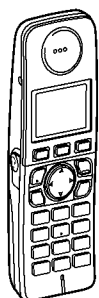


Service Manual

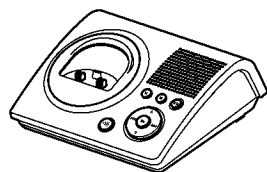
Telephone Equipment

Caller ID and SMS Compatible

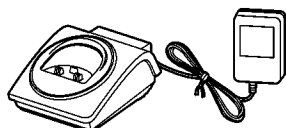
SMS



KX-TGA807HGT/FXT
(HANDSET)



KX-TG8090HGT
(BASE UNIT)



(CHARGER UNIT)

Model No. **KX-TG8090HGT**
KX-TGA807HGT
KX-TGA807FXT

Digital Cordless Answering System
Titanium Black Version
(for Hungary)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit	Expandable
KX-TG8090	1 (TG8090)	1 (TGA807)		Up to 5
KX-TGA807*		1 (TGA807)	1	

* KX-TGA807 is also an optional accessory, which contains a handset and a charger.


Panasonic

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 **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.

Note for TABLE OF CONTENTS:

Because sections 5, 6 and 7 of this manual are the extracts from the operating Instructions for this model, they are subject to change without notice. You can download and refer to the original operating Instructions on TSN Server for further information.

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

2 Warning

2.1. Battery Caution

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

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

Note:

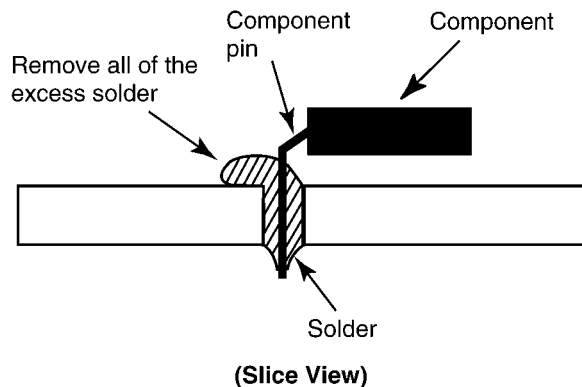
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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

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

Caution

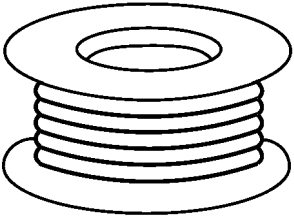
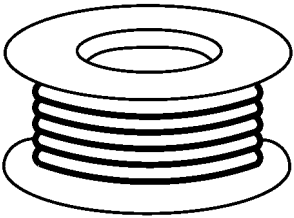
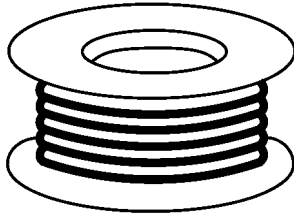
- PbF solder has a melting point that is 50 °F ~ 70 °F (30 °C ~ 40 °C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700 °F ± 20 °F (370 °C ± 10 °C).
- Exercise care while using higher temperature soldering irons.:
Do not heat the PCB for too long time in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



2.2.1. Suggested PbF Solder

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

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3 mm, 0.6 mm and 1.0 mm.

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

2.3. Discarding of P. C. Board

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

3 Specifications

■ Standard:

DECT (Digital Enhanced Cordless Telecommunications),
GAP (Generic Access Profile)

■ Number of channels:

120 Duplex Channels

■ Frequency range:

1.88 GHz to 1.90 GHz

■ Duplex procedure:

TDMA (Time Division Multiple Access)

■ Channel spacing:

1,728 kHz

■ Bit rate:

1,152 kbit/s

■ Modulation:

GFSK (Gaussian Frequency Shift Keying)

■ RF transmission power:

Approx. 250 mW

■ Voice coding:

ADPCM 32 kbit/s

■ Power source (AC Adaptor):

220-240 V, 50 Hz

Base unit: PQWATG8090CE

Charger: PQWETGA807CE

■ Power consumption:

Base unit:

Standby: Approx. 2.0 W

Maximum: Approx. 7.0 W

Charger:

Standby: Approx. 1.5 W

Maximum: Approx. 3.0 W

■ Operating conditions:

5 °C–40 °C, 20 %–80 % relative air humidity (dry)

■ Dimensions (H x W x D):

Base unit: Approx. 53 mm x 139 mm x 120 mm

Handset: Approx. 145 mm x 49 mm x 32 mm

Charger: Approx. 51 mm x 87 mm x 100 mm

■ Mass (weight):

Base unit: Approx. 210 g

Handset: Approx. 130 g

Charger^{*1}: Approx. 270 g

^{*1}Includes the AC adaptor.

