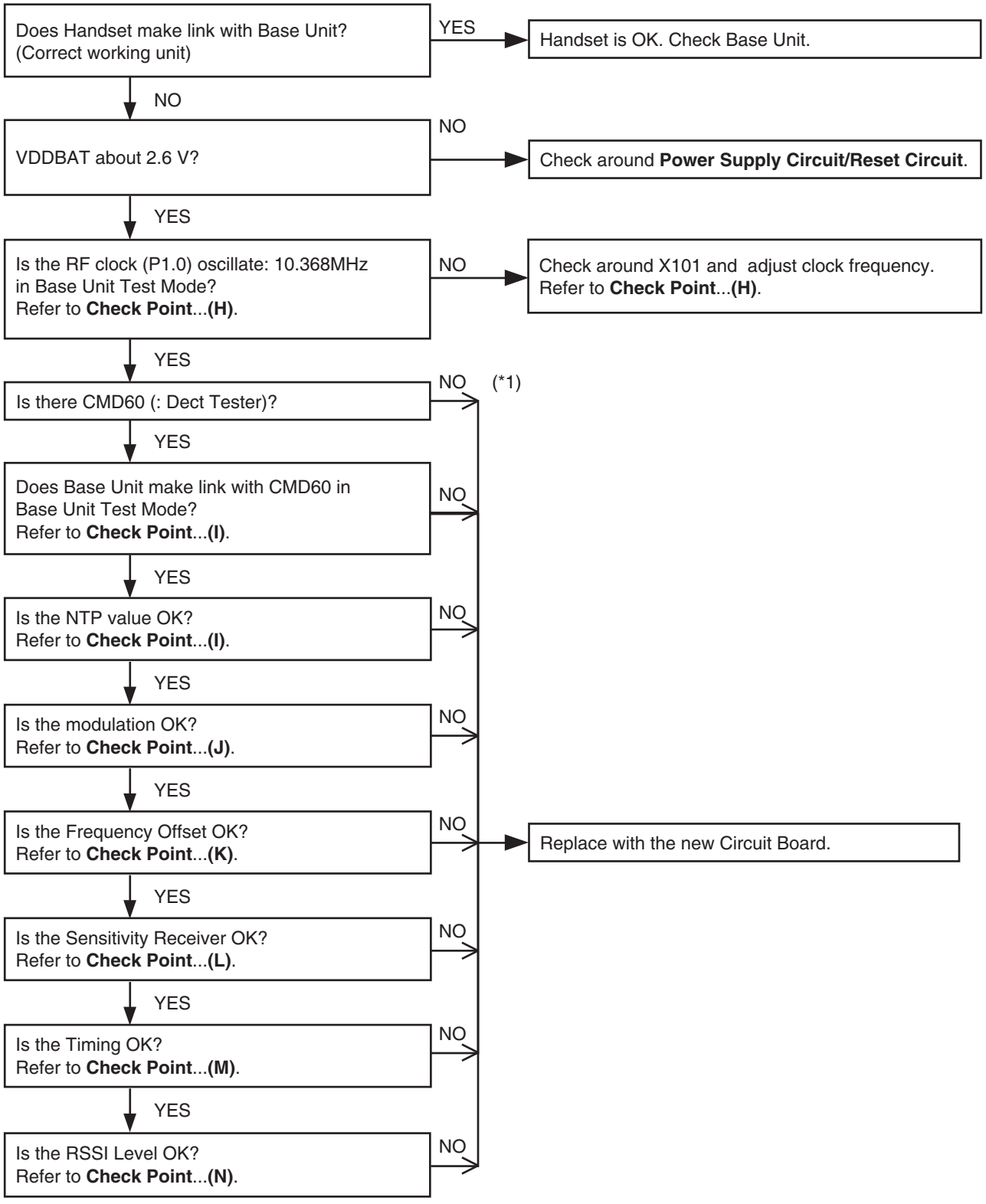
Power Supply Circuit (P.8)

Check Point (Base Unit) (P.24)

Note:

(*1) Refer to **Troubleshooting by Symptom (Base Unit and Charger Unit)** (P.24).

9.1.3.2. Handset



Cross Reference

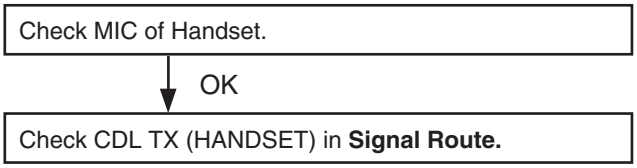
Power Supply Circuit/Reset Circuit (P.11)

Check Point (Handset) (P.27)

Note:

(*1) Refer to **Troubleshooting by Symptom (Handset)** (P.27).

9.1.4. Check Handset Transmission



Cross Reference:
Signal Route (P.12)

9.1.5. Check Handset Reception

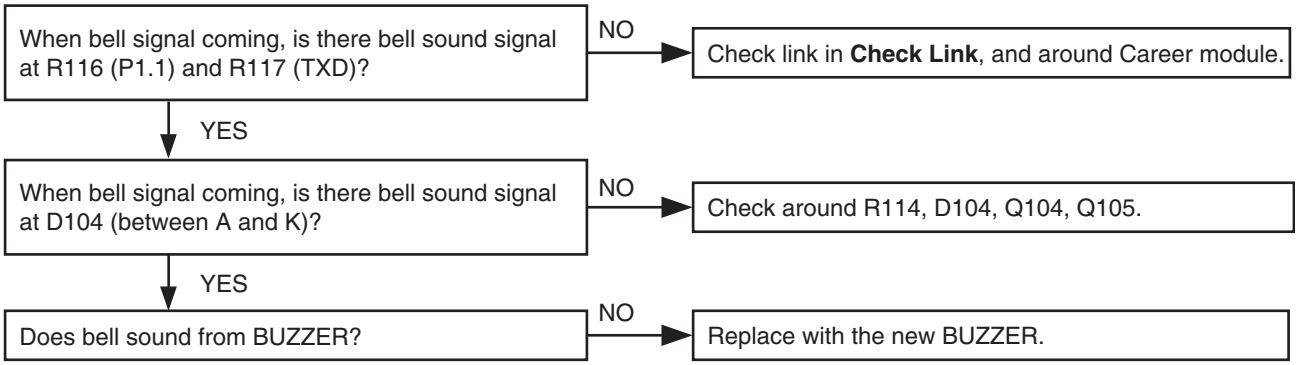
Cross Reference:
How to Check the Handset Speaker or Receiver (P.43).
Signal Route (P.12)

9.1.6. Check Caller ID

Cross Reference:
Signal Route (P.12**)**

9.1.7. Bell Reception

9.1.7.1. Handset



Cross Reference:
Telephone Line Interface (P.9)
Check Link (P.21)
How to Check the Handset Speaker or Receiver (P.43)

9.2. Troubleshooting by Symptom (Base Unit and Charger Unit)

If your unit has below symptoms, follow the instructions in remedy column. Remedies depend on whether you have DECT tester (*1) or not.

Symptom	Remedy (*2)	
	You don't have DECT Tester.	You have DECT Tester. (Model Number : CMD60)
You cannot dial.	Check item (**A**)-(**E**).	Check item (**A**)-(**E**), (**G**)-(**L**).
You cannot hear the caller's voice.	Check item (**A**)-(**D**).	Check item (**A**)-(**D**), (**G**)-(**I**), (**K**).
You cannot use handset a little away from base unit even if the handset is within range of the base unit.	-	Check item (**G**), (**J**).
The acoustic transmission level is high or low.	Check item (**N**).	Check item (**N**).
The acoustic reception level is high or low.	Check item (**N**).	Check item (**N**).
The unit does not link.	Check item (**A**)-(**F**).	Check item (**A**)-(**L**).
The unit cannot charge.	Check item (**M**).	Check item (**M**).

Note:

(*1) A general repair is possible even if you don't have the DECT tester because it is for confirming the levels, such as Acoustic level in detail.

(*2) Refer to **Check Point (Base Unit)** (P.24)

9.2.1. Check Point (Base Unit)

Please follow the items below when BBIC or EEPROM is replaced.

Note:

After the measuring, suck up the solder of TP.

*: **PC Setting** (P.34) is required beforehand.

The connections of simulator equipment are as shown in **Adjustment Standard (Base Unit)** (P.36).

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**A**)	2.65V Supply Confirmation	-	1. Confirm that the voltage between VDD and GND is 2.65V ± 0.2V.	C58, C60, F1 C35, C34, IC2 C29, R35, R36 C28, C103, C11, C48, R17
(**B**)	VDDIO Confirmation	-	1. Confirm that the voltage between C24 and GND is 2.5 ± 0.3.	IC3, X1, C22 C23, C17
(**C**)*	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) checksum value: 0152 / program number: DCM1EB	IC3, X1, C22 C23, C17
(**D**)*	BBIC Clock Adjustment (Important)	P1.0 CLK	1. Execute the command "EnableClockOutput". 2. Input Command "GetFreq", then you can confirm the current value. 3. Check X'tal Frequency. (10.368 MHz ± 100 Hz). 4. If the frequency is not 10.368MHz ± 100Hz, adjust the frequency of CLK executing the command "setfreq xx xx (where xx is the value)" so that the reading of the frequency counter is 10.368000 MHz ± 5 Hz.	IC3, X1, C22 C23, C17
(**E**)*	Hookswitch Check with DC Characteristics	-	1. Connect J1 (Telephone Socket) to Tel-simulator which is connected with 600 Ω. 2. Set line voltage to 48V at on-hook condition and line current to 40mA at off-hook condition of normal telephone. 3. Execute the command "hookoff". 4. Confirm that the line current is 40mA ± 5mA. 5. Execute the command "hookon". 6. Confirm that the line current is 0mA + 2mA.	IC3, C30, C31, D2, Q3, R26, R22, Q2, C45, C21, R18, R15

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**F**)*	DTMF Generator Check	-	1. Connect J1 (Telephone Socket) to DTMF tester. 2. Execute the command “hookoff” and “dtmf_up”. 3. Confirm that the high frequency (1477.06Hz) group is -6.0 ± 2dBm. 4. Execute the command “dtmf_low”. 5. Confirm that the low frequency (852.05Hz) group is -8.0 ± 2dBm.	IC3, R2, C4, C5, R7, R9, R10, C9, Q1, R6, R12, D1, Q3, R26, R22, Q2, C45, C21, R18, R15, D2, C30, C31
(**G**)*	Transmitted Power Confirmation	-	Remove the Antenna before starting steps from 1 to 5. 1. Configure the DECT tester (CMD60) as follows; <Setting> • Test mode: FP • Traffic Channel: 5 • Traffic Slot: 4 • Mode: Loopback • PMID: 00000 2. Execute the command “testmode”. 3. Initiate connection from DECT tester. (“set up connect”) 4. Execute the command “ANT2”. 5. Confirm that the NTP value at ANT is 19dBm~25dBm.	IC3, C813, C807, C819, C826, D801, C817, D6, C39, C38, R802, C823, C803, C44, C806, C802, C804
(**H**)*	Modulation Check and Adjustment	ANT	Follow steps 1 to 3 of **(G)**. 4. Confirm that the B-Field Modulation is -350±50kHz/div, +350±50kHz/div using data type Fig31.	IC3, C813, C807, C819, C826, D801, C817, D6, C39, C38, R802, C823, C803, C44, C806, C802, C804
(**I**)*	Frequency Offset Check	-	Follow steps 1 to 3 of **(G)**. 4. Confirm that the frequency offset is -50kHz ~ +50kHz.	IC3, C813, C807, C819, C826, D801, C817, D6, C39, C38, R802, C823, C803, C44, C806, C802, C804
(**J**)*	Sensitivity Receiver Confirmation	-	Follow steps 1 to 3 of **(G)**. 4. Set DECT tester power to -84dBm. 5. Confirm that the BER is < 1000ppm.	IC3, C830, C820, D801, C817, D6, C39, C38, R801, C821, C803, C44, C806, C802, C804
(**K**)*	Timing Confirmation	-	Follow steps 1 to 3 of **(G)**. 4. Confirm that the Timing accuracy is < ± 2.0ppm.	IC3, C813, C807, C819, C826, D801, C817, D6, C39, C38, R802, C823, C803, C44, C806, C802, C804
(**L**)*	RSSI Level Confirmation	-	Follow steps 1 to 3 of **(G)**. 4. Set DECT tester power to -70dBm. 5. Execute the command “readrssi”. 6. Confirm: 25 < returned value < 43 (hex) (0E ± A (hex))	IC3, C813, C807, C819, C826, D801, C817, D6, C39, C38, R802, C823, C803, C44, C806, C802, C804
(**M**)	Charging Check	-	1. Connect Charge Contact 12Ω/2W resistor between charge+ and charge-. 2. Measure and confirm voltage across the resistor is 3.0V ± 0.2V.	F1, C58, C60 R39, C61, C40

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**N**)*	Audio Check	-	1. Link with Handset which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 50mA. 3. Input -45dBm(600Ω)/1kHz to MIC of Handset. Measure the Level at Line I/F and distortion level. 4. Confirm that the level is -6.0 ± 3dBm and that the distortion level is < 5% at TEL Line (600Ω Load). 5. Input -20dBm(600Ω)/1kHz to Line I/F. Measure the level at Receiver of Handset and distortion level (*Receive volume set to third position from minimum). 6. Confirm that the level is -21.0 ± 3dBm and that the distortion level is < 5% at Receiver (150Ω Load).	

9.2.2. Check Point (Charger Unit)

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**A**)	Charging Check	-	1. Connect Charge Contact 10Ω/2W resistor between charge+ and charge-. 2. Measure and confirm voltage across the resistor is 2.8V ± 0.3V.	R1, F1

Note:

After the measuring, suck up the solder of TP.

The connection of adjustment equipment are as shown in **Adjustment Standard (Charger Unit)** (P.37).

9.3. Troubleshooting by Symptom (Handset)

If your unit has below symptoms, follow the instructions in remedy column. Remedies depend on whether you have DECT tester (*1) or not.

Symptom	Remedy (*2)	
	You don't have DECT Tester.	You have DECT Tester. (Model Number : CMD60)
Battery strength is not indicated correctly by Battery icon.	Check item (**A**)-(**C**), (**F**)-(**G**).	Check item (**A**)-(**C**), (**F**)-(**G**).
You cannot hear the caller's voice.	Check item (**A**)-(**C**), (**H**).	Check item (**A**)-(**C**), (**H**)-(**K**), (**M**).
You cannot use handset a little away from base unit even if the handset is within range of the base unit.	-	Check item (**I**), (**L**).
Does not link between base unit and handset.	Check item (**A**)-(**C**), (**H**).	Check item (**A**)-(**C**), (**H**)-(**N**).
The Audio level is high or low.	Check item (**O**).	Check item (**O**).

Note:

(*1) A general repair is possible even if you don't have the DECT tester because it is for confirming the levels, such as Acoustic level in detail.

(*2) Refer to **Check Point (Handset)** (P.27)

9.3.1. Check Point (Handset)

Please follow the items below when BBIC or EEPROM is replaced.

Note:

After the measuring, suck up the solder of TP.

*: **PC Setting** (P.38) is required beforehand.

The connections of simulator equipment are as shown in **Adjustment Standard (Handset)** (P.40).

