

Service Manual

Telephone Equipment

Model No. **KX-PRL260B**

KX-PRL260W

KX-PRL262B

KX-PRL262W

KX-PRD260B

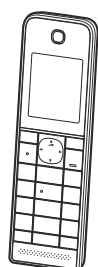
KX-PRD260W

KX-PRD262B

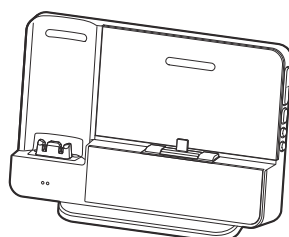
KX-PRD262W

KX-PRLA20B

KX-PRLA20W



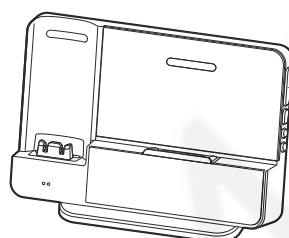
KX-PRLA20
(Handset)



KX-PRL260
(Base Unit)



(Charger Unit)



KX-PRD260
(Base Unit)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit	Expandable
KX-PRL260	1 (PRL260)	1 (PRLA20)		Up to 6
KX-PRL262	1 (PRL260)	1 (PRLA20)	1	Up to 6
KX-PRD260	1 (PRD260)	1 (PRLA20)		Up to 6
KX-PRD262	1 (PRD260)	1 (PRLA20)	1	Up to 6
KX-PRLA20*		1 (PRLA20)	1	Up to 6

*KX-PRLA20 is also an optional accessory, which contains a handset and a charger.

PRL series : Link-to-Cell Docking Station for iPhone

PRD series : Link-to-Cell Docking Station for Smartphone

B: Black Version

W: White Version

(for U.S.A.)

 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 critical 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.

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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

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Attention:



A nickel metal hydride battery that is recyclable powers the product you have purchased.

Please call 1-800-8-BATTERY (1-800-822-8837) for information on how to recycle this battery.

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

Note:

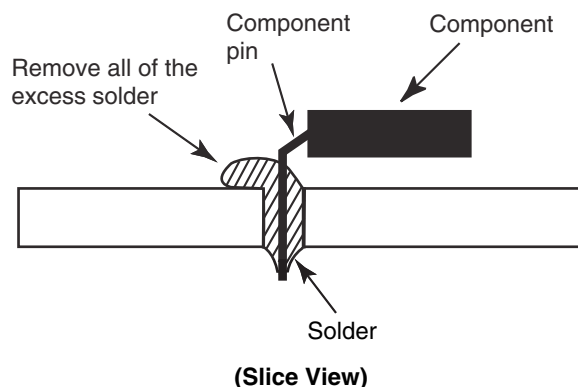
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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

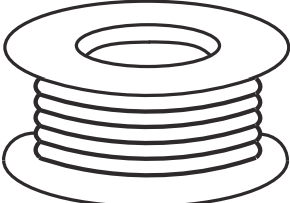
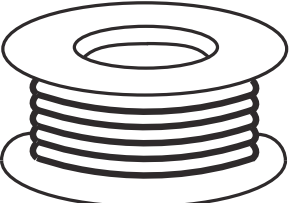
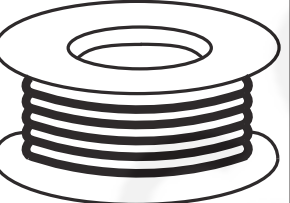
- PbF solder has a melting point that is 50 °F ~ 70 °F (30 °C ~ 40 °C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700 °F ± 20 °F (370 °C ± 10 °C).
- Exercise care while using higher temperature soldering irons.:
Do not heat the PCB for too long time in 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)
Bluetooth wireless technology 2.1+EDR

Number of channels:

60 Duplex Channels (DECT)
79 Duplex channels (Bluetooth)

Frequency range:

1.92 GHz to 1.93 GHz (DECT)
2.402 GHz to 2.48 GHz (Bluetooth)

Duplex procedure:

TDMA (Time Division Multiple Access)

Channel spacing:

1.728 MHz (DECT)
1.0 MHz (Bluetooth)

Bit rate:

1.152 Mbit/s (DECT)
1.0 Mbit/s (Bluetooth)

Modulation:

GFSK (Gaussian Frequency Shift Keying)

RF transmission power:

115 mW (max)

Voice coding:

ADPCM 32 kbit/s (DECT)
CVSD/PCM 64 kbit/s (Bluetooth)
PCM 64 kbit/s (BT_IC)

	Base Unit	Handset	Charger
Power source	AC Adaptor (PNLV238-KZ, 120 V AC, 60 Hz)	Rechargeable Ni-MH battery AAA (R03) size (1.2 V 400 mAh)	AC Adaptor (PNLV233Z, 120 V AC, 60 Hz)
Receiving Method	Super Heterodyne	Super Heterodyne	—
Oscillation Method	PLL synthesizer	PLL synthesizer	—
Detecting Method	Quadrature Discriminator	Quadrature Discriminator	—
Tolerance of OSC Frequency	10.368 MHz $\pm$ 100 Hz	10.368 MHz $\pm$ 100 Hz	—
Modulation Method	Frequency Modulation	Frequency Modulation	—
ID Code	40 bit	40 bit	—
Ringer Equivalence No. (REN)	0.1 B	—	—
Dialing Mode	Tone (DTMF)/Pulse	Tone (DTMF)/Pulse	—
Redial	Up to 48 digits	Up to 48 digits	—
Speed Dialer	Up to 24 digits (Phonebook)	Up to 24 digits (Phonebook)	—
Power Consumption	Standby: Approx. 1.1 W Maximum: Approx. 13.5 W	6 days at Standby, 10 hours at Talk	Standby: Approx. 0.1 W Maximum: Approx. 1.8 W
Operating Conditions	0 °C - 40 °C (32 °F - 104 °F) 20 % - 80 % relative air humidity (dry)	0 °C - 40 °C (32 °F - 104 °F) 20 % - 80 % relative air humidity (dry)	0 °C - 40 °C (32 °F - 104 °F) 20 % - 80 % relative air humidity (dry)
Dimensions (W x D x H)	Approx. 160 mm x 100 mm x 115 mm	Approx. 45 mm x 23 mm x 155 mm	Approx. 70 mm x 70 mm x 40 mm
Mass (Weight)	for KX-PRL262, PRD262 Approx. 330 g for KX-PRL262, PRD262	Approx. 110 g	Approx. 50 g

Note:

Design and specifications are subject to change without notice.

Note for Service:

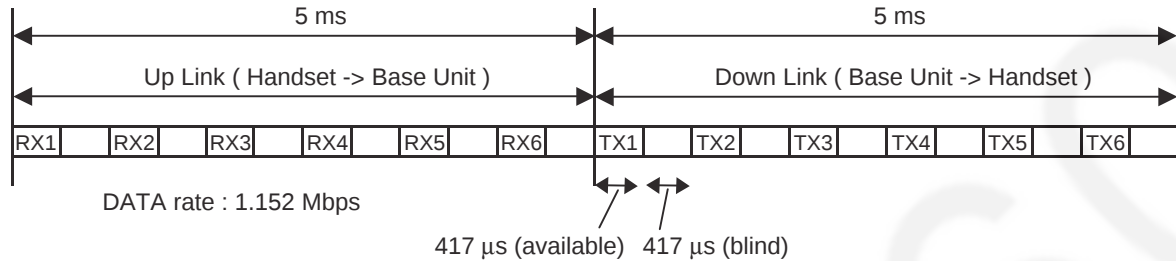
- **Operation range:** Up to 300 m outdoors, Up to 50 m indoors, depending on the condition.
- **Analog telephone connection:** Telephone Line
- **Optional Range extender:** KX-TGA405
- **Optional Key detector:** KX-TGA20
- **T-adaptor:** KX-J66

4 Technical Descriptions

4.1. US-DECT Description

The frequency range of 1.92 GHz-1.93 GHz is used. Transmitting and receiving carrier between base unit and handset is same frequency. Refer to **Frequency Table** (P.62).

4.1.1. TDD Frame Format

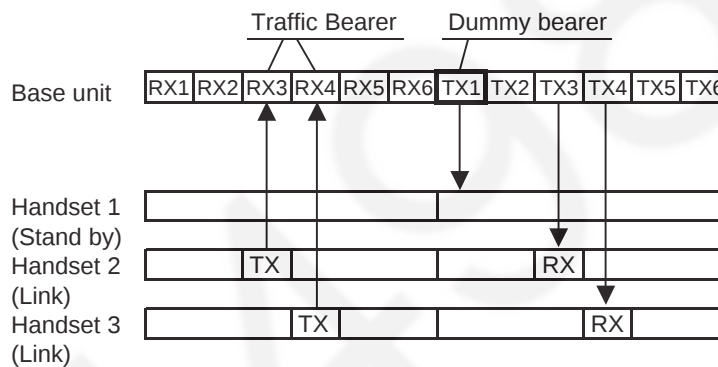


4.1.2. TDMA system

This system is the cycles of 10 ms, and has 6 duplex paths, but maximum duplex communication path is 5 because of dummy bearer use.

In 1 slot 417 μ s, the 10 ms of voice data is transmitted.

• 2 - Handsets Link



Traffic Bearer

A link is established between base unit and handset.

The state where duplex communication is performed.

Handset doesn't make up duplex in no free RF channels because of interference. (*1)

Dummy Bearer

Base unit sends Dummy-data to the all stand-by state handsets.

Handsets receive that data for synchronization and monitoring request from the base unit.

Base unit doesn't send Dummy bearer in no free RF channels because of interference. (*1)

Note:

(*1) It is a feature under FCC 15 regulation and for interference avoidance.

In the case of checking RF parts, it is better in least interference condition.

4.1.3. Signal Flowchart in the Radio Parts

Reception

Base unit:

A voice signal from TEL line is encoded to digital data and converted into a 1.9 GHz modulated radio signal by BBIC(IC501). The RF signal, after which is amplified in BBIC, is fed to selected antenna.

Handset:

As for a handset RF, RF signal is received in one antenna.

BBIC down-converts to 864 kHz IF signal from RX signal and demodulates it to digital data "RXDATA".

BBIC (IC1) converts RXDATA into a voice signal and outputs it to speaker.

Transmission

Handset:

A voice signal from microphone is encoded to digital data and converted into a 1.9 GHz modulated radio signal by BBIC(IC1). The RF signal, after which is amplified in BBIC, is fed to an antenna.

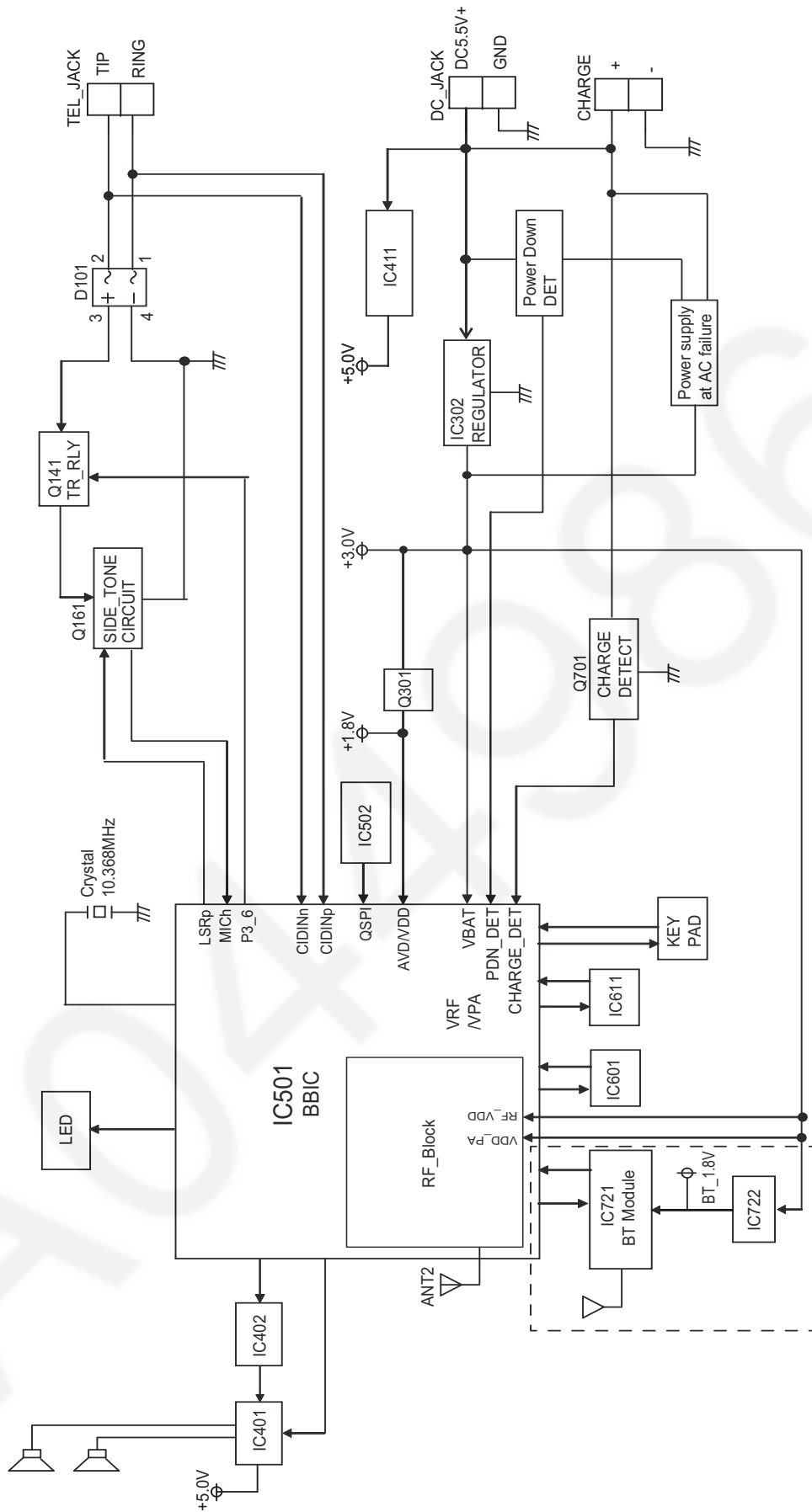
Base unit:

As for a base unit RF, RF signal is received in two antennas.

BBIC (IC501) compares RF signal levels and selects the antenna to be used. Then BBIC down-converts to 864 kHz IF signal from RX signal in the selected antenna, and demodulates it to digital data "RXDATA".

BBIC (IC501) converts RXDATA into a voice signal and outputs it to TEL line.

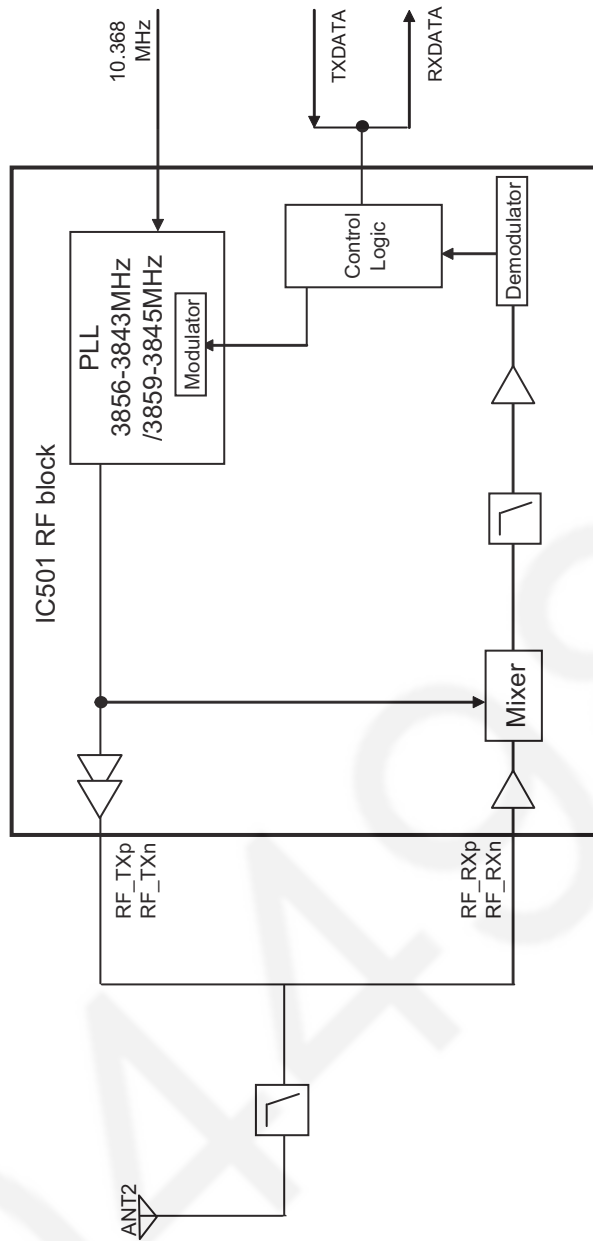
4.2. Block Diagram (Base Unit_Main)



KX-PRL260/262, KX-PRD260/262 BLOCK DIAGRAM (Base Unit_Main)

4.3. Tel Interface Circuit

4.4. Block Diagram (Base Unit_RF Part)



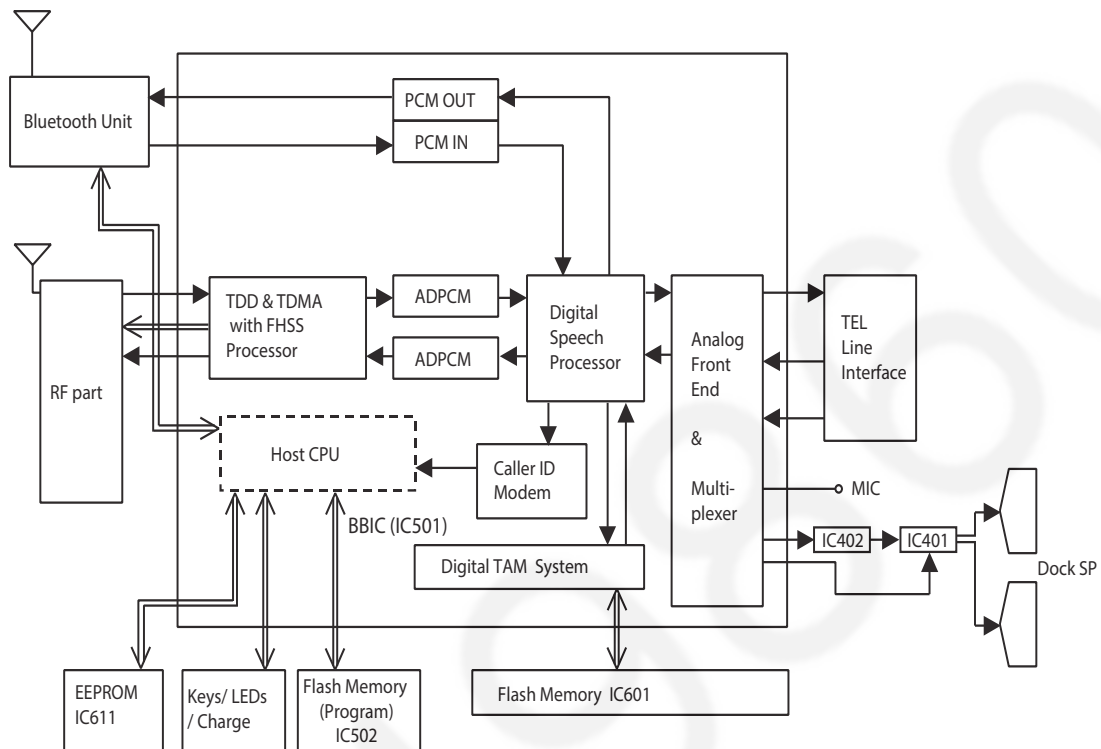
KX-PRL260/262, KX-PRD260/262 BLOCK DIAGRAM (Base Unit_RF Part)

4.5. Circuit Operation (Base Unit)

General Description:

(BBIC, Flash Memory, EEROM) is a digital speech/signal processing system that implements all the functions of speech compression, record and playback, and memory management required in a digital telephone answering machine.

The BBIC system is fully controlled by a host processor. The host processor provides activation and control of all that functions as follows.



4.5.1. BBIC (Base Band IC: IC501)

- **Voice Message Recording/Play back**

The BBIC system uses a proprietary speech compression technique to record and store voice message in Flash Memory. An error correction algorithm is used to enable playback of these messages from the Flash Memory.

- **DTMF Generator**

When the DTMF data from the handset is received, the DTMF signal is output.

- **Synthesized Voice (Pre-recorded message)**

The BBIC implements synthesized Voice, utilizing the built in speech detector and a Flash Memory, which stored the vocabulary.

- **Caller ID demodulation**

The BBIC implements monitor and demodulate the FSK/DTMF signals that provide CID information from the Central Office.

- **Digital Switching**

The voice signal from telephone line is transmitted to the handset or the voice signal from the handset is transmitted to the Telephone line, etc. They are determined by the signal path route operation of voice signal.

- **Block Interface Circuit**

RF part, LED, Key scan, Speaker, Telephone line.

4.5.2. Flash Memory (IC502)

Main program data is stored.

4.5.3. Flash Memory (IC601)

Following information data is stored.

- **Voice signal**

ex: Pre-recorded Greeting message, Incoming message

4.5.4. EEPROM (IC611)

Following information data is stored.

- **Settings**

ex: message numbers, ID code, Flash Time, Tone/Pulse

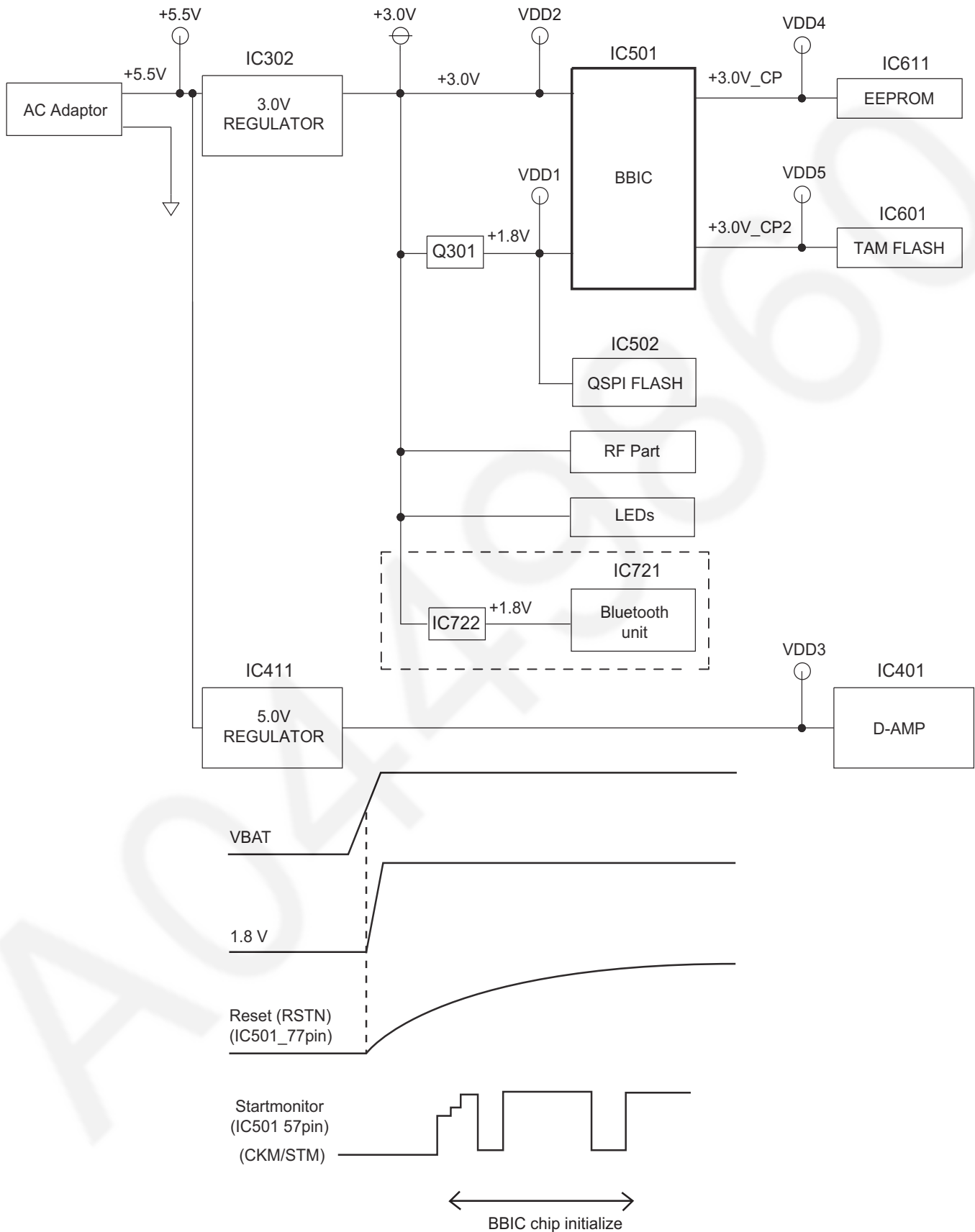
4.5.5. Bluetooth Unit (IC721)

Use for Bluetooth communication.

4.5.6. Power Supply Circuit/Reset Circuit

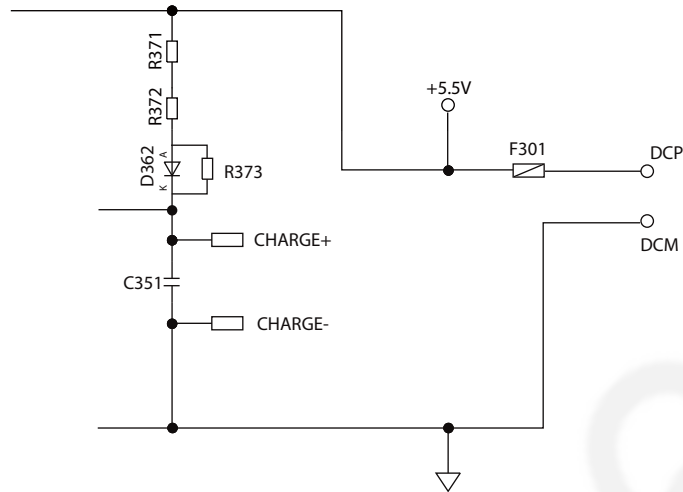
The power supply voltage from AC adaptor is converted to VBAT (3.0V) in IC302. And +3.0V for peripherals and analog part is insulated from VBAT by Doubler of BBIC.

Circuit Operation:



4.5.6.1. Charge Circuit

The voltage from the AC adaptor is supplied to the charge circuits.



4.5.7. Telephone Line Interface

Telephone Line Interface Circuit:

Function

- Bell signal detection
- ON/OFF hook and pulse dial circuit
- Side tone circuit

Bell (RINGING) signal detection and OFF HOOK circuit:

In the idle mode, Q141 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T) and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:

L1T → C105 → R103 → R110 → R111 → R112 → BBIC pin18(RINGING)

When the CPU (BBIC) detects a ring signal, Q141 turns on, thus providing an off-hook condition (active DC current flow through the circuit). Following signal flow is the DC current flow.

T → D101 → Q141 → Q161 → R163 → D101 → P101 → R

ON HOOK Circuit:

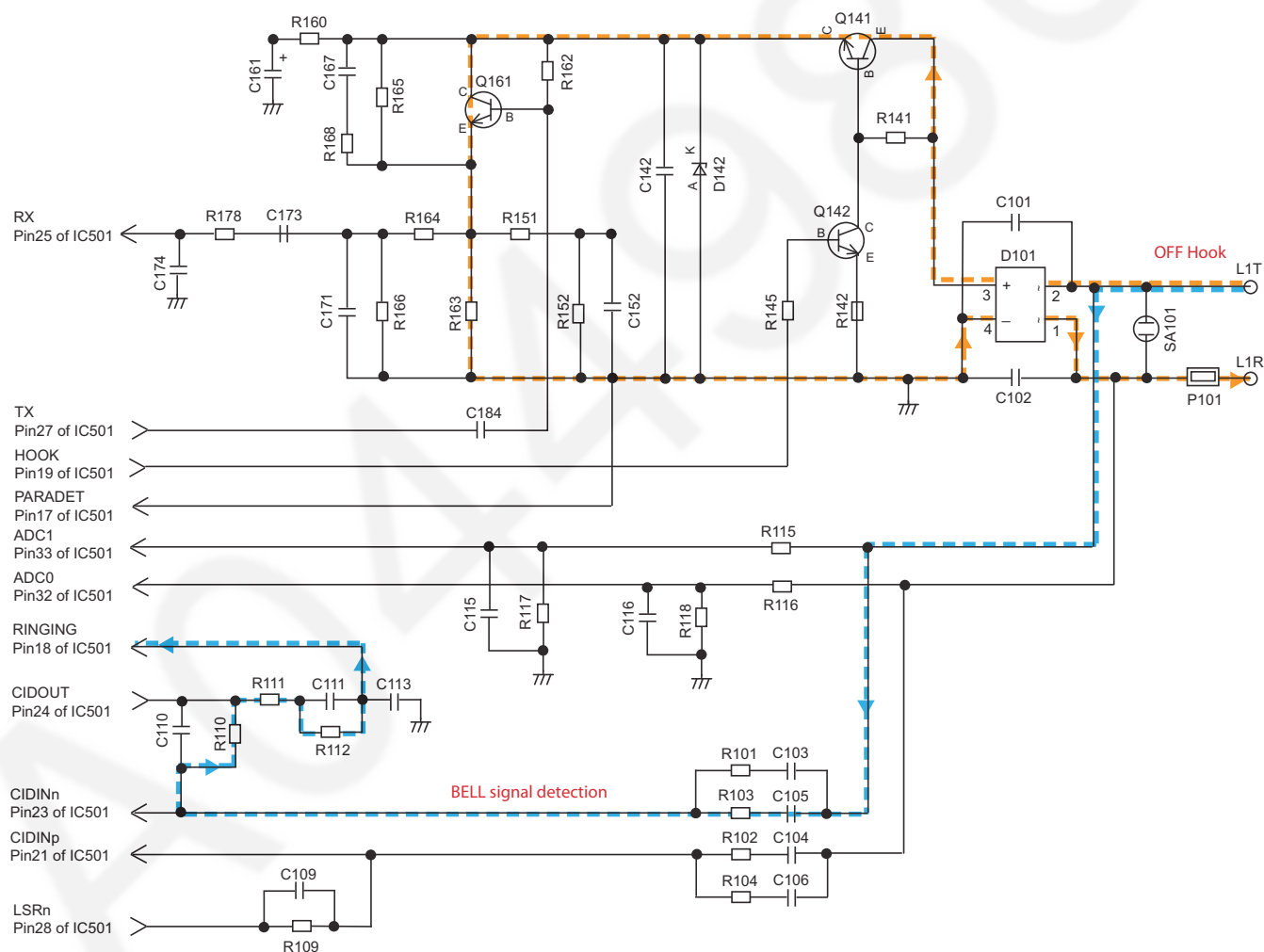
Q141 is open, Q141 is connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

Pulse Dial Circuit:

Pin 19 of BBIC turns Q141 ON/OFF to make the pulse dialing.