Note:

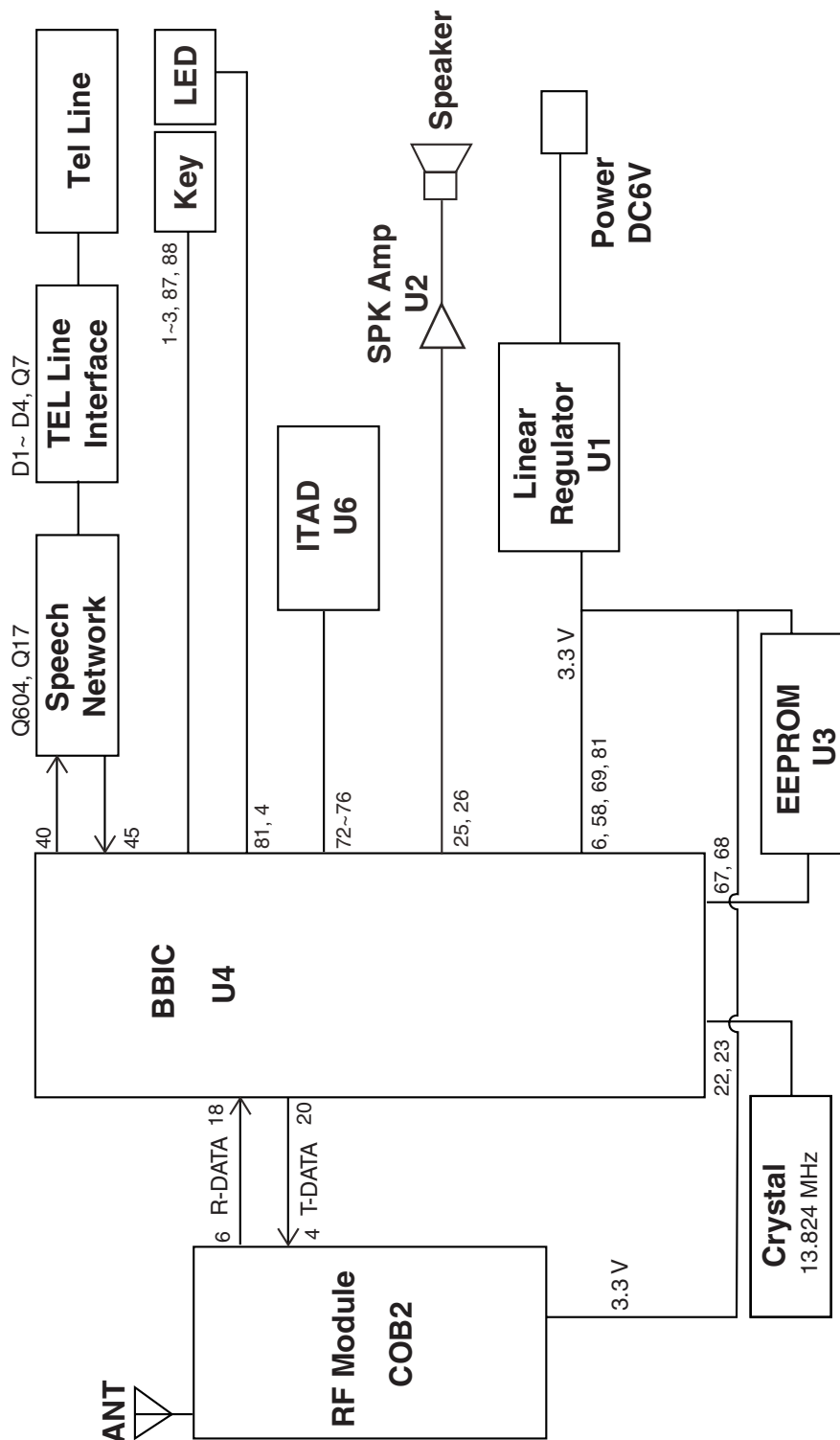
- Specifications are subject to change.