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**A**)	Battery Supply Confirmation	-	1. Confirm that the consumption current is < 200mA, that is, there is no short circuit.	C143, R102, L104 C140, L103, IC101 C141, R201, C102, C135, C120, C131 C803, C825, C110, C802, C804, C148, D107, C109, R121, C186
(**B**)	VDDDCDC2 Supply Confirmation	-	1. Confirm that the voltage between VDDDCDC2 and GND is 3.3V ± 0.3V.	IC103, C140, L103, R107, IC101, C141, R201, C102, C135, C120
(**C**)*	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) checksum value: 011B, program number: DCN2EA	IC103, X101, C122, C123, C127
(**D**)	Charge Control Check & Charge Current Monitor Check	-	1. Apply 6V between TP5(+) and TP6(-) with current limit of PSU to 250mA. 2. Confirm that the charge current is ON/OFF. 3. SW to decrease current limit of PSU to 75mA. 4. Confirm that the charge current is stable.	C101, C160, R101, C161, Q101, Q102, C142, R108, IC103
(**E**)*	Charge Detection (OFF) Check	-	1. Stop supplying 6V to TP5(+) and TP6(-). 2. Execute the command "charge". 3. Confirm that the returned value is 00 (hex).	C101, C160, R101, C161, Q101, Q102, C142, R108, IC103

	Items	Adjustment Point	Procedure	Check or Replace Parts
(**F**)*	Battery Monitor Check & Adjustment (Important)	-	1. Apply 2.3V ± 0.005V between BATTERY (+) and BATTERY (-) with DC power. 2. Execute the command “deactmac” to stabilize the value. 3. Then, execute the command “readbatt”. The returned value is XX. 4. Confirm that XX is between 98 and A7. 98 < XX < A7 (Hex) (If XX is out of range, change BBIC)	IC103, D107, C148, C109
(**G**)	Battery Low Confirmation (Important)	-	1. Apply 2.40V between BATTERY (+) and BATTERY (-). 2. Confirm that there is no Speaker sound (Battery low alarm). 3. Apply 2.2V between BATTERY(+) and BATTERY(-). 4. Confirm that there is Speaker sound (Battery low alarm).	IC103, D107, C148 C109, R121, C186 R114, C114, D104 Q104, Q105, R116, R117, BUZZER
(**H**)*	BBIC Clock Adjustment (Important)	P1.0 CLK	1. Apply 2.6V between BATTERY (+) and BATTERY (-) with DC power. 2. Execute the command “EnableClockOutput”. 3. Input Command “sfr", then you can confirm the current value. 4. Check X’tal Frequency. (10.368 MHz ± 100 Hz). 5. If the frequency is not 10.368 MHz ± 100 Hz, adjust the frequency of CLK executing the command “setfreq xx xx (where xx is the value)” so that the reading of the frequency counter is 10.368000 MHz ± 5 Hz. Note: * How to de-registration (link to base unit) 1) Push handset: menu → # → 1 → 3 → 1 2) Push handset: 0 → 0 → 0 → 0 3) Select handset you want to de-regist. After push OK. Register to it on Base Unit after measurement.	C127, C122, C123, X101
(**I**)*	Transmitted Power Confirmation	ANT	Remove the Antenna before starting steps from 1 to 5. 1. Configure the DECT tester (CMD60) as follows; <Setting> • Test mode: PP • RFPI: 0102030405 • Traffic Channel: 5 • Traffic Slot: 4 • Mode: Loopback 2. Execute the command “testmode”. 3. Initiate connection from DECT tester. 4. Confirm that the NTP value at ANT is -19dBm ~ 25dBm.	IC103, C813, C807, C819, C826, D803, C817, C149, R802, C823, C131, C803, C825, C110, C802, C804
(**J**)*	Modulation Check	ANT	Follow steps 1 to 4 of **(I)**. 4. Confirm that the B-Field Modulation is 340kHz/div ~ 402kHz/div using data type Fig31.	IC103, C813, C807, C819, C826, D803, C817, C149, R802, C823, C131, C803, C825, C110, C802, C804
(**K**)*	Frequency Offset Confirmation	-	Follow steps 1 to 4 of **(I)**. 4. Confirm that the frequency offset is -50kHz ~ +50kHz.	IC103, C813, C807, C819, C826, D803, C817, C149, R802, C823, C131, C803, C825, C110, C802, C804
(**L**)*	Sensitivity Receiver Confirmation	-	Follow steps 1 to 4 of **(I)**. 4. Set DECT tester power to -85dBm. 5. Confirm that the BER is < 1000ppm.	IC103, C815, C830, C820, C821, R801, D803, C817, C149
(**M**)*	Timing Confirmation	-	Follow steps 1 to 4 of **(I)**. 4. Confirm that the Timing accuracy is < ± 2.0ppm.	IC103, C815, C830, C820, C821, R801, D803, C817, C149
(**N**)*	RSSI Level Confirmation	-	Follow steps 1 to 4 of **(I)**. 4. Set DECT tester power to -70dBm. 5. Execute the command “readrssi”. 6. Confirm: 9 < returned value < 13 (hex) (0E ± 5 (hex))	IC103, C815, C830, C820, C821, R801, D803, C817, C149

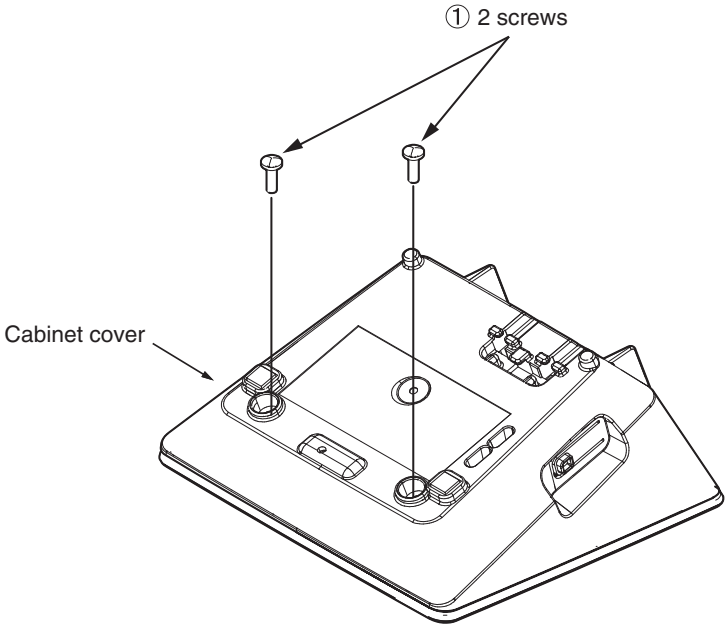
	Items	Adjustment Point	Procedure	Check or Replace Parts
(**O**)	Audio Check and Confirmation	-	1. Link to BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1KHz to MIC and measure Line output level. 4. Confirm that the level is -6.0 ± 3dBm and that the distortion level is < 5% at TEL Line (600Ω Load). 5. Input -20dBm/1KHz to Line I/F and measure Receiving level at SP+ and SP-. 6. Confirm that the level is -21.0 ± 3dBm and that the distortion level is < 5% at Receiver. (vol = middle, 150Ω Load)	

10 Disassembly and Assembly Instructions

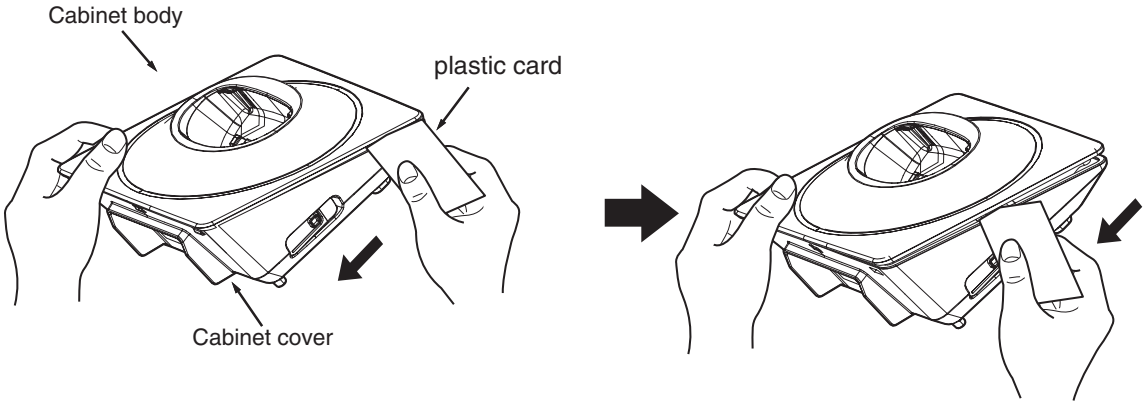
10.1. Disassembly Instructions

10.1.1. Base Unit

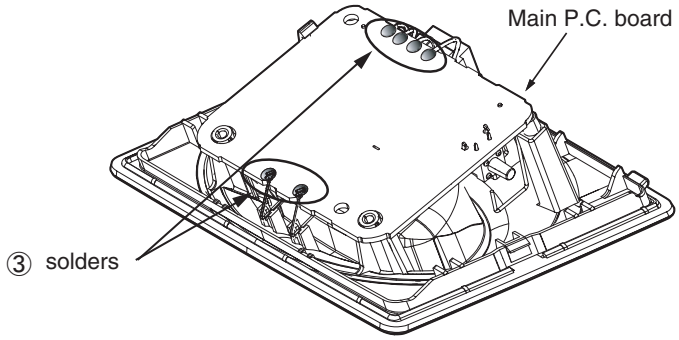
① **Remove the 2 screws to remove the cabinet cover.**



② **Insert a plastic card. (Ex. Used SIM card etc.) between the cabinet body and the cabinet cover, then pull it along the gap to open the cabinet.**

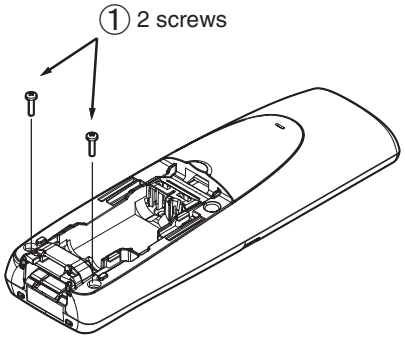


③ **Remove the solders to remove the main P.C. board.**

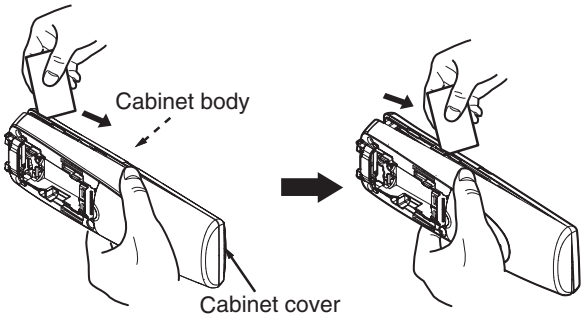


10.1.2. Handset

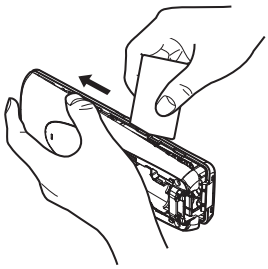
① **Remove the 2 screws.**



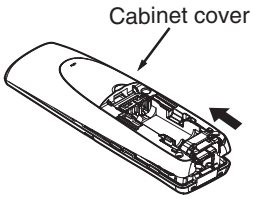
② **Insert a plastic card. (Ex. Used SIM card etc.) between the cabinet body and the cabinet cover, then pull it along the gap to open the cabinet.**



③ **Likewise, open the other side of the cabinet.**

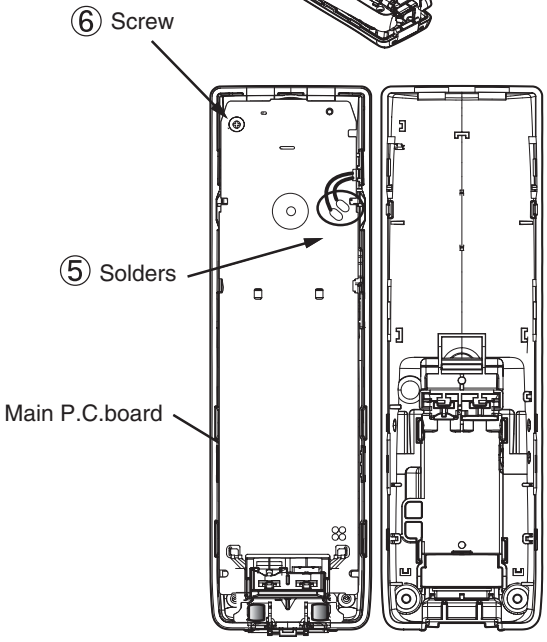


④ **Remove the cabinet cover by pushing it upward.**



⑤ **Remove the solders.**

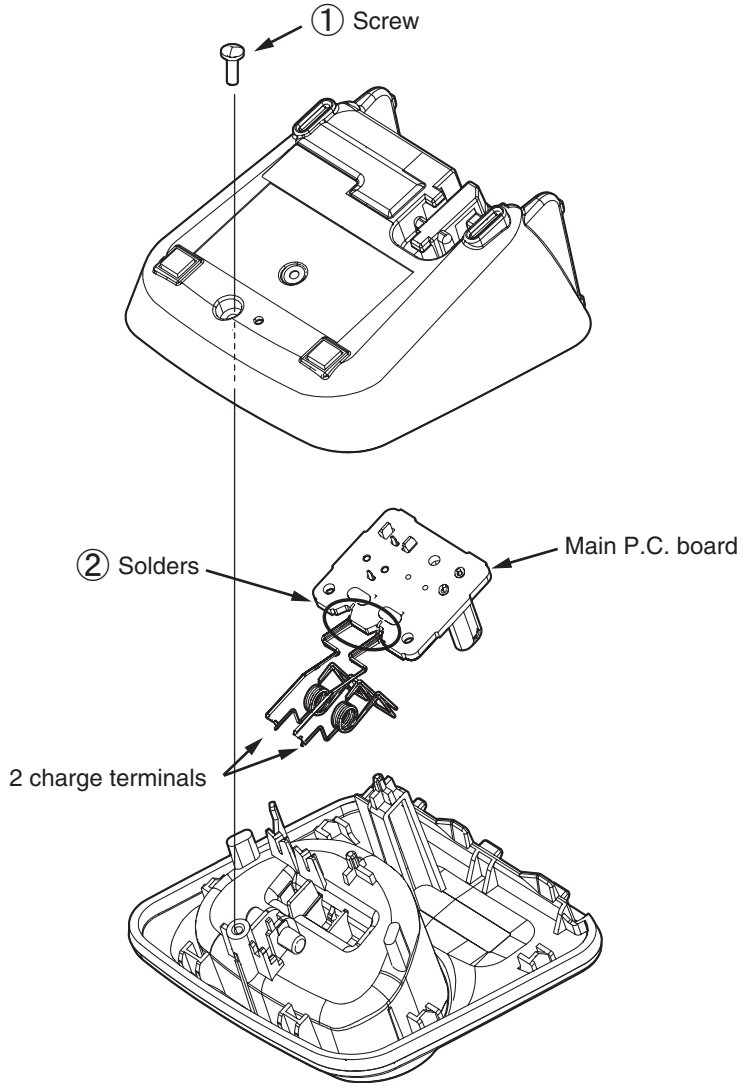
⑥ **Remove the screw to remove the main P. C. board.**



10.1.3. Charger Unit

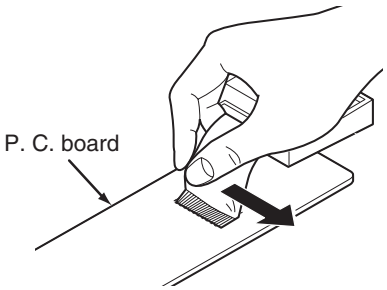
① **Remove the screw to remove the cabinet cover.**

② **Remove the solders to remove the 2 charge terminals.**



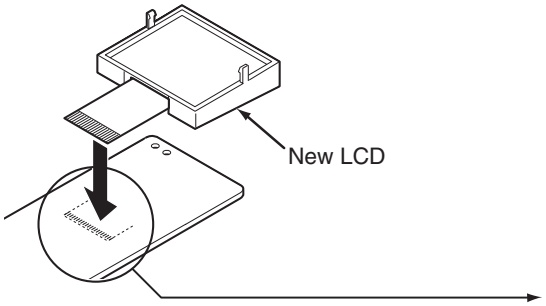
10.2. How to Replace the Handset LCD

①

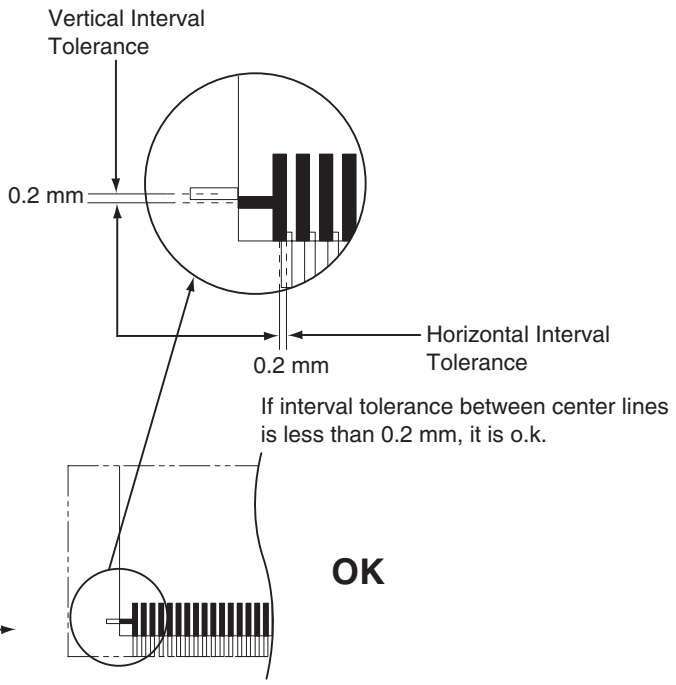


Peel off the FFC (Flexible Flat Cable) from the LCD, in the direction of the arrow. Take care to ensure that the foil on the P.C. board is not damaged.