Side Tone Circuit:

Basically this circuit prevents the TX signal from feeding back to RX signal. As for this unit, TX signal feed back from Q161 is canceled by the canceller circuit of BBIC.



4.5.9. Calling Line Identification (Caller ID)/Call Waiting Caller ID

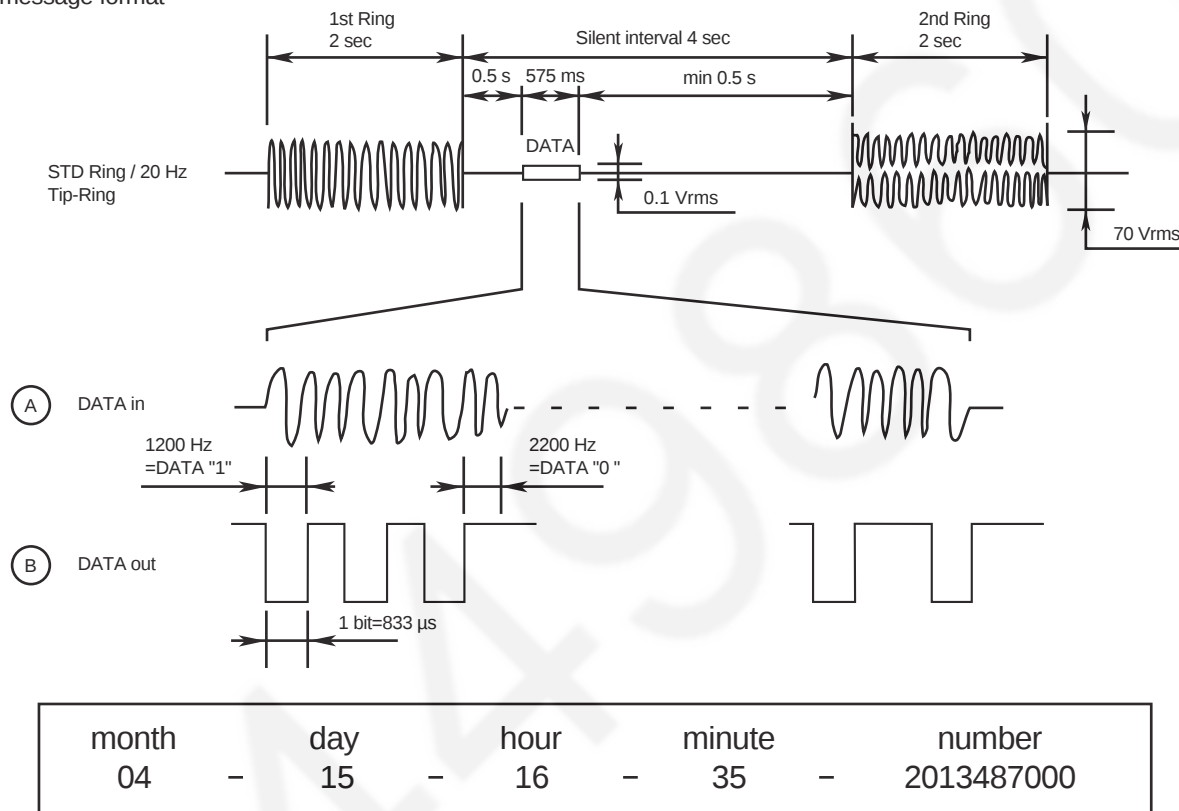
Function:

Caller ID

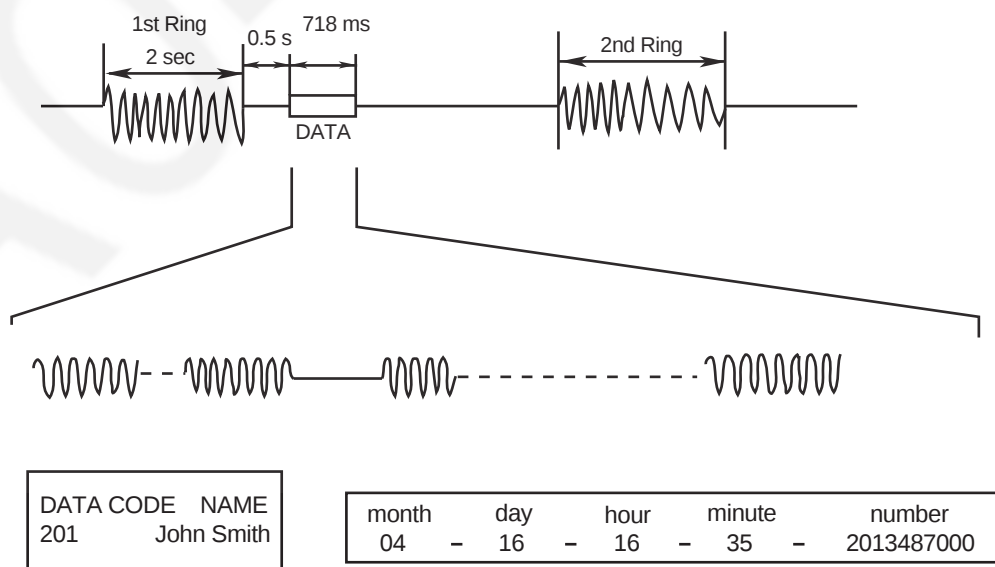
The caller ID is a chargeable ID which the user of a telephone circuit obtains by entering a contract with the telephone company to utilize a caller ID service. For this reason, the operation of this circuit assumes that a caller ID service contract has been entered for the circuit being used. The data for the caller ID from the telephone exchange is sent during the interval between the first and second rings of the bell signal. The data from the telephone exchange is a modem signal which is modulated in an FSK (Frequency Shift Keying) * format. Data "1" is a 1200 Hz sine wave, and data "0" is a 2200 Hz sine wave. There are two types of the message format which can be received: i.e. the single message format and plural message format. The plural message format allows to transmit the name and data code information in addition to the time and telephone number data.

*: Also the telephone exchange service provides other formats.

• Single message format



• Plural message format



Call Waiting Caller ID

Calling Identity Delivery on Call Waiting (CIDCW) is a CLASS service that allows a customer, while off-hook on an existing call, to receive information about a calling party on a waited call. The transmission of the calling information takes place almost immediately after the customer is alerted to the new call so he/she can use this information to decide whether to take the new call.

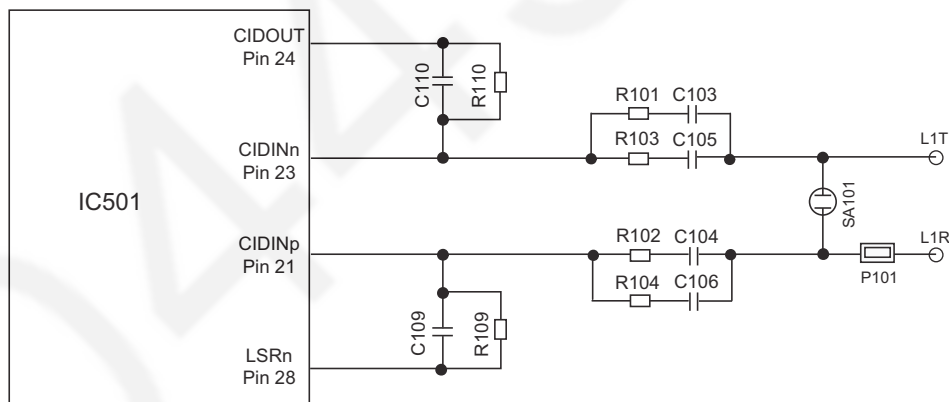
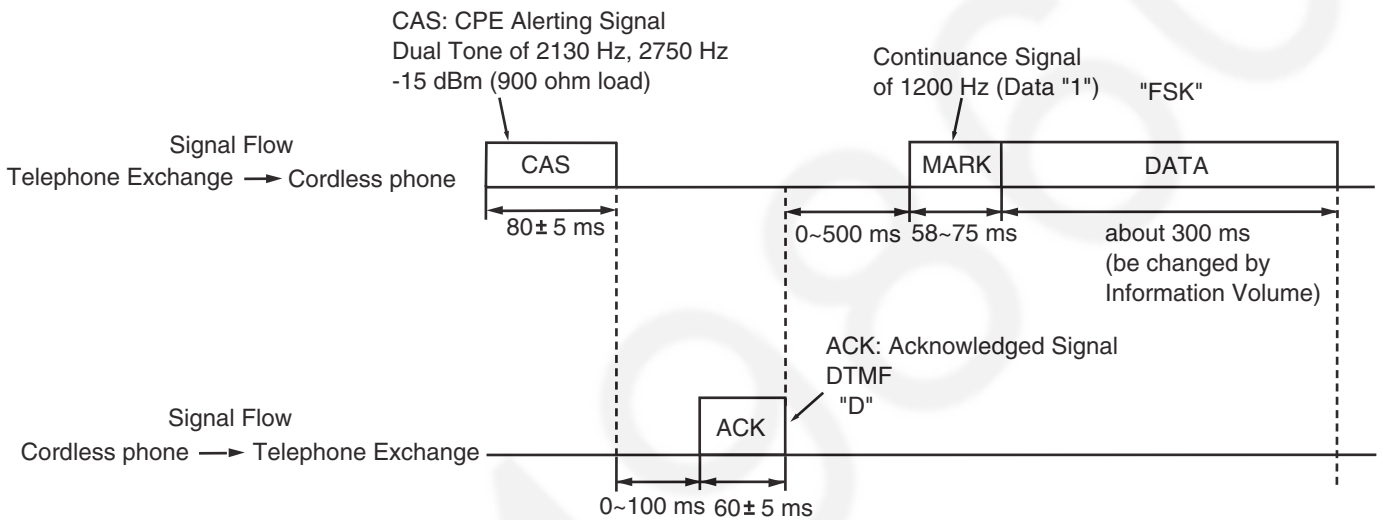
Function:

The telephone exchange transmits or receives CAS and ACK signals through each voice RX/TX route. Then FSK data and MARK data pass the following route.

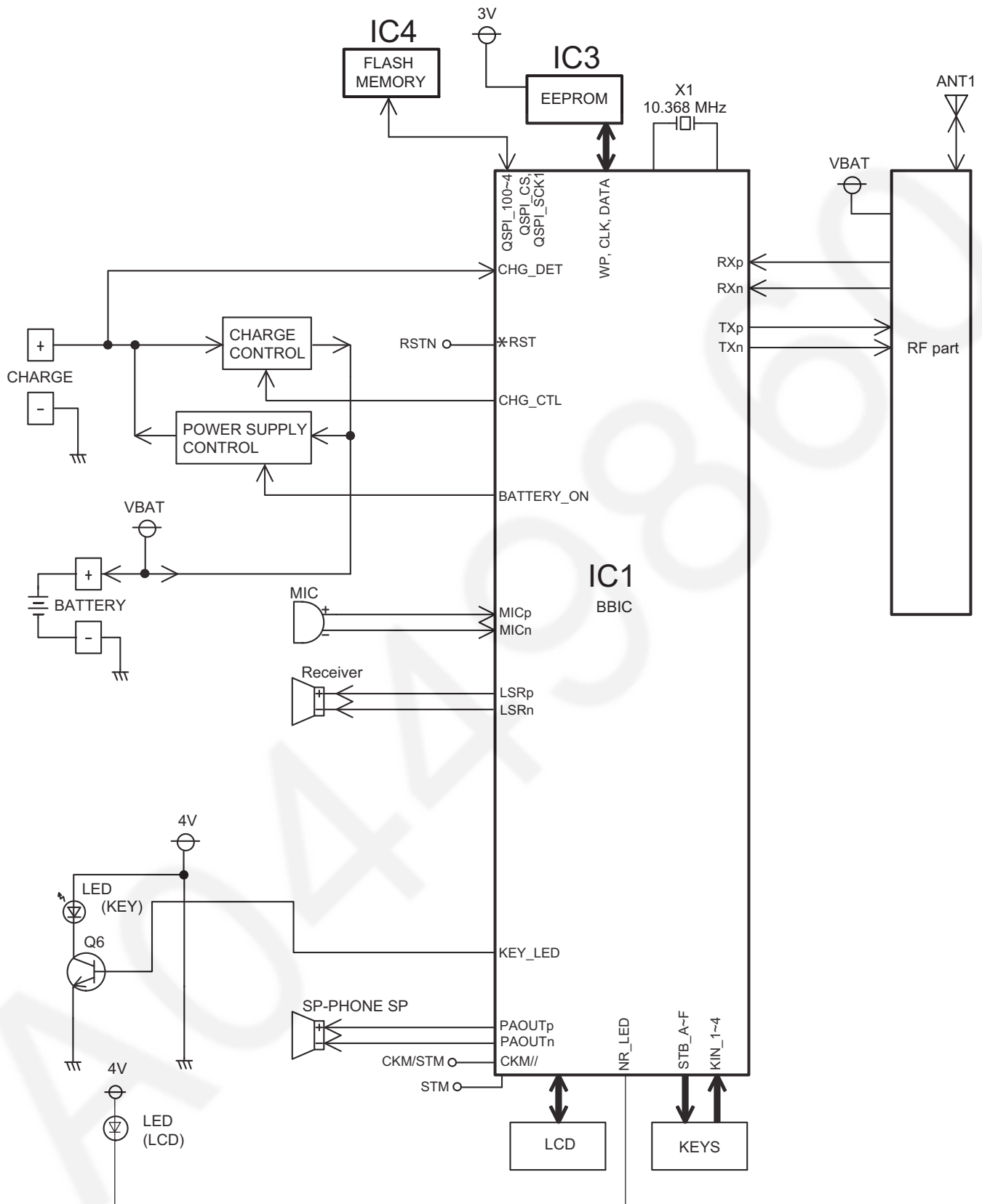
Telephone Line → P101 → C105, C104 → R103, R102 → IC501(23, 21).

If the unit deems that a telephone connected in parallel is in use, ACK is not returned even if CAS is received, and the information for the second and subsequent callers is not displayed on the portable handset display.

Call Waiting Format

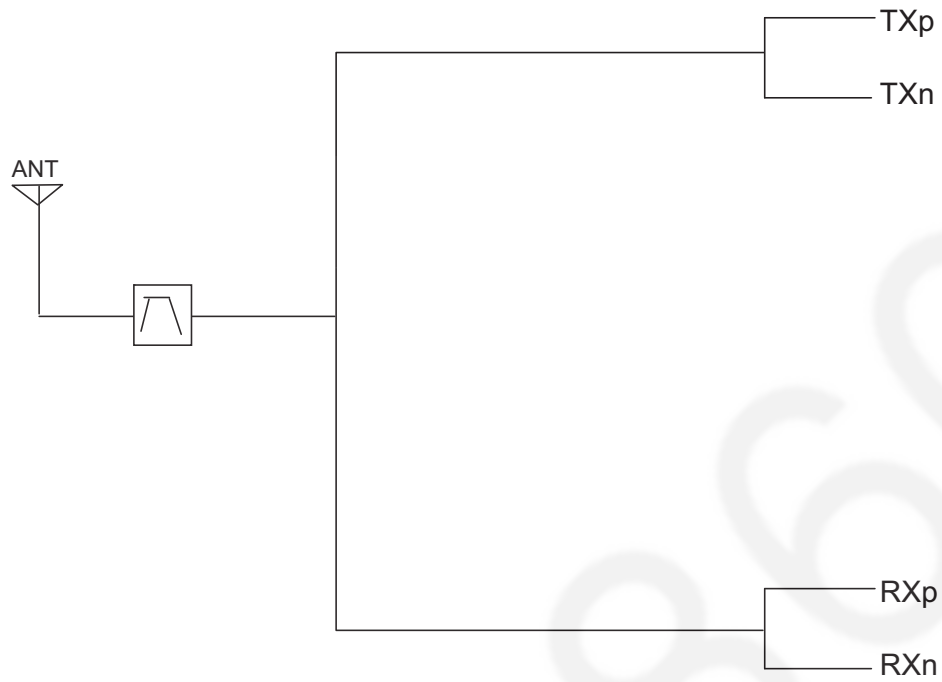


4.6. Block Diagram (Handset)



KX-PRLA20 BLOCK DIAGRAM (Handset)

4.7. Block Diagram (Handset_RF Part)



KX-PRLA20 BLOCK DIAGRAM (Handset_RF Part)

4.8. Circuit Operation (Handset)

4.8.1. Outline

Handset consists of the following ICs as shown in **Block Diagram (Handset)** (P.20).

- DECT BBIC (**B**ase **B**and IC): IC1
 - All data signals (forming/analyzing ACK or CMD signal)
 - All interfaces (ex: Key, Detector Circuit, Charge, EEPROM, LCD)
- EEPROM: IC3
 - Setting data is stored. (e.g. ID, user setting)

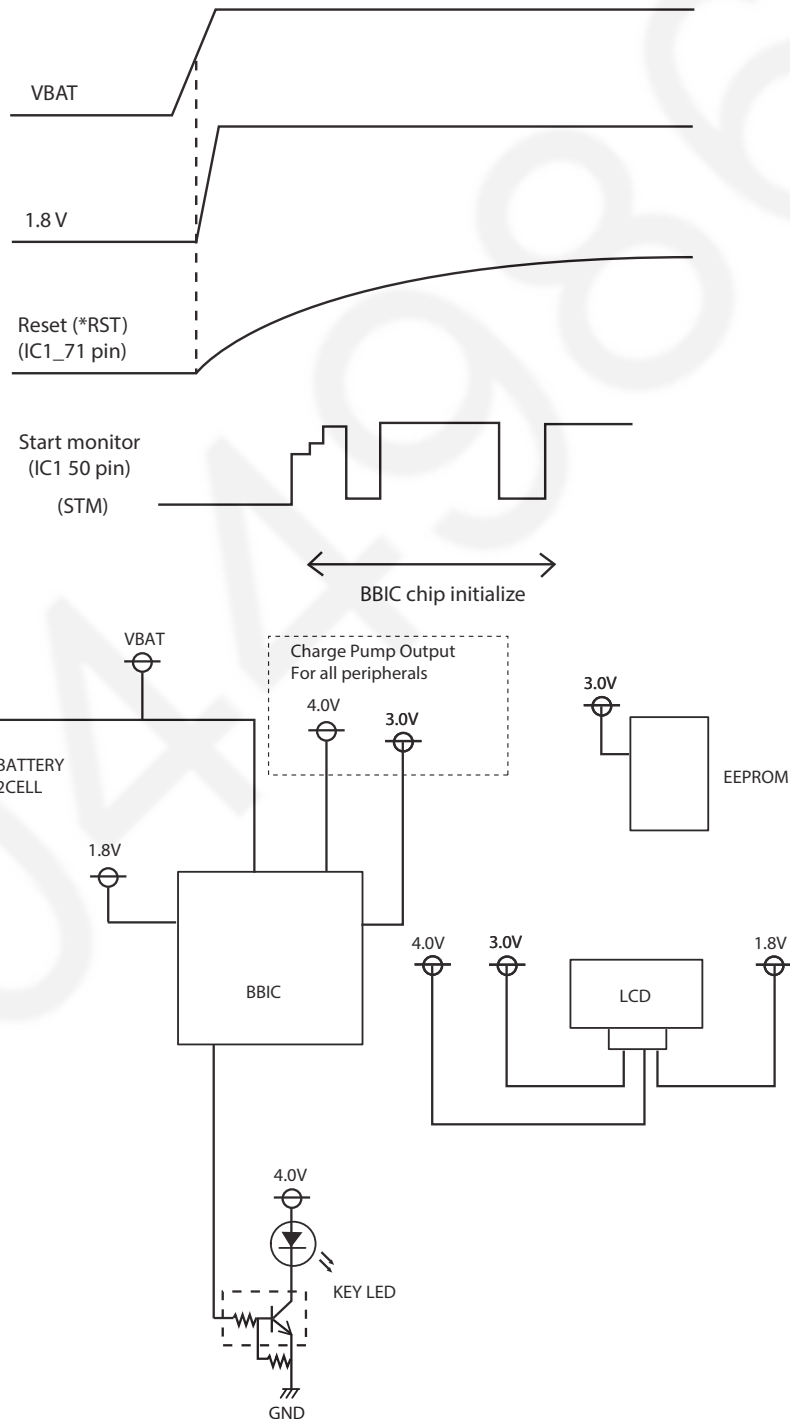
4.8.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

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

BATTERY(2.2 V ~ 2.6 V: BATT+) → F1 → BBC1 (IC1) 10 pin

The Reset signal generates IC1 (54 pin) and 1.8 V.



4.8.3. Charge Circuit

Circuit Operation:

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

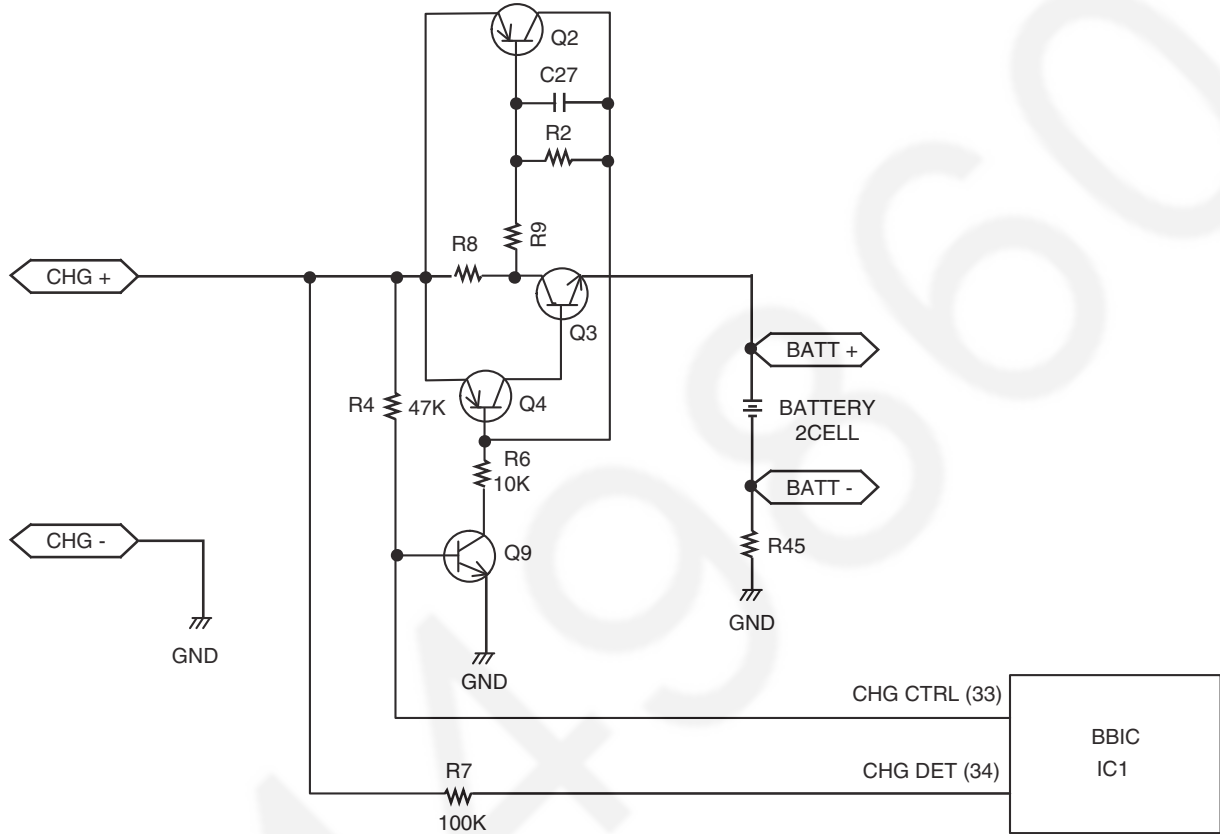
DCP(5.5 V) → F301 → R371 → R372 → D362 → CHARGE+(Base) → CHARGE+(Handset) → R8 → Q3 → F1 → BATTERY+... Battery...

BATTERY- → R45 → 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 Q9 of Handset.

Refer to Fig.101 in **Power Supply Circuit/Reset Circuit** (P.14).



4.8.4. 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: $V(\text{Batt}) \leq 2.25 \text{ V} \pm 50 \text{ mV}$

The BBIC detects this level and " " starts flashing.

- Power Down

Battery voltage: $V(\text{Batt}) \leq 2.0 \text{ V} \pm 50 \text{ mV}$

The BBIC detects this level and power down.

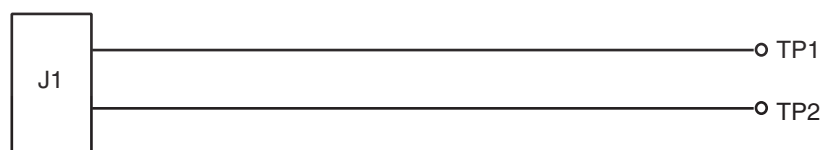
4.8.5. Speakerphone

The hands-free loudspeaker at SP+ and SP- is used to generate the ring alarm.

4.9. Circuit Operation (Charger Unit)

Charge control is executed at handset side so that the operation when using charger is also controlled by handset.

Refer to **Circuit Operation (Handset)** (P.22)



AC Adaptor

The route for this is as follows: DC+pin of J1(+) → CHARGE+pad → Handset → CHARGE-pad → DC-pin of J1(-).

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.

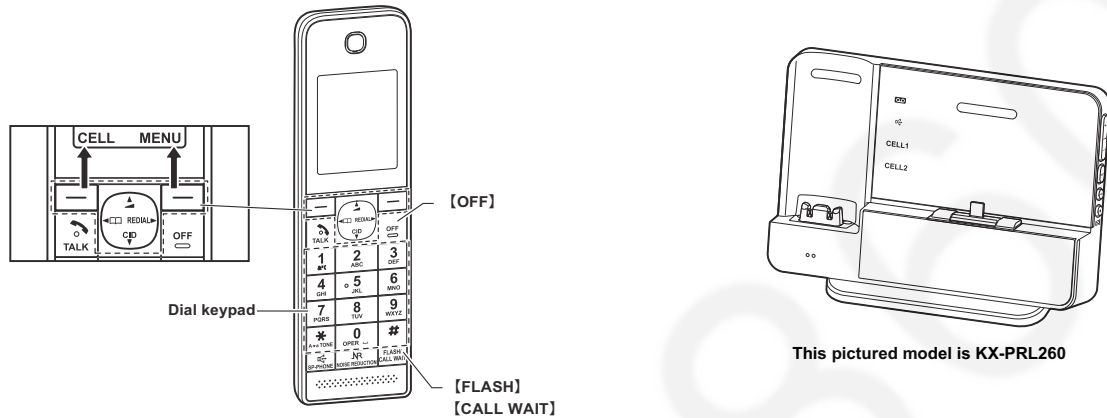
8 Test Mode

8.1. Engineering Mode

8.1.1. Base Unit

Important:

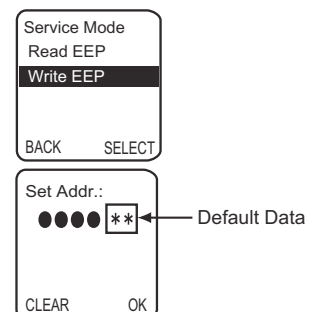
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation

- 1). Press **[MENU]**.
- 2). Select "Settings" using **[▲]** or **[▼]** then press **[SELECT]**.

Select "Set tel line" using **[▲]** or **[▼]** then press **[SELECT]**.
- 3). Enter "7", "2", "6", "2", "7", "6", "6", "4".
Note: 7262 7664 = PANA SONI
(see letters printed on dial keys)
- 4). Select "Write EEP" using **[▲]** or **[▼]** then press **[SELECT]**.
- 5). Enter "0", "0", "0", "0" (Address). (*1)
- 6). Enter "*", "*" (New Data). (*1)



- 7). Press **[OK]**, a long confirmation beep will be heard.

Set Addr.:
●●●● ** ← New Data
CLEAR OK

- 8). Press **[OFF]** to return to standby mode.
After that, turn the base unit power off and then power on.

Set Addr.:

BACK

Note: * To enter "Set dial mode", press **[SELECT]** at " Set tel line".
It is necessary to turn on the power of base unit.

* "Set tel line" isn't displayed in Cell line only mode.

To return to normal mode, execute the following procedure:

- 1 **[MENU]** → **[#][1][5][7]**
- 2 **[▲]** or **[▼]** : Select "off" → **[SELECT]**
- 3 **[OFF]**

Frequently Used Items (Base Unit)

ex.)

Items	Address	Default Data	New Data		Remarks
Frequency	00 07 / 00 08	70/02	-	-	Use these items in a READ-ONLY mode to confirm the contents. Careless rewriting may cause serious damage to the computer system.
ID	00 02 ~ 00 06	Given value	-	-	

Note:

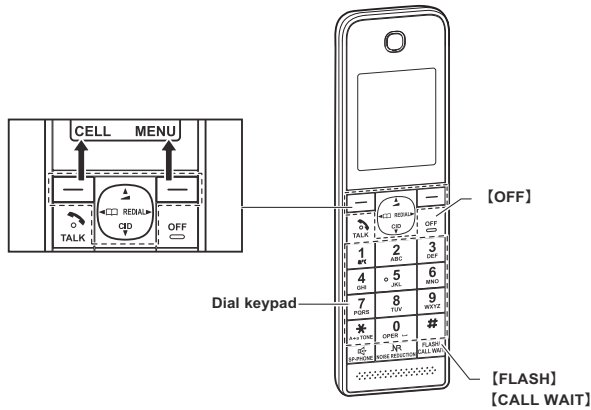
(*1) When you enter the address or New Data, please refer to the table below.