Note for Service:

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

4 Technical Descriptions

4.1. Block Diagram (Base Unit)



KX-TG8090 BLOCK DIAGRAM (BASE UNIT)

4.2. Circuit Operation (Base Unit)

The base unit consists of base band controller, speech network, tel-line interface, EEPROM, RF module, linear regulator, crystal and so on. Refer to **Block Diagram (Base Unit)** (P.7).

4.2.1. BBIC (U4)

BBIC (U4) controls all functions of the base unit. This device includes all control circuits of the base unit for RF module, tel-line interface, ADPCM codec, series regulator and so on.

4.2.2. Power Supply

The power supply is generated by voltage regulator (U1).

U1 generates DC 3.3 V voltage from DC 6 V voltage of adaptor output. DC 3.3 V is used for RF module & I/O port, DC 2.5 V & DC1.8 V are used for the base band controller and the circumference circuits.

4.2.3. Speech Network

The TR circuit is used for speech network. The function of this connects tel-line interface and the base band controller.

4.2.4. TEL Line Interface

The function of this connects tel-line and speech network. Also, the tel-line interface includes the ring detect circuit, caller-ID circuit.

4.2.5. EEPROM (U3)

This is 128 K bits memory. The each kind of value to set-up at power-on, caller list memory and so on are stored in this device.

4.2.6. RF Module (COB2)

Receiver part: RF signals induced at the antenna are extracted by the RF control interface. The RF signal to be selected is demodulated into RX_DATA signals. And the signals are passed to the base band controller.

Transmitter part: The signal from transceiver chip-set is fed to the antenna through the RF power amplifier by control of the RF control interface. And then this signal is radiated from antenna.

Logical part: The frequency to be used is generated in transceiver chip-set by control signals (CLK, DATA, ENABLE, SYRI) of the RF control interface.