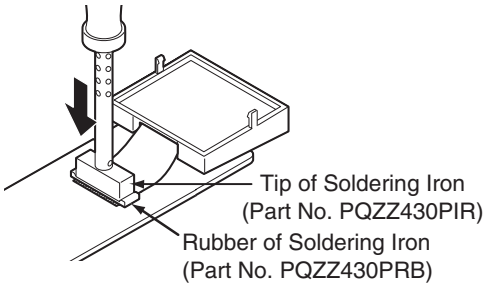
②



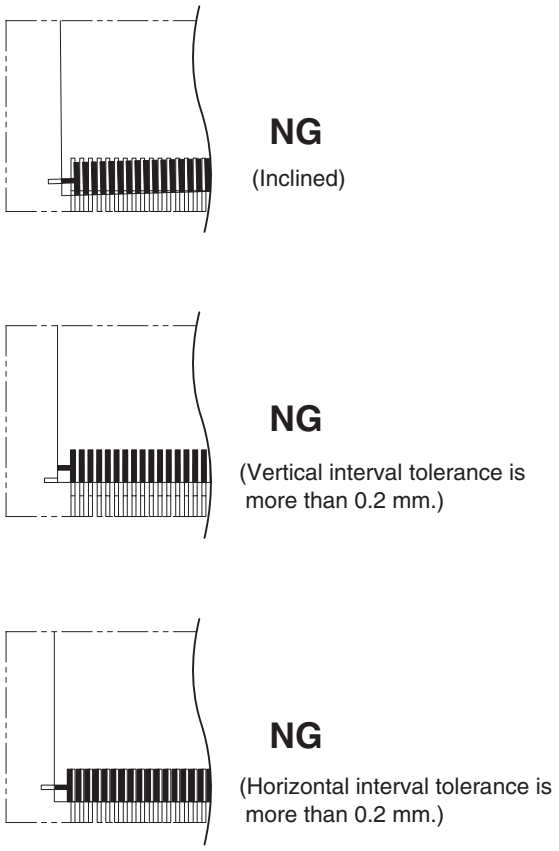
Fit the heatseal of a new LCD.



③



Heatweld with the tip of the soldering iron about 5 to 8 seconds (in case of 60W soldering iron).



11 Measurements and Adjustments

11.1. The Setting Method of JIG (Base Unit)

11.1.1. Preparation

11.1.1.1. Equipment Required

- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- Frequency counter: it must be precise to be able to measure 1Hz (precision; ±4ppm). Hewlett Packard, 53131A is recommended.
- DC power: it must be able to output at least 1A current under 9V.
- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope

11.1.1.2. JIG and PC

- Serial JIG
  PQZZ1CD300E*
- PC which runs in DOS mode
- **Batch file CD-ROM** for setting: PNZZTG1711ME

Note:

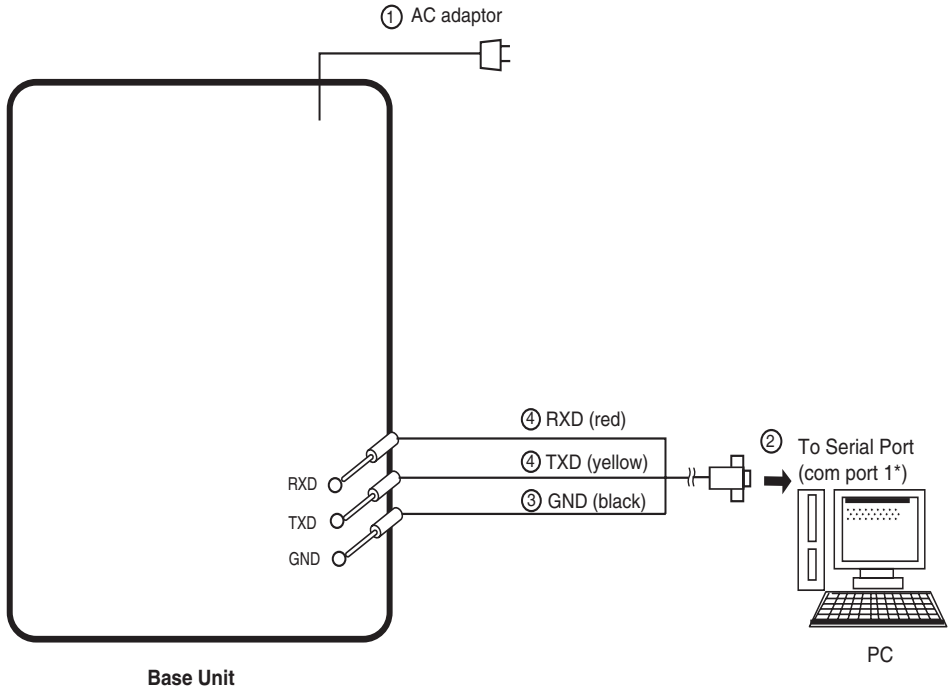
*: If you have the JIG Cable for TCD500 series (PQZZ1CD505E), change the following values of resistance. Then you can use it as a JIG Cable for both TCD300 and TCD500 series. (It is an upper compatible JIG Cable.)

Resistor	Old value (kΩ)	New value (kΩ)
R2	22	3.3
R3	22	3.3
R4	22	4.7
R7	4.7	10

11.1.2. PC Setting

11.1.2.1. Connections

① Connect the AC adaptor to J2 (base unit).
② Serial JIG to the Serial Port of PC.
③ Connect the Clip cable GND.
④ Connect the Clip cable TXD and RXD.



Note:

*: Comport names may vary depending on what your PC calls it.

11.1.2.2. Batch file Setting

1. Insert the Batch file CD-ROM into CD-ROM drive and copy PNZZTG***** folder to your PC (example: D drive).

2. Open a window of MS-DOS mode.

<Example for Windows>

On your computer, click **[Start]**, select **Programs** (**All Programs** for Windows XP/Windows Server 2003), then click
MS-DOS Prompt. (for Windows 95/Windows 98)
Or
Accessories-MS-DOS Prompt. (for Windows Me)
Or
Command Prompt. (for Windows NT 4.0)
Or
Accessories-Command Prompt.
(for Windows 2000/Windows XP/Windows Server 2003)

3. At the DOS prompt, type "**D:**" (for example) to select the drive, then press the **Enter** key.

4. Type "**CD ¥PNZZTG*****"**, then press the **Enter** key.

5. Type "**CTE open com X**", then press the **Enter** key
(**X**: COM port number used for the serial connection on your PC).

6. Type "**READID**", then press the **Enter** key.
- If any error messages appear, change the port number or check the cable connection.
- If any value appear, go to next step.

7. Type "**DOSKEY**", then press the **Enter** key.

<Example: correct setting>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG*****
D: ¥PNZZTG***** >CTE open com X
D: ¥PNZZTG*****>READID
00 52 4F A8 A8
D: ¥PNZZTG*****>DOSKEY
D: ¥PNZZTG*****>
```

<Example: incorrect setting>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG*****
D: ¥PNZZTG***** >CTE open com X
D: ¥PNZZTG*****>READID
ReadID
ReadIPUI Error: read access failed
D: ¥PNZZTG*****>
```

Note:
- "*****" varies depending on the country.

11.1.2.3. Commands

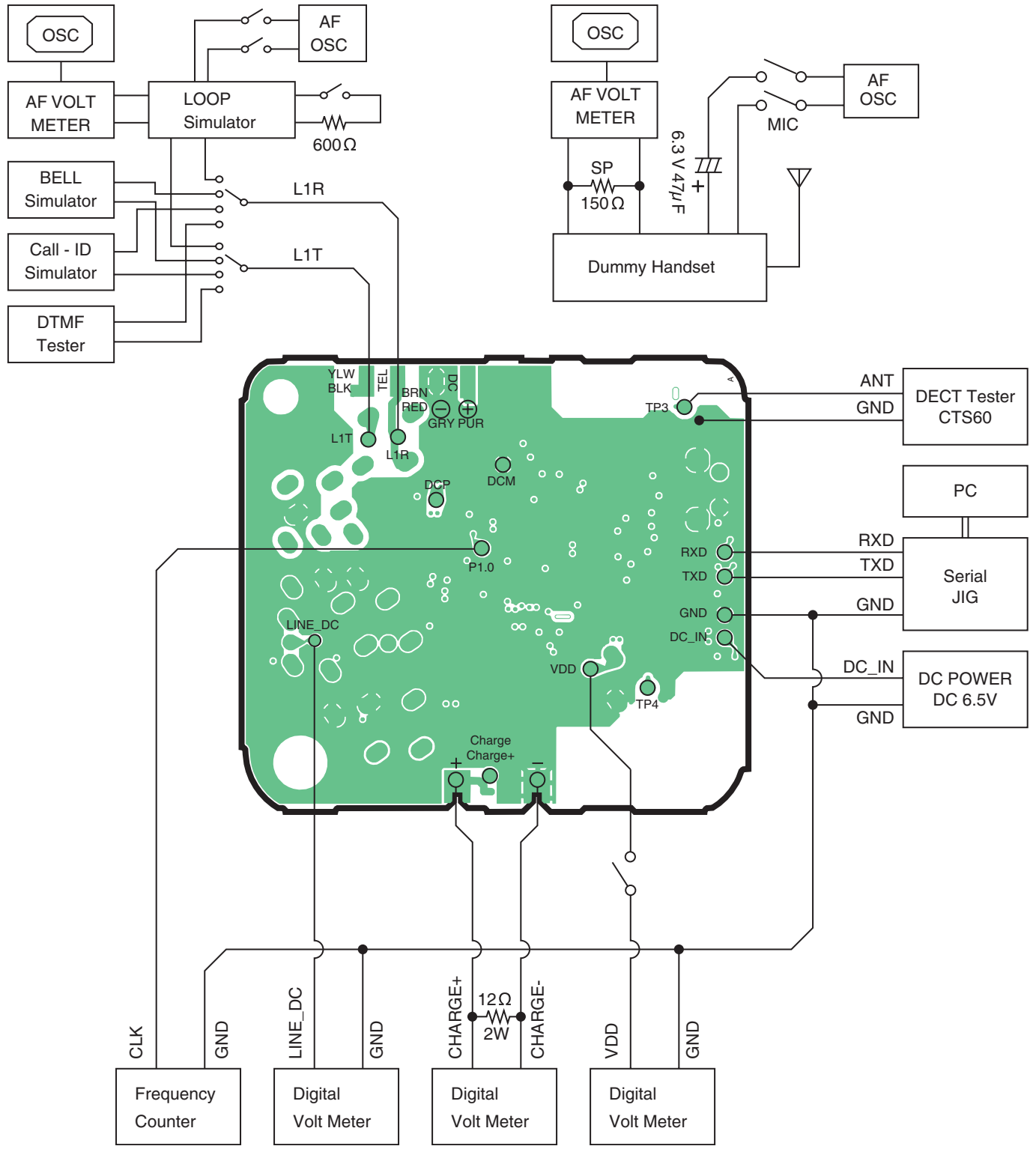
See the table below for frequently used commands.

Command name	Function	Example
readid	Read ID (RFPI)	Type "readid", and the registered ID is read out.
writeid	Write ID (RFPI)	Type "writeid 00 18 E0 0E 98", and the ID "0018 E0 0E 98" is written.
setfreq	adjust Frequency of RFIC	Type "setfreq nn nn".
hookoff	off-hook mode on Base	Type "hookoff".
hookon	on-hook mode on Base	Type "hookon".
Getchk	Read checksum	Type "getchk".

11.2. Adjustment Standard (Base Unit)

When connecting the simulator equipment for checking, please refer to below.

11.2.1. Bottom View



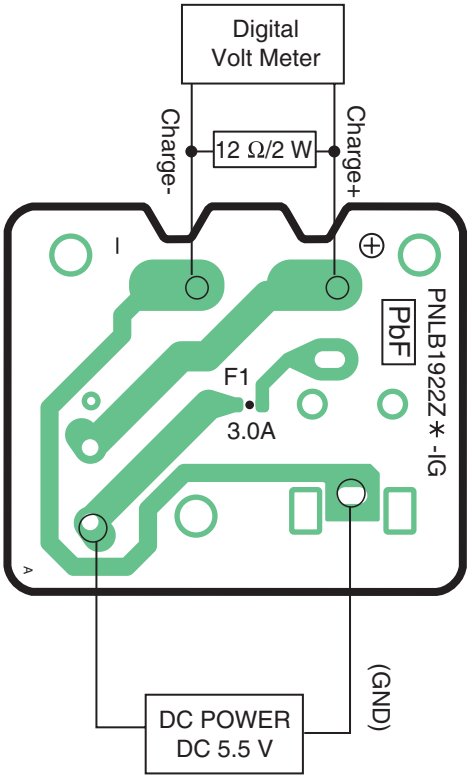
Note:

(**A**) - (**O**) is referred to **Check Point (Base Unit)** (P.24)

11.3. Adjustment Standard (Charger Unit)

When connecting the simulator equipment for checking, please refer to below.