Desired Number (hex)	Input Keys	Desired Number (hex)	Input Keys
0	0	A	[Flash] + 0
1	1	B	[Flash] + 1
.	.	C	[Flash] + 2
.	.	D	[Flash] + 3
.	.	E	[Flash] + 4
9	9	F	[Flash] + 5

8.1.2. Handset

Important:

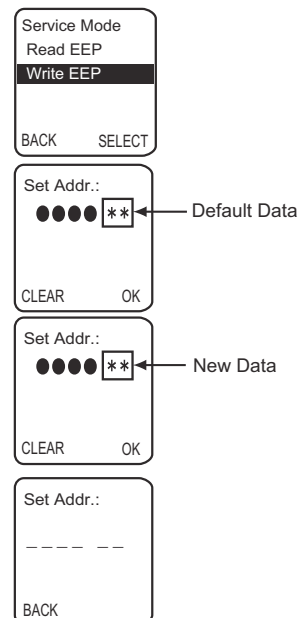
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation

H/S LCD

- 1). Press **[MENU]**.
- 2). Select "Settings" using **[▲]** or **[▼]** then press **[SELECT]**.
- 3). Enter "7", "2", "6", "2", "7", "6", "6", "4".
Note: 7262 7664 = PANA SONI
 (see letters printed on dial keys)
- 4). Select "Write EEP" using **[▲]** or **[▼]** then press **[SELECT]**.
- 5). Enter "0", "0", "0", "0" (Address). (*1)
- 6). Enter "*", "*" (New Data). (*1)
- 7). Press **[OK]**, a long confirmation beep will be heard.
- 8). Press **[OFF]** to return to standby mode.



After that, remove and reinsert the batteries. Press the Power button for about 1 second if the power is not turned on.

Frequently Used Items (Handset)

ex.)

Items	Address	Default Data	New Data	Possible Adjusted Value MAX (hex)	Possible Adjusted Value MIN (hex)	Remarks
Frequency	00 07 / 00 08	00 / 01	-	-	-	(*2)
ID	00 02 ~ 00 06	Given value	-	-	-	

Note:

(*1) When you enter the address or New Data, please refer to the table below.

Desired Number (hex.)	Input Keys	Desired Number (hex.)	Input Keys
0	0	A	[Flash] + 0
1	1	B	[Flash] + 1
.	.	C	[Flash] + 2
.	.	D	[Flash] + 3
.	.	E	[Flash] + 4
9	9	F	[Flash] + 5

(*2) Use these items in a READ-ONLY mode to confirm the contents. Careless rewriting may cause serious damage to the handset.

9 Service Mode

9.1. How to Clear User Setting (Handset Only)

Handset

Press **[2][5][8][0]** simultaneously until a beep sound is heard. Then single handset is initialized.

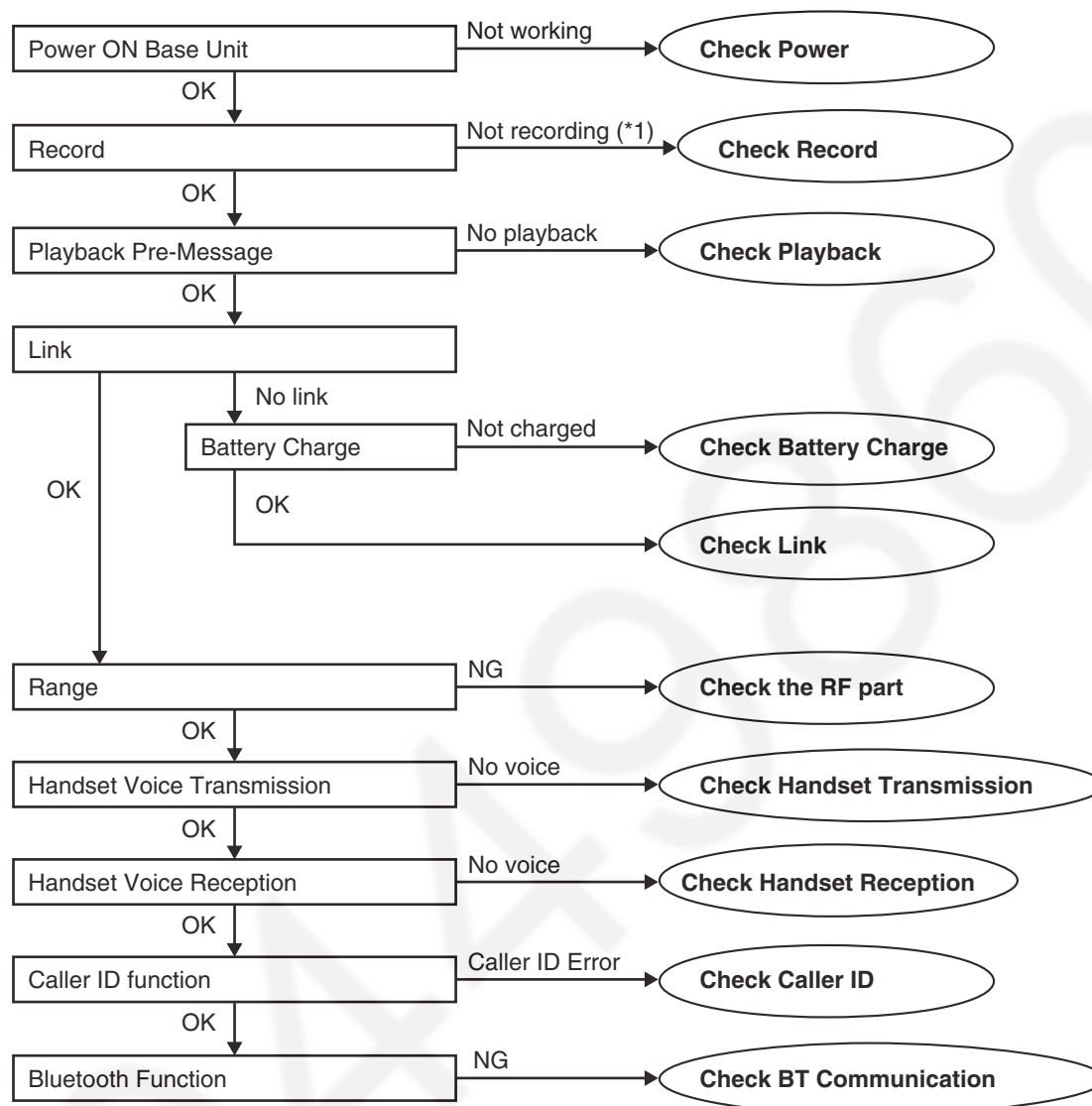
(The contents of user setting are reset to factory default)

*Usage time is not cleared.

10 Troubleshooting Guide

10.1. Troubleshooting Flowchart

FLOW CHART



Cross Reference:

Check Power (P.31)

Check Record (P.32)

Check Playback (P.35)

Check Battery Charge (P.35)

Check Link (P.36)

Check the RF part (P.38)

Check Handset Transmission (P.43)

Check Handset Reception (P.43)

Check Caller ID (P.43)

Check BT Communication (P.44)

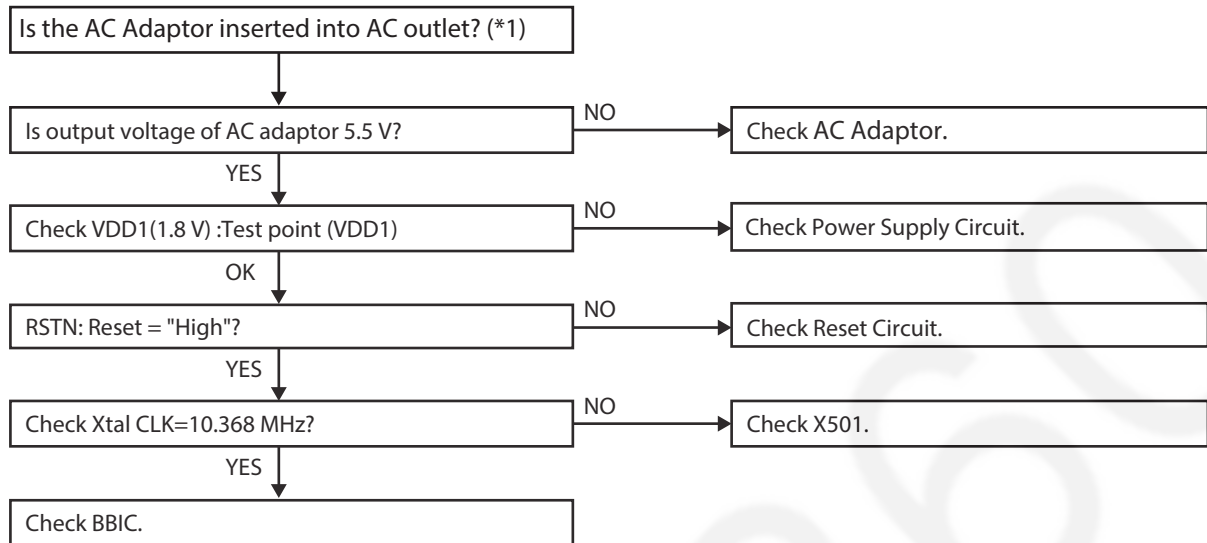
Note:

(*1) When a user claims that the unit disconnects a call right after the greeting message and no incoming messages can be recorded, this symptom can not reappear with TEL simulator in the service center. In this case, try to change the Auto disconnect activation time and Vox level.

<How to change the Auto Disconnect activation time and VOX level> (P.33) item (A) and (B).

10.1.1. Check Power

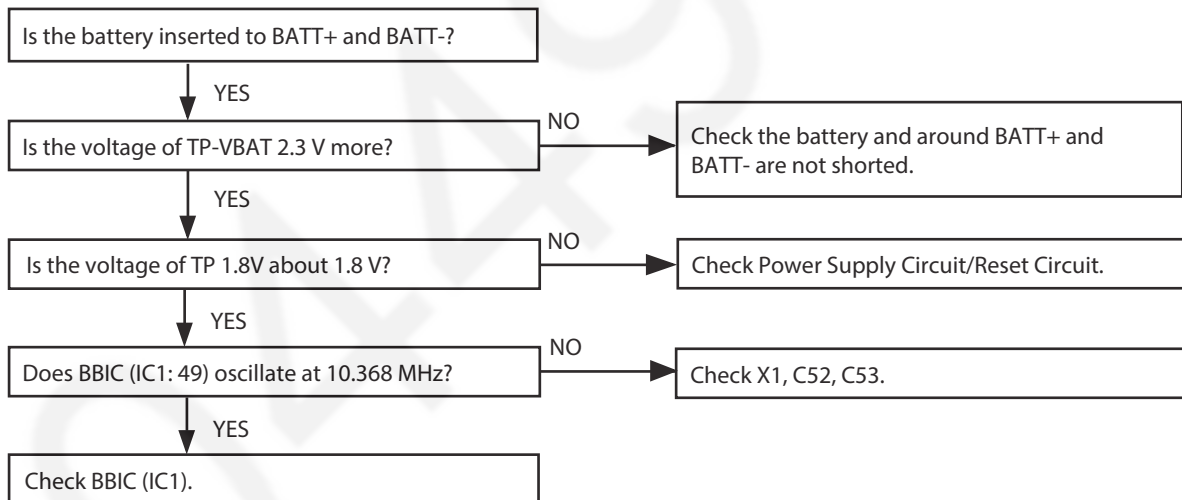
10.1.1.1. Base Unit



Cross Reference:
Power Supply Circuit/Reset Circuit (P.14)

Note:
BBIC is IC501.
(*1) Refer to **Specifications** (P.7) for part number and supply voltage of AC adaptor.
(*2) Refer to **Circuit Board (Base Unit_Main)** (P.74).

10.1.1.2. Handset

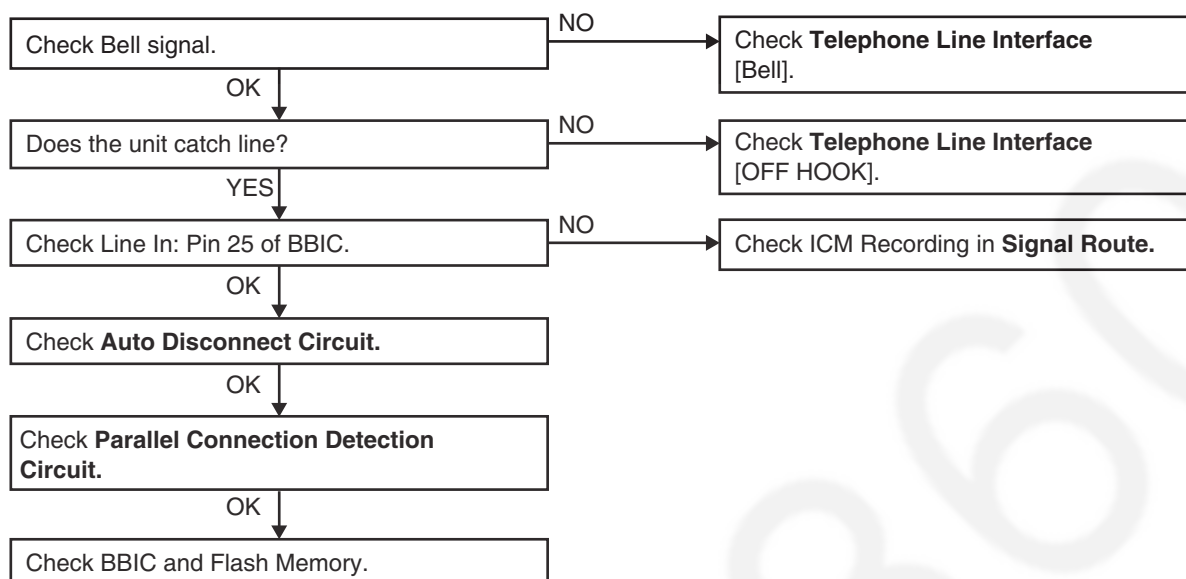


Cross Reference:
Power Supply Circuit/Reset Circuit (P.22)

10.1.2. Check Record

10.1.2.1. Base Unit

Not record Incoming Message



Cross Reference:

Telephone Line Interface (P.16)

Parallel Connection Detect Circuit/Auto Disconnect Circuit (P.17)

Note:

Flash Memory is IC601.
BBIC is IC501.

<How to change the Auto Disconnect activation time and VOX level>

A) Auto Disconnect activation time:

Some Telephone Company lines (fiber or cable) ON Hook and OFF Hook voltages are lower than conventional lines, which may cause a malfunction of Auto Disconnect detection. To solve this problem, try changing the Auto Disconnect activation through the procedures below.

- 1) Press "MENU " key at standby Mode and "#" key.

Note: The set must power on and be linked.

- 2) Press "9", "0", "0", "0", " * " .

LCD (H/S)

```
Service ready
: _____
BACK
```

- 3) Press "7", "3", "1".

```
Service ready
: 7 3 1 _
CLEAR
```

- 4) Then enter the below last digit;

last digit	"0"	Auto disconnect & CPC ^(*1) : enable . . . [default]
	"1"	Auto disconnect : enable ^(*1) CPC : disable
	"2"	Auto disconnect & CPC : disable ^(*2)

Note:

(*1) Both Auto Disconnect and CPC don't detect for the first 2 seconds.

(*2) If the "Disable" is selected, even if the parallel-connected telephone is OFF HOOK, the line isn't disconnected.

- 5) Back to "standby" mode automatically after step 4).
You can hear beep sound which is a confirmation tone.

B) Vox level:

It makes easier to detect a small voice (caller) by raising the sensitivity of VOX level. Therefore, the recording of TAM is not turned off during detection.

1) ~ 2) are same as (A).

3) Press "5","1","1".

Service ready :5 1 1 _ CLEAR
--

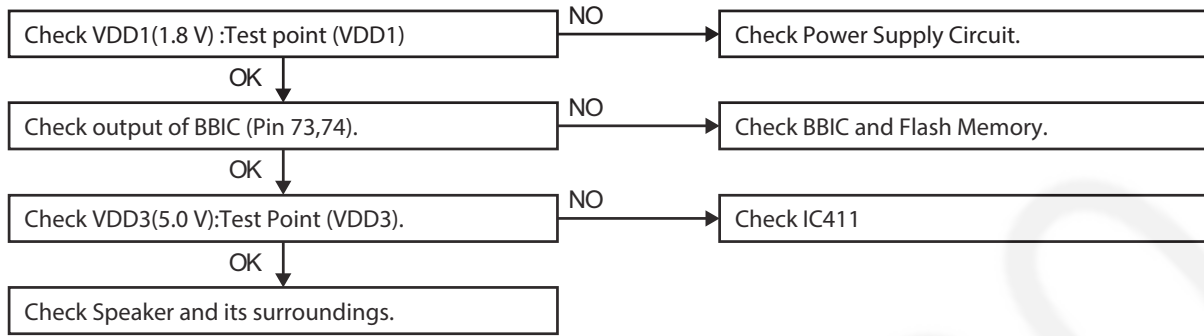
4) Then enter the below last digit;

last digit	"0"	default setting : normal
	"1"	6dB up

5) Back to "standby" mode automatically after step 4.
You can hear beep sound which is a confirmation tone.

10.1.3. Check Playback

10.1.3.1. Base Unit

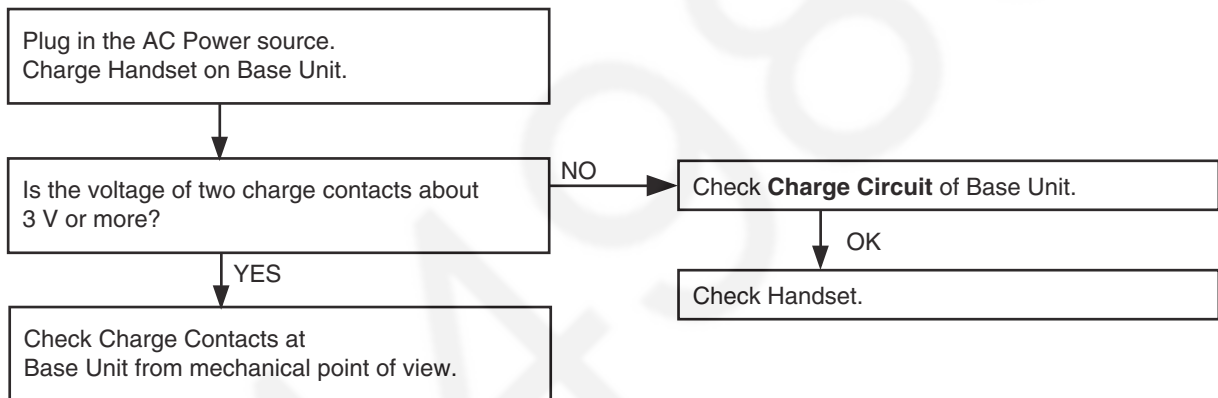


Cross Reference:
Power Supply Circuit/Reset Circuit (P.14)

Note:
 Flash Memory is IC601.
 BBIC is IC1.
 (*1) Refer to **Circuit Board (Base Unit_Main)** (P.74).

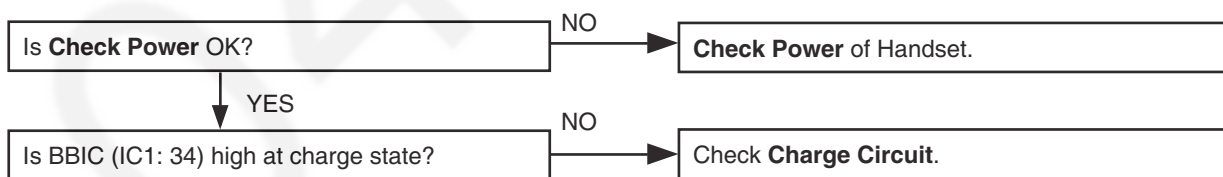
10.1.4. Check Battery Charge

10.1.4.1. Base Unit



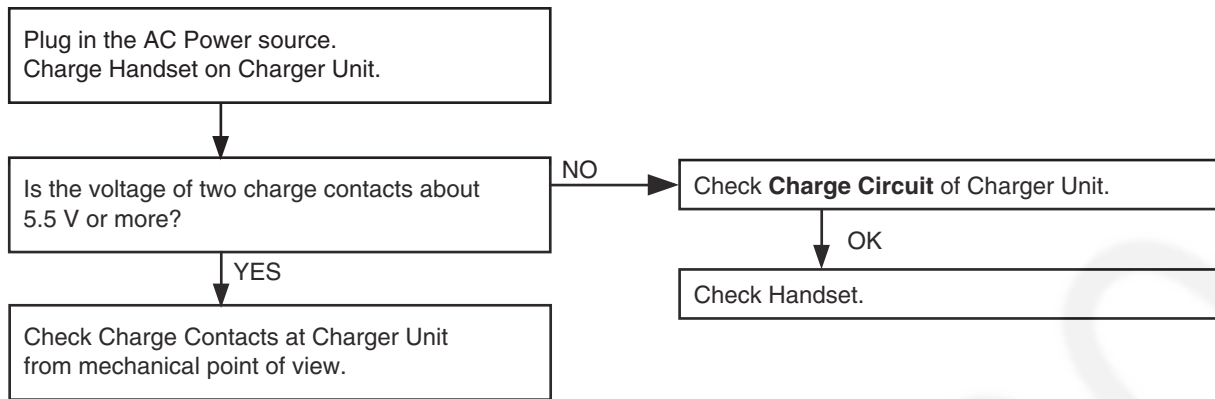
Cross Reference:
Charge Circuit (P.15)

10.1.4.2. Handset



Cross Reference:
Check Power (P.31)
Charge Circuit (P.23)

10.1.4.3. Charger Unit

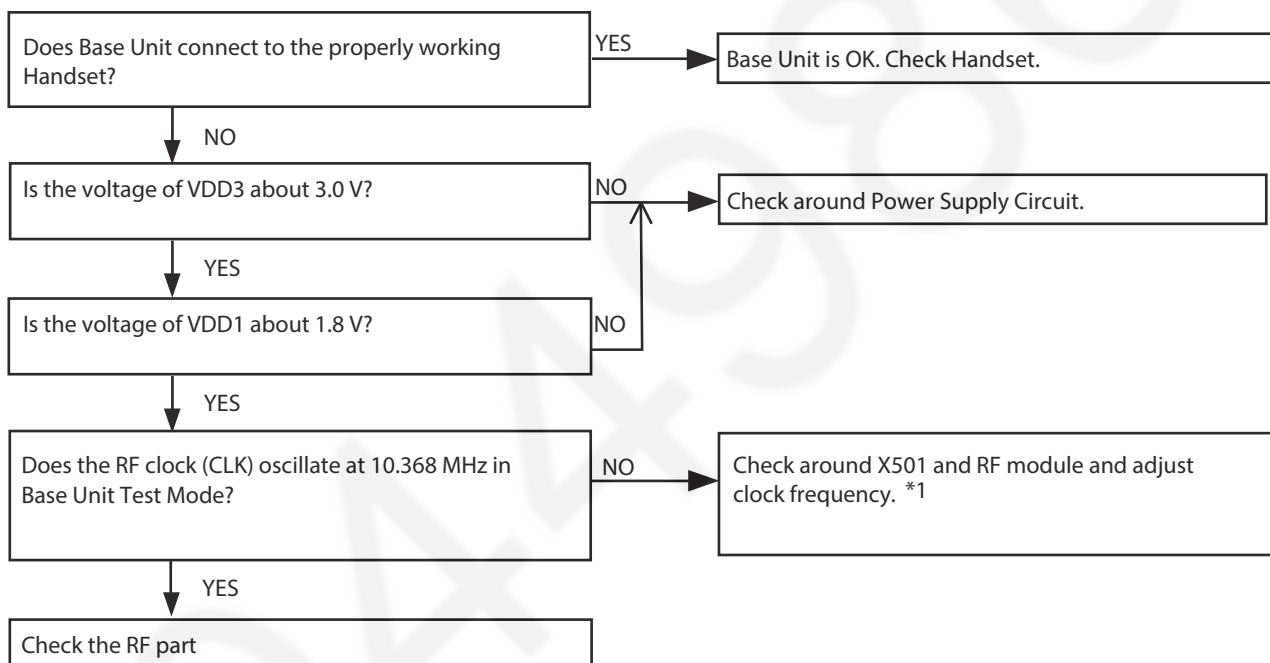


Cross Reference:

Charge Circuit (P.23)

10.1.5. Check Link

10.1.5.1. Base Unit



Cross Reference:

Power Supply Circuit/Reset Circuit (P.14)

Check the RF part (P.38)

Note:

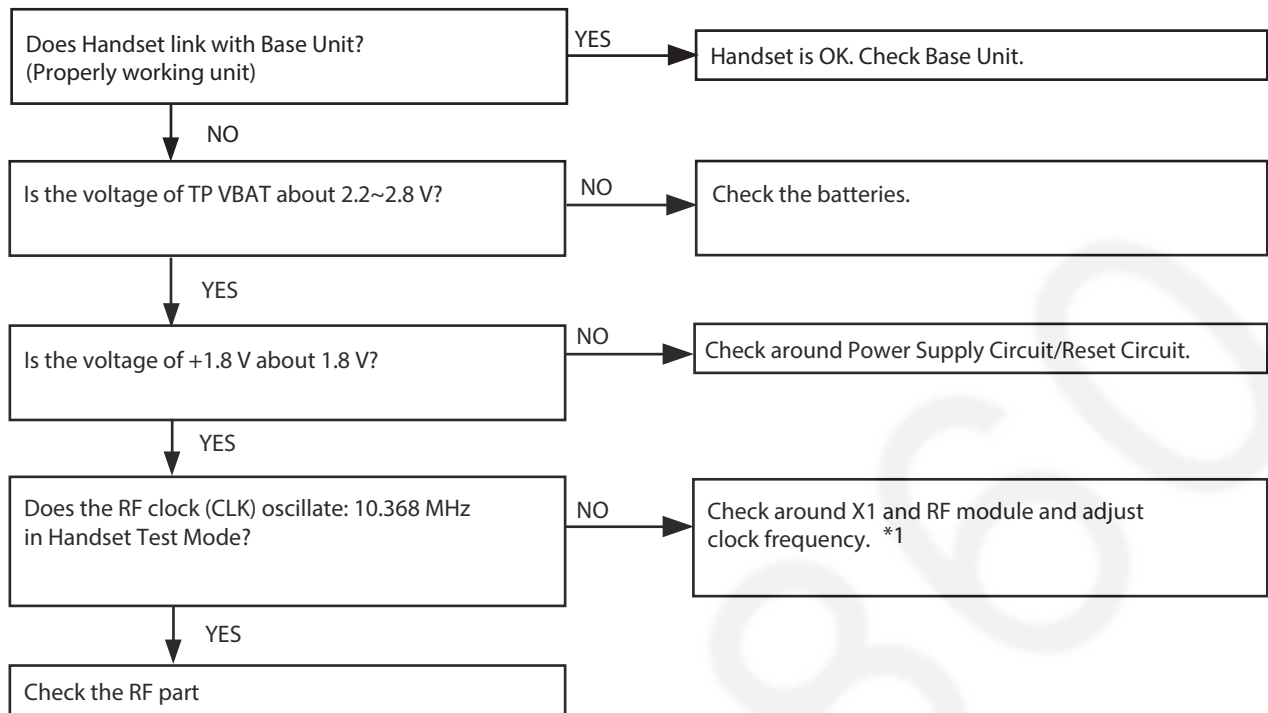
Refer to **Things to Do after Replacing IC or X'tal** (P.51)(P.57) for Base Unit.

*1 How to adjust the frequency of X501:

To see the frequency, execute the command "SFR", then check the TP_CKM (IC501-57pin).

To adjust frequency, send command "SFR □○○□○○" until the frequency counter becomes 10.368 MHz±55 HZ.

10.1.5.2. Handset



Cross Reference:

Power Supply Circuit/Reset Circuit (P.22)

Check the RF part (P.38)

Note:

Refer to **Things to Do after Replacing IC or X'tal** (P.52)(P.61) for Handset.

*1 How to adjust the frequency of X1:

To see the frequency, execute the command "SFR", then check the TP_CKM (IC1-49pin).

To adjust frequency, send command "SFR 0000" until the frequency counter becomes 10.368 MHz±55 HZ.

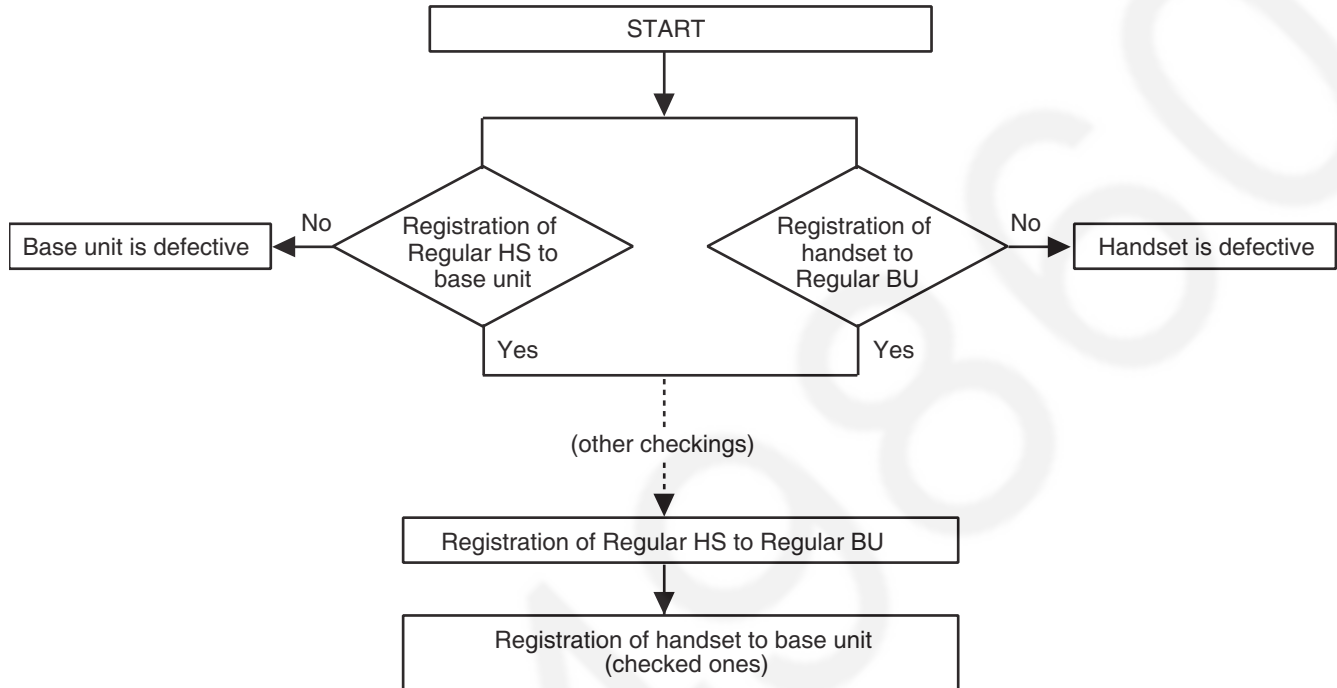
10.1.6. Check the RF part

10.1.6.1. Finding out the Defective part

1. Prepare Regular HS(*1) and Regular BU(*2).
2. a. Re-register regular HS (Normal mode) to base unit (to be checked).
If this operation fails in some ways, the base unit is defective.
- b. Re-register handset (to be checked) to regular BU (Normal mode).
If this operation fails in some ways, the handset is defective.