11.3.1. Bottom View



Note:

(**A**) is referred to **Check Point (Charger Unit)** (P.26)

11.4. The Setting Method of JIG (Handset)

11.4.1. Preparation

11.4.1.1. Equipment Required

- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- Frequency counter: it must be precise to be able to measure 1Hz (precision; ± 4ppm). Hewlett Packard, 53131A is recommended.
- DC power: it must be able to output at least 1A current under 2.4V for Handset.
- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope

11.4.1.2. JIG and PC

- Serial JIG
  PQZZT1CD300E*
- PC which runs in DOS mode.
- **Batch file CD-ROM** for setting: PNZZTG1711ME

Note:

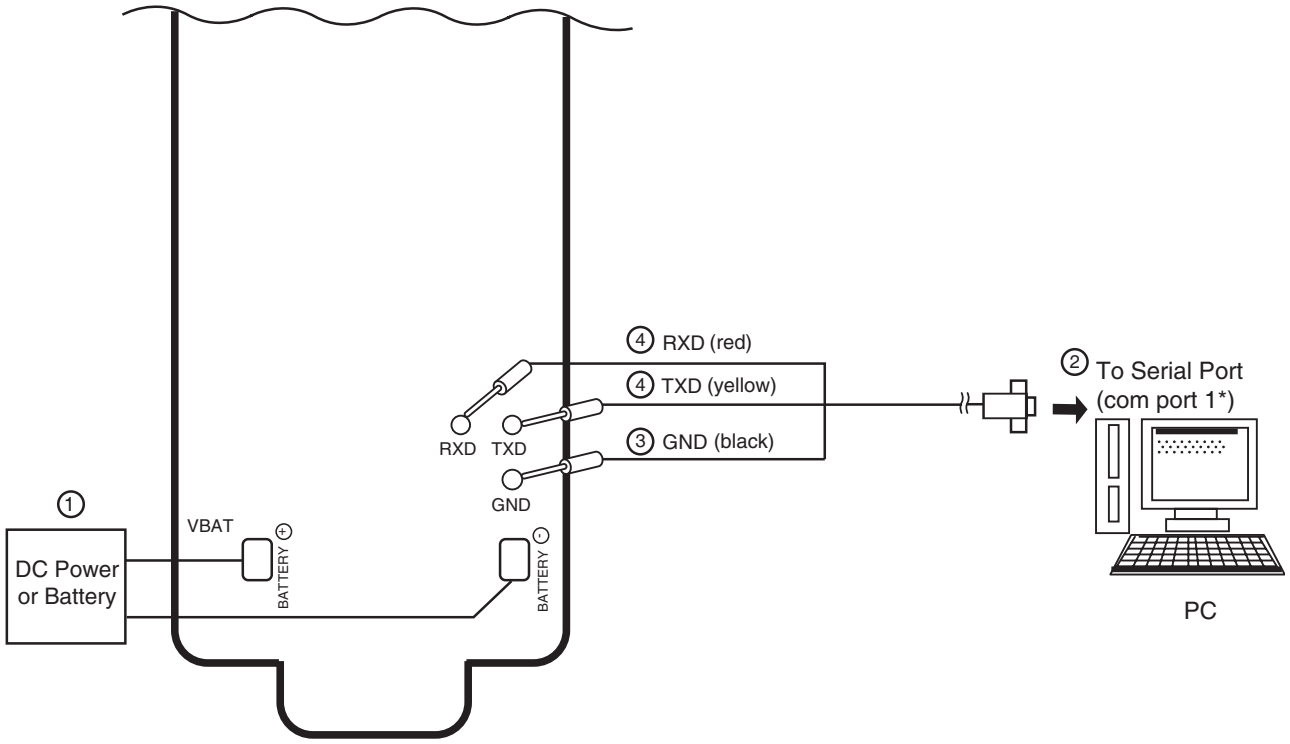
*: If you have the JIG Cable for TCD500 series (PQZZ1CD505E), change the following values of resistance. Then you can use it as a JIG Cable for both TCD300 and TCD500 series. (It is an upper compatible JIG Cable.)

Resistor	Old value (kΩ)	New value (kΩ)
R2	22	3.3
R3	22	3.3
R4	22	4.7
R7	4.7	10

11.4.2. PC Setting

11.4.2.1. Connections

① Connect the DC Power or Battery to BATTERY(+) and BATTERY(-) (Handset).
② Serial JIG to the Serial Port of PC.
③ Connect the Clip cable GND.
④ Connect the Clip cable TXD and RXD.



Handset P. C. board

Note:

*: Comport names may vary depending on what your PC calls it.

11.4.2.2. Batch file Setting

1. Insert the Batch file CD-ROM into CD-ROM drive and copy PNZZTG***** folder to your PC (example: D drive).

2. Open a window of MS-DOS mode.

<Example for Windows>

On your computer, click **[Start]**, select **Programs** (**All Programs** for Windows XP/Windows Server 2003), then click
MS-DOS Prompt. (for Windows 95/Windows 98)
Or
Accessories-MS-DOS Prompt. (for Windows Me)
Or
Command Prompt. (for Windows NT 4.0)
Or
Accessories-Command Prompt.
(for Windows 2000/Windows XP/Windows Server 2003)

3. At the DOS prompt, type "**D:**" (for example) to select the drive, then press the **Enter** key.

4. Type "**CD ¥PNZZTG*****"**, then press the **Enter** key.

5. Type "**CTE open com X**", then press the **Enter** key
(**X**: COM port number used for the serial connection on your PC).

6. Type "**READID**", then press the **Enter** key.
- If any error messages appear, change the port number or check the cable connection.
- If any value appear, go to next step.

7. Type "**DOSKEY**", then press the **Enter** key.

<Example: correct setting>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG*****
D: ¥PNZZTG***** >CTE open com X
D: ¥PNZZTG*****>READID
00 52 4F A8 A8
D: ¥PNZZTG*****>DOSKEY
D: ¥PNZZTG*****>
```

<Example: incorrect setting>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG*****
D: ¥PNZZTG***** >CTE open com X
D: ¥PNZZTG*****>READID
ReadID
ReadIPUI Error: read access failed
D: ¥PNZZTG*****>
```

Note:
- "*****" varies depending on the country.

11.4.2.3. Commands

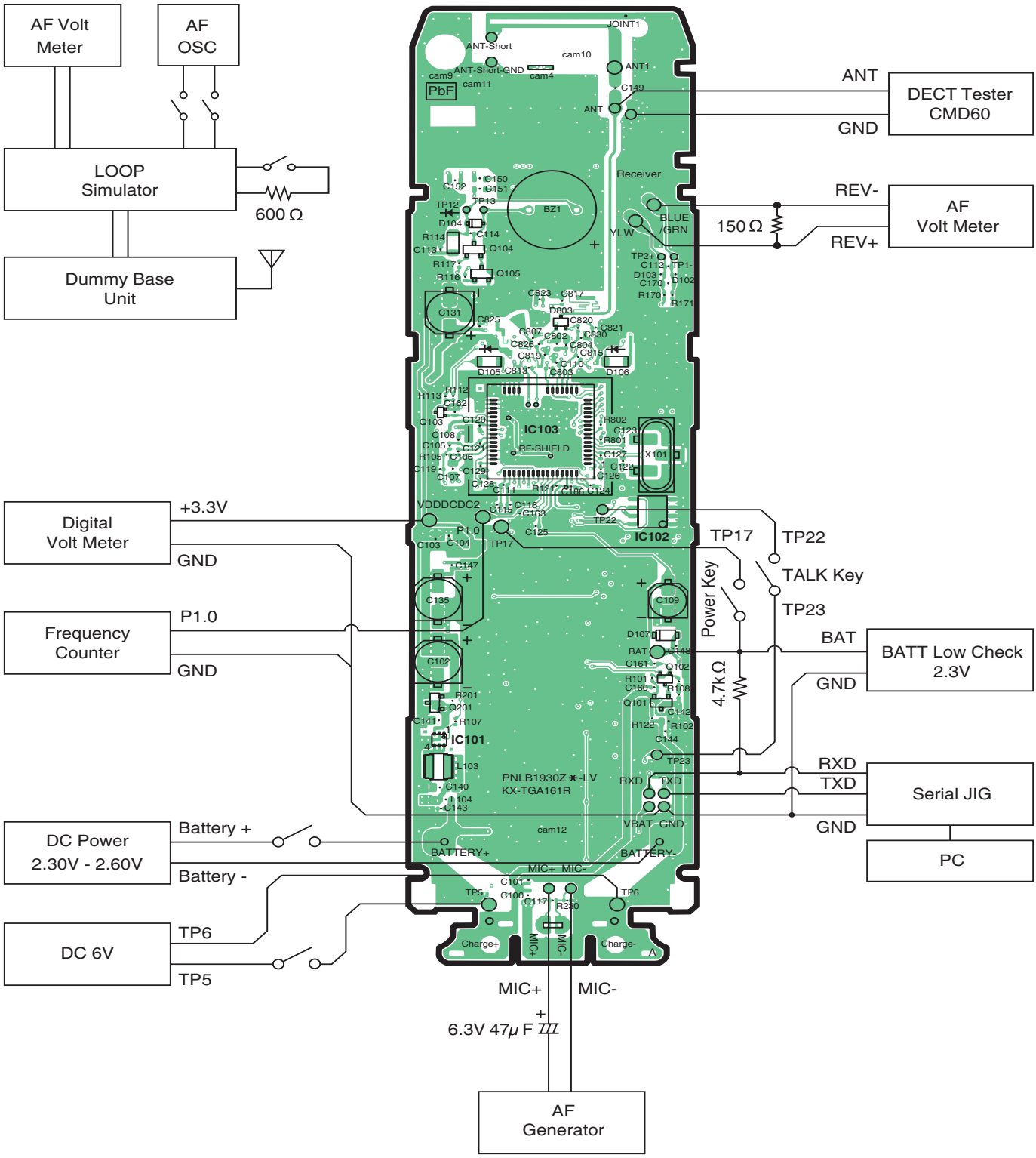
See the table below for frequently used commands.

Command name	Function	Example
rdeep	Read the data of EEPROM	Type "rdeep 00 00 10", and the data from address "00 00" to "10" is read out.
readid	Read ID (RFPI)	Type "readid", and the registered ID is read out.
writeid	Write ID (RFPI)	Type "writeid 00 18 E0 0E 98", and the ID "0018 E0 0E 98" is written.
setfreq	adjust Frequency of RFIC	Type "setfreq nn nn".
Getchk	Read checksum	Type "getchk".
wrteep	write eeprom	Type "wrteep 01 23 45". "01 23" is address and "45" is data to be written.

11.5. Adjustment Standard (Handset)

When connecting the simulator equipment for checking, please refer to below.

11.5.1. Component View



Note:

(**A**) - (**O**) is referred to **Check Point (Handset)** (P.27)

11.6. Things to Do after Replacing IC

Cautions:

Since this page is common to each country, it may not apply to some models in your country. The contents below are the minimum adjustments required for operation.

11.6.1. Base Unit

Before doing the following adjustment, be sure to do **PC Setting** (P.34) in **The Setting Method of JIG (Base Unit)**.

IC		Necessary Adjustment
BBIC	Programs for Voice processing, interface for RF and EEPROM	1. Clock adjustment: Refer to Check Point (D). (*1)
EEPROM	Adjustment parameter data (country version batch file, default batch file, etc.)	1. Default batch file: Execute the command “DefaultEEP”. 2. Country version batch file: Execute the command “TG16XX_FP_ROM2_xx_yyy.bat”. (*2) 3. Clock adjustment: Refer to Check Point (D). (*1)

Note:

(*1) Refer to **Check Point (Base Unit)** (P.24)

(*2) xx: country code, yyy: revision number

“xx” and “yyy” vary depending on the country version. You can find them in the batch file, PQZZ- mentioned in **JIG and PC** (P.34).

11.6.2. Handset

Before doing the following adjustment, be sure to do **PC Setting** (P.38) in **The Setting Method of JIG (Handset)**.

IC		Necessary Adjustment
BBIC	Programs for Voice processing, interface for RF and EEPROM	1. Clock adjustment: Refer to Check Point (H). (*3) 2. 4.0 V setting and battery low detection: Refer to Check Point (A), (F) and (G). (*3)
EEPROM	Adjustment parameter data (country version batch file, default batch file, etc.)	1. Default batch file: Execute the command “Default”. 2. Melody Initialize batch file; Execute the Command "Melody_008". 3. Country version batch file: Execute the command "TG16XX_PP_xx_yyy.bat". 4. Clock adjustment: Refer to Check Point (H). (*3) 5. 4.0 V setting and battery low detection: Refer to Check Point (A), (F) and (G). (*3)

Note:

(*3) Refer to **Check Point (Handset)** (P.27)

(*4) xx: country code, yyy: revision number

“xx” and “yyy” vary depending on the country version. You can find them in the batch file, PQZZ- mentioned in **JIG and PC** (P.38).

11.7. RF Specification

11.7.1. Base Unit

Item	Value	Refer to -. *
TX Power	More than 14 dBm ~ 26 dBm	**Check Point (Base Unit) (G)**
Modulation	340 kHz/div ~ 402 kHz/div	**Check Point (Base Unit) (H)**
Frequency Offset	-50 kHz ~ +50 kHz	**Check Point (Base Unit) (I)**
RX Sensitivity	< 1000 ppm	**Check Point (Base Unit) (J)**
Timing Accuracy	< ± 2.0 ppm	**Check Point (Base Unit) (K)**
RSSI Level	0E hex ± A hex	**Check Point (Base Unit) (L)**

*: Refer to **Check Point (Base Unit)** (P.24)

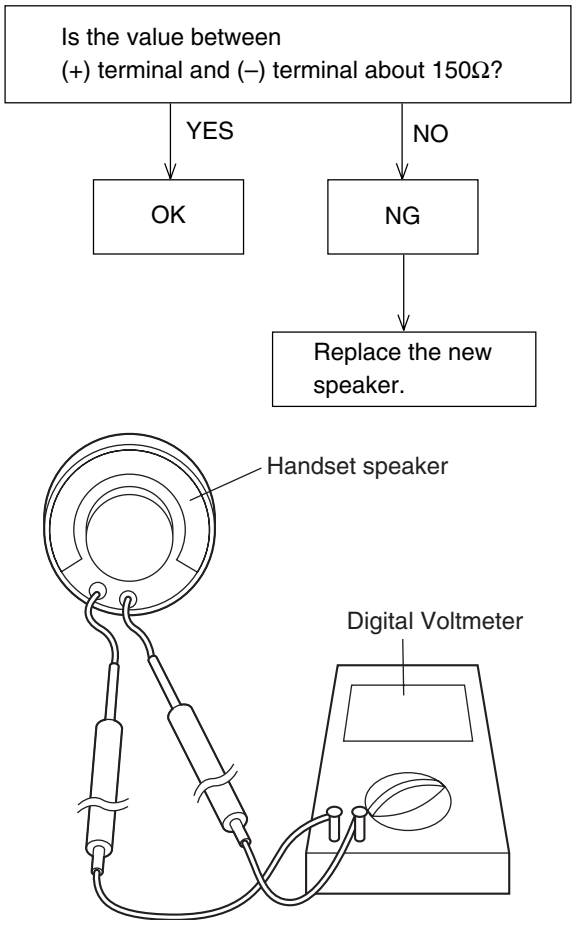
11.7.2. Handset

Item	Value	Refer to -. **
TX Power	More than 19 dBm ~ 25 dBm	**Check Point (Handset) (I)**
Modulation	340 kHz/div ~ 402 kHz/div	**Check Point (Handset) (J)**
Frequency Offset	-50 kHz ~ +50 kHz	**Check Point (Handset) (K)**
RX Sensitivity	< 1000 ppm	**Check Point (Handset) (L)**
Timing Accuracy	< ± 2.0 ppm	**Check Point (Handset) (M)**
RSSI Level	0E hex ± 5 hex	**Check Point (Handset) (N)**

: Refer to **Check Point (Handset) (P.27)

11.8. How to Check the Handset Speaker or Receiver

1. Prepare the digital voltmeter, and set the selector knob to ohm meter.
2. Put the probes at the speaker terminals as shown below.