After All the Checkings or Repairing

1. Re-register the checked handset to the checked base unit, and Regular HS to Regular BU.

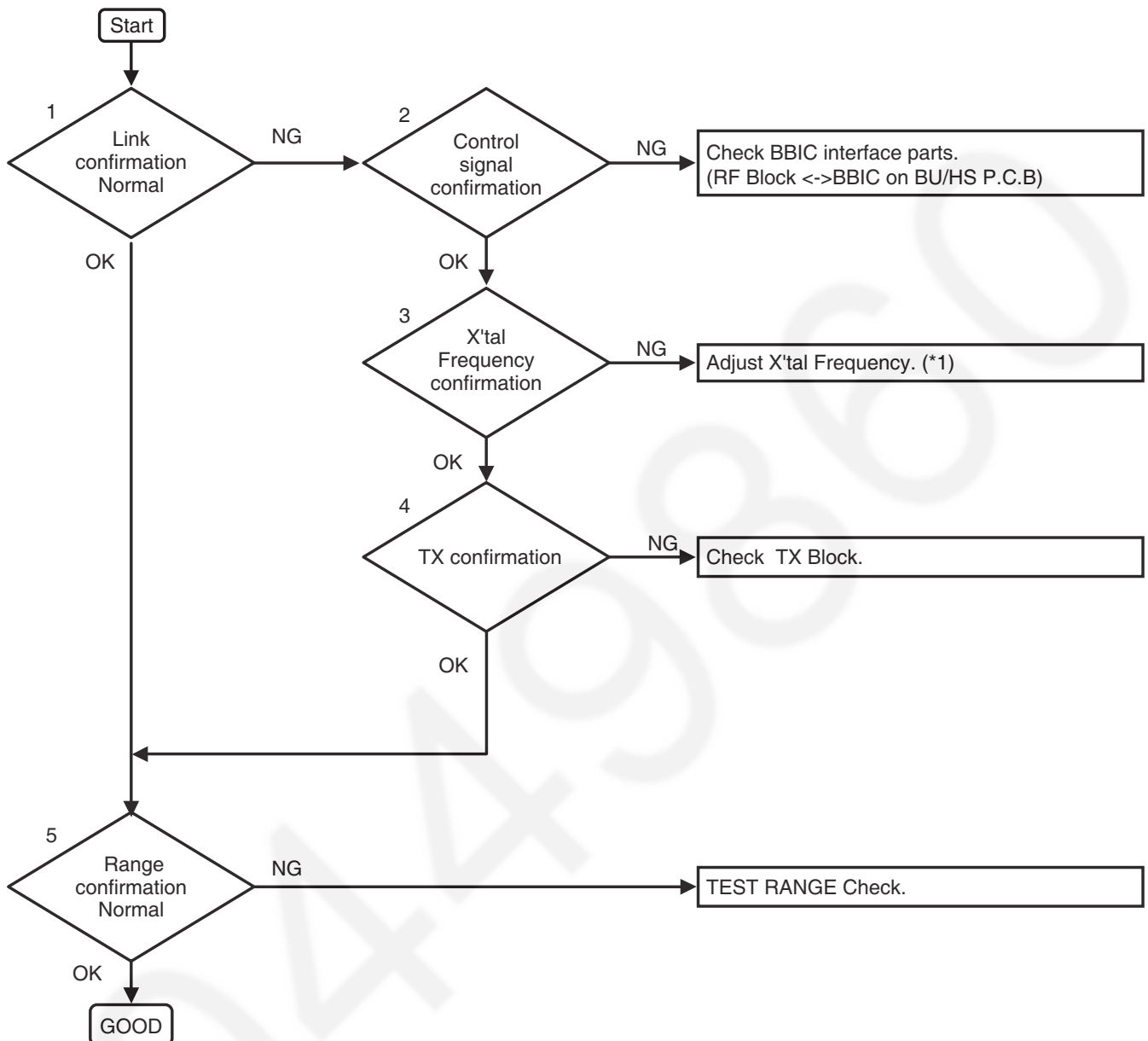


Note:

- (*1) HS: Handset
(*2) BU: Base Unit

10.1.6.2. RF Check Flowchart

Each item (1 ~ 5) of RF Check Flowchart corresponds to **Check Table for RF part** (P.40).
Please refer to the each item.



Note:

(*1) Refer to **Check Link** (P.36).

10.1.6.3. Check Table for RF part

No.	Item	BU (Base Unit) Check	HS (Handset) Check
1	Link Confirmation Normal HS, BU Mode [Normal Mode]	1. Register Regular HS to BU (to be checked). 2. Press [Talk] key of the Regular HS to establish link.	1. Register HS (to be checked) to Regular BU. 2. Press [Talk] key of the HS to establish link.
2	X'tal Frequency confirmation HS, BU Mode: [Adjustment]	Check X'tal Frequency. (10.368 MHz $\pm$ 100 Hz)	Check X'tal Frequency. (10.368 MHz $\pm$ 100 Hz)
3	TX confirmation HS Mode: HS_Burst Mode] (*1) BS Mode: BS_Burst Mode] (*1)	1. Remove wire antenna 2 and connect spectrum analyzer to TP. (*2) 2. Confirm TX power whether spec. is satisfied. Power $\geq$ 13.5 dBm	1. Connect spectrum analyzer to TP. (*3) 2. Confirm TX power whether satisfied spec. Power $\geq$ 16.0 dBm
4	Range Confirmation Normal HS, BU Mode: [Normal Mode]	1. Register Regular HS to BU (to be checked). 2. Press [Talk] key of the Regular HS to establish link. 3. Compare the range of the BU (being checked) with that of the Regular BU.	1. Register HS (to be checked) to Regular BU. 2. Press [Talk] key of the HS to establish link. 3. Compare the range of the HS (being checked) with that of the Regular HS.

Note:

(*1) Refer to **Commands** (P.54)

(*2) **Adjustment Standard (Base Unit)** (P.55)

(*3) **Adjustment Standard (Handset)** (P.56)

10.1.6.4. TEST RANGE Check

Circuit block which range is defective can be found by the following check.

Item	BU (Base Unit) Check	HS (Handset) Check
Range Confirmation TX TEST (TX Power check) HS, BU setting Checked unit: Low TX power (*1) Regular unit: High TX power (*1)	1. Register Regular HS to BU (to be checked). 2. Set TX Power of the BU and the Regular HS according to CHART1. 3. At distance of about 20 m between HS and BU, Link OK = TX Power of the BU is OK. No Link = TX Power of the BU is NG.	1. Register HS (to be checked) to Regular BU. 2. Set TX Power of the HS and the Regular BU according to CHART1. 3. At distance of about 20 m between HS and BU, Link OK = TX Power of the HS is OK. No Link = TX Power of the HS is NG.
Range Confirmation RX TEST (RX sensitivity check) HS, BU setting Checked unit: High TX power (*1) Regular unit: Low TX power (*1)	1. Register Regular HS to BU (to be checked). 2. Set TX Power of the BU and the Regular HS according to CHART1. 3. At distance of about 20 m between HS and BU, Link OK= RX Sensitivity of the BU is OK. No Link = RX Sensitivity of the BU is NG.	1. Register HS (to be checked) to Regular BU. 2. Set TX Power of the Checking HS and the Regular BU according to CHART1. 3. At distance of about 20 m between HS and BU, Link OK= RX Sensitivity of the HS is OK. No Link = RX Sensitivity of the HS is NG

CHART1: Setting of TX Power and RX Sensitivity in Range Confirmation TX TEST, RX TEST

	BU (to be checked)	Regular_HS
	TX Power	TX Power
BU (Base Unit) TX Power Check	Low	High
BU (Base Unit) RX Sensitivity Check	High	Low

	HS (to be checked)	Regular_BU
	TX Power	TX Power
HS (Handset) TX Power Check	Low	High
HS (Handset) RX Sensitivity Check	High	Low

Note:

(*1) Refer to **Commands** (P.54).

10.1.7. Registering a Handset to the Base Unit

The supplied handset and base unit are pre-registered. If for some reason the handset is not registered to the base unit, re-register the handset.

- 1 **Handset:**
[MENU] → #130
- 2 **Base unit:**
Press and hold [LOCATOR] for about 5 seconds until the registration tone sounds.
 - If all registered handsets start ringing, press [LOCATOR] again to stop, then repeat this step.
 - The next step must be completed within 90 seconds.
- 3 **Handset:**
Press [OK], then wait until a long beep sounds.

Note:

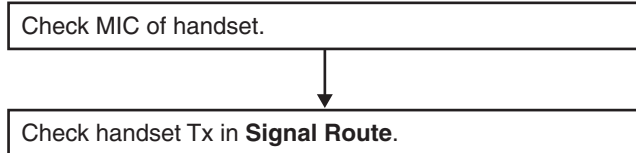
- While registering, “Base in registering” is displayed on all registered handsets.
- When you purchase an additional handset, refer to the additional handset’s installation manual for registration.

10.1.8. Deregistering a Handset

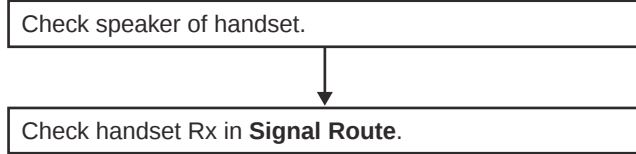
A handset can cancel its own registration to the base unit, or other handsets registered to the same base unit. This allows the handset to end its wireless connection with the system.

- 1 [MENU] → #131
 - All handsets registered to the base unit are displayed.
- 2 [↕]: Select the handset you want to cancel. → [SELECT]
- 3 [↕]: “Yes” → [SELECT]
- 4 [OFF]

10.1.9. Check Handset Transmission



10.1.10. Check Handset Reception

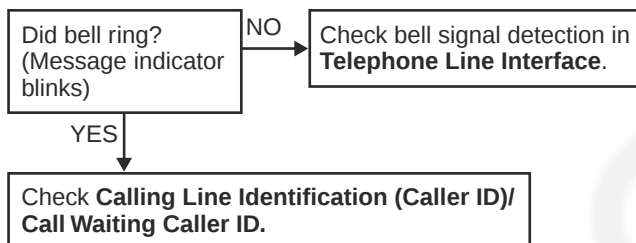


Note:

When checking the RF part, Refer to **Check the RF part** (P.38).

10.1.11. Check Caller ID

BASE UNIT



Cross Reference:

Telephone Line Interface (P.16)

Calling Line Identification (Caller ID)/Call Waiting Caller ID (P.18)

Note:

- Make sure the format of the Caller ID service of the Telephone company that the customer subscribes to.
- It is also recommended to confirm that the customer is really a subscriber of the service.

10.1.12. Check BT Communication

Plug in the AC power source and wait 10 seconds.

Use a handset to enter the "Bluetooth" menu:
Press [MENU] → Bluetooth → [SELECT]

Is it possible to enter the "Bluetooth" menu?

NO

YES

Is it possible to register BT_Headset?

NO

Check the circuit of around RF parts of BT Module

YES

Check Voice Transmission of the BT_Headset

NG

Check the circuit of around PCM communication of main board and BT module

OK

Check Voice Reception of the BT_Headset

NG

OK

Check ph.book transfer from cell

NG

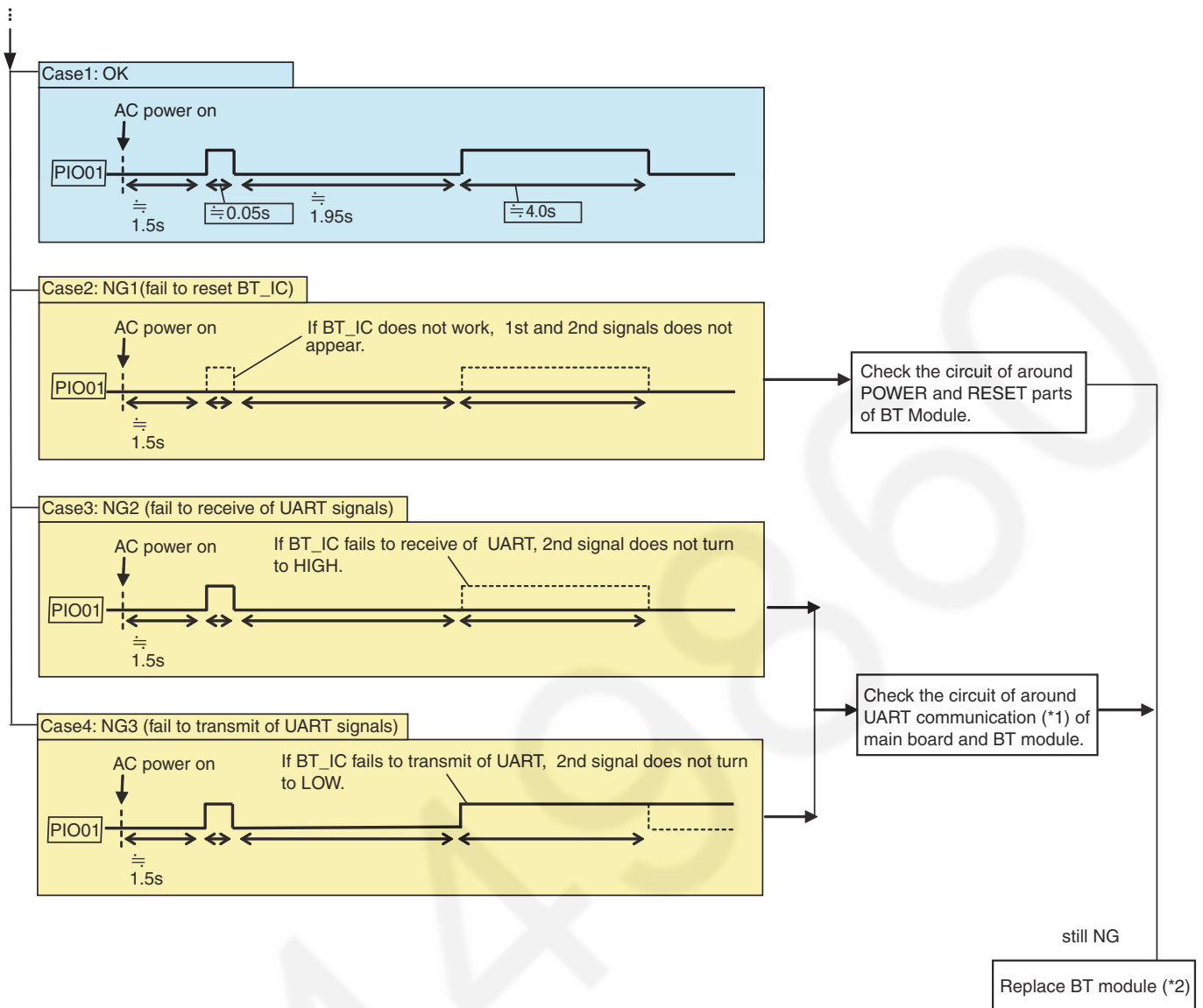
Refer to Troubleshooting Guide in the Operating Instructions.

Unplug/plug in the AC power source again

Check the Check_PIN (PIO01 of IC721) (*1)

⋮ Continued to the next page.

Cross Reference:
Bottom View (P.75)

**Note:**

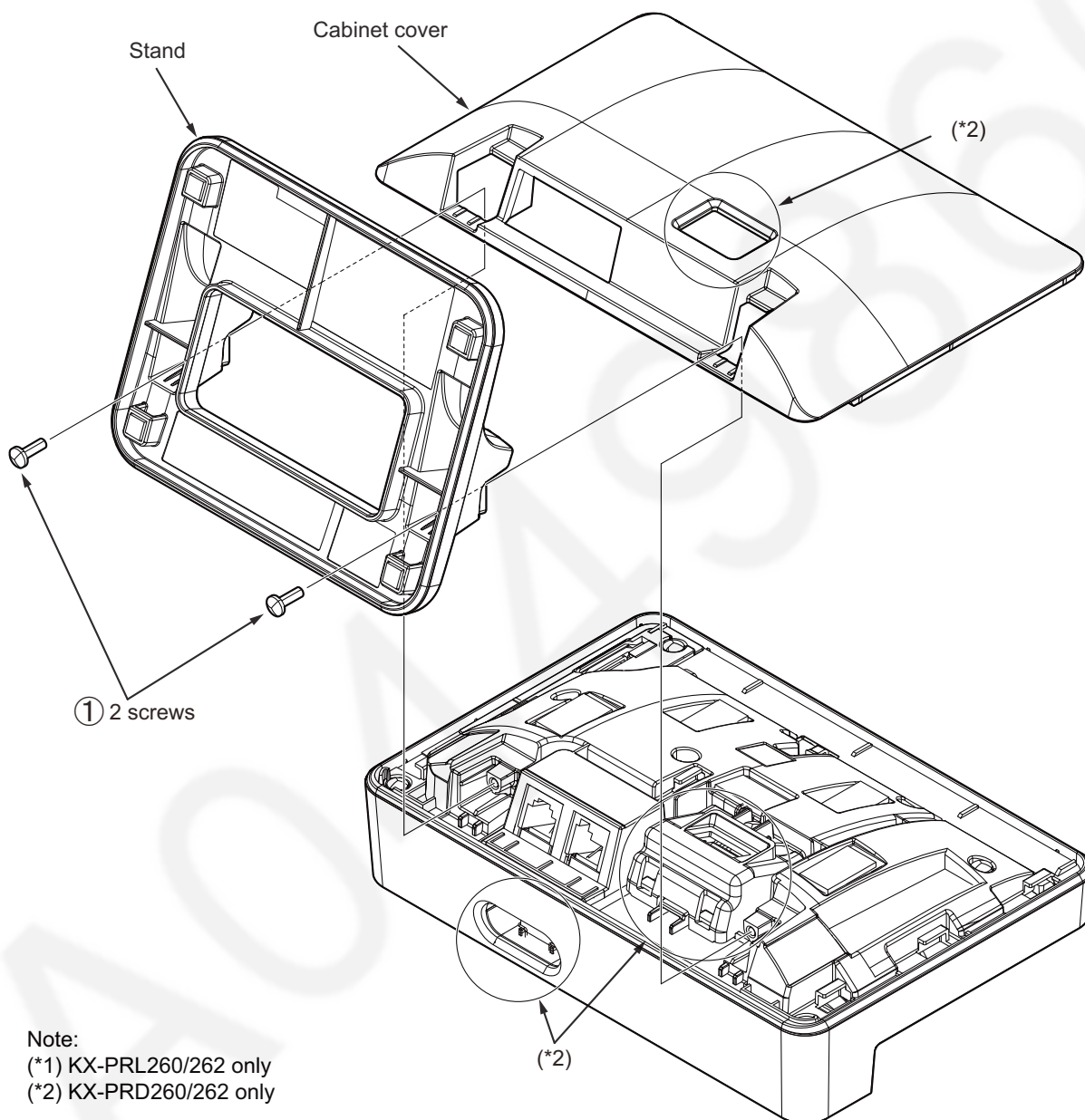
(*2) After replacing, need to adjust the frequency of BT.
Refer to **Things to Do after Replacing IC or X'tal** (P.57)

11 Disassembly and Assembly Instructions

11.1. Disassembly Instructions

11.1.1. Base Unit

- ① Remove the 2 screws and the stand to remove the cabinet cover.

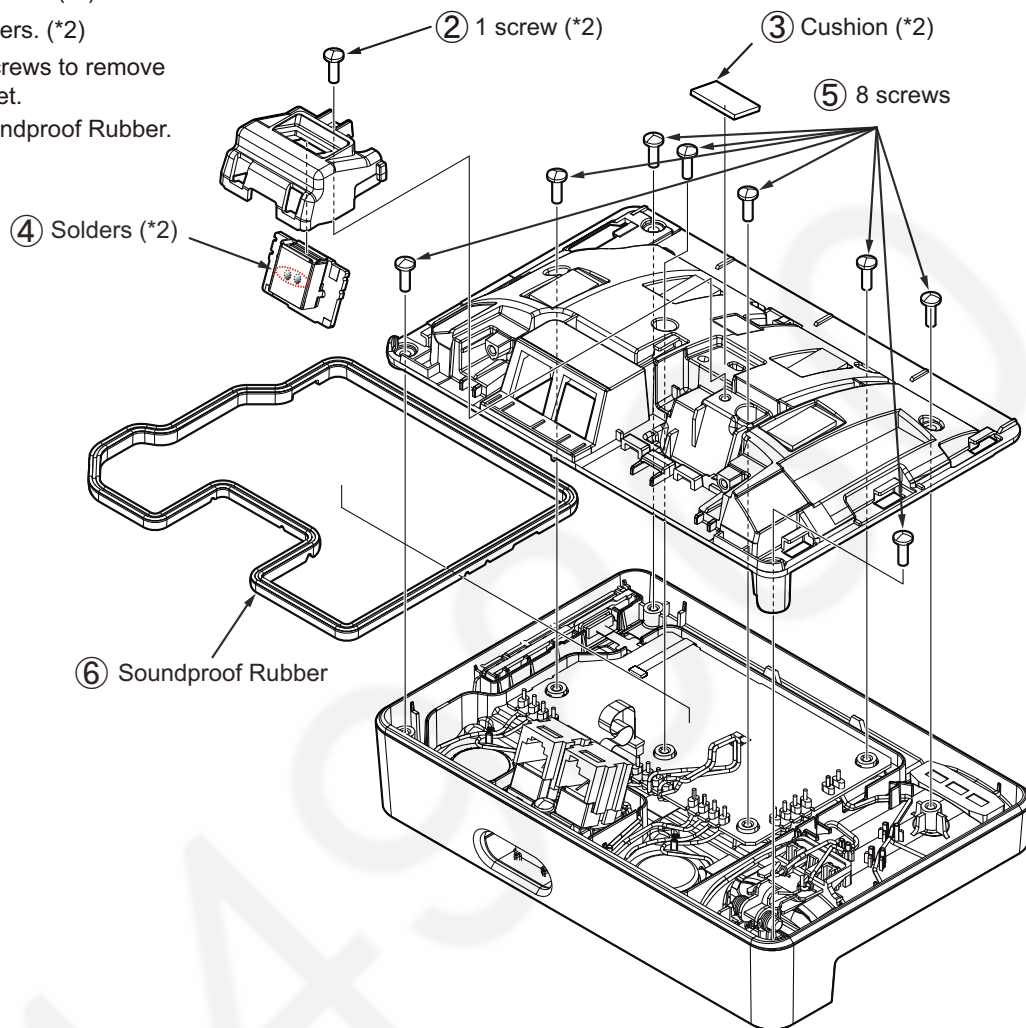


Note:

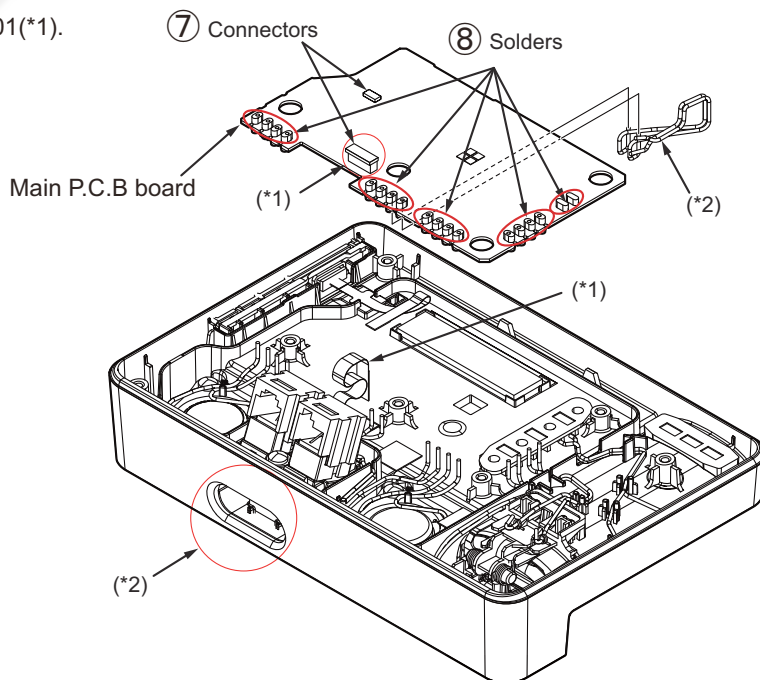
(*1) KX-PRL260/262 only

(*2) KX-PRD260/262 only

- ② Remove the 1 screw to remove the USB holder. (*2)
- ③ Remove the Cushion. (*2)
- ④ Remove the solders. (*2)
- ⑤ Remove the 8 screws to remove the Lower Cabinet.
- ⑥ Remove the Soundproof Rubber.



- ⑦ Disconnect the connectors CN651, CN1001(*1).
- ⑧ Remove the solders to remove the Main P.C.B board.



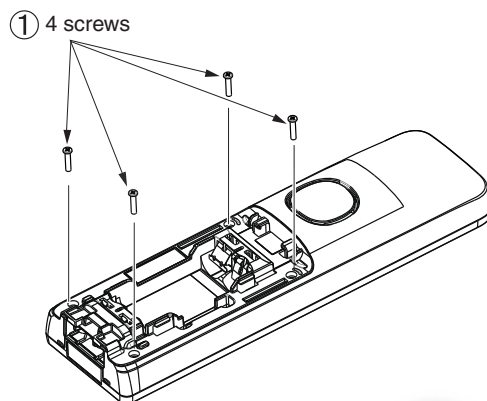
Note:

(*1) KX-PRL260/262 only

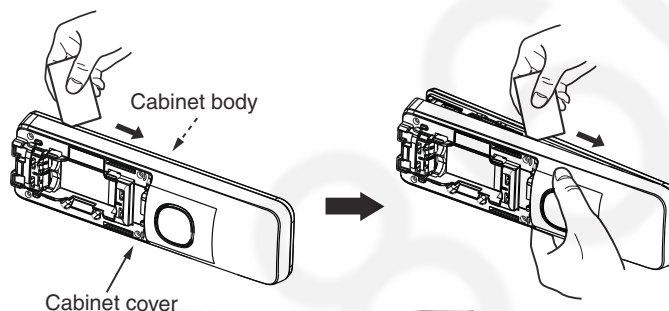
(*2) KX-PRD260/262 only

11.1.2. Handset

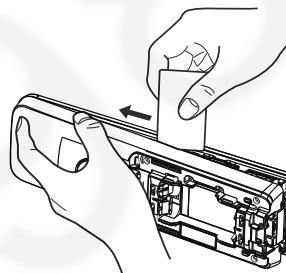
- ① Remove the 4 screws.



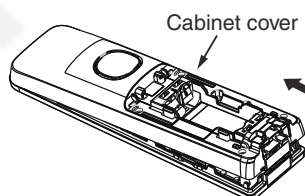
- ② Insert a plastic card. (Ex. Used SIM card etc.) between the cabinet body and the cabinet cover, then pull it along the gap to open the cabinet.



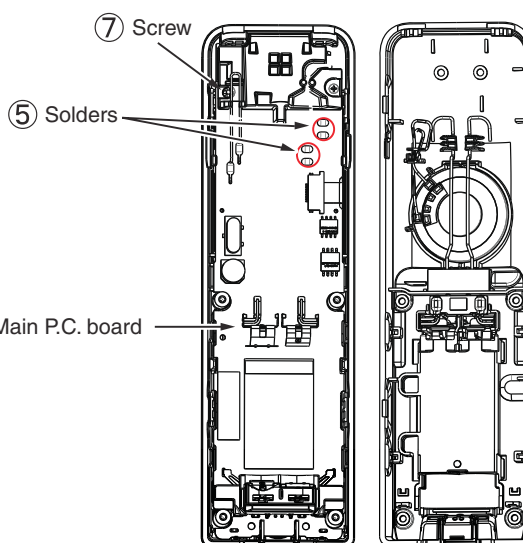
- ③ Likewise, open the other side of the cabinet.



- ④ Remove the cabinet cover by pushing it upward.



- ⑤ Remove the solders.



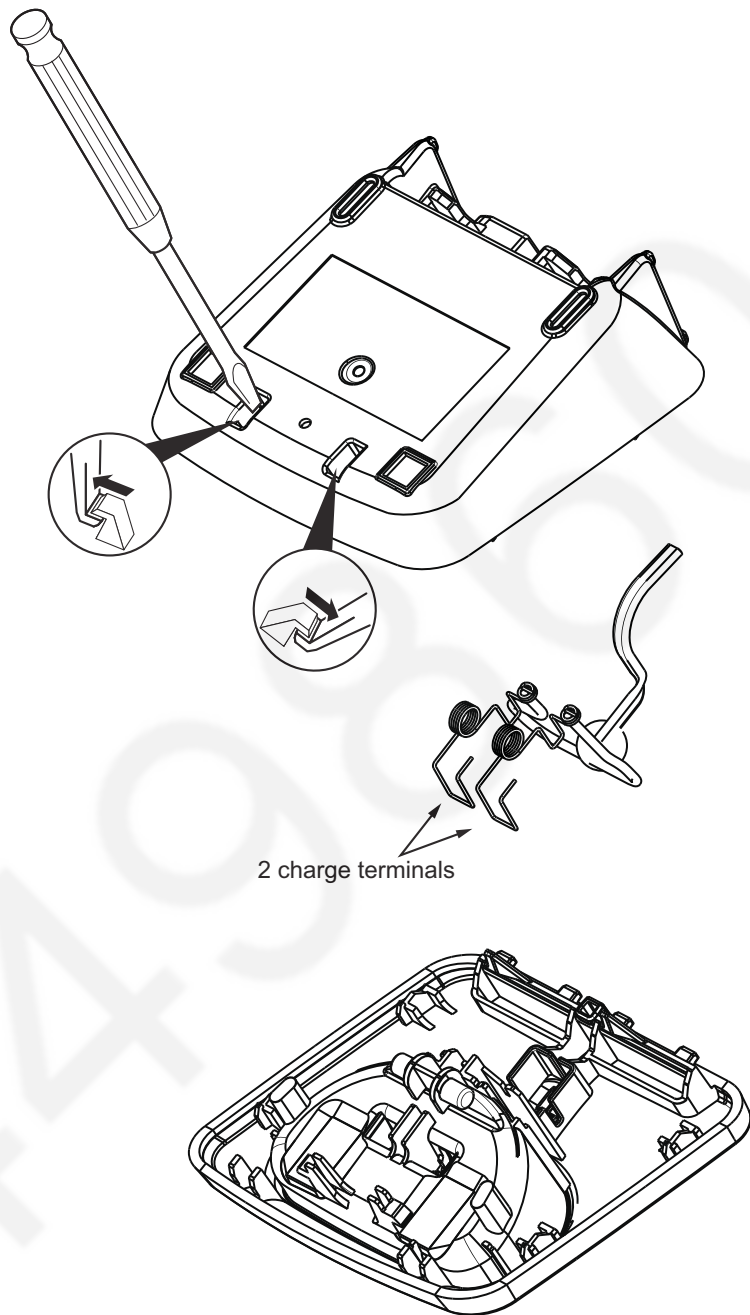
- ⑥ Remove the solders to remove the 2 charge terminals.