11.9. Frequency Table (MHz)

	Ch. (hex)	TX/RX Frequency (MHz)
Channel 0	00	1928.448
Channel 1	01	1926.720
Channel 2	02	1924.992
Channel 3	03	1923.264
Channel 4	04	1921.536

12 Miscellaneous

12.1. How to Replace the Flat Package IC

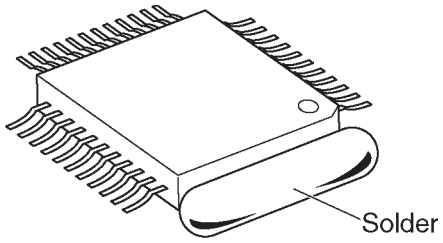
Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

12.1.1. Preparation

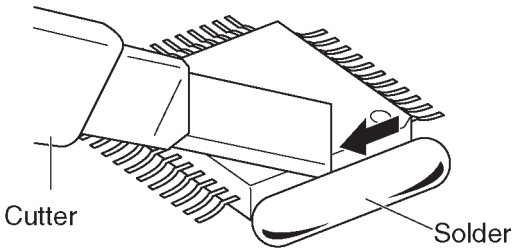
- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)
  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux
  Recommended Flux: Specific Gravity → 0.82.
  Type → RMA (lower residue, non-cleaning type)
  Note: See **About Lead Free Solder (PbF: Pb free)** (P.4)

12.1.2. How to Remove the IC

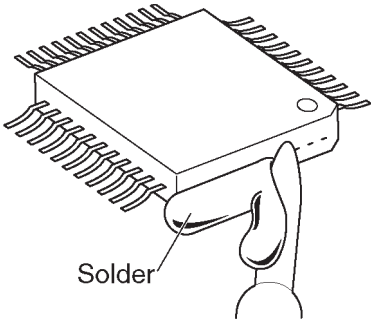
1. Put plenty of solder on the IC pins so that the pins can be completely covered.
   Note:
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.



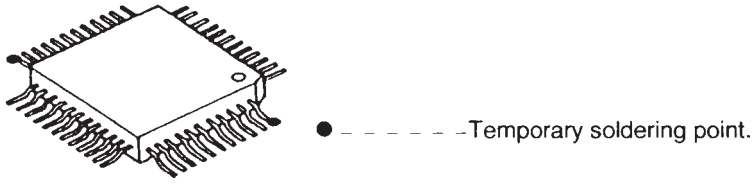
3. While the solder melts, remove it together with the IC pins.



When you attach a new IC to the board, remove all solder left on the board with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.

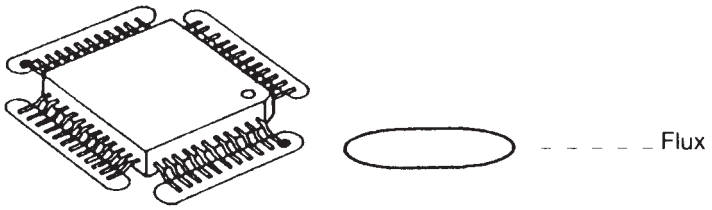
12.1.3. How to Install the IC

1. Temporarily fix the FLAT PACKAGE IC, soldering the two marked pins.

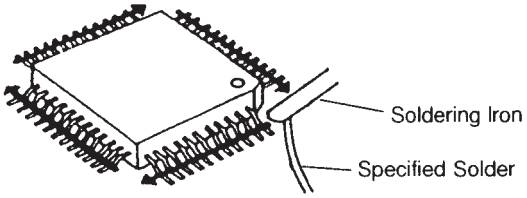


*Check the accuracy of the IC setting with the corresponding soldering foil.

2. Apply flux to all pins of the FLAT PACKAGE IC.

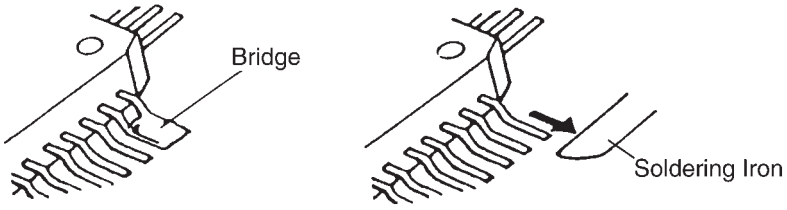


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



12.1.4. How to Remove a Solder Bridge

1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.



12.2. How to Replace the Shield Case

12.2.1. Preparation

- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700°F ± 20°F (370°C ± 10°C)
  Note:
  We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Hot Air Desoldering Tool
  Temperature: 608°F ± 68°F (320°C ± 20°C)

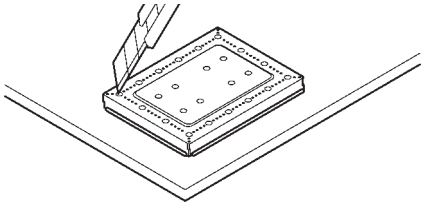
12.2.2. Caution

- To replace the IC efficiently, choose the right sized nozzle of the hot air desoldering tool that matches the IC package.
- Be careful about the temperature of the hot air desoldering tool not to damage the PCB and/or IC.

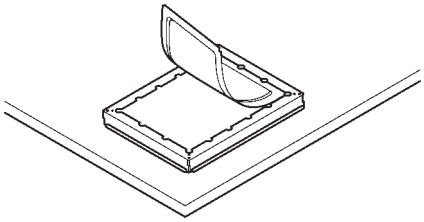
12.2.3. How to Remove the Shield Case

Note:
If you don't have special tools (ex. Hot air disordering tool), conduct the following operations.

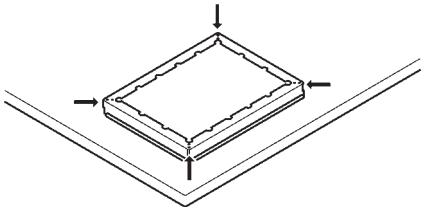
1. Cut the case along perforation.



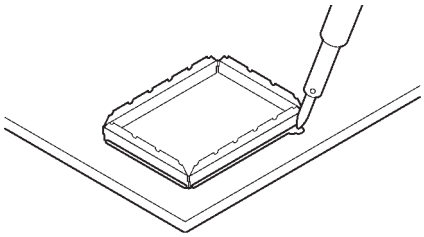
2. Remove the cut part.



3. Cut the four corners along perforation.



4. Remove the reminds by melting solder.

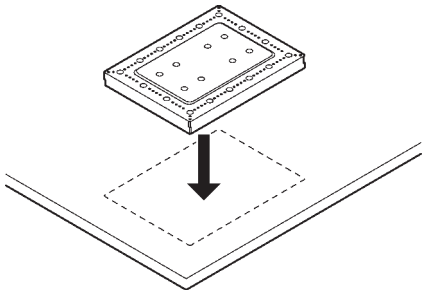


12.2.4. How to Install the Shield Case

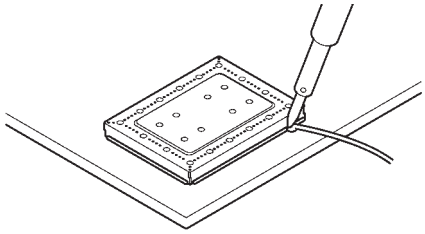
Note:

- If you don’t have special tools (ex. Hot air disordering tool), conduct the following operations.
- Shield case’s No. : PNMC1040Z

1. Put the shield case.

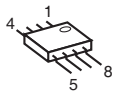


2. Solder the surroundings.

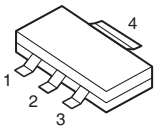


12.3. Terminal Guide of the ICs, Transistors, Diodes and Electrolytic Capacitors

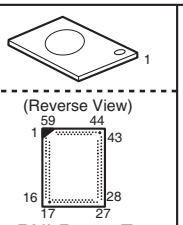
12.3.1. Base Unit



PNWITG1611EH

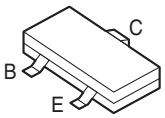


C0DBEYY00102

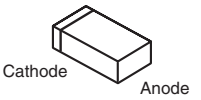


PNLP2245Z

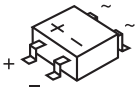
B1AAJC000010
B1ACGP000008



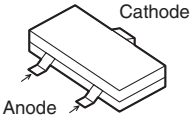
B1ABCE000009
B1ABDM000001



PQVDRLZ20A

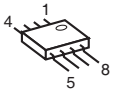


B0EDER000009

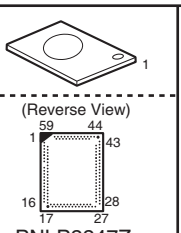


B0DDCD000001

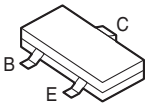
12.3.2. Handset



PNWIGA161EXR

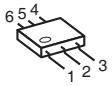


PNLP2247Z

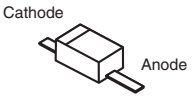


B1ADGE000012
PSVTDTC143X
B1ABGE000011

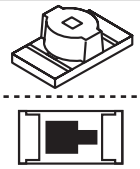
2SC4081R



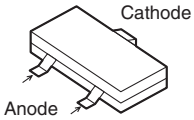
MTM767200LBF



DA2J10100L
B0JCMC000006



B3ADB0000064



B0DDCD000001

13 Schematic Diagram

13.1. For Schematic Diagram

13.1.1. Base Unit (Schematic Diagram (Base Unit))

Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

> Important Safety Notice:
> Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. This schematic diagram may be modified at any time with the development of new technology.

13.1.2. Handset (Schematic Diagram (Handset))

Notes:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams may be modified at any time with the development of new technology.

13.1.3. Charger Unit (Schematic Diagram (Charger Unit))

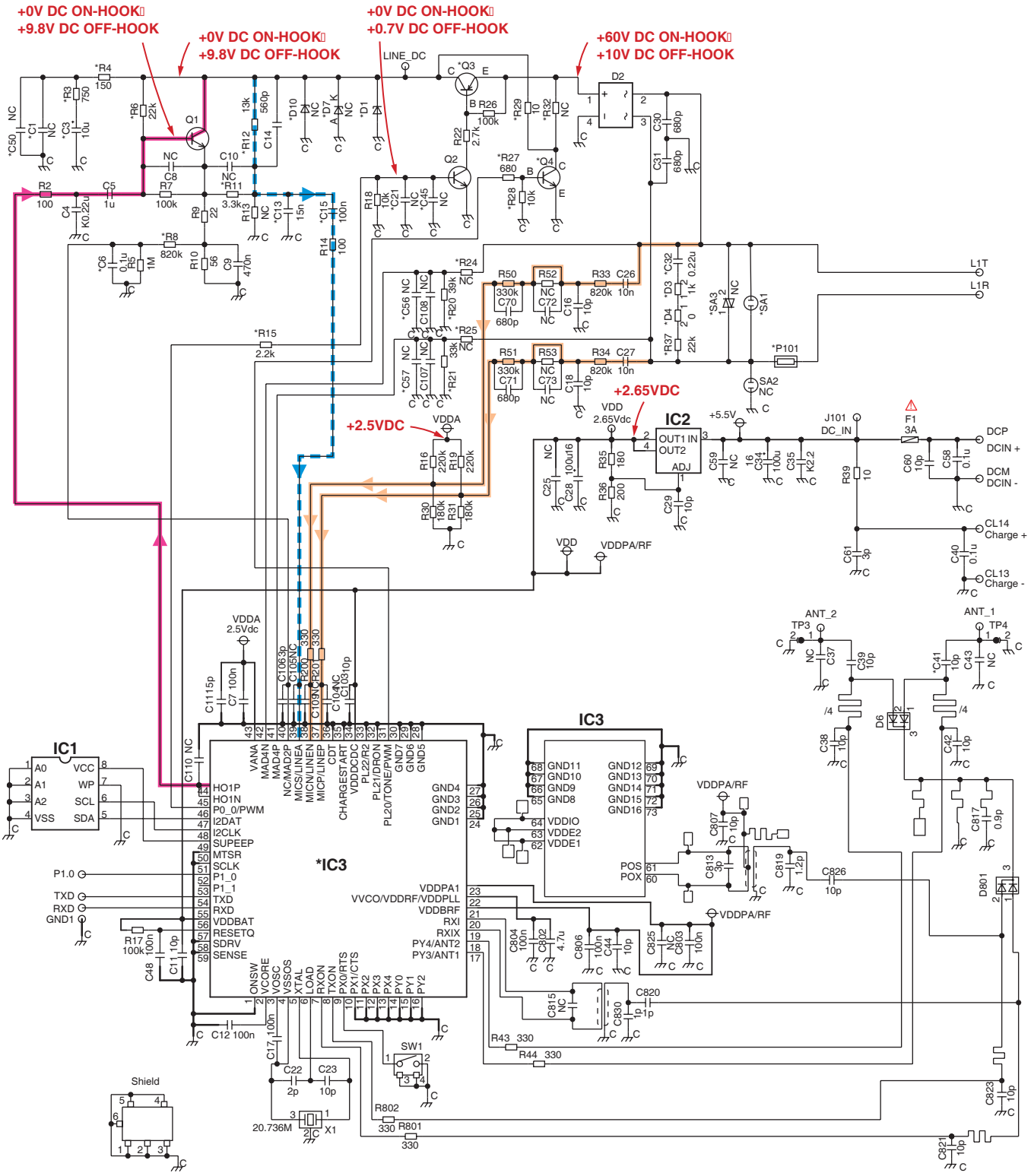
Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

> Important Safety Notice:
> Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. This schematic diagram may be modified at any time with the development of new technology.

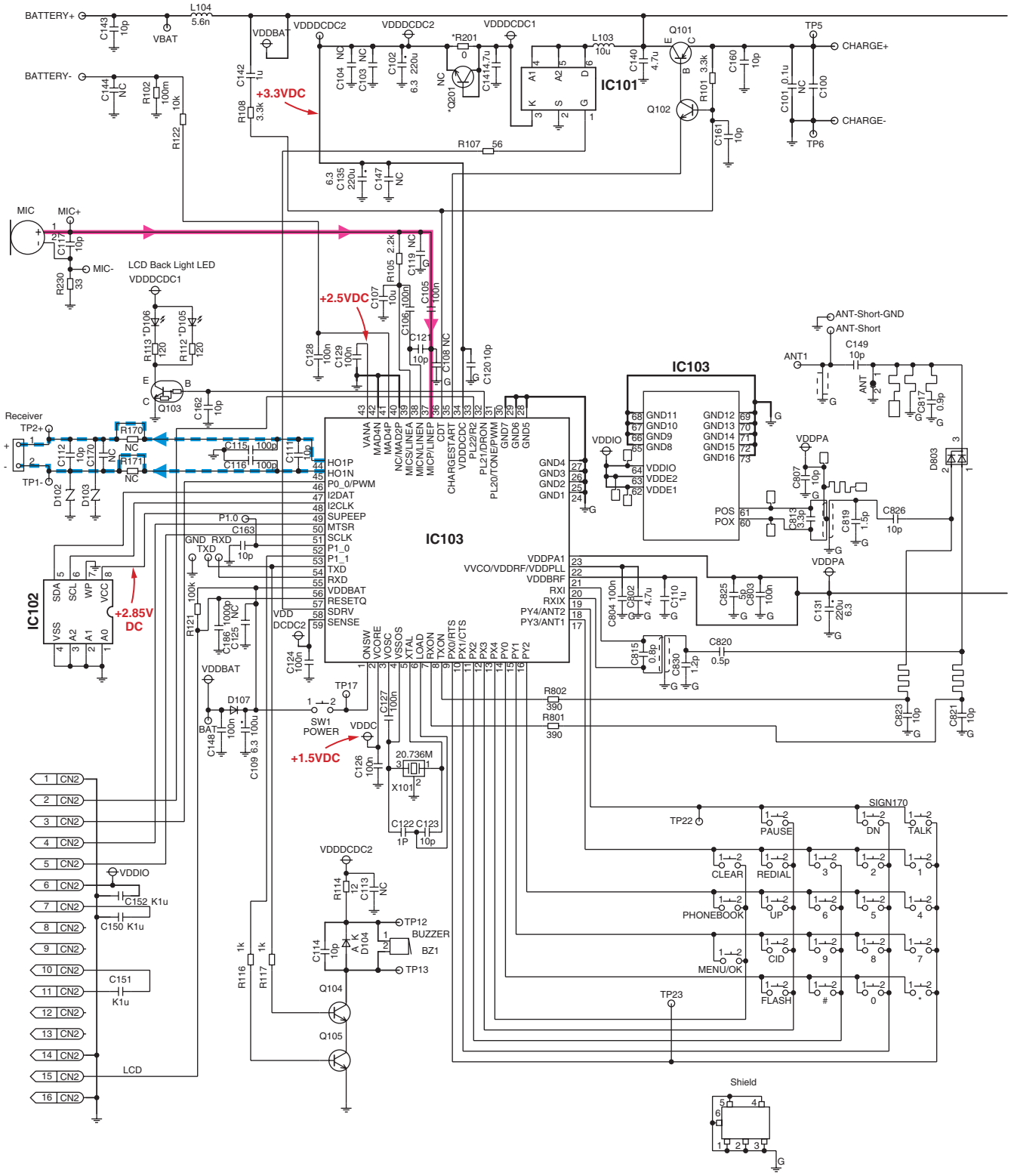
13.2. Schematic Diagram (Base Unit)



NC: No Components

KX-TG1711/1712ME SCHEMATIC DIAGRAM (Base Unit_Main)

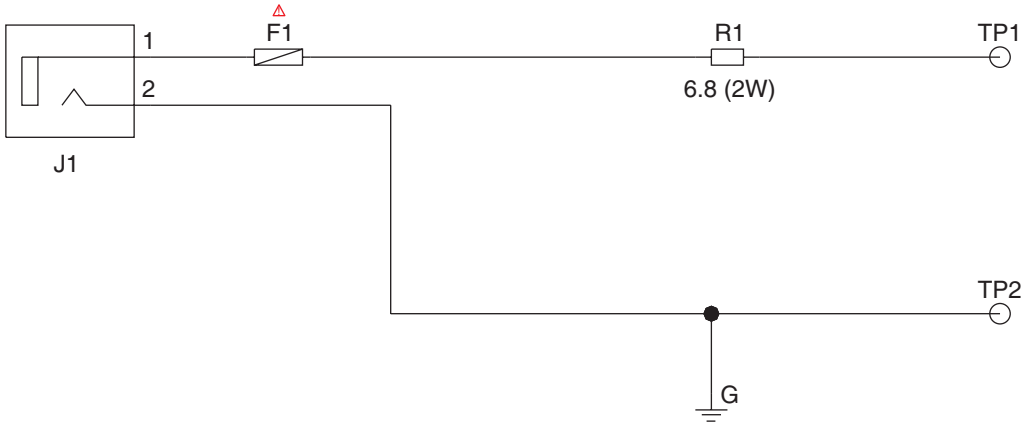
13.3. Schematic Diagram (Handset)



NC: No Components

KX-TGA171 SCHEMATIC DIAGRAM (Handset_Main)

13.4. Schematic Diagram (Charger Unit)

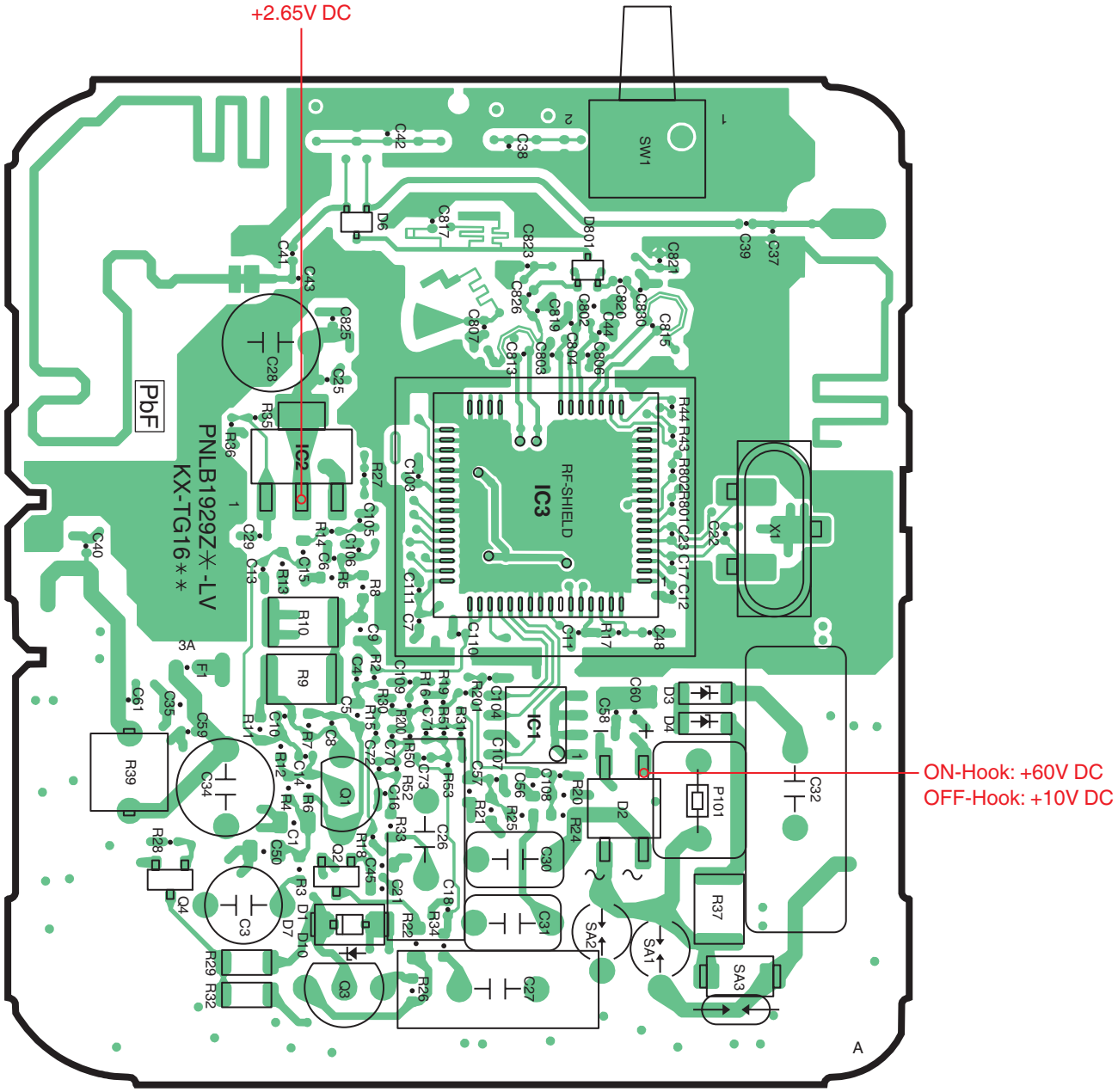


SCHEMATIC DIAGRAM (Charger Unit)

14 Printed Circuit Board

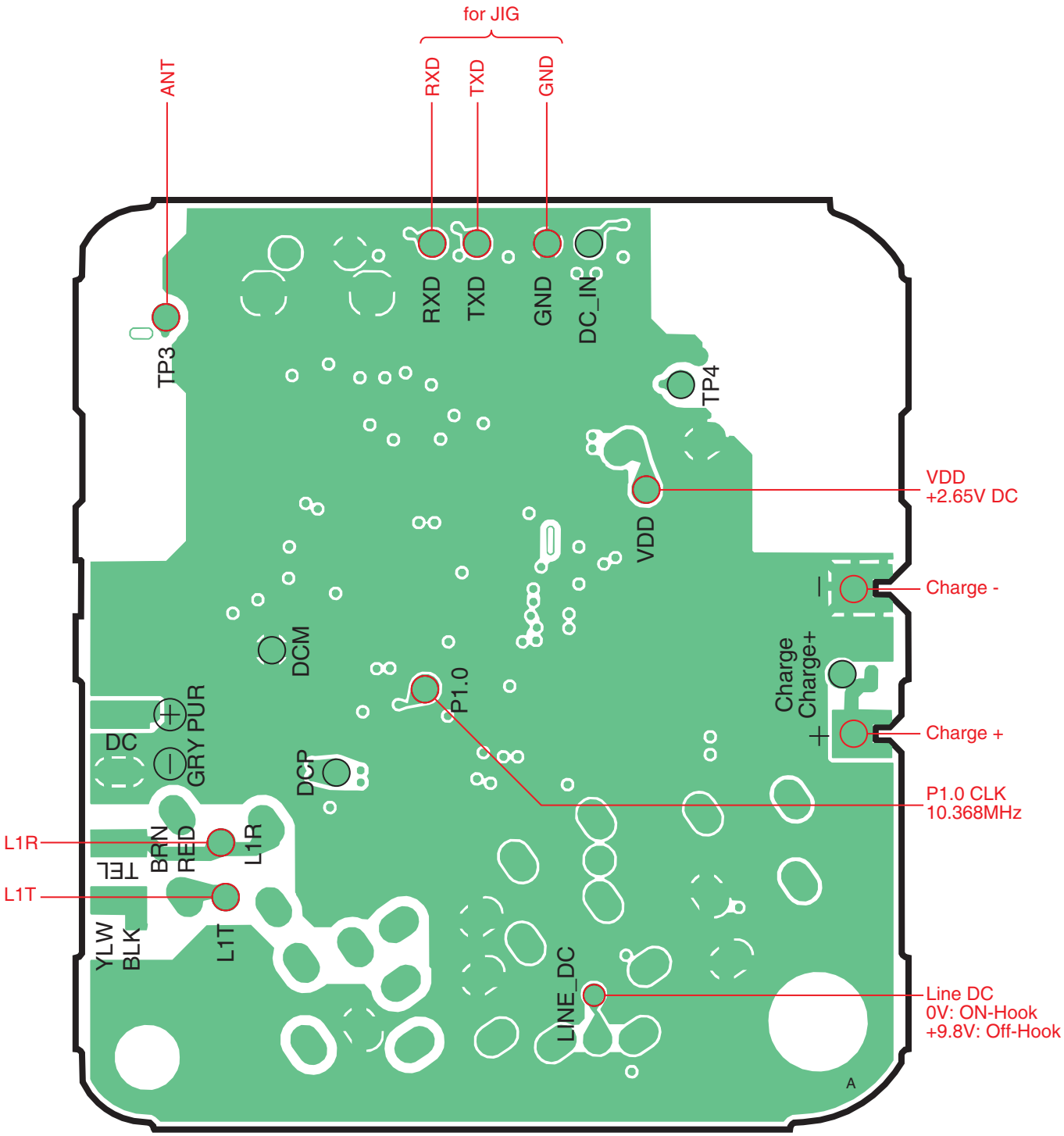
14.1. Circuit Board (Base Unit)

14.1.1. Component View



KX-TG1711/1712 CIRCUIT BOARD (Base Unit_Main (Component View))

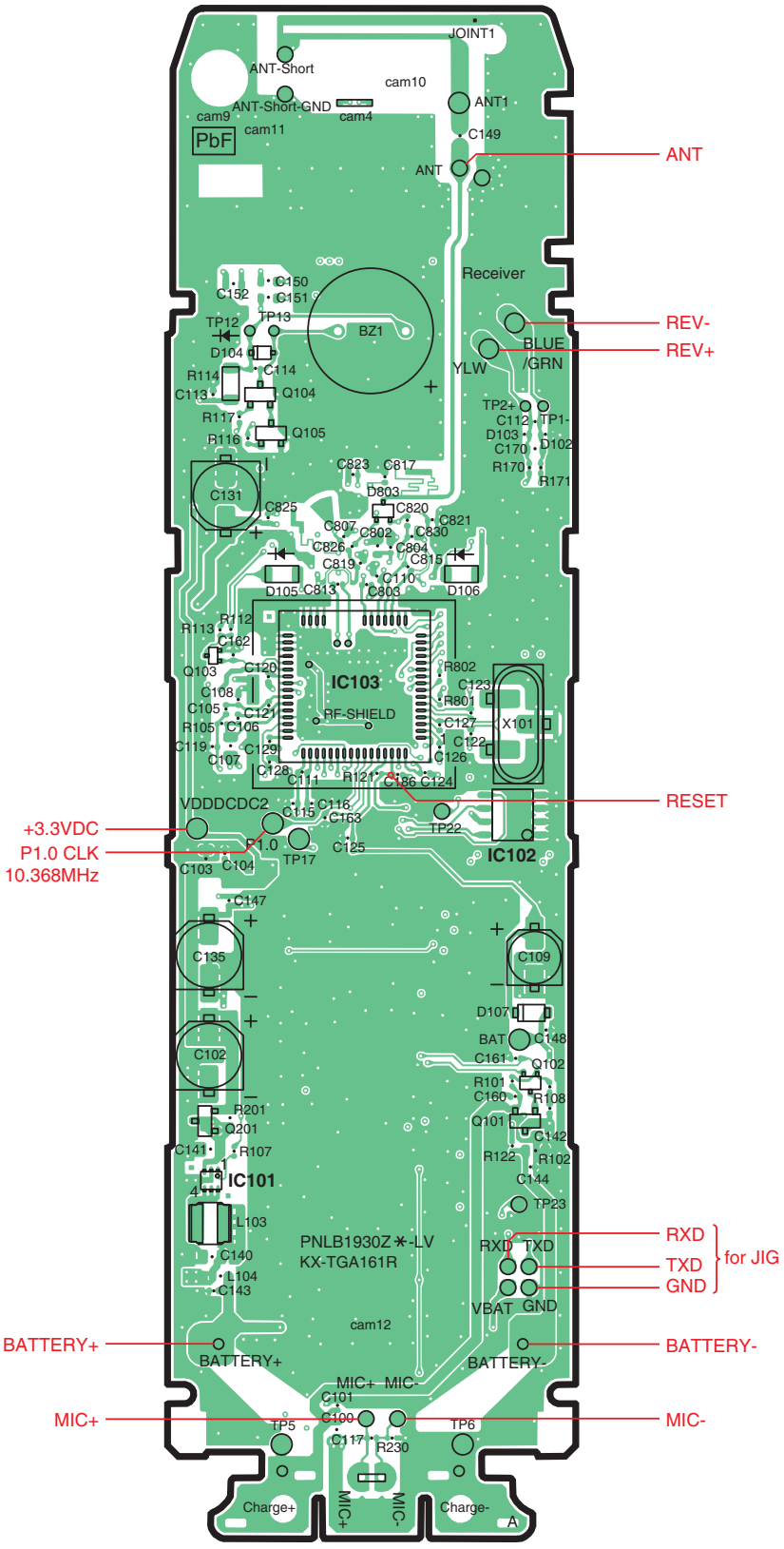
14.1.2. Bottom View



KX-TG1711/1712 CIRCUIT BOARD (Base Unit_Main (Bottom View))