- ⑦ Remove the screw to remove the main P. C. board.

11.1.3. Charger Unit

① Unhook the click of one side.

② Then unhook the other one.

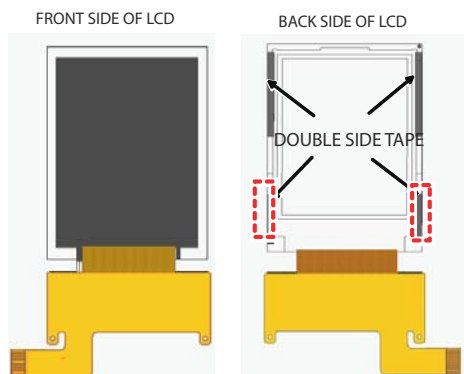


11.2. How to Replace the Handset LCD

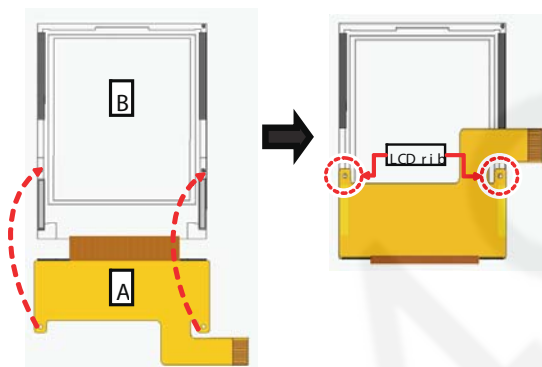
Note:

The illustrations are simplified in this page.
They may differ from the actual product.

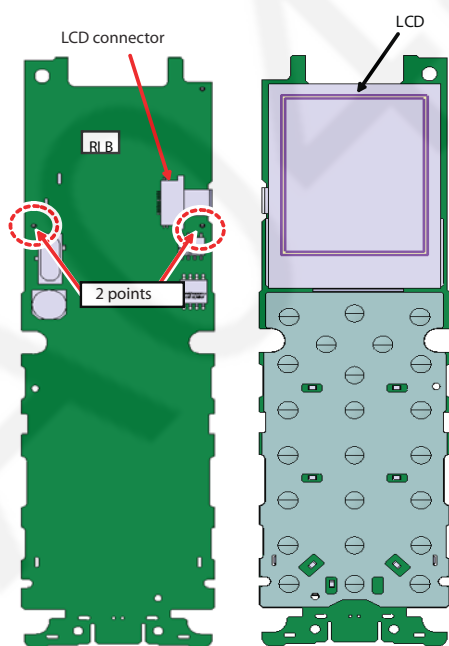
- ① Peel off DOUBLE SIDE TAPE at the back side LCD 2 points as a figure shown.



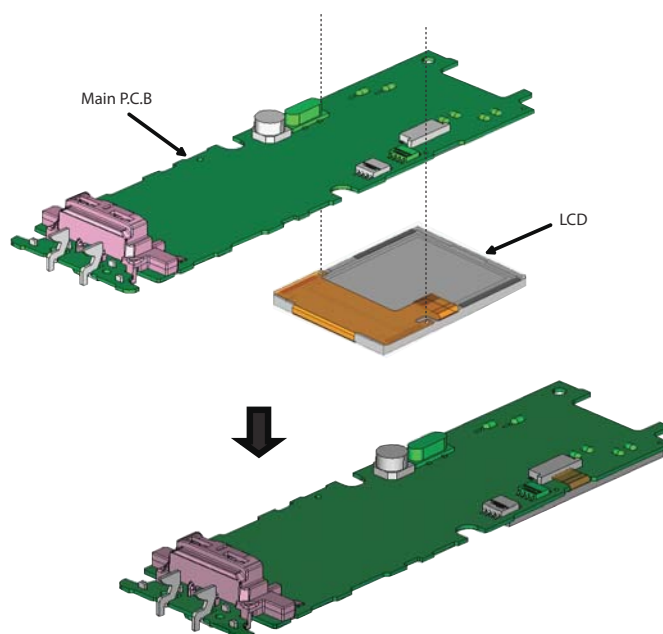
- ② Bend FFC and fix to the positioning points (2 points)



- ③ Fit the positioning point(2 points) when attaching LCD UNIT.



- ④ Insert LCD connector to MAIN P.C.B.



12 Measurements and Adjustments

This chapter explains the measuring equipment, the JIG connection, and the PC setting method necessary for the measurement in **Troubleshooting Guide** (P.30)

12.1. Equipment Required

- Digital multi-meter (DMM): it must be able to measure voltage and current.
 - Oscilloscope.
 - Frequency counter: It must be precise enough to measure intervals of 1 Hz (precision; ± 4 ppm)
Hewlett Packard, 53131A is recommended.
 - DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- This equipment may be useful in order to precisely adjust like a mass production.

12.2. The Setting Method of JIG

<Preparation>

- Serial JIG cable: PQZZ1CD300E*
- PC which runs in DOS mode
- **Batch file CD-ROM** for setting: PNZZPRD260M

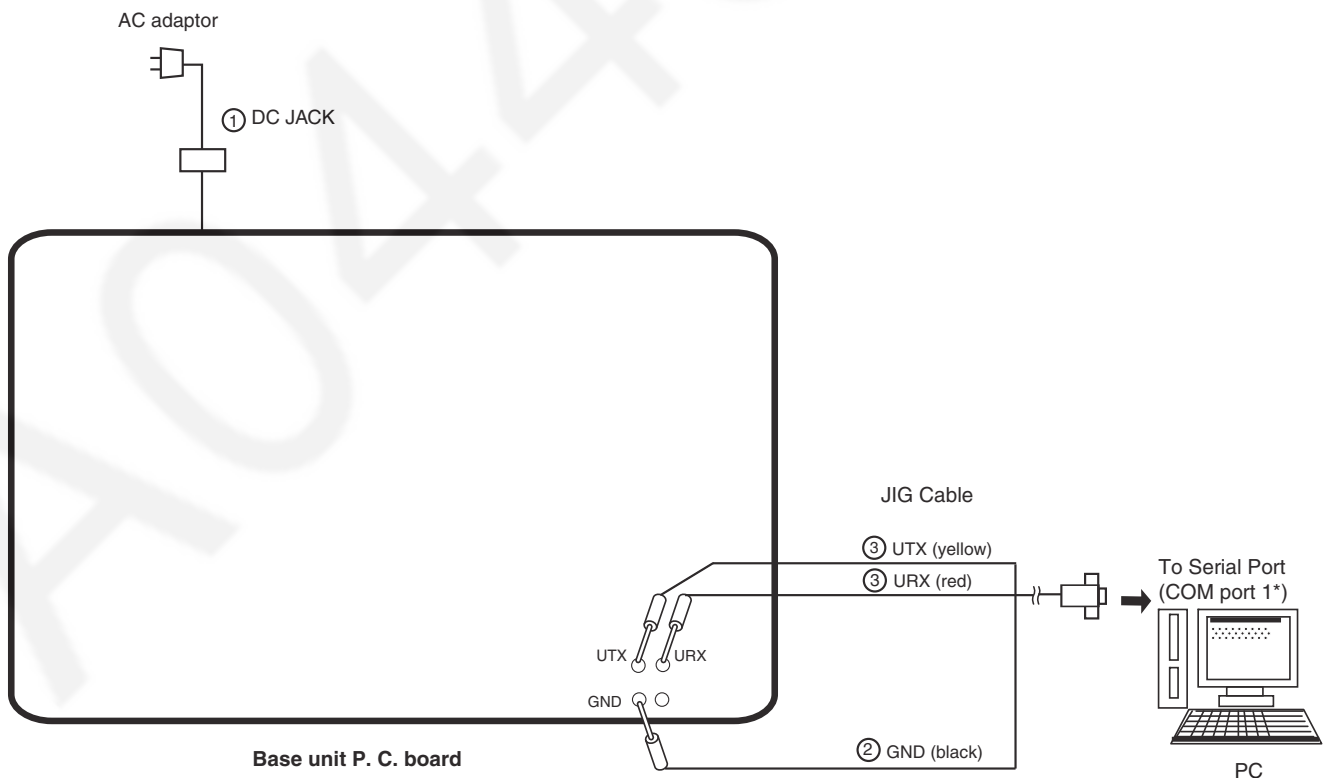
Note:

*: 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 (k Ω)	New value (k Ω)
R2	22	3.3
R3	22	3.3
R4	22	4.7
R7	4.7	10

12.2.1. Connections (Base Unit)

- ① Connect the AC adaptor.
- ② Connect the JIG Cable GND (black).
- ③ Connect the JIG Cable RX (red) and TX (yellow).

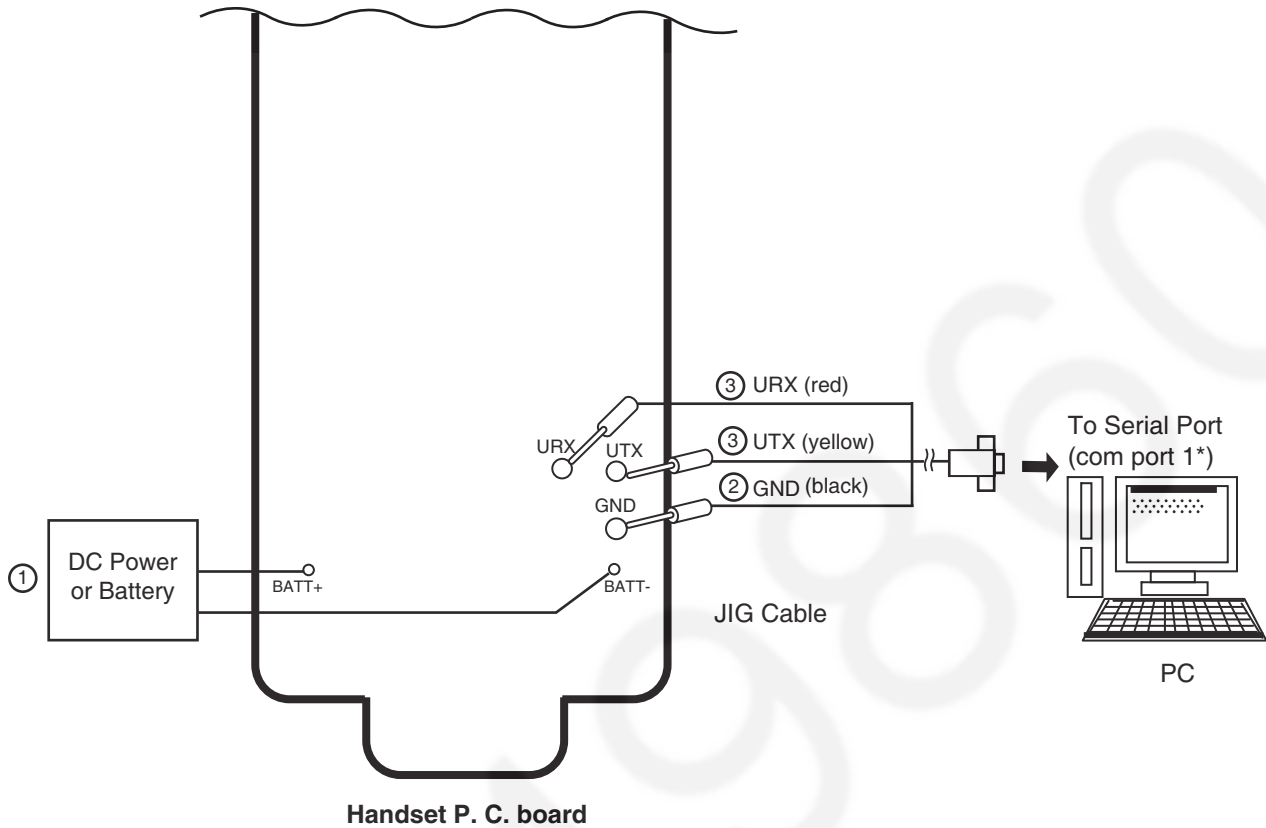


Note:

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

12.2.2. Connections (Handset)

- ① Connect the DC Power or Battery to BATT+ and BATT-.
- ② Connect the JIG cable GND (black) to GND.
- ③ Connect the JIG cable UTX (yellow) to UTX and URX (red) to URX.



Note:

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

12.2.3. How to install Batch file into P.C.

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

2. Open an MS-DOS mode window.

<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 "**SET_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>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
00 52 4F A8 A8
D: ¥PNZZTG****>DOSKEY
D: ¥PNZZTG****>_
```

<Example: error happens>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
CreateFile error
ERROR 10: Can't open serial port
D: ¥PNZZTG ****>_
```

Note:

- "*****" varies depending on the country or models.

12.2.4. Commands

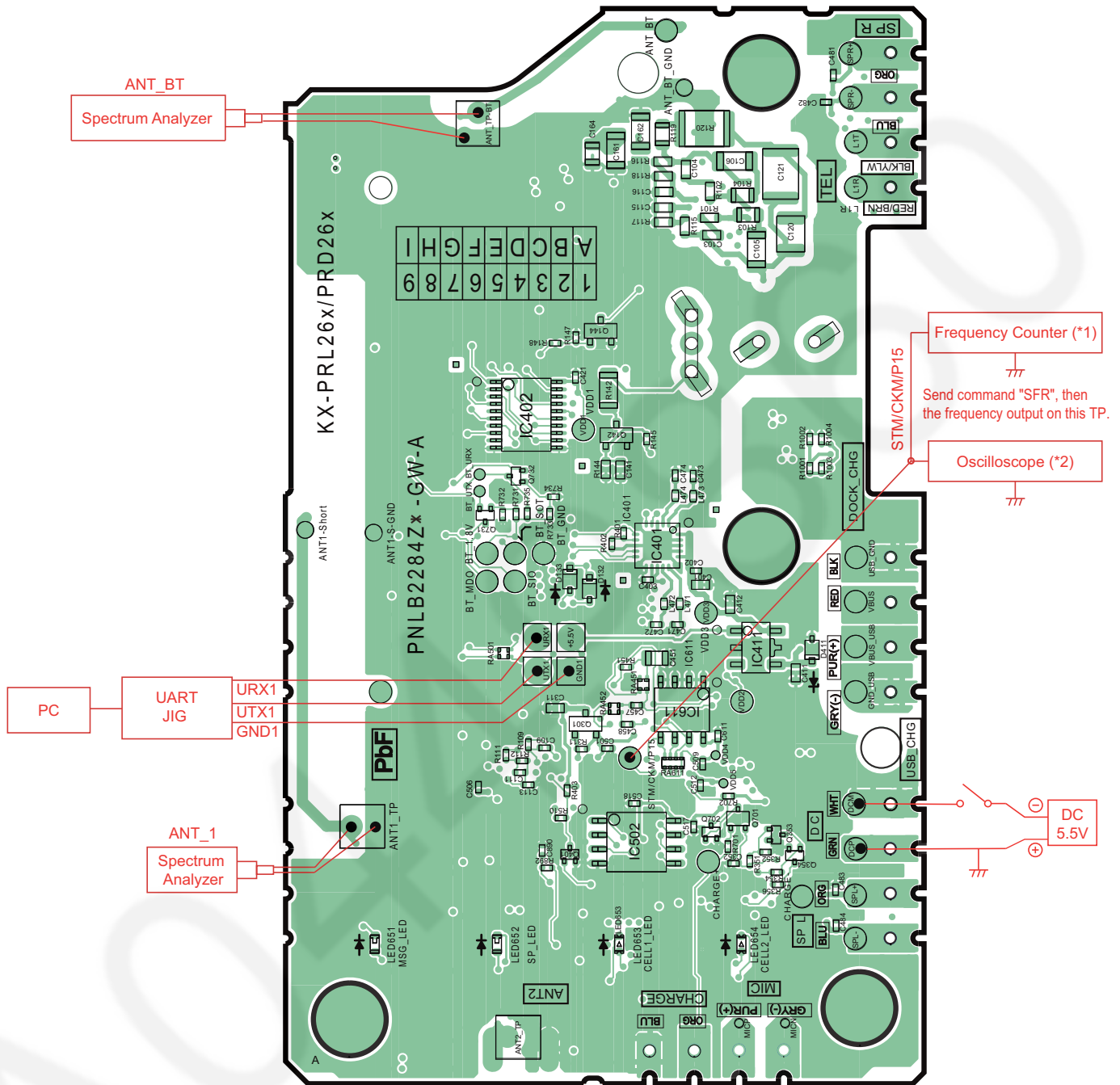
See the table below for frequently used commands.

Command name		Function	Example
rdeeprom		Read the data of EEPROM	Type "rdeeprom 00 00 FF", and the data from address "00 00" to "FF" 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.
hookoff		Off-hook mode on Base	Type "hookoff".
hookon		On-hook mode on Base	Type "hookon".
getchk (Base unit)		Read checksum	Type "getchk".
How to use of "getchk" in Handset	1.rdeeprom	Read EEPROM	Type "RdEeprom 03 7D 04", and the data from address "03 7D" to "03 80" is read out *This command gets 4 byte "WW", "XX", "YY", "ZZ". *Please NEVER forget these 4 byte data!
	2.sendchar epw	Write EEPROM	Type "sendchar epw 03 7D 04 FF FF FF FF"
	3.sendchar RST	Reset baseset	Type "sendchar RST"
	4.getchk	Read checksum	Type "getchk".
	5.sendchar epw	Write EEPROM	Type "sendchar epw 03 7D 04 WW XX YY ZZ" *"WW", "XX", "YY", "ZZ" is 4 byte data that already read from same address.
wreeprom		Write the data of EEPROM	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

12.3. Adjustment Standard (Base Unit)

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

12.3.1. Bottom View

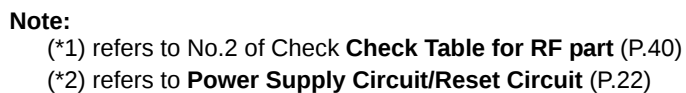


Note:

(*1) refers to No.2 of **Check Table for RF part** (P.40)

(*2) refers to **Power Supply Circuit/Reset Circuit** (P.14)

12.4.1. Component View



12.5. Things to Do after Replacing IC or X'tal

If repairing or replacing EEPROM and X'tal, it is necessary to download the required data such as Programming data or adjustment data, etc. in memory.

The set doesn't operate if it is not executed.

12.5.1. How to download the data

12.5.1.1. Base Unit

First, operate the PC setting according to **The Setting Method of JIG** (P.51).

Then download the appropriate data according to the following procedures.

Items		How to download/Required adjustment
BBIC(IC501)	Programming data is stored in memory.	1) Clock adjustment: Refer to Check Point (H).(*2)
EEPROM (IC611)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Change the address "0001" of EEPROM to "AA" to download the data. 2) Default batch file: Execute the command "default.bat". 3) Country version batch file: Execute the command PRL260/PRL262:PRL260US_US_RevXXX_YYY.bat.(*1) PRD260/PRD262:PRD260US_US_RevXXX_YYY.bat.(*1) 4) Clock adjustment
FLASH1 (IC601)	Voice prompt data is stored in memory. (vary depending on country version)	1) Wait more than 15 seconds after connecting the JIG Cable. 2) Execute the command "VPDL2011-AA ZZZ.bin" (*1). (writing time: approx. 1 min (115200 bps).)
FLASH2 (IC502)	Program D/L	1) Make sure to connect the JIG cable and disconnect the DC Power in order to download the data. 2) Update BBIC. Refer How to update the BBIC .(P.58) 3) Detach the JIG cable, then disconnect the DC Power. 4) Connect the DC Power. 5) Connect the JIG cable again, and execute the command "getchk", then confirm the checksum value is correct. If the downloading fails, start again from step 1. 6) Default batch file: Execute the command "default.bat". 7) Country version batch file: Execute the command PRL260/PRL262:PRL260US_US_RevXXX_YYY.bat.(*1) PRD260/PRD262:PRD260US_US_RevXXX_YYY.bat.(*1) 8) Clock adjustment: Refer to Check Point (H). (*2)
X'tal (X1)	System clock	Clock adjustment data is in EEPROM, adjust the data again after replacing it. 1) Apply 5.5 V between DCP and DCM with DC power. 2) Input Command "sendchar sfr", then you can confirm the current value. 3) Check X'tal Frequency.(10.368 MHz $\pm$ 41 Hz). 4) If the frequency is not 10.368 MHz $\pm$ 41 Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 10.368 MHz $\pm$ 5 Hz.

Note:

(*1) WW: model number, XXX_YYY: revision number, ZZZ: Voice prompt, AA: Baud rate(9600/19200/57600/115200)

"XXX_YYY" and "ZZZ" vary depending on the country version. You can find them in the batch file, PNZZ- mentioned in **The Setting Method of JIG** (P.51).

When adjust the frequency the BT Unit.

	Item	Test command		Description
		Input	Echo back	
1	Power on	-	-	Wait 10seconds and connect JIG
2	Test mode	sendchar XBT 1 ↵ sendchar #X ts ↵	OK #XXTEST	Enter "XBT 1" and then "OK" is back when it succeeds to enter test mode.
3	Confirm a default value	sendchar #X nc ↵	#XXnc=0x1A	Confirm a default value before adjusting the frequency.
4	Adjust the frequency	sendchar #X b3 39 19 ↵ sendchar nc,, ↵	#XXTS ch=2441 pwr=19 #XXnc=0x,,	Adjust the frequency to "2441 MHz $\pm$ 10 kHz" by changing the value of, Test Point: ANT_BT, refer to Bottom View (P.75)

Note:

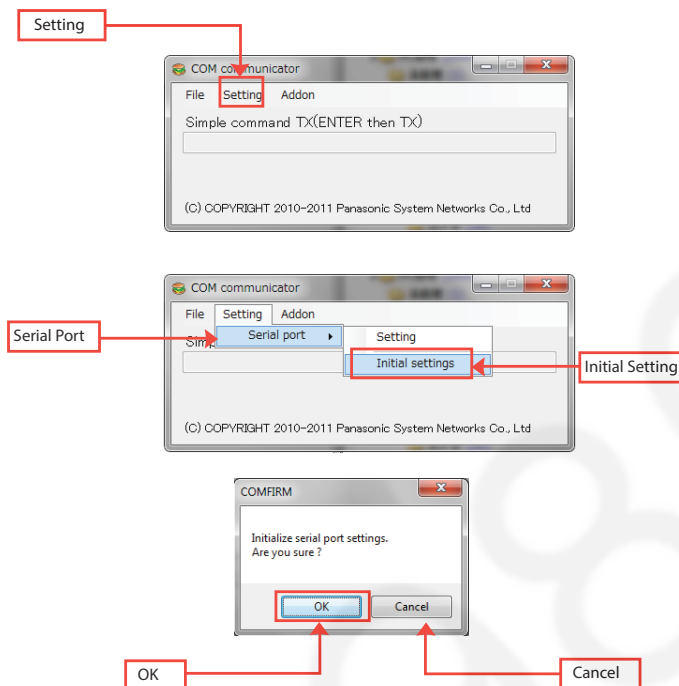
↵: Enter key

12.5.1.1.1. How to update the BBIC.

- Execute COM communicator.exe

1. Initialize COM port.(Only once at first.)

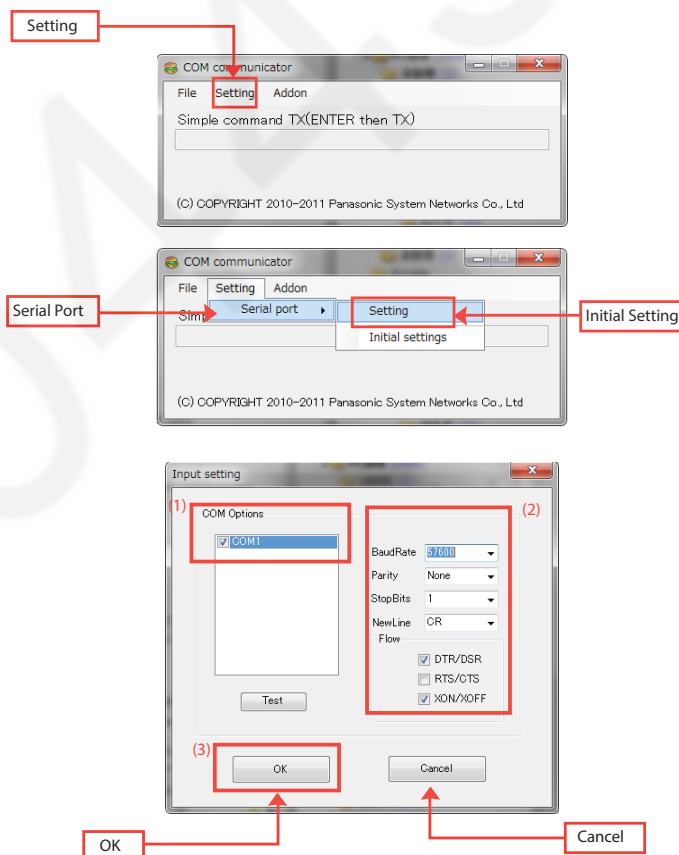
Select "Setting" → "Serial Port" → "Initial Setting" → "OK".



2. Select serial port COM number.

Select "Setting" → "Serial Port" → "Initial Setting" → "OK".

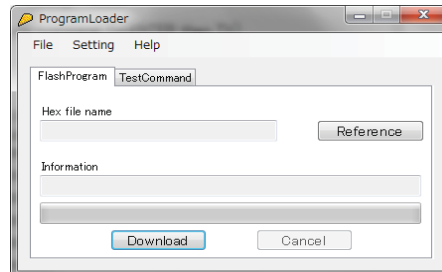
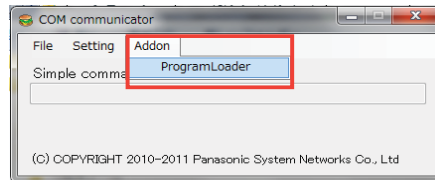
Fill up the "COM Option" → "OK".



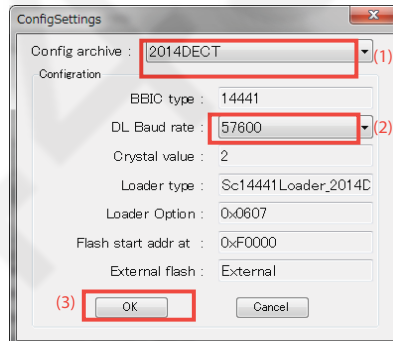
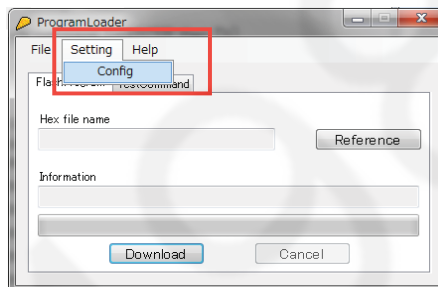
Note:

Once download is successful for a PC, this step is unnecessary next time to the PC.

- Execute COM communicator.exe again <<Write program>>
 1. Select "ProgramLoader".



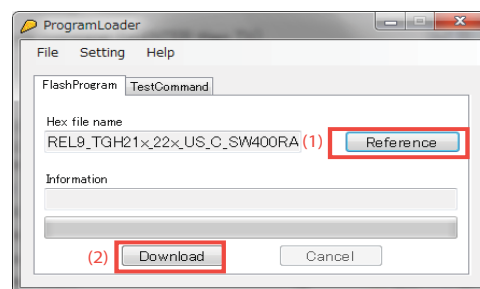
2. Select "Setting"/"Config".
Fill up the "Config Settings".



Note:

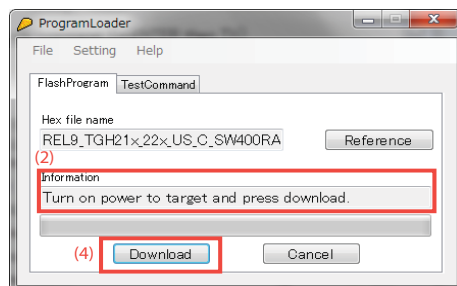
(2) Select Baud Rate as 57600. If write error happens, select slower Baud Rate (example: 19200).

3. Select download file.



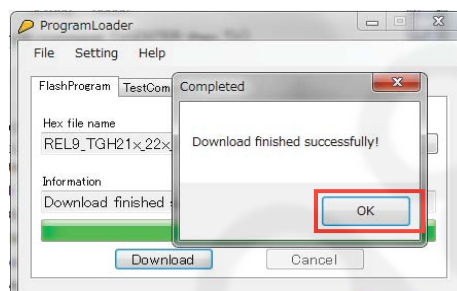
4. Start download.

- (1). Connect Unit and 3wire jig.
- (2). Confirm "Turn on power to target and press download." display.
- (3). Power off the unit, then power on.
- (4). Press "Download" button again.



5. Finish download.

Completed dialog means "Download finished successfully!." It takes more than 20 minutes to download (It depends on baud rate). If error message is displayed, proceed from step 3 again.



6. Continuous download.

Write next unit's software with proceeding from step 3 to Step 5.

12.5.1.2. Handset

First, operate the PC setting according to **The Setting Method of JIG** (P.51).

Then download the appropriate data according to the following procedures.