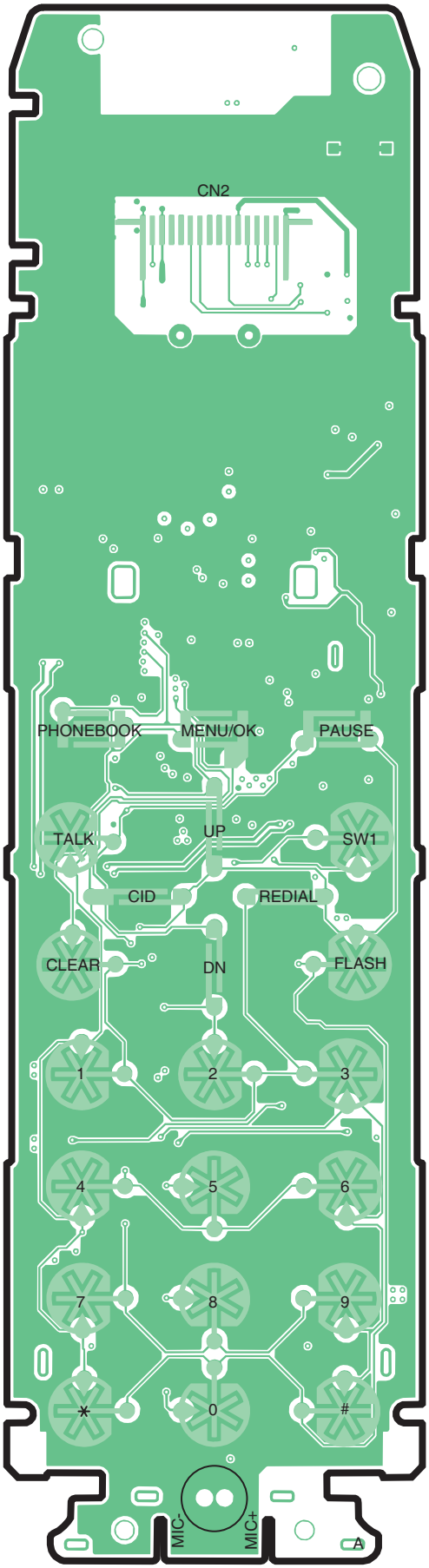
14.2. Circuit Board (Handset)

14.2.1. Component View



KX-TGA171 CIRCUIT BOARD (Handset_Main (Component View))

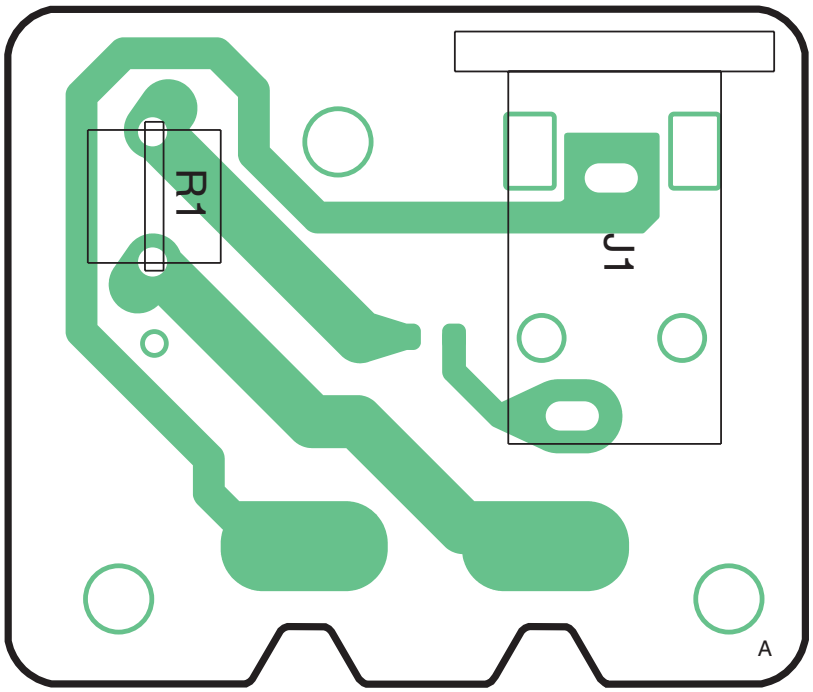
14.2.2. Bottom View



KX-TGA171 CIRCUIT BOARD (Handset_Main (Bottom View))

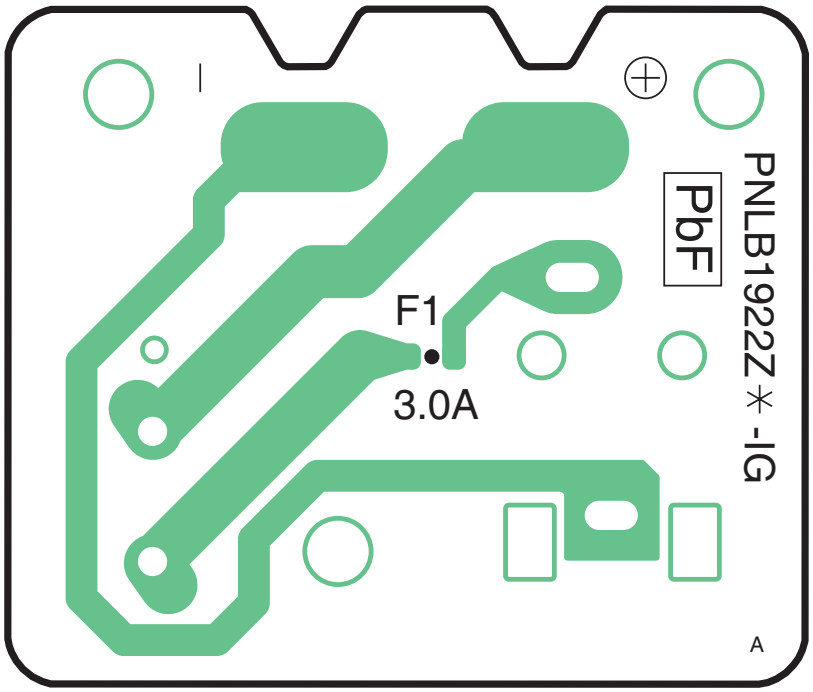
14.3. Circuit Board (Charger Unit)

14.3.1. Component View



CIRCUIT BOARD (Charger Unit (Component View))

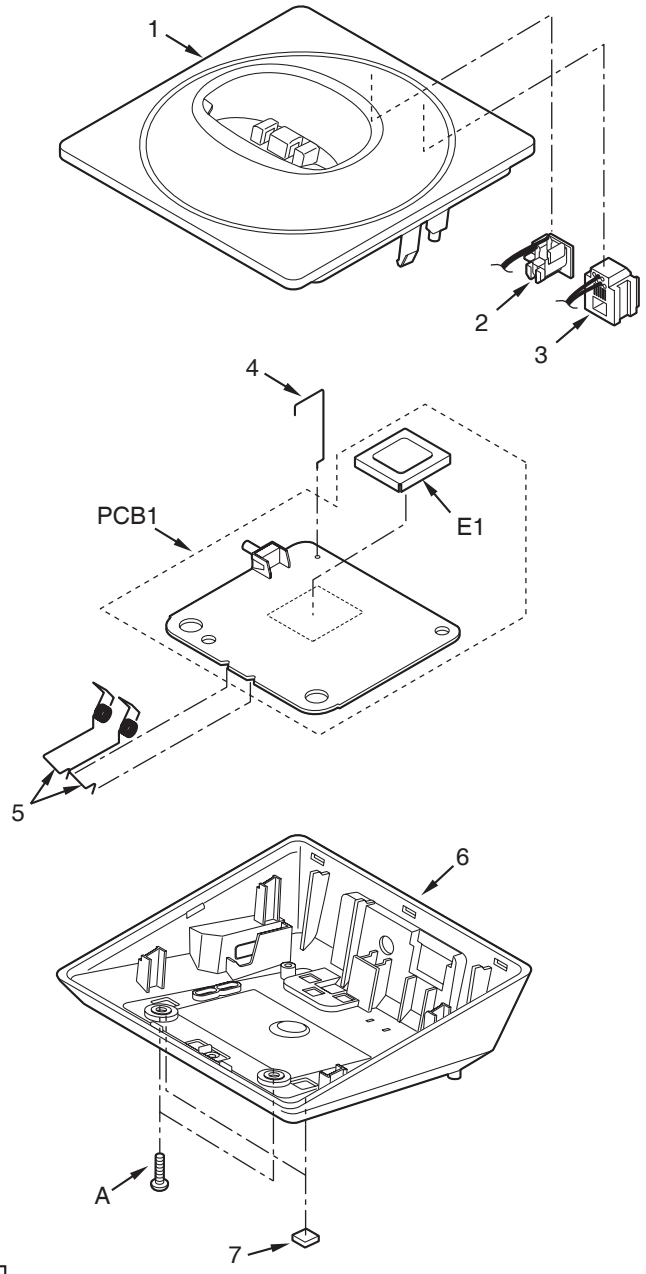
14.3.2. Bottom View



CIRCUIT BOARD (Charger Unit (Bottom View))

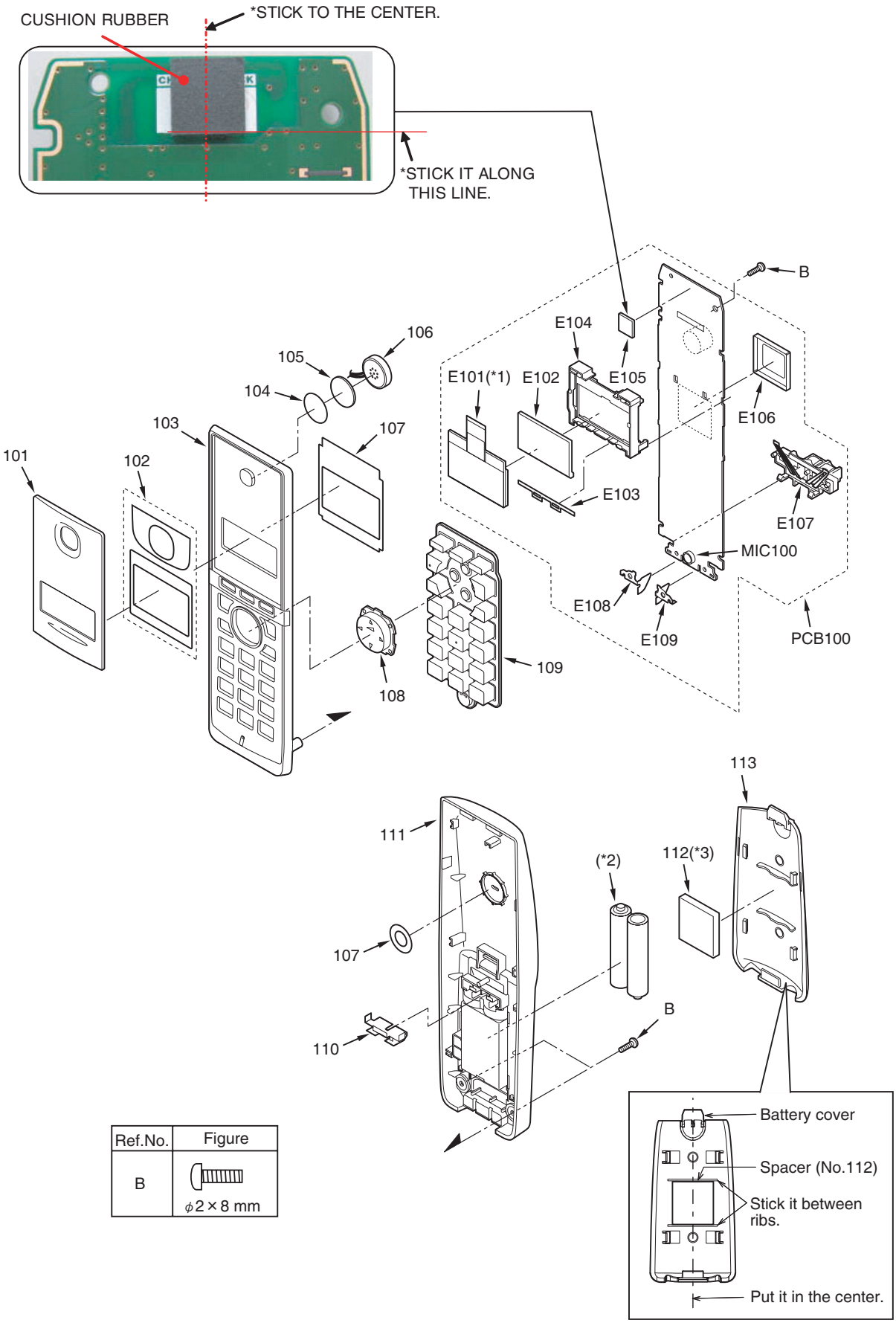
15 Exploded View and Replacement Parts List

15.1. Cabinet and Electrical Parts (Base Unit)



Ref.No.	Figure
A	 ϕ2.6 x 8mm

15.2. Cabinet and Electrical Parts (Handset)



Ref.No.	Figure
B	ϕ2 × 8 mm

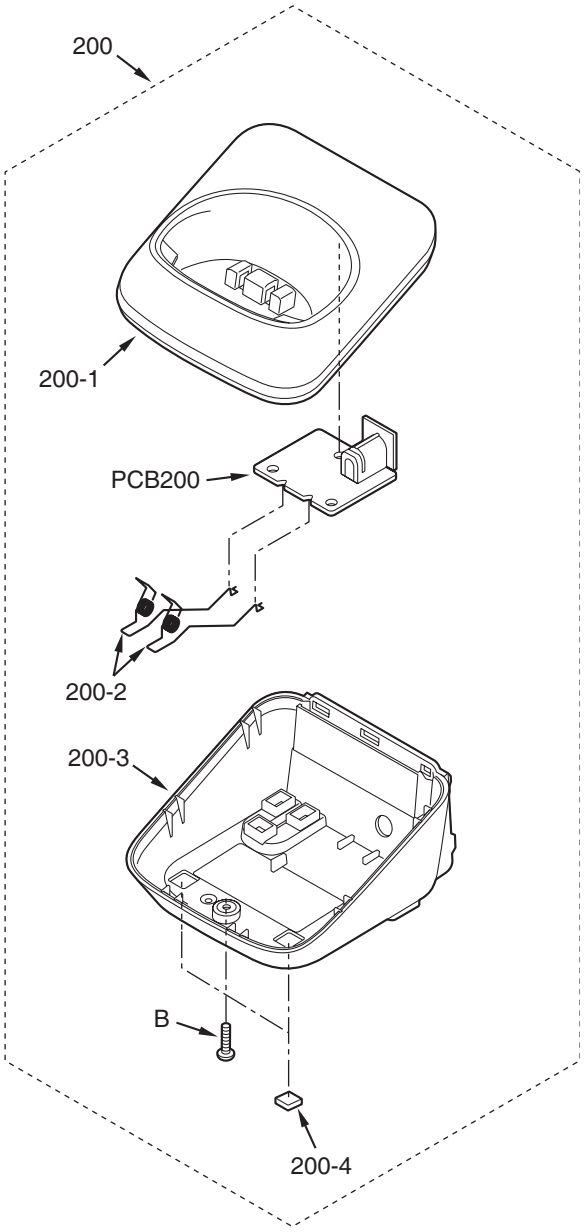
Note:

(*1) This cable is fixed by attaching. Refer to **How to Replace the Handset LCD** (P.33).

(*2) The rechargeable Ni-MH battery HHR-4MRT is available through sales route of Panasonic.

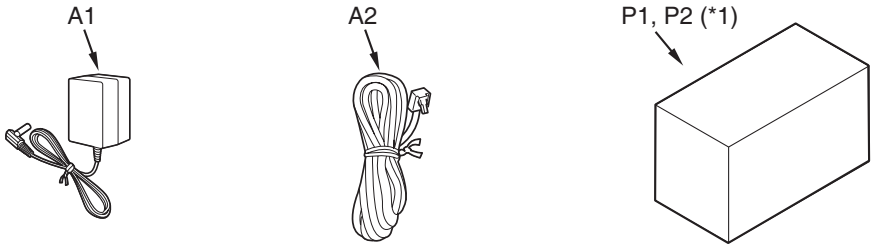
(*3) Attach the spacer (No. 112) to the exact location described above.

15.3. Cabinet and Electrical Parts (Charger Unit)



Ref.No.	Figure
B	 ϕ2 × 8 mm

15.4. Accessories



Note:
(*1) The illustration differs from the actual gift box.

15.5. Replacement Part List

1. RTL (Retention Time Limited)

   Note:

   The “RTL” marking indicates that its Retention Time is Limited.

   When production is discontinued, this item will continue to be available only for a specific period of time.

   This period of time depends on the type of item, and the local laws governing parts and product retention. At the end of this period, the item will no longer be available.

2. Important safety notice

   Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture’s parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS Unless otherwise specified; All resistors are in ohms (.) k=1000., M=1000 k. All capacitors are in MICRO FARADS (μF)p=μμF

   *Type & Wattage of Resistor

Type

ERC:Solid ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage Of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V

15.5.1. Base Unit

15.5.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNKM1189Y1	CABINET BODY	ABS-HB
	2	K2ECYZ000001	JACK, DC	
	3	PQJJ1T039M	JACK, MODULAR	
	4	PNLA1062Z	ANTENNA	
	5	PNJT1063Z	CHARGE TERMINAL	
	6	PNKF1138Z1	CABINET COVER	PS-HB
	7	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	

15.5.1.2. Main P.C.Board Parts

Note:

(*1) When replacing IC1, IC3, make the adjustment using PNZZTG1711ME. Refer to **Base Unit** (P.41) of Things to Do after Replacing IC.

(*2) When removing E1, use special tools (ex. Hot air disordering tool).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWPG1611MEH	MAIN P.C.BOARD ASS'Y (RTL)	
			(ICs)	
	IC1	PNWITG1611EH	IC (EEPROM) (*1)	
	IC2	C0DBEYY00102	IC	
	IC3	PNLP2245Z	IC (COB) (*1)	
			(TRANSISTORS)	
	Q1	B1AAJC000010	TRANSISTOR(SI)	
	Q2	B1ABDM000001	TRANSISTOR(SI)	
	Q3	B1ACGP000008	TRANSISTOR(SI)	
	Q4	B1ABCE000009	TRANSISTOR(SI)	
			(DIODES)	
	D1	PQVDRLZ20A	DIODE(SI)	S
	D2	B0EDER000009	DIODE(SI)	
	D6	B0DDCD000001	DIODE(SI)	
	D801	B0DDCD000001	DIODE(SI)	
			(VARISTOR)	
	SA1	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	!S
			(RESISTORS)	
	R2	ERJ2GEJ101	100	S
	R3	ERJ3GEYJ751	750	S
	R4	ERJ3GEYJ151	150	S
	R5	ERJ3GEYJ105	1M	S
	R6	ERJ3GEYJ223	22k	S
	R7	ERJ3GEYJ104	100k	S
	R8	ERJ3GEYJ824	820k	S
	R9	ERJ12YJ220	22	
	R10	ERJ12YJ560	56	
	R11	ERJ3GEYJ332	3.3k	S
	R12	ERJ3GEYJ133	13k	S
	R14	ERJ2GEJ101	100	S
	R15	ERJ2GEJ222	2.2k	S
	R16	ERJ2GEJ224	220k	S
	R17	ERJ2GEJ104	100k	S
	R18	ERJ2GEJ103	10k	S
	R19	ERJ2GEJ224	220k	S
	R20	ERJ3GEYJ393	39k	S
	R21	ERJ3GEYJ333	33k	S
	R22	PQ4R10XJ272	2.7k	S
	R26	ERJ3GEYJ104	100k	S
	R27	ERJ2GEJ681	680	S
	R28	ERJ2GEJ103	10k	S
	R29	PQ4R18XJ100	10	S
	R30	ERJ2GEJ184	180k	S
	R31	ERJ2GEJ184	180k	S
	R33	ERJ3GEYJ824	820k	S
	R34	ERJ3GEYJ824	820k	S
	R35	ERJ2RKF1800	180	
	R36	ERJ2RKF2000	200	
	R37	ERJ12YJ223U	22k	
	R39	ERG2SJ100E	10	
	R43	ERJ2GEJ331	330	S
	R44	ERJ2GEJ331	330	S
	R50	ERJ2GEJ334	330k	S
	R51	ERJ2GEJ334	330k	S
	R200	ERJ2GEJ331	330	S
	R201	ERJ2GEJ331	330	S
	R801	ERJ2GEJ331	330	S
	R802	ERJ2GEJ331	330	S
	D3	PQ4R18XJ102	1k	S
	D4	ERJ8GEY0R00	0	S
			(CAPACITORS)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C3	ECEA1HKA100	10	
	C4	ECJ0EB0J224K	0.22	S
	C5	ECUV1A105KBV	1	
	C6	ECUE1C104KBQ	0.1	
	C7	ECUE1A104KBQ	0.1	
	C9	ECUV1C474KBV	0.47	
	C11	ECUE1H100DCQ	10p	
	C12	ECUE1A104KBQ	0.1	
	C13	ECUE1C153KBQ	0.015	
	C14	ECUE1H561KBQ	560p	
	C15	ECUV1C104KBV	0.1	
	C16	ECUE1H100DCQ	10p	
	C17	ECUE1A104KBQ	0.1	
	C18	ECUE1H100DCQ	10p	
	C22	ECUE1H2R0CCQ	2	
	C23	ECUE1H100DCQ	10p	
	C26	F0C2E103A148	0.01	
	C27	F0C2E103A148	0.01	
	C28	F2A1C101B060	100	
	C29	ECUE1H100DCQ	10p	
	C30	F1B2H681A070	680p	
	C31	F1B2H681A070	680p	
	C32	ECQE2224KF	0.22	
	C34	F2A1C101B060	100	
	C35	PQCUV1A225KB	2.2	
	C38	ECUE1H100DCQ	10p	
	C39	ECUE1H100DCQ	10p	
	C40	ECUE1C104KBQ	0.1	
	C41	ECUE1H100DCQ	10p	
	C42	ECUE1H100DCQ	10p	
	C44	ECUE1H100DCQ	10p	
	C48	ECUE1A104KBQ	0.1	
	C58	ECUE1C104KBQ	0.1	
	C60	ECUE1H100DCQ	10p	
	C61	ECUE1H3R0CCQ	3	
	C70	ECUE1H681KBQ	680p	
	C71	ECUE1H681KBQ	680p	
	C103	ECUE1H100DCQ	10p	
	C106	ECUE1H3R0CCQ	3	
	C111	ECUE1H5R0CCQ	5	
	C802	F1H0J4750004	4.7	
	C803	ECUE1A104KBQ	0.1	
	C804	ECUE1A104KBQ	0.1	
	C806	ECUE1A104KBQ	0.1	
	C807	ECUE1H100DCQ	10p	
	C813	F1G1H3R0A480	3p	
	C817	F1G1HR90A480	0.9p	
	C819	F1G1H1R2A480	1.2p	
	C820	F1G1H1R0A480	1p	
	C821	ECUE1H100DCQ	10p	
	C823	ECUE1H100DCQ	10p	
	C825	ECUE1H100DCQ	10p	
	C826	ECUE1H100DCQ	10p	
	C830	F1G1H1R0A480	1p	
			(OTHERS)	
	E1	PNMC1040Z	CASE,MAGNETIC SHIELD(*2)	
	P101	D4DAY220A022	THERMISTOR (POSISTOR)	
⚠	F1	K5H302Y00003	FUSE	
	X1	H0J207500006	CRYSTAL OSCILLATOR	
	SW1	EVQPF108K	PUSH SWITCH	

15.5.2. Handset

15.5.2.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	101	PNGP1139Y1	PANEL, LCD	PMMA-HB
	102	PNYE1050Z	TAPE, DOUBLESIDED	
	103	PNKM1187Y1	CABINET BODY	ABS-HB
	104	PNHS1001Z	RECEIVER NET	
	105	PQHS10467Z	SPEAKER NET	
	106	L0AD02A00042	SPEAKER	
	107	PNYE1042Z	SPACER, CUSHION LCD	
	108	PNBC1354Z1	BUTTON, NAVIGATOR KEY	ABS-HB
	109	PNJK1107R	KEYBOARD SWITCH	
	110	PNJC1018Z	BATTERY TERMINAL	
	111	PNKF1136Z1	CABINET COVER	ABS-HB
	112	PNHS1079Z	SPACER, BATTERY	
	113	PNKK1053Z1	LID, BATTERY	ABS-HB

15.5.2.2. Main P.C.Board Parts

Note:

(*1) Reconfirm the model No. written on the handset's name plate when replacing PCB100. Because the model No. of the optional handset may differ from the included handset.

(*2) When replacing IC102, IC103, make the adjustment using PNZZTG1711ME. Refer to **Handset** (P.41) of Things to Do after Replacing IC or X'tal.

(*3) When removing E106, use special tools (ex. Hot air disordering tool).

(*4) When replacing the handset LCD, See **How to Replace the Handset LCD** (P.33).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB100	PNWPGA171LFR	MAIN P.C.BOARD ASS'Y (RTL) (*1)	
			(ICs)	
	IC102	PNWIGA161EXR	IC (EEPROM) (*2)	
	IC103	PNLP2247Z	IC (COB) (*2)	
			(TRANSISTORS)	
	Q101	B1ADGE000012	TRANSISTOR(SI)	
	Q102	2SC4081R	TRANSISTOR(SI)	S
	Q103	PSVTDTC143X	TRANSISTOR(SI)	S
	Q104	B1ABGE000011	TRANSISTOR(SI)	
	Q105	B1ABGE000011	TRANSISTOR(SI)	
	IC101	MTM767200LBF	TRANSISTOR(SI)	S
			(DIODES)	
	D104	DA2J10100L	DIODE(SI)	
	D105	B3ADB0000064	DIODE(SI)	
	D106	B3ADB0000064	DIODE(SI)	
	D107	B0JCMC000006	DIODE(SI)	
	D803	B0DDCD000001	DIODE(SI)	
			(COILS)	
	L103	G1C100MA0395	COIL	
	L104	PQLQR2M5N6K	COIL	S
			(VARISTORS)	
	D102	D4ED16R80001	VARISTOR	
	D103	D4ED16R80001	VARISTOR	
			(RESISTORS)	
	R101	ERJ2GEJ332	3.3k	S
	R102	ERJ6RSJR10V	0.1	
	R105	ERJ2GEJ222	2.2k	S
	R107	ERJ2GEJ560X	56	S
	R108	ERJ2GEJ332	3.3k	S
	R112	ERJ2GEJ121	120	S
	R113	ERJ2GEJ121	120	S
	R114	ERJ8GEYJ120	12	S
	R116	ERJ2GEJ102	1k	S
	R117	ERJ2GEJ102	1k	S
	R121	ERJ2GEJ104	100k	S
	R122	ERJ2GEJ103	10k	S
	R201	ERJ3GEY0R00	0	S
	R230	ERJ2GEJ330	33	S
	R801	ERJ2GEJ391	390	S
	R802	ERJ2GEJ391	390	S
			(CAPACITORS)	
	C101	ECUE1C104KBQ	0.1	
	C102	EEE0JA221WP	220	
	C105	ECUE1A104KBQ	0.1	
	C106	ECUE1A104KBQ	0.1	
	C107	PQCUV0J106KB	10	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C109	EEE0JA101WR	100	
	C110	ECUE0J105KBQ	1	
	C111	ECUE1H100DCQ	10p	
	C112	ECUE1H100DCQ	10p	
	C114	ECUE1H100DCQ	10p	
	C115	ECUE1H101JCQ	100p	
	C116	ECUE1H101JCQ	100p	
	C117	ECUE1H100DCQ	10p	
	C120	ECUE1H100DCQ	10p	
	C121	ECUE1H100DCQ	10p	
	C122	ECUE1H010CCQ	1p	S
	C123	ECUE1H100DCQ	10p	
	C124	ECUE1A104KBQ	0.1	
	C126	ECUE1A104KBQ	0.1	
	C127	ECUE1A104KBQ	0.1	
	C128	ECUE1A104KBQ	0.1	
	C129	ECUE1A104KBQ	0.1	
	C131	EEE0JA221WP	220	
	C135	EEE0JA221WP	220	
	C140	PQCUV0J475MB	4.7	
	C141	PQCUV0J475MB	4.7	
	C142	ECUE0J105KBQ	1	
	C143	ECUE1H100DCQ	10p	
	C148	ECUE1A104KBQ	0.1	
	C149	ECUE1H100DCQ	10p	
	C150	ECUV1C105KBV	1	
	C151	ECUV1C105KBV	1	
	C152	ECUV1C105KBV	1	
	C160	ECUE1H100DCQ	10p	
	C161	ECUE1H100DCQ	10p	
	C162	ECUE1H100DCQ	10p	
	C163	ECUE1H100DCQ	10p	
	C186	ECUE1E102KBQ	0.001	
	C802	F1H0J4750004	4.7	
	C803	ECUE1A104KBQ	0.1	
	C804	ECUE1A104KBQ	0.1	
	C807	ECUE1H100DCQ	10p	
	C813	F1G1H3R3A480	3.3p	
	C815	F1G1HR80A480	0.8p	
	C817	F1G1HR90A480	0.9p	
	C819	F1G1H1R5A480	1.5p	
	C820	F1G1HR50A480	0.5p	
	C821	ECUE1H100DCQ	10p	
	C823	ECUE1H100DCQ	10p	
	C825	F1G1H5R0A480	5p	
	C826	ECUE1H100DCQ	10p	
	C830	F1G1H1R2A480	1.2p	
			(OTHERS)	
	MIC100	L0CBAY000053	MICROPHONE	
	E101	L5DYBYY00022	LIQUID CRYSTAL DISPLAY (*4)	
	E102	PNHR1394Z	TRANSPARENT PLATE, LCD	PMMA-HB
	E103	PNHX1383Z	COVER, LCD	
	E104	PNHR1393Z	GUIDE, LCD	ABS-HB
	E105	PQHG10729Z	RUBBER PARTS,RECEIVER	
	E106	PNMC1040Z	CASE,MAGNETIC SHIELD (*3)	
	E107	PNVE1011Z	BATTERY TERMINAL	ABS-HB
	E108	PNJT1059Z	CHARGE TERMINAL (L)	
	E109	PNJT1060Z	CHARGE TERMINAL (R)	
	X101	H0J207500007	CRYSTAL OSCILLATOR	
	BZ1	L0DACA000024	BUZZER	

15.5.3. Charger Unit

15.5.3.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	200	PNLC1023ZB	CHARGER UNIT ASS'Y without NAME PLATE (RTL) (for KX-TG1712MEB)	
	200-1	PNKM1204Z1	CABINET BODY	PS-HB
	200-2	PNJT1087Z	CHARGE TERMINAL	
	200-3	PNKF1150Z1	CABINET COVER	PS-HB
	200-4	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	

15.5.3.2. Main P.C.Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB200	PNWPTGA161CH	PC BOARD W/COMPONENT (RTL)	
			(JACK)	
	J1	K2ECYB000001	JACK/SOCKET	
			(RESISTOR)	
	R1	ERG2SJ100E	10	
			(FUSE)	
⚠	F1	K5H302Y00003	FUSE	

15.5.4. Accessories

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1	PNLV226Z	AC ADAPTOR	
	A2	PQJA10075Z	CORD, TELEPHONE	
	P1	PNPK3399005Z	GIFT BOX (for KX-TG1711MEB)	
	P2	PNPK3400004Z	GIFT BOX (for KX-TG1712MEB)	

15.5.5. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	XTB26+8GFJ	TAPPING SCREW	
	B	XTB2+8GFJ	TAPPING SCREW	

15.5.6. Fixtures and Tools

Note:

(*1) See **The Setting Method of JIG (Base Unit)** (P.34), and **The Setting Method of JIG (Handset)** (P.38).

(*2) When replacing the Handset LCD, see **How to Replace the Handset LCD** (P.33)

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PNZZTG1711ME	BATCH FILE CD-ROM (*1)	
		PQZZ430PIR	TIP OF SOLDERING IRON (*2)	
		PQZZ430PRB	RUBBER OF SOLDERING IRON (*2)	
		PQZZ1CD300E	JIG CABLE (*1)	