Items		How to download/Required adjustment
EEPROM (IC3)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Default batch file: Execute the command "default.bat". 2) Default batch file (remaining): Execute the command "PRLA20US_DEF_RevXXX_YYY.bat". (*2) 3) Country version batch file: Execute the command "PRLA20US_US_RevXXX_YYY.bat". (*2) 4) Clock adjustment 5) 2.35 V setting and battery low detection
X'tal (X1)	System clock	1) Apply 2.6 V between BATT+ and BATT- with DC power. 2) Input Command "sendchar sfr", then you can confirm the current value. 3) Check X'tal Frequency.(10.368 MHz $\pm$ 100 Hz). 4) If the frequency is not 10.368 MHz $\pm$ 100 Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 13.824000 MHz $\pm$ 5 Hz.

Note:

(*2) XXX_YYY: revision number

"XXX_YYY" vary depending on the country version. You can find them in the batch file, PNZZ- mentioned in **The Setting Method of JIG** (P.51).

12.6. Frequency Table

	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

12.7. Bluetooth Frequency Table

Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
0	2402	33	2435	66	2468
1	2403	34	2436	67	2469
2	2404	35	2437	68	2470
3	2405	36	2438	69	2471
4	2406	37	2439	70	2472
5	2407	38	2440	71	2473
6	2408	39	2441	72	2474
7	2409	40	2442	73	2475
8	2410	41	2443	74	2476
9	2411	42	2444	75	2477
10	2412	43	2445	76	2478
11	2413	44	2446	77	2479
12	2414	45	2447	78	2480
13	2415	46	2448		
14	2416	47	2449		
15	2417	48	2450		
16	2418	49	2451		
17	2419	50	2452		
18	2420	51	2453		
19	2421	52	2454		
20	2422	53	2455		
21	2423	54	2456		
22	2424	55	2457		
23	2425	56	2458		
24	2426	57	2459		
25	2427	58	2460		
26	2428	59	2461		
27	2429	60	2462		
28	2430	61	2463		
29	2431	62	2464		
30	2432	63	2465		
31	2433	64	2466		
32	2434	65	2467		

13 Miscellaneous

13.1. How to Replace the LLP (Leadless Leadframe Package) IC

Note:

This description only applies to the model with Shield case.

13.1.1. 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.

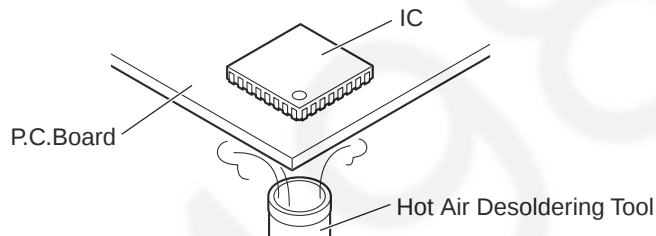
- Hot Air Desoldering Tool
Temperature: 608 °F ± 68 °F (320 °C ± 20 °C)

13.1.2. 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.

13.1.3. How to Remove the IC

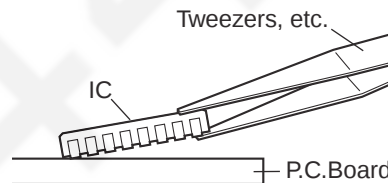
1. Heat the IC with a hot air desoldering tool through the P.C.Board.



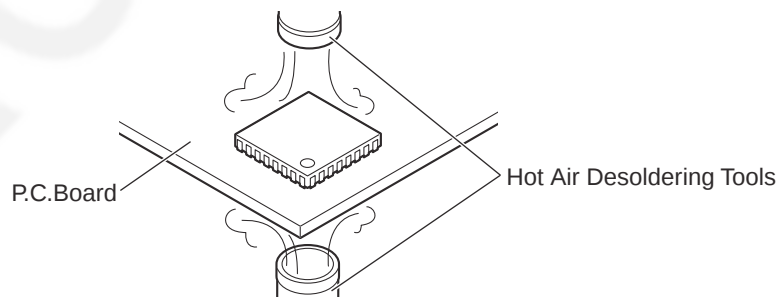
2. Pick up the IC with tweezers, etc. when the solder is melted completely.

Note:

- Be careful not to touch the peripheral parts with tweezers, etc. They are unstable.



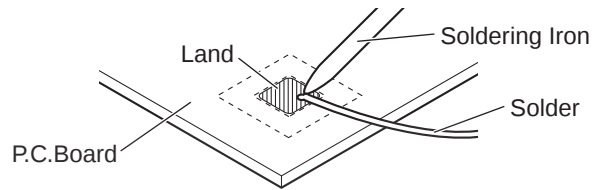
When it is hard to melt the solder completely, heat it with a hot air desoldering tool through the IC besides through the P.C.Board.



3. After removing the IC, clean the P.C.Board of residual solder.

13.1.4. How to Install the IC

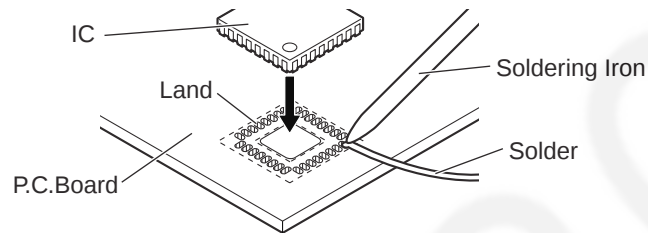
1. Place the solder a little on the land where the radiation GND pad on IC bottom is to be attached.



2. Place the solder a little on the land where IC pins are to be attached, then place the IC.

Note:

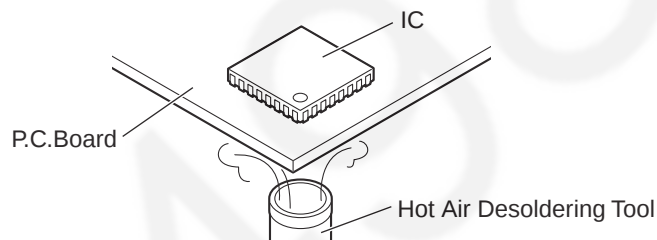
- When placing the IC, the positioning should be done very carefully.



3. Heat the IC with a hot air desoldering tool through the P.C.Board until the solder on IC bottom is melted.

Note:

- Be sure to place it precisely, controlling the air volume of the hot air desoldering tool.



4. After soldering, confirm there are no short and open circuits with visual inspection.

13.2. 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.

13.2.1. 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.

- Flux

Recommended Flux: Specific Gravity → 0.82.

Type → RMA (lower residue, non-cleaning type)

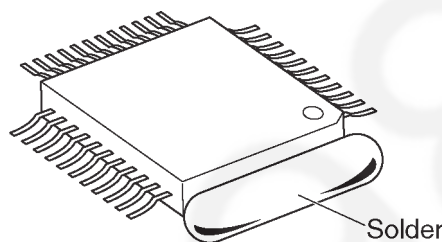
Note: See **About Lead Free Solder (PbF: Pb free)** (P.5)

13.2.2. How to Remove the IC

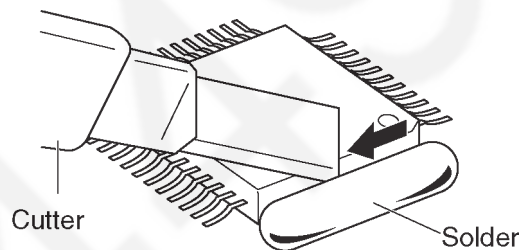
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

Note:

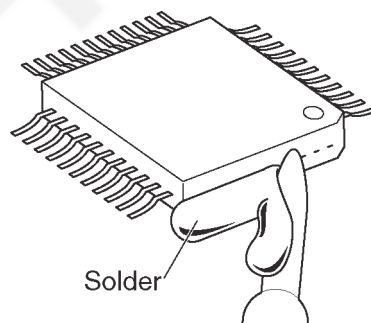
If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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



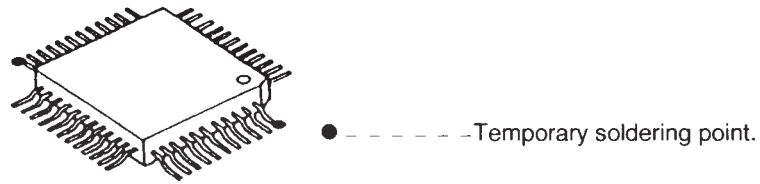
3. While the solder melts, remove it together with the IC pins.



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.

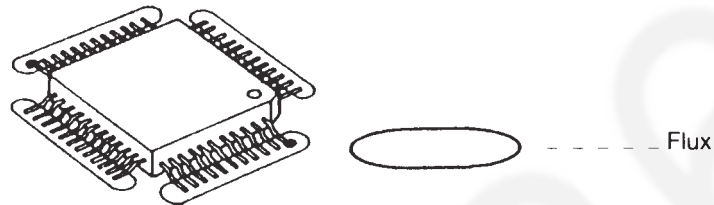
13.2.3. How to Install the IC

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

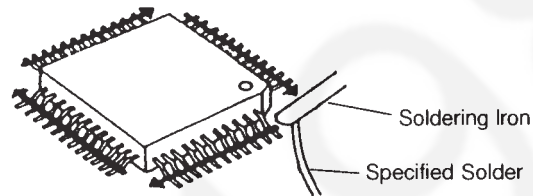


*Check the accuracy of the IC setting with the corresponding soldering foil.

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

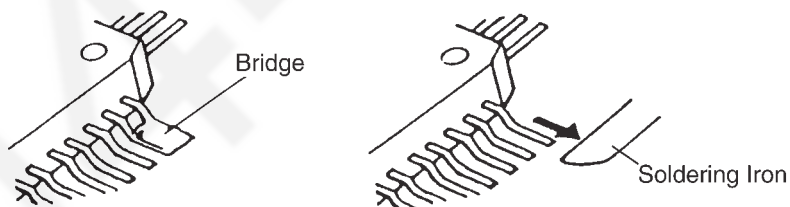


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



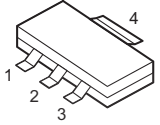
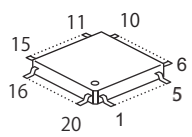
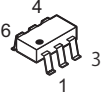
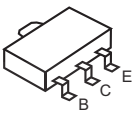
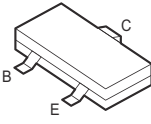
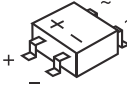
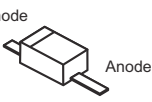
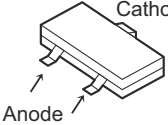
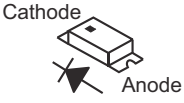
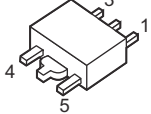
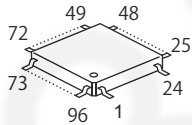
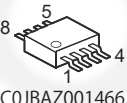
13.2.4. How to Remove a Solder Bridge

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

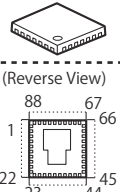
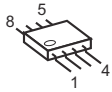
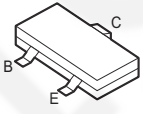
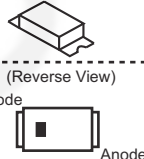


13.3. Terminal Guide of the ICs, Transistors and Diodes

13.3.1. Base Unit

 C0DBEYY00102	 C1AB00004194	 C0DBGYY00915	 B1ACGP000008	 DSC7003S0L
 B1ABDM000001, B1ADGE000012, 2SC6054JSL, B1GBCFYY0020, 2SA1576S, B1GBCFYY0020, UNR9216J0L, 2SC6054JSL, 2SC6054JSL	 B0EDER000009	 DY2J25000L, DZ2J068M0L	 B0ECKM000008	
 B0DDCL000001	 B3AAB0000347, B3ABB0000331	 C0DBGYY01907, C0DBAHF00015	 C1CB00003663	 C0JBAZ001466, PNWI1PR***, PNWI2PR***, PNWI3PR***

13.3.2. Handset

 (Reverse View) C1CB00004121	 PNWIPRLA20R, C3FBMY000312	 B1GBCFGA0021, B1ADCF000040, B1ABGE000011, B1ADGE000012, 2SC6054JSL	 (Reverse View) B3AFB0000570
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14 Schematic Diagram

14.1. For Schematic Diagram

14.1.1. Base Unit (Schematic Diagram (Base Unit_Main))

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 manufacture's specified parts.

2. The schematic diagrams may be modified at any time with the development of new technology.

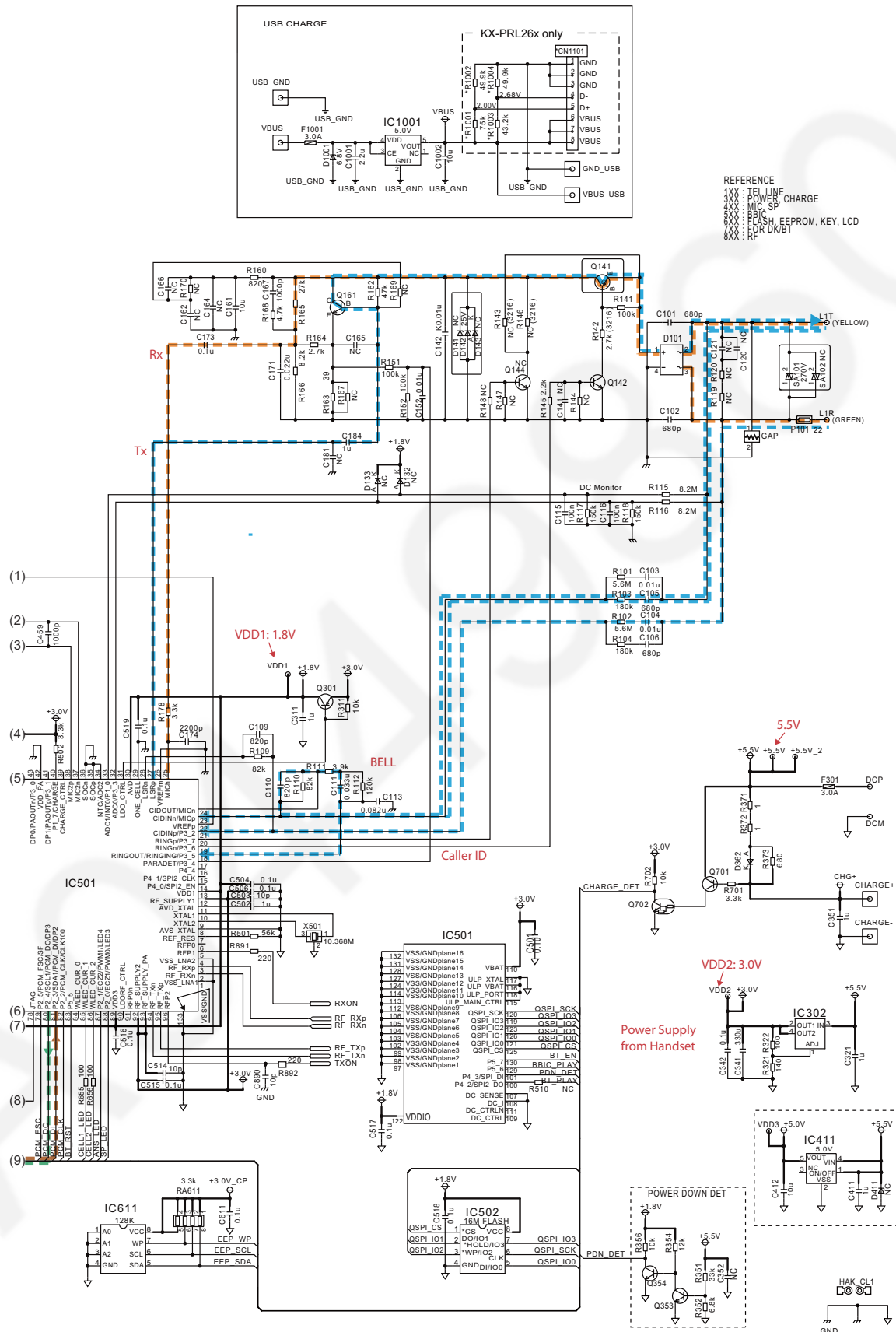
14.1.2. Handset (Schematic Diagram (Handset_Main))

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.

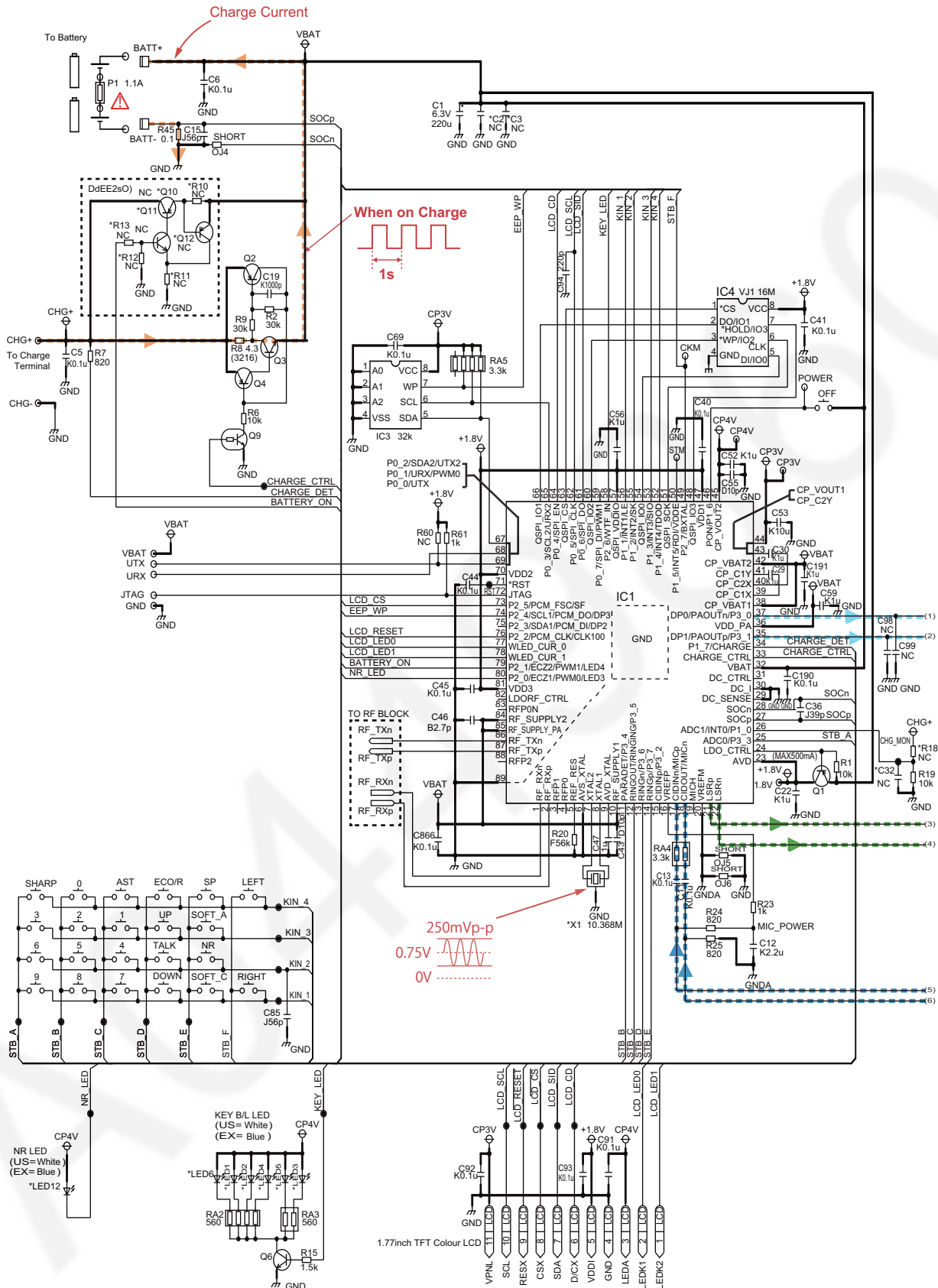
Figure 1 shows the PCB layout of the proposed antenna and matching network. The layout includes two antennas, ANT1 and ANT2, with their respective matching networks. ANT1 is connected to ANT1_TP and ANT1_S-GND. ANT2 is connected to ANT2_TP and GND. The layout also shows the RXON and TXON ports, and the RF ports (RF_Rx, RF_Tx). Dimensions and component values are provided for various parts of the circuit.



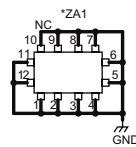
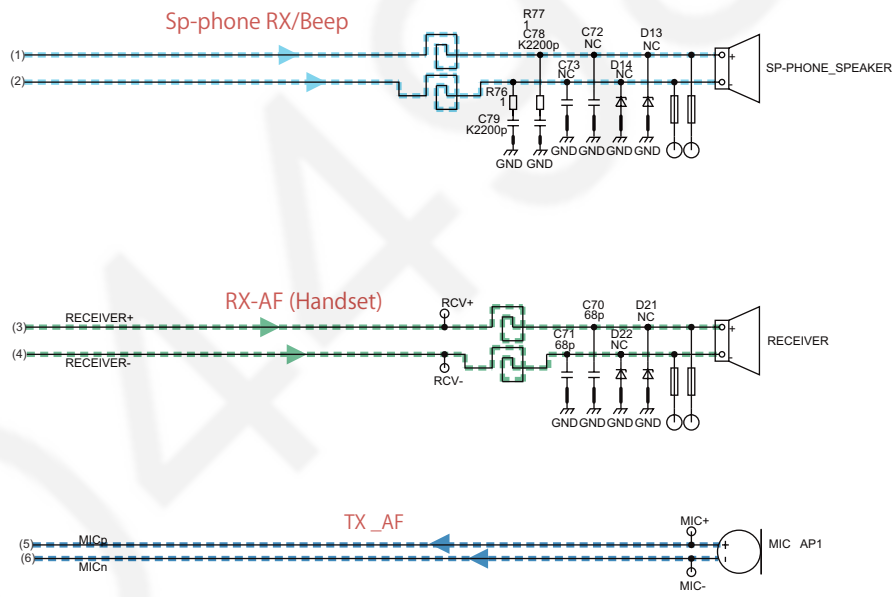
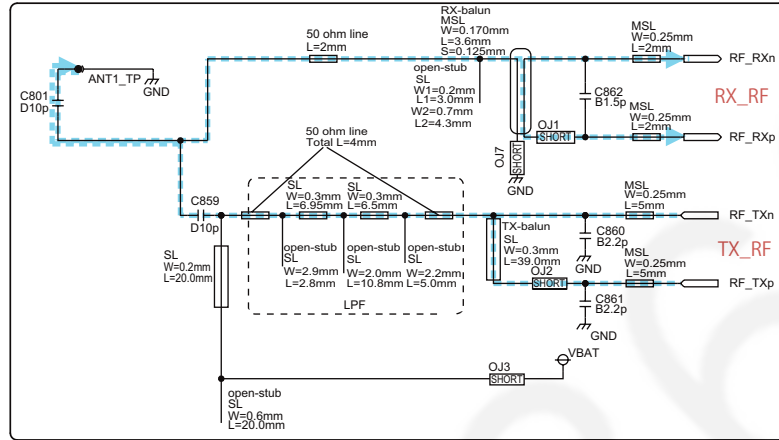


KX-PRL260/262, PRD260/262 SCHEMATIC DIAGRAM (Base Unit (Main))

14.3. Schematic Diagram (Handset_Main)



RF BLOCK

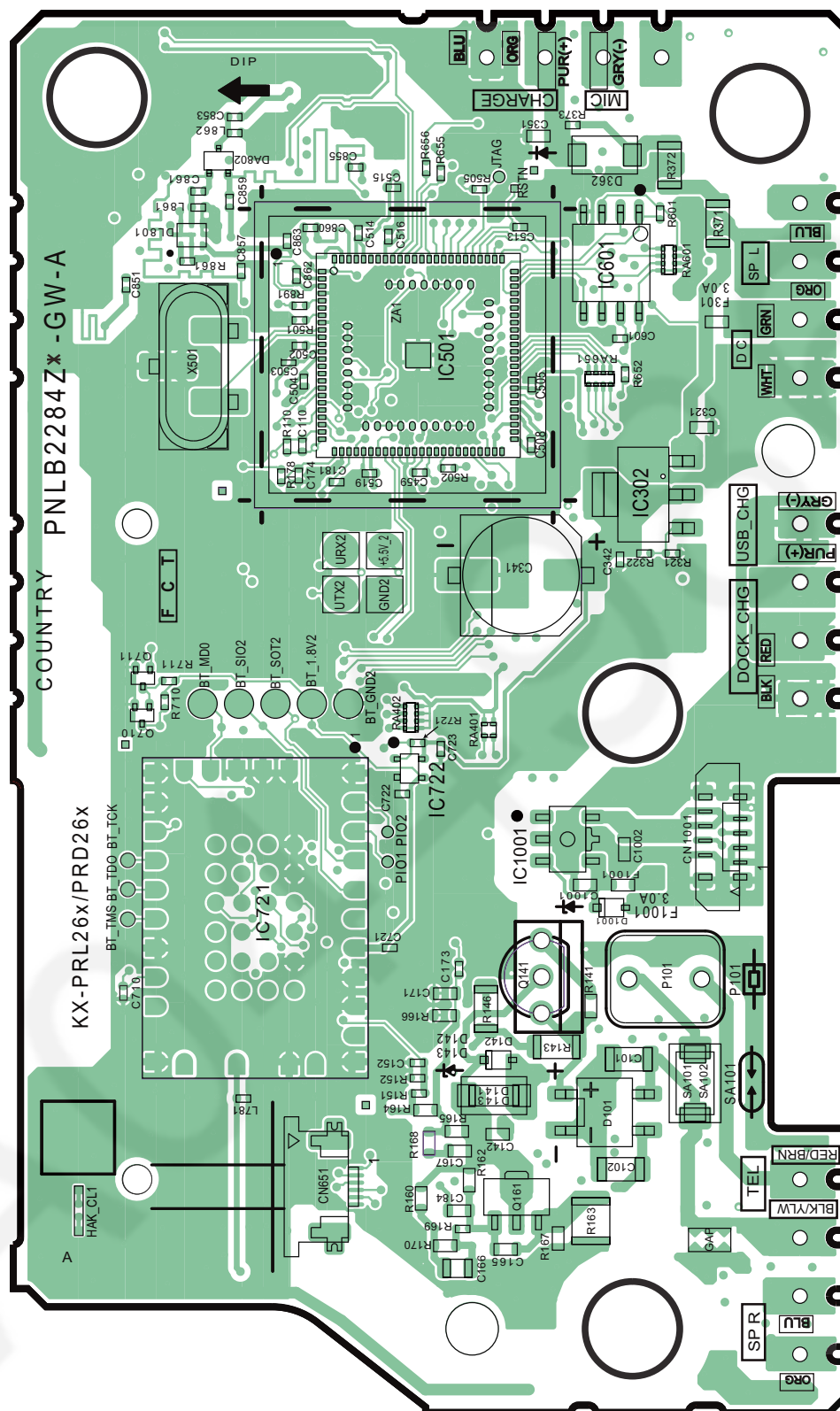


KX-PRLA20 SCHEMATIC DIAGRAM (Handset_Main)

15 Printed Circuit Board

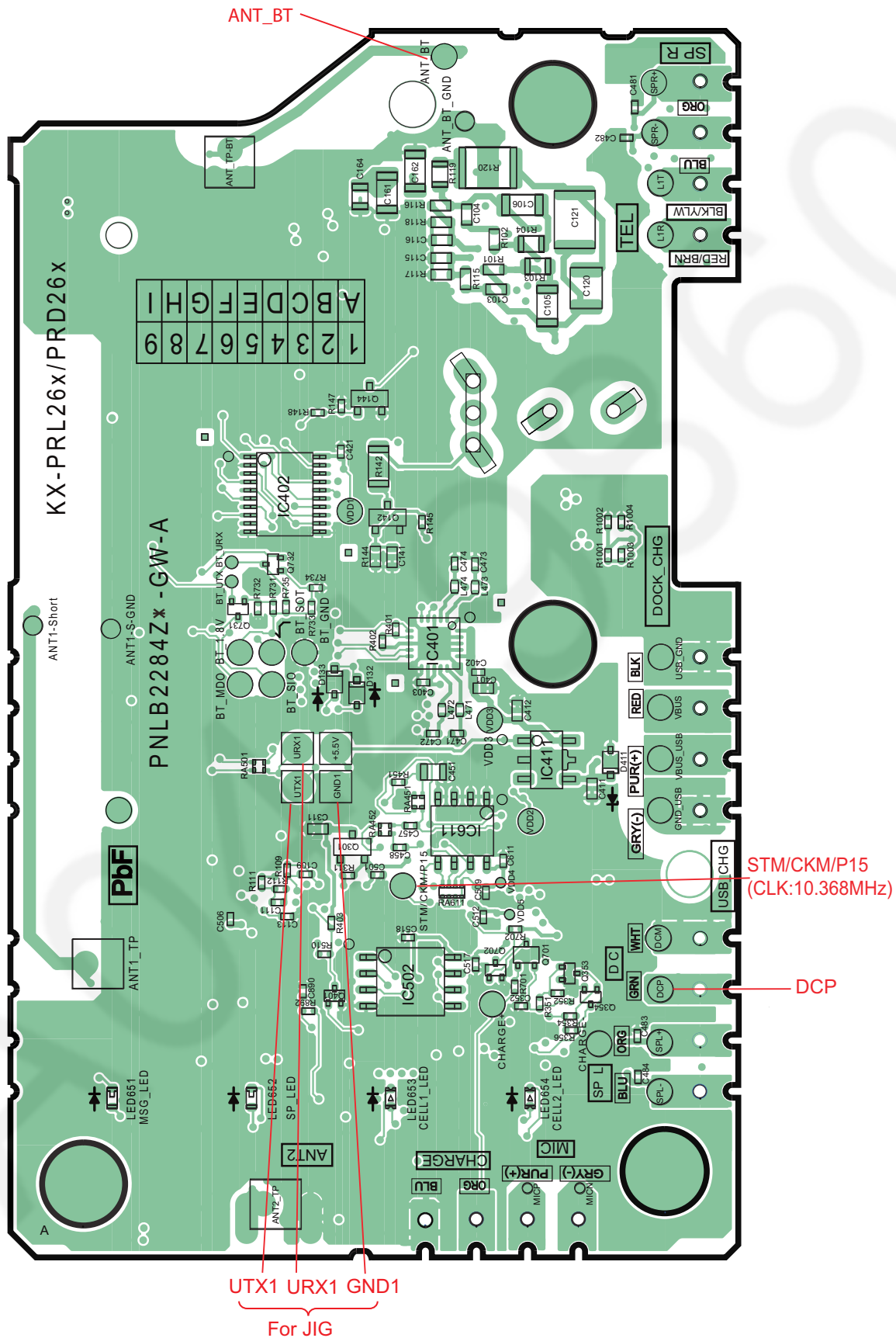
15.1. Circuit Board (Base Unit_Main)

15.1.1. Component View



KX-PRL260/262, PRD260/262
CIRCUIT BOARD (Base Unit_Main (Component View))

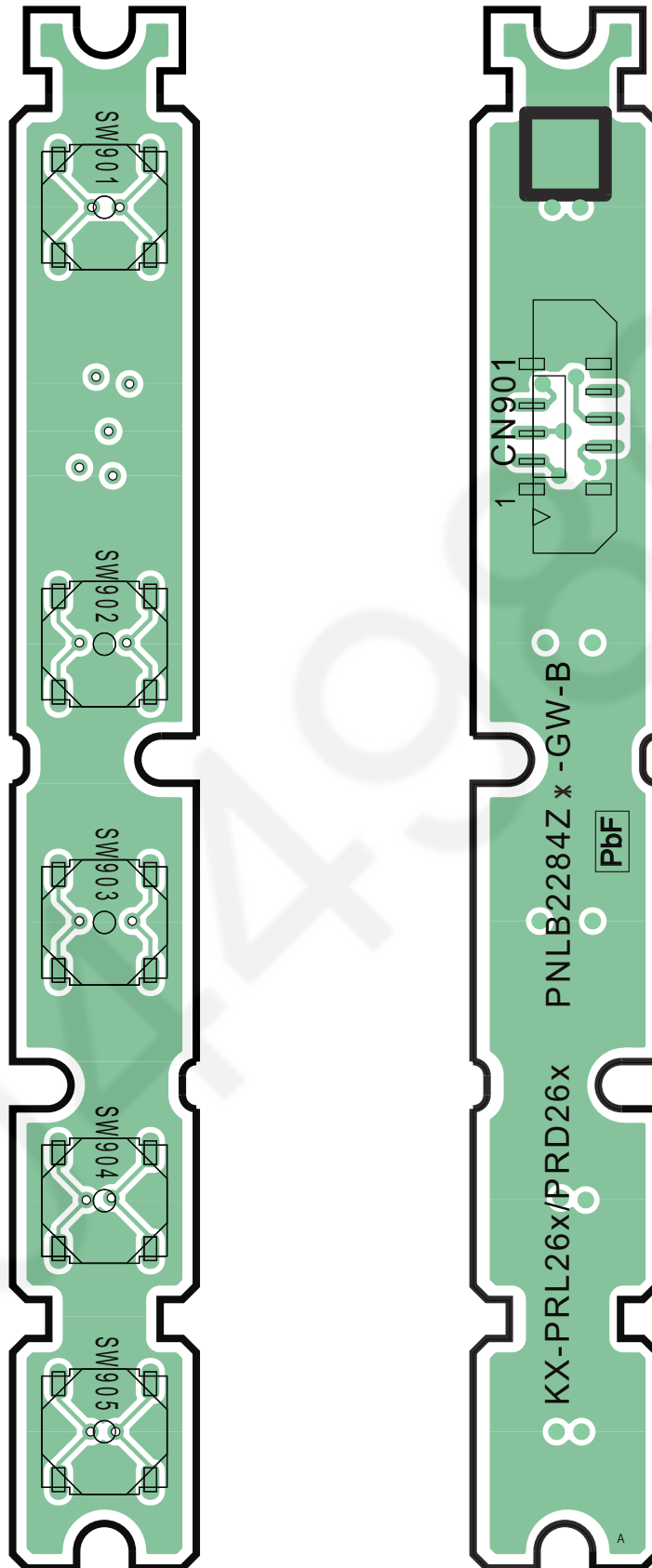
15.1.2. Bottom View



KX-PRL260/262, PRD260/262
CIRCUIT BOARD (Base Unit_Main (Bottom View))

15.2. Circuit Board (KEY)

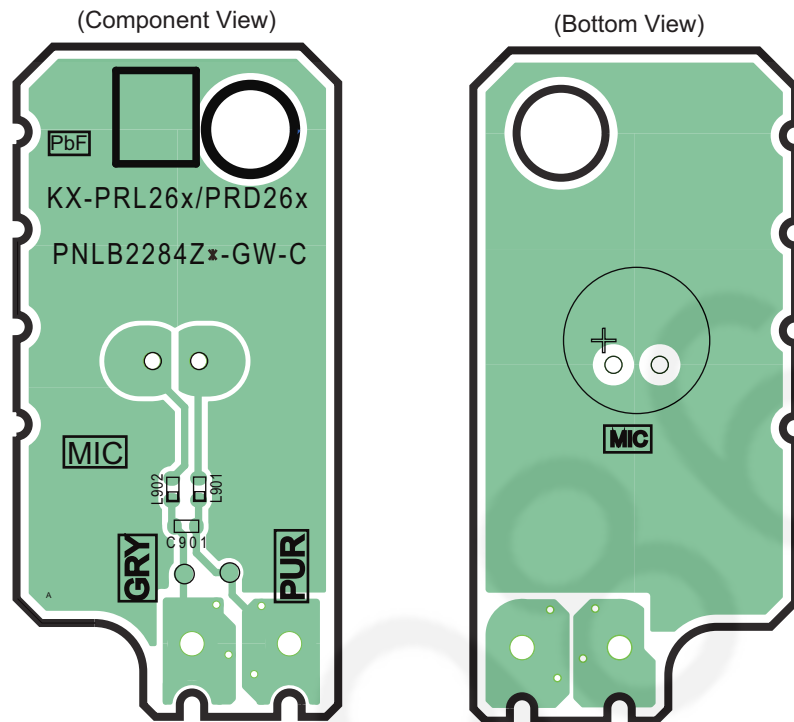
15.2.1. Component View / Bottom View



KX-PRL260/262, PRD260/262
CIRCUIT BOARD (KEY (Component View / Bottom View))

15.3. Circuit Board (MIC)

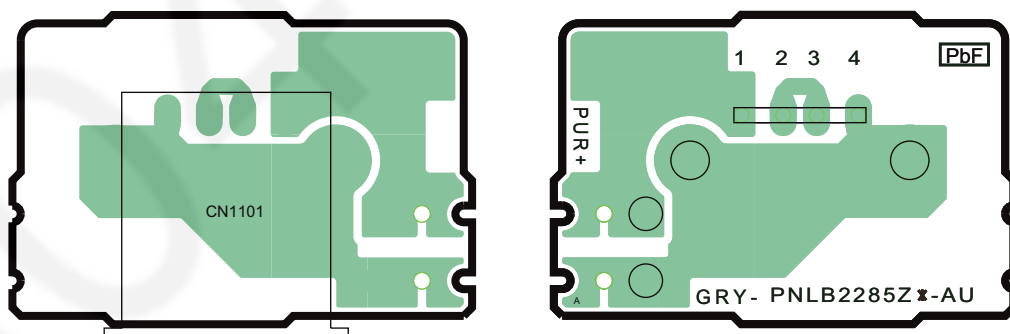
15.3.1. Component View / Bottom View



KX-PRL260/262, PRD260/262
CIRCUIT BOARD (MIC (Component View / Bottom View))

15.4. Circuit Board (USB)

15.4.1. Component View / Bottom View

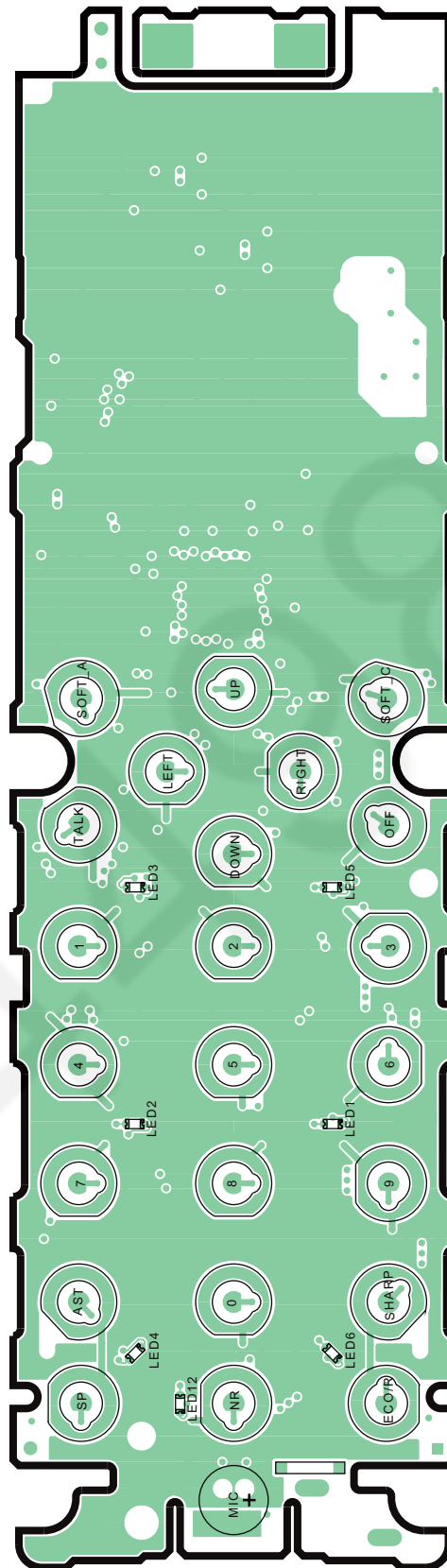


KX-PRD260/262
CIRCUIT BOARD (USB (Component View / Bottom View))

The image shows a green printed circuit board (PCB) layout for a mobile phone. The board is populated with numerous components, including a central IC1 (chipset), various capacitors (C1-C100), resistors (R1-R100), and integrated circuits (IC2-IC5). Key sections include a RECEIVER, SP-PHONE SPEAKER, LCD, and a keypad area with labels like PRLA, TGH, and COUNTRY. Red lines highlight specific components and connections, such as C45, C46, and the BATT+ connection.

KX-PRLA20 CIRCUIT BOARD (Handset_Main (Component View))

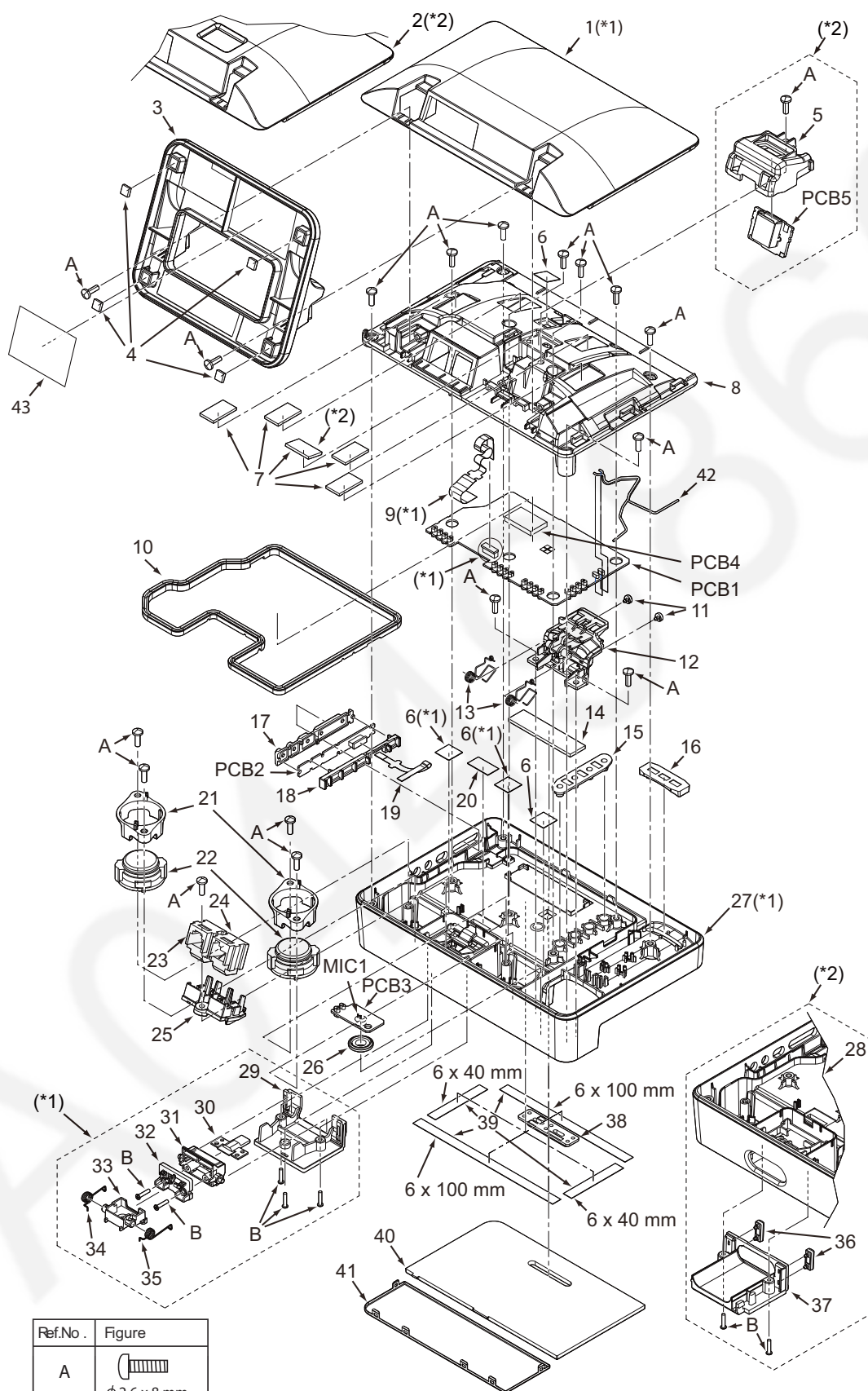
15.5.2. Bottom View



KX-PRLA20 CIRCUIT BOARD (Handset_Main (Bottom View))

16 Exploded View and Replacement Parts List

16.1. Cabinet and Electrical Parts (Base Unit)

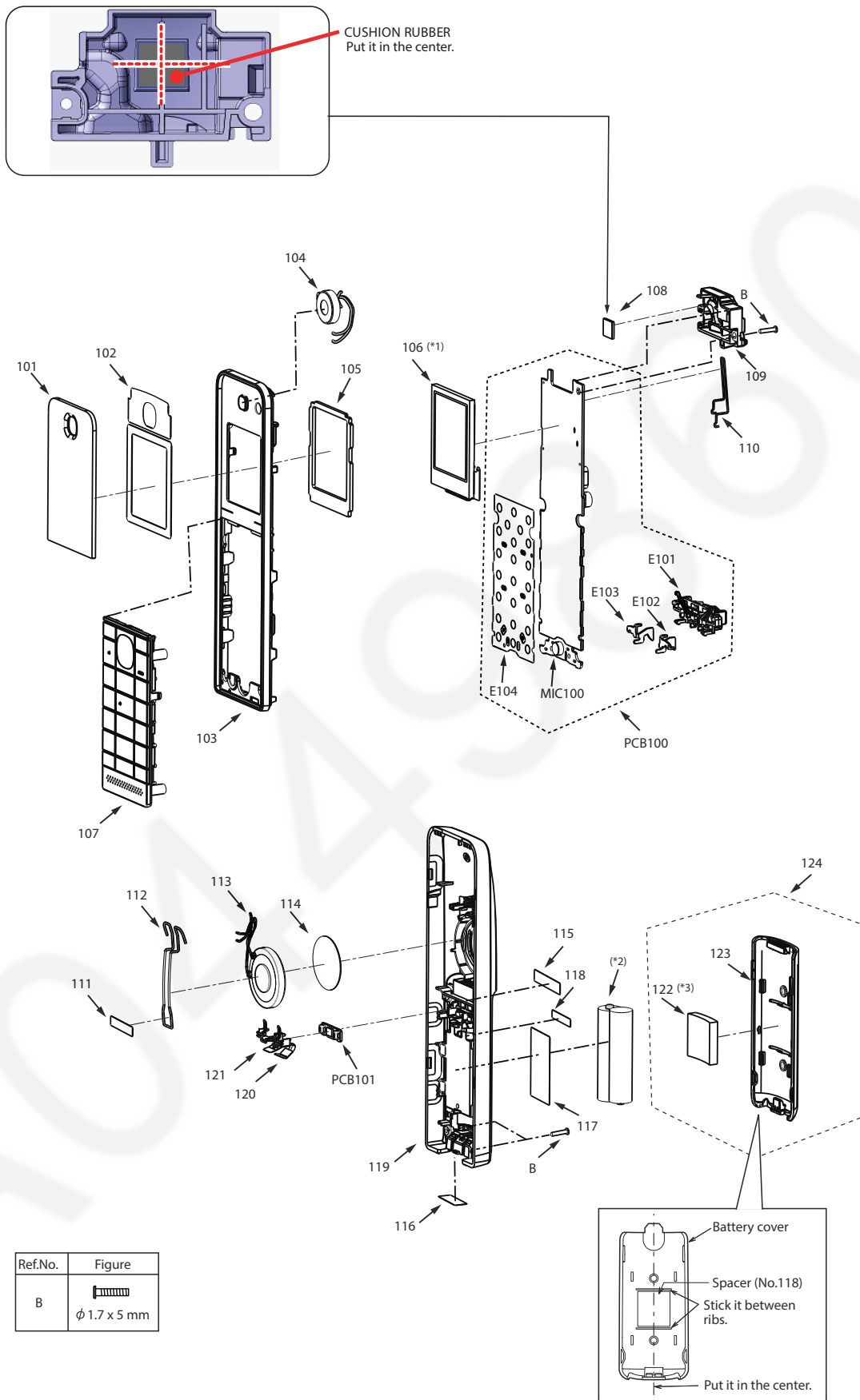


Note:

(*1) KX-PRL260/262 only

(*2) KX-PRD260/262 only

16.2. Cabinet and Electrical Parts (Handset)



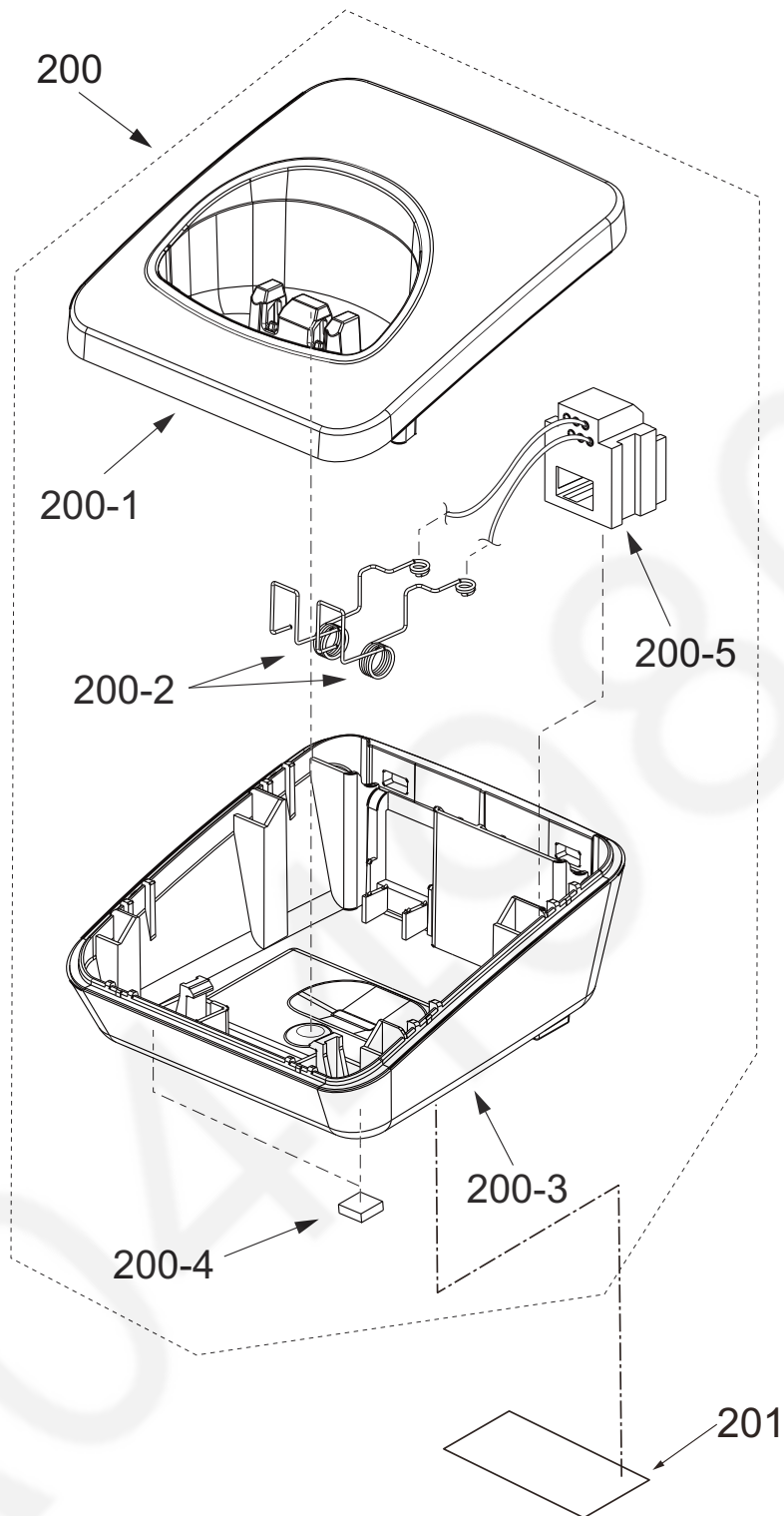
Note:

(*1) This cable is fixed by heat-sealing. Refer to **How to Replace the Handset LCD (P.50)**.

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

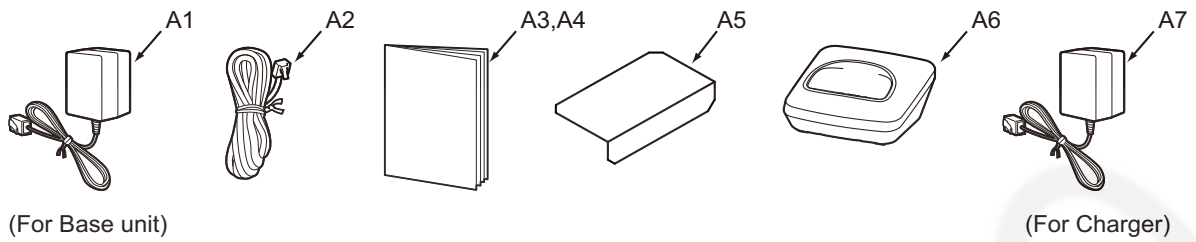
(*3) Attach the SPACER (No. 122) to the exact location described above.

16.3. Cabinet and Electrical Parts (Charger Unit)

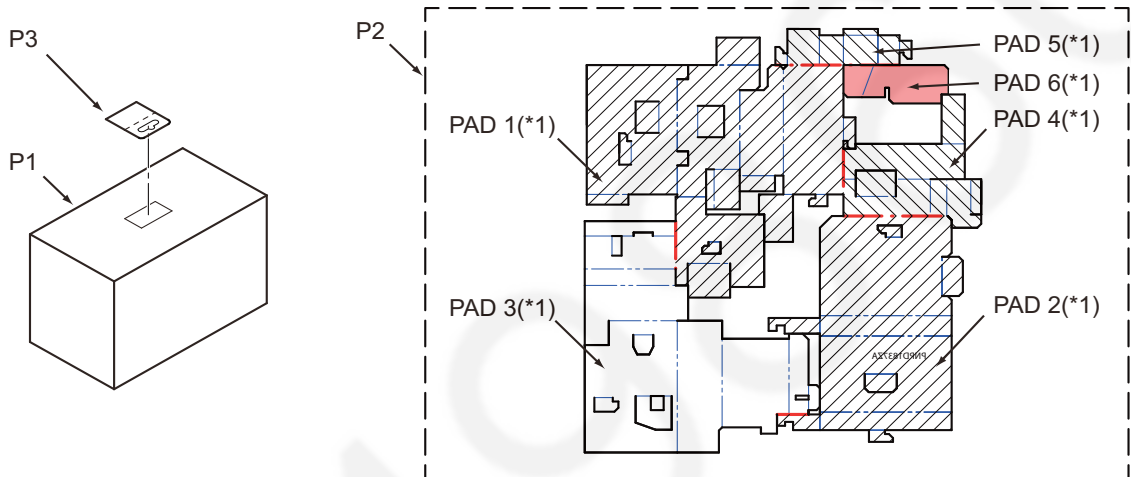


16.4. Accessories and Packing Materials

16.4.1. Tools KX-PRL260/262, KX-PRD260/262



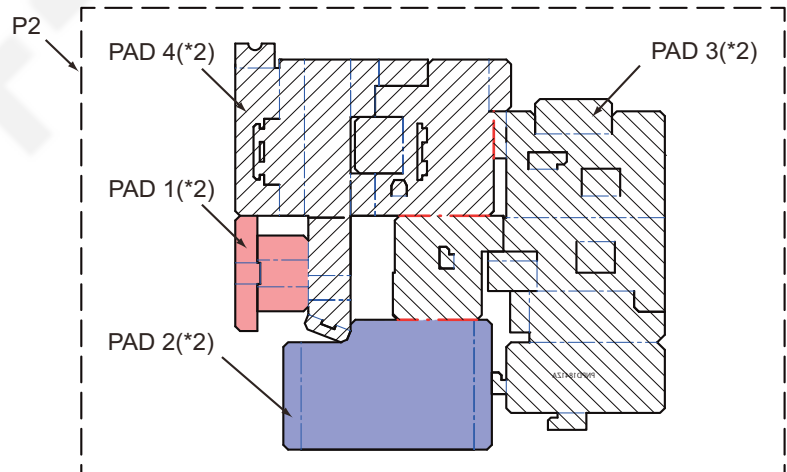
(For KX-PRL262/ KX-PRD262)



Note:

(*1) PAD1, PAD2, PAD3, PAD4, PAD5 and PAD6 are a piece of P2.

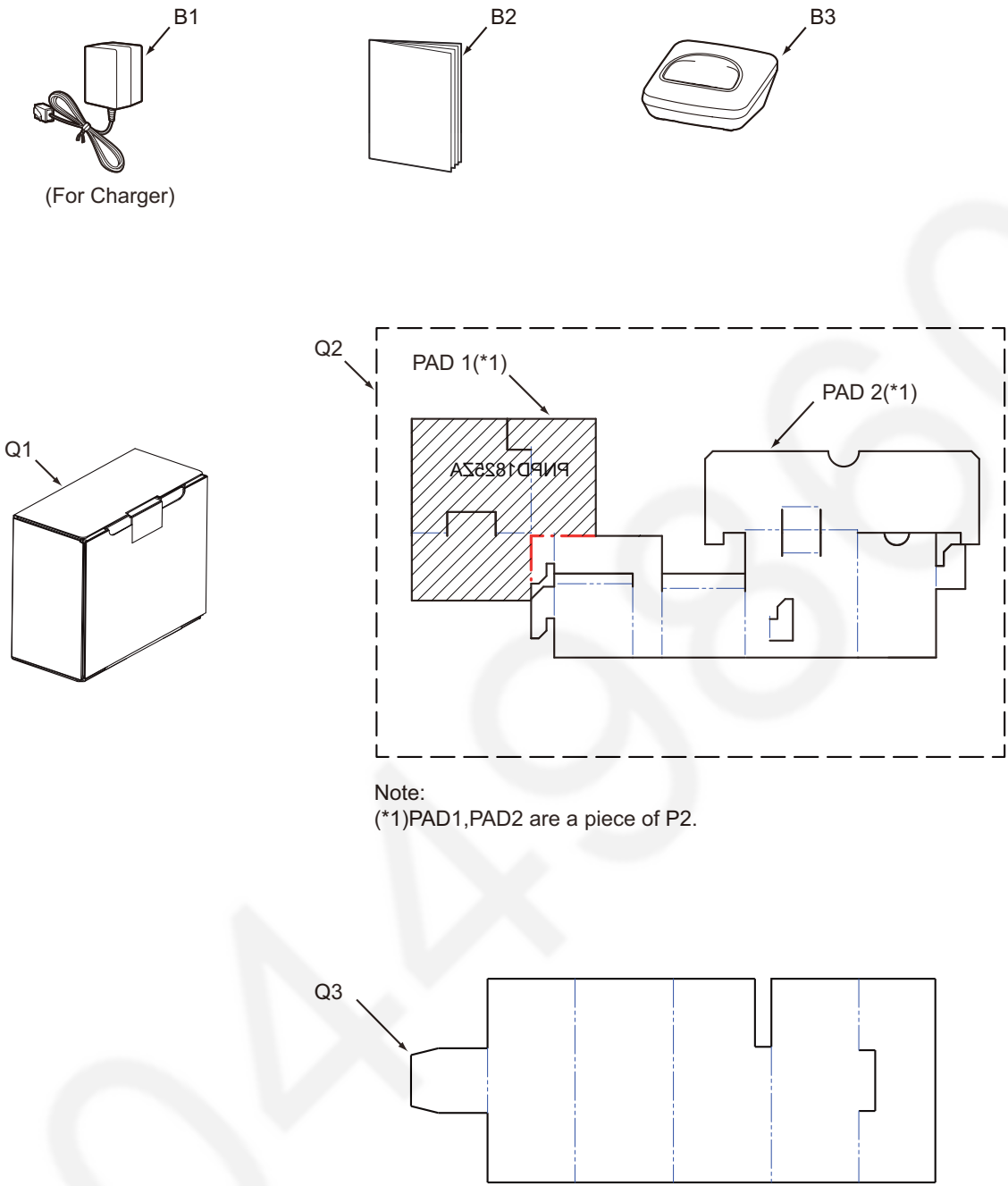
(For KX-PRL260/ KX-PRD260)



Note:

(*2) PAD1, PAD2, PAD3 and PAD4 are a piece of P2.

16.4.2. Tools KX-PRLA20



16.5. Replacement Parts 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 Δ 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 (Ω) k=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) p= μ μ F

*Type & Wattage of Resistor

Type

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

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
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*Type & Voltage Of Capacitor

Type

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

Voltage

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

16.5.1. Base Unit

16.5.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNKK1098Z1	LOWER CABINET COVER (for KX-PRL260) (for KX-PRL262) (BLACK)	
	1	PNKK1098Z2	LOWER CABINET COVER (for KX-PRL260) (for KX-PRL262) (WHITE)	
	2	PNKK1098Y1	LOWER CABINET COVER (for KX-PRD260) (for KX-PRD262) (BLACK)	ABS-HB
	2	PNKK1098Y2	LOWER CABINET COVER (for KX-PRD260) (for KX-PRD262) (WHITE)	ABS-HB
	3	PNKL1046Z1	STAND (BLACK)	ABS-HB
	3	PNKL1046Z2	STAND (WHITE)	ABS-HB

KX-PRL260/KX-PRL262/KX-PRD260/KX-PRD262/KX-PRLA20

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	4	PQHA10023Z	RUBBER PARTS, FOOT	
	5	PNKE1325Z1	USB JACK COVER (for KX-PRD260) (for KX-PRD262) (BLACK)	
	5	PNKE1325Z2	USB JACK COVER (for KX-PRD260) (for KX-PRD262) (WHITE)	
	6	PNHX1757Z	SHEET CHECKER SOUNDPROOF	
	7	PNHS1552Z	CUSHION, BACK COVER	
	8	PNKF1322Z1	LOWER CABINET (BLACK)	
	8	PNKF1322Z2	LOWER CABINET (WHITE)	
	9	PNJE1196Z	CONNECTOR, FPC L (for KX-PRL260) (for KX-PRL262)	
	10	PNHG1247Z	RUBBER, SOUND PROOF	
	11	PNKE1322Z1	RUBBER, CRADLE (BLACK)	PS-HB
	11	PNKE1322Z2	RUBBER, CRADLE (WHITE)	PS-HB
	12	PNKE1316Z1	CHARGE CASE (BLACK)	PS-HB
	12	PNKE1316Z2	CHARGE CASE (WHITE)	PS-HB
	13	PNJT1187Z	CHARGE TERMINAL	
	14	PQXDZLDRS1	SECURITY TAG	
	15	PNHG1245Z	LED LENS	
	16	PNKE1319Z1	RUBBER, HANDSET (BLACK)	
	16	PNKE1319Z2	RUBBER, HANDSET (WHITE)	
	17	PNJK1220Z	RUBBER, KEY (BLACK)	
	17	PNJK1220Y	RUBBER, KEY (WHITE)	
	18	PNHR1942Z	HOLDER, BUTTON	PS-HB
	19	PNJE1195Z	KEY, FPC (for KX-PRL260) (for KX-PRL262)	
	20	PNHX1771Z	SHEET COVER	
	21	PNHR1944Z	HOLDER, SP (for KX-PRL260) (for KX-PRL262)	POM-HB
	22	L0AA02A0013Z	SPEAKER	
	23	PQJJ1T039H	JACK, SOCKET MODULAR	
	24	PNJJ041007Z	JACK, SOCKET MODULAR	
	25	PNHR1945Z	JACK, HOLDER	PS-HB
	26	PNMG1016Z	RUBBER, MIC	
	27	PNKM1538Z1	CABINET, UPPER (for KX-PRL260) (for KX-PRL262) (BLACK)	ABS-HB
	27	PNKM1538Z2	CABINET, UPPER (for KX-PRL260) (for KX-PRL262) (WHITE)	ABS-HB
	28	PNKM1554Z1	CABINET, UPPER (for KX-PRD260) (for KX-PRD262) (BLACK)	
	28	PNKM1554Z2	CABINET, UPPER (for KX-PRD260) (for KX-PRD262) (WHITE)	
	29	PNKE1318Z1	COVER, CONNECTOR (for KX-PRL260) (for KX-PRL262) (BLACK)	ABS-HB
	29	PNKE1318Z2	COVER, CONNECTOR (for KX-PRL260) (for KX-PRL262) (WHITE)	ABS-HB
	30	MFI677-0652	LIGHTNING CONNECTOR (for KX-PRL260) (for KX-PRL262)	
	31	PNKE1317Z1	HOLDER CONNECTOR (for KX-PRL260) (for KX-PRL262) (BLACK)	POM-HB
	31	PNKE1317Z2	HOLDER CONNECTOR (for KX-PRL260) (for KX-PRL262) (WHITE)	POM-HB
	32	PNHR1943Z	CAP, CONNECTOR (for KX-PRL260) (for KX-PRL262)	PS-HB
	33	PNHR1946Z	CAP, TENSION SPRING (for KX-PRL260) (for KX-PRL262)	PS-HB
	34	PNJT1188Z	TENSION SPRING R (for KX-PRL260) (for KX-PRL262)	
	35	PNJT1197Z	TENSION SPRING L (for KX-PRL260) (for KX-PRL262)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	36	PNKE1323Z1	RUBBER, BOTTOM (for KX-PRL260) (for KX-PRL262) (BLACK)	
	36	PNKE1323Z2	RUBBER, BOTTOM (for KX-PRL260) (for KX-PRL262) (WHITE)	
	37	PNKE1324Z1	COVER, CONNECTOR (for KX-PRD260) (for KX-PRD262) (BLACK)	PMMA-HB
	37	PNKE1324Z2	COVER, CONNECTOR (for KX-PRD260) (for KX-PRD262) (WHITE)	PMMA-HB
	38	PNKE1320Z1	RUBBER PARTS, SMARTPHONE (BLACK)	
	38	PNKE1320Z2	RUBBER PARTS, SMARTPHONE (WHITE)	
	39	ZT2500NS6	DOUBLE FACE TAPE	
	40	PNGP1324Z1	PANEL, UPPER (BLACK)	
	40	PNGP1324W2	PANEL, UPPER (WHITE)	
	41	PNGM1006Z	LEAD WIRE, SP (BLACK)	
	41	PNGM1006Y	LEAD WIRE, SP (WHITE)	
	42	PNWHN02NW8E	LEAD WIRE, ANTENNA	
	43	PNGT8038Z	NAME PLATE (for KX-PRL260) (for KX-PRL262) (BLACK)	
	43	PNGT8038Y	NAME PLATE (for KX-PRL260) (for KX-PRL262) (WHITE)	
	43	PNGT8039Z	NAME PLATE (for KX-PRD260) (for KX-PRD262) (BLACK)	
	43	PNGT8039Y	NAME PLATE (for KX-PRD260) (for KX-PRD262) (WHITE)	

16.5.1.2. Main P.C. Board Parts

Note:

(*1) When replacing IC501, IC502, IC601, IC611 or X501, make the adjustment using PNZZPRD260M. Refer to **How to download the data** (P.57) of Things to Do after Replacing IC or X'tal.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWP1PRL260H	PCBOARDW/COMPONENT(RTL) (for KX-PRL260) (for KX-PRL262)	
	PCB1	PNWP1PRD260H	PCBOARDW/COMPONENT(RTL) (for KX-PRD260) (for KX-PRD262)	
			(ICs)	
	IC302	C0DBEYY00102	IC	
	IC401	C1AB00004194	IC	
	IC402	C0JBAZ001466	IC	
	IC411	C0DBAHF00015	IC	
	IC501	C1CB00003663	IC	
	IC502	PNWI2PRD260H	IC	
	IC601	PNWI3PRD260H	IC	
	IC611	PNWI1PRL260H	IC (for KX-PRL260) (for KX-PRL262)	
	IC611	PNWI1PRD260H	IC (for KX-PRD260) (for KX-PRD262)	
	IC721	PNWP4PRD260H	BT UNIT	S
	IC722	C0DBGYY00915	IC	
	IC1001	C0DBGYY01907	IC	
			(TRANSISTORS)	
	Q142	B1ABDM000001	TRANSISTOR(SI)	S
	Q301	B1ADGE000012	TRANSISTOR(SI)	
	Q353	2SC6054JSL	TRANSISTOR(SI)	S
	Q354	2SC6054JSL	TRANSISTOR(SI)	S
	Q401	B1GBCFY00020	TRANSISTOR(SI)	
	Q701	2SA1576S	TRANSISTOR(SI)	S
	Q702	B1GBCFY00020	TRANSISTOR(SI)	S
	Q731	2SC6054JSL	TRANSISTOR(SI)	S
	Q732	2SC6054JSL	TRANSISTOR(SI)	S
	Q161	DSC7003S0L	TRANSISTOR(SI)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	Q710	2SC6054JSL	TRANSISTOR(SI)	S
	Q711	UNR9216J0L	TRANSISTOR(SI)	S
	Q141	2SA1776P	TRANSISTOR(SI)	S
			(DIODES)	
	D101	B0EDER000009	DIODE(SI)	S
	D142	DY2J25000L	DIODE(SI)	
	D362	B0ECKM000008	DIODE(SI)	S
	D1001	DZ2J068M0L	DIODE(SI)	
	DA802	B0DDCL000001	DIODE(SI)	
	DL801	J0C1957B0016	IC FILTER (LEDS)	
	LED651	B3AAB0000347	LED	
	LED652	B3AAB0000347	LED	
	LED653	B3ABB0000331	LED	
	LED654	B3ABB0000331	LED (CAPACITORS)	
	C101	F1K2H681A008	680p	S
	C102	F1K2H681A008	680p	S
	C103	ECUV1H103KBV	0.01	
	C104	ECUV1H103KBV	0.01	
	C105	F1K2H681A008	680p	S
	C106	F1K2H681A008	680p	S
	C109	ECUE1H821KBQ	820p	
	C110	ECUE1H821KBQ	820p	
	C111	ECUE1A333KBQ	0.033	
	C113	ECUE1A823KBQ	0.082	
	C115	ECUV1C104KBV	0.1	
	C116	ECUV1C104KBV	0.1	
	C142	ECUV1H103KBV	0.01	
	C152	ECUE1C103KBQ	0.01	
	C161	F1K1E1060001	10	
	C167	ECUV1H102KBV	0.001	
	C171	ECUV1C223KBV	0.022	
	C173	ECUE1A104KBQ	0.1	
	C174	ECUE1H222KBQ	0.0022	
	C184	ECUV1C105KBV	1	
	C311	ECUV1C105KBV	1	
	C321	ECUV1C105KBV	1	
	C341	F2G0J331A146	330	
	C342	ECUE1A104KBQ	0.1	
	C351	ECUV1C105KBV	1	
	C401	F1H0J4750002	4.7	
	C402	ECUE1A104KBQ	0.1	
	C403	ECUE1A104KBQ	0.1	
	C411	ECUV1C105KBV	1	
	C412	ECJ1VB06106M	10	S
	C421	ECUE1A104KBQ	0.1	
	C451	PQCUV0J106KB	10	S
	C457	ECUE1C333KBQ	0.033	
	C458	ECUE1C333KBQ	0.033	
	C459	ECUE1H102KBQ	0.001	
	C471	ECUE1H471KBQ	470p	
	C472	ECUE1H471KBQ	470p	
	C473	ECUE1H471KBQ	470p	
	C474	ECUE1H471KBQ	470p	
	C481	ECUE1H152KBQ	0.0015	
	C482	ECUE1H152KBQ	0.0015	
	C483	ECUE1H152KBQ	0.0015	
	C484	ECUE1H152KBQ	0.0015	
	C501	ECUE1A104KBQ	0.1	
	C502	ECUE0J105KBQ	1	
	C503	ECUE1H100DCQ	10p	
	C504	ECUE1A104KBQ	0.1	
	C505	ECUE1A104KBQ	0.1	
	C506	ECUE1A104KBQ	0.1	
	C508	ECUE0J105KBQ	1	
	C509	ECUE0J105KBQ	1	
	C512	ECUE0J105KBQ	1	
	C513	ECUE1A104KBQ	0.1	
	C514	ECUE1H100DCQ	10p	
	C515	ECUE1A104KBQ	0.1	
	C516	ECUE1A104KBQ	0.1	
	C517	ECUE1A104KBQ	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C518	ECUE1A104KBQ	0.1	
	C519	ECUE1A104KBQ	0.1	
	C601	ECUE1A104KBQ	0.1	
	C611	ECUE1A104KBQ	0.1	
	C710	ECUE1C103KBQ	0.01	
	C721	ECUE1A104KBQ	0.1	
	C722	ECUE0J105KBQ	1	
	C723	ECUE0J105KBQ	1	
	C853	ECUE1H100DCQ	10p	
	C855	ECUE1H100DCQ	10p	
	C857	ECUE1H100DCQ	10p	
	C859	ECUE1H100DCQ	10p	
	C860	F1G1H1R1A765	1.1p	
	C861	ECUE1H100DCQ	10p	
	C862	F1G1H1R5A765	1.5p	
	C863	F1G1H1R8A765	1.8p	
	C890	ECUE1H100DCQ	10p	
	C1001	ECUV1A225KBV	2.2	
	C1002	ECJ1VB0G106M	10	S
			(COMPONENT PARTS)	
	RA401	EXB24V222J	RESISTOR ARRAY	
	RA601	EXB28V561JX	RESISTOR ARRAY	
	RA651	D1H810240004	RESISTOR ARRAY	S
	RA451	EXB24V222J	RESISTOR ARRAY	
	RA452	EXB24V272J	RESISTOR ARRAY	
	RA501	EXB24V221JX	RESISTOR ARRAY	
	RA611	EXB28V332J	RESISTOR ARRAY	
			(RESISTORS)	
	R101	ERJ3GEYJ565	5.6M	S
	R102	ERJ3GEYJ565	5.6M	S
	R103	PQ4R10XJ184	180k	S
	R104	PQ4R10XJ184	180k	S
	R109	ERJ2GEJ823	82k	S
	R110	ERJ2GEJ823	82k	S
	R111	ERJ2GEJ392	3.9k	S
	R112	ERJ2GEJ124	120k	S
	R115	ERJ3GEYJ825	8.2M	S
	R116	ERJ3GEYJ825	8.2M	S
	R117	ERJ3GEYJ154	150k	S
	R118	ERJ3GEYJ154	150k	S
	R141	ERJ3GEYJ104	100k	S
	R142	PQ4R18XJ272	2.7k	S
	R145	ERJ2GEJ222	2.2k	S
	R151	ERJ2GEJ104	100k	S
	R152	ERJ2GEJ104	100k	S
	R160	ERJ3GEYJ821	820	S
	R162	ERJ3GEYJ473	47k	S
	R163	ERJ14YJ390U	39	S
	R164	ERJ3GEYJ272	2.7k	S
	R165	ERJ3GEYJ273	27k	S
	R166	ERJ3GEYJ822	8.2k	S
	R168	ERJ3GEYJ472	4.7k	S
	R178	ERJ2GEJ332	3.3k	S
	R311	ERJ2GEJ103	10k	S
	R321	ERJ2RKF1400	140	S
	R322	ERJ2RKF1000	100	S
	R351	ERJ2GEJ333	33k	S
	R352	ERJ2GEJ682	6.8k	S
	R354	ERJ2GEJ123	12k	S
	R356	ERJ2GEJ103	10k	S
	R371	ERJ8GEYJ1R0	1	S
	R372	ERJ8GEYJ1R0	1	S
	R373	ERJ2GEJ681	680	S
	R402	ERJ2GE0R00	0	S
	R403	ERJ2GEJ103	10k	S
	R451	ERJ2GEJ391	390	S
	R501	ERJ2RKF5602	56k	S
	R502	ERJ2GEJ332	3.3k	S
	R505	ERJ2GEJ102	1k	S
	R601	ERJ2GEJ332	3.3k	S
	R652	ERJ2GEJ102	1k	S
	R655	ERJ2GEJ101	100	S
	R656	ERJ2GEJ101	100	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R701	ERJ2GEJ332	3.3k	S
	R702	ERJ2GEJ103	10k	S
	R710	ERJ2GEJ103	10k	S
	R711	ERJ2GEJ104	100k	S
	R721	ERJ2GEJ103	10k	S
	R731	ERJ2GEJ104	100k	S
	R732	ERJ2GEJ224	220k	S
	R733	ERJ2GEJ104	100k	S
	R734	ERJ2GEJ224	220k	S
	R735	ERJ2GEJ223	22k	S
	R861	ERJ2GEJ510	51	S
	R891	ERJ2GEJ221	220	S
	R892	ERJ2GEJ221	220	S
	R1001	ERJ2RKF7502	75k(for KX-PRL260) (for KX-PRL262)	
	R1002	ERJ2RKF4992	49.9k(for KX-PRL260) (for KX-PRL262)	
	R1003	ERJ2RKF4322	43.2k(for KX-PRL260) (for KX-PRL262)	
	R1004	ERJ2RKF4992	49.9k(for KX-PRL260) (for KX-PRL262)	
			(OTHERS)	
	CN651	K1MN06BA0111	CONNECTOR	
	CN1001	K1MY08AA0132	CONNECTOR(for KX-PRL260) (for KX-PRL262)	
⚠	F301	K5H302Y00003	FUSE	
⚠	F1001	K5H302Y00003	FUSE	
	L471	G1C12NGA0039	COIL	
	L472	G1C12NGA0039	COIL	
	L473	G1C12NGA0039	COIL	
	L474	G1C12NGA0039	COIL	
	L781	G1C4N7Z00006	COIL	
	L861	G1C2N0ZA0063	COIL	
	L862	G1C27NJ00010	COIL	
	SA101	J0LE00000047	VARISTOR	
	MIC1	L0CBAY000053	BUILTIN-MICROPHONE	S
	P101	D4DAY220A022	THERMISTER	
	X501	H0J103500037	CRYSTALOSCILLATOR	S

16.5.1.3. KEY P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PNWP2PRL260H	PCBOARDW/COMPONENT(RTL) (for KX-PRL260) (for KX-PRL262)	
	PCB2	PNWP2PRD260H	PCBOARDW/COMPONENT(RTL) (for KX-PRD260) (for KX-PRD262)	
	CN901	K1MY06AA0132	CONNECTOR	
	SW901	K0H1BA000578	SPECIAL SWITCH	
	SW902	K0H1BA000578	SPECIAL SWITCH	
	SW903	K0H1BA000578	SPECIAL SWITCH	
	SW904	K0H1BA000578	SPECIAL SWITCH	
	SW905	K0H1BA000578	SPECIAL SWITCH	

16.5.1.4. MIC P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB3	PNWP3PRL260H	PCBOARDW/COMPONENT(RTL) (for KX-PRL260) (for KX-PRL262)	
	PCB3	PNWP3PRD260H	PCBOARDW/COMPONENT(RTL) (for KX-PRD260) (for KX-PRD262)	
	C901	ECUE1H100DCQ	10p	
	L901	G1C27NJ00010	COIL	
	L902	G1C27NJ00010	COIL	
	MIC1	L0CBAY000053	BUILTIN-MICROPHONE	S

16.5.1.5. USB Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB5	PNWP5PRD260H	USB P.C.BOARD ASS'Y (RTL)	
	CN1101	K1FY104B0038	CONNECTOR	

16.5.2. Handset

16.5.2.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	101	PNGP1318Z1	PANEL, LCD (BLACK)	PMMA-HB
	101	PNGP1318Y2	PANEL, LCD (WHITE)	PMMA-HB
	102	PNYE1123Z	TAPE, DOUBLE SIDED	
	103	PNKM1529Z1	CABINET BODY (BLACK)	ABS-HB
	103	PNKM1529Z2	CABINET BODY (WHITE)	ABS-HB
	104	L0AA02A00119	RECEIVER	
	105	PNYE1122Z	SPACER, CUSHION LCD	
	106	L5EDDY00590	LIQUID CRYSTAL DISPLAY	
	107	PNYT1036Z1	KEYBOARD SWITCH (BLACK)	ABS-HB
	107	PNYT1036Z2	KEYBOARD SWITCH (WHITE)	ABS-HB
	108	PQHG10729Z	RUBBER PARTS, RECEIVER	
	109	PNHR1923Z	GUIDE, RECEIVER	
	110	PNLA1121Z	ANTENNA	
	111	PNHX1751Z	PLASTIC COVER INSIDE	
	112	PNMH1308Z	GUIDE, SPEAKER METAL	
	113	L0AA01A00158	SPEAKER	
	114	PNHS1502Z	SPACER, SPEAKER NET	
	115	PNHX1759Z	PLASTIC COVER OUTSIDE	
	116	PNGT8037Z	NAME PLATE (BLACK)	
	116	PNGT8037Y	NAME PLATE (WHITE)	
	117	PNQT2861Z	LABEL, BATTERY	
	118	PNQT2006Z	LABEL, ATTENTION	
	119	PNYF1084Z1	CABINET COVER (BLACK)	ABS-HB
	119	PNYF1084Z2	CABINET COVER (WHITE)	ABS-HB
	120	PNJC1026Z	BATTERY TERMINAL (CR)	
	121	PNJC1025Z	BATTERY TERMINAL (CL)	
	122	PNHS1079Z	SPACER, BATTERY	
	123	PNKK1095Z1	LID, BATTERY (BLACK)	ABS-HB
	123	PNKK1095Z2	LID, BATTERY (WHITE)	ABS-HB
	124	PNYNTGHA20BR	LID, BATTERY ASS'Y (BLACK)	
	124	PNYNTGHA20WR	LID, BATTERY ASS'Y (WHITE)	

16.5.2.2. 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 IC3 or X1, make the adjustment using PNZZPRD260M. Refer to **Handset** (P.61) of Things to Do after Replacing IC or X'tal.

(*3) When replacing the handset LCD, See **How to Replace the Handset LCD** (P.50).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB100	PNWP1PRLA20R	MAIN P.C.BOARD ASS'Y	
	IC1	C1CB00004121	(RTC) (*1)	
	IC3	PNWIPRLA20R	(ICs)	
	IC4	C3FBMY000312	IC	
			(TRANSISTORS)	
	Q1	B1ADGE000012	TRANSISTOR(SI)	
	Q2	DSA900100L	TRANSISTOR(SI)	
	Q3	B1ABGE000011	TRANSISTOR(SI)	
	Q4	DSA900100L	TRANSISTOR(SI)	
	Q6	2SC6054JSL	TRANSISTOR(SI)	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	Q9	UNR9216J0L	TRANSISTOR(SI) (LEDS)	S
	LED1	B3AFB0000570	LED (BLACK)	
	LED1	B3AEB0000146	LED (WHITE)	
	LED2	B3AFB0000570	LED (BLACK)	
	LED2	B3AEB0000146	LED (WHITE)	
	LED3	B3AFB0000570	LED (BLACK)	
	LED3	B3AEB0000146	LED (WHITE)	
	LED4	B3AFB0000570	LED (BLACK)	
	LED4	B3AEB0000146	LED (WHITE)	
	LED5	B3AFB0000570	LED (BLACK)	
	LED5	B3AEB0000146	LED (WHITE)	
	LED6	B3AFB0000570	LED (BLACK)	
	LED6	B3AEB0000146	LED (WHITE)	
	LED12	B3AFB0000570	LED (BLACK)	
	LED12	B3AEB0000146	LED (WHITE)	
			(COMPONENT PARTS)	
	RA2	EXB28V561JX	RESISTOR ARRAY	
	RA3	EXB24V561JX	RESISTOR ARRAY	
	RA4	EXB24V332JX	RESISTOR ARRAY	S
	RA5	EXB28V332JX	RESISTOR ARRAY	
			(RESISTORS)	
	R1	D0GA103JA021	10k	S
	R2	ERJ2GEJ303	30k	S
	R6	D0GA103JA021	10k	S
	R7	ERJ2GEJ821	820	S
	R8	ERJ8GEYJ4R3V	4.3	S
	R9	ERJ2GEJ303	30k	S
	R15	D0GA152JA021	1.5k	S
	R19	D0GA103JA021	10k	S
	R20	D0GA563ZA006	56k	
	R23	D0GA102JA021	1k	S
	R24	ERJ2GEJ821	820	S
	R25	ERJ2GEJ821	820	S
	R45	D0GBR10JA113	0.1	
	R61	D0GA102JA021	1k	S
	R76	D0GA1R0JA014	1	S
	R77	D0GA1R0JA014	1	S
			(CAPACITORS)	
	C11	ECUE1A104KBQ	0.1	
	C12	ECUV0J225KBV	2.2	
	C13	ECUE1A104KBQ	0.1	
	C15	ECUE1H560JCQ	56p	
	C19	ECUE1H102KBQ	0.001	
	C22	ECUE0J105KBQ	1	
	C29	ECUE0J105KBQ	1	
	C30	ECUV1A105KBV	1	
	C36	ECUE1H390JCQ	39p	
	C40	ECUE1A104KBQ	0.1	
	C41	ECUE1A104KBQ	0.1	
	C43	ECUE1H100DCQ	10p	
	C44	ECUE1A104KBQ	0.1	
	C45	ECUE1A104KBQ	0.1	
	C46	F1G1H2R7A765	2.7p	
	C47	ECUE0J105KBQ	1	
	C52	ECUE0J105KBQ	1	
	C53	ECJ1VB06106M	10	
	C55	ECUE1H100DCQ	10p	
	C56	ECUE0J105KBQ	1	
	C59	ECUE0J105KBQ	1	
	C69	ECUE1A104KBQ	0.1	
	C70	ECUE1H680JCQ	68p	
	C71	ECUE1H680JCQ	68p	
	C78	ECUE1H222KBQ	0.0022	
	C79	ECUE1H222KBQ	0.0022	
	C85	ECUE1H560JCQ	56p	
	C91	ECUE1A104KBQ	0.1	
	C92	ECUE1A104KBQ	0.1	
	C93	ECUE1A104KBQ	0.1	
	C94	ECUE1H221JCQ	220p	
	C190	ECUE1A104KBQ	0.1	
	C191	ECUE0J105KBQ	1	
	C801	ECUV1H100DCV	10p	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C859	ECUE1H100DCQ	10p	
	C860	F1G1H2R2A765	2.2p	
	C861	F1G1H2R2A765	2.2p	
	C862	F1G1H1R5A765	1.5p	
	C866	ECUE1A104KBQ	0.1	
			(OTHERS)	
	E101	PNVE1011Z	BATTERY TERMINAL	
	E102	PNJT1180Z	CHARGE TERMINAL (L)	
	E103	PNJT1179Z	CHARGE TERMINAL (R)	
	E104	PNJE1193Z	KEYBOARD SWITCH	
	LCD	K1MN11BA0111	CONNECTOR, LCD	
	MIC100	L0CBAY000053	BUILT-IN-MICROPHONE	S
△	P1	D4FB1R100026	THERMISTOR	
	X1	H0J103500038	CRYSTAL OSCILLATOR(*2)	

16.5.3. Charger Unit

16.5.3.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A6	PNLC1054ZB	CHARGER UNIT (BLACK)	
	A6	PNLC1054ZW	CHARGER UNIT (WHITE)	
	200	PNLC1054ZB	CHARGER UNIT ASS'Y without NAME PLATE(RTC) (BLACK)	
	200	PNLC1054ZW	CHARGER UNIT ASS'Y without NAME PLATE (RTC) (WHITE)	
	200-1	PNKM1533Z1	CABINET BODY (BLACK)	PS-HB
	200-1	PNKM1533Z2	CABINET BODY (WHITE)	PS-HB
	200-2	PNJT1182Z	CHARGE TERMINAL	
	200-3	PNKF1280Y1	CABINET COVER (BLACK)	PS-HB
	200-3	PNKF1280Y4	CABINET COVER (WHITE)	PS-HB
	200-4	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	
	200-5	PNJJ021001Z	JACK, SOCKET	
	201	PNGT8126Z	NAME PLATE	

16.5.4. Accessories and Packing Materials

Note:

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

16.5.4.1. KX-PRL260/262, KX-PRD260/262

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
△	A1	PNLV238-KZ	AC ADAPTOR (for BASE UNIT)	
	A2	PQJA10075Z	CORD, TEL	
	A3	PNQX6433X	INSTRUCTION BOOK	
	A4	PNQW3918Z	LEAFLET, QUICK GUIDE	
	A5	PNQW4195Z	QIG (for KX-PRL260) (for KX-PRL262)	
	A5	PNQW4196Z	QIG (for KX-PRD260) (for KX-PRD262)	
	A6	PNLC1054ZB	CHARGER UNIT (BLACK)	
	A6	PNLC1054ZW	CHARGER UNIT (WHITE)	
△	A7	PNLV233Z	AC ADAPTOR (for CHARGER)	
	P1	PNPK3803003Z	GIFT BOX (for KX-PRL260B) (BLACK)	
	P1	PNPK3803004Z	GIFT BOX (for KX-PRL260W) (WHITE)	
	P1	PNPK3803005Z	GIFT BOX (for KX-PRD260B) (BLACK)	
	P1	PNPK3803006Z	GIFT BOX (for KX-PRD260W) (WHITE)	
	P1	PNPK3781001Z	GIFT BOX (for KX-PRL262B) (BLACK)	
	P1	PNPK3781005Z	GIFT BOX (for KX-PRL262W) (WHITE)	
	P1	PNPK3781002Z	GIFT BOX (for KX-PRD262B) (BLACK)	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	P1	PNPK3781006Z	GIFT BOX (for KX-PRD262W) (WHITE)	
	P2	PNPD1841Z	CUSHION (for KX-PRL260) (for KX-PRD260)	
	P2	PNPD1837Z	CUSHION (for KX-PRL262) (for KX-PRD262)	
	P3	PNPE1041Z	FOOK, ACCESSORY BOX	

16.5.4.2. KX-PRLA20

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
△	B1	PNLV233Z	AC ADAPTOR (for CHARGER)	
	B2	PNQX6434X	INSTRUCTION BOOK	
	B3	PNLC1054ZB	CHARGER UNIT (BLACK)	
	B3	PNLC1054ZW	CHARGER UNIT (WHITE)	
	Q1	PNPK3782001Z	GIFT BOX (for KX-PRLA20B) (BLACK)	
	Q1	PNPK3782003Z	GIFT BOX (for KX-PRLA20W) (WHITE)	
	Q2	PNPD1825Z	CUSHION	
	Q3	PNPD1865Z	CUSHION	

16.5.5. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	XTB26+8GFJ	TAPPING SCREW	
	B	XQH17+BG8FJ	TAPPING SCREW	

16.5.6. Fixtures and Tools

Note:

(*1) See **Equipment Required** (P.51), and **The Setting Method of JIG** (P.51)

(*2) When replacing the Handset LCD, See **How to Replace the Handset LCD** (P.50)

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PQZZ1CD300E	JIG CABLE (*1)	
		PNZZPRD260M	BATCH FILE CD-ROM (*1)	
		PQZZ430PIR	TIP OF SOLDERING IRON (*2)	
		PQZZ430PRB	RUBBER OF SOLDERING IRON (*2)	

INB
KXPRL260B
KXPRL260W
KXPRL262B
KXPRL262W
KXPRD260B
KXPRD260W
KXPRD262B
KXPRD262W
KXPRLA20B
KXPRLA20W