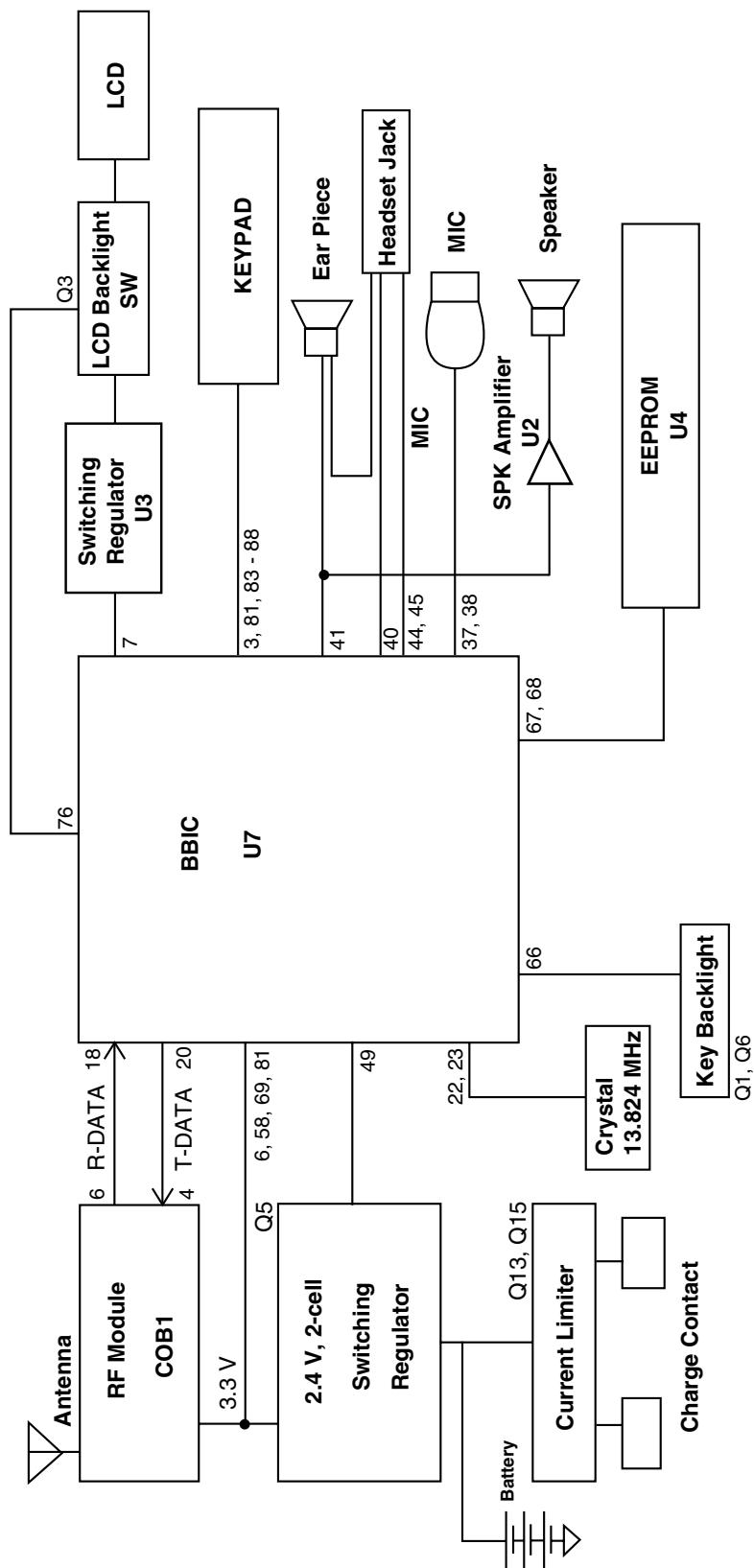
4.2.7. ITAD (U6)

8 M bytes non-volatile memory flash for storing voice prompt which combine the use of BBIC to perform ITAD function.

4.2.8. Speaker Amplifier (U2)

U2 forms an audio power amplifier to play TAD message and ringer.

4.3. Block Diagram (Handset)



KX-TGA807 BLOCK DIAGRAM (HANDSET)

4.4. Circuit Operation (Handset)

The handset consists of Base Band Controller, charger, regulator, LCD, EEPROM, RF module, keypad, crystal, speaker amplifier, speaker, earpiece, ringer & microphone, and so on.

4.4.1. BBIC (U7)

BBIC (U7) controls all functions of the handset. This device includes all control circuits of the handset for RF module, LCD controller, keypad interface, earpiece, microphone, ADPCM codec, switching and series regulator and so on.

4.4.2. Charger

The base unit supplies DC 6 V power to the charger and the charger charges the batteries to use this power. The signal on the charger circuit is generated when the handset is being charged, and this signal is used to control the charger circuit and for automatic off-hook by cradle-off when an incoming call is coming.

4.4.3. 2.4V 2 cell & 3.3V output from internal switching regulator

The battery is (2.4 V/2 cell) directly supplied to switching regulator which is controlled by base band controller and step up the DC 3.3 V to the RF module & I/O port. DC 2.5 V & DC 1.8 V are used for the base band and the circumference circuits.

4.4.4. EEPROM (U4)

This is 256 K bits memory (optional handset: 512 K bits memory). The each kind of value to set-up at power-on, redial memory, speed-dialing memory, and so on are stored in this device.

4.4.5. RF Module (COB1)

Receiver part: RF signals induced at the antenna are extracted by the RF control interface. The RF signal to be selected is demodulated into RX_DATA signals. And the signals are passed to the base band controller.

Transmitter part: The signal from transceiver chip-set is fed to the antenna through the RF power amplifier by control of the RF control interface. And then this signal is radiated from antenna.

Logical part: The frequency to be used is generated in transceiver chip-set by control signals (CLK, DATA, ENABLE, SYRI) of the RF control interface.

4.4.6. Keypad

The keypad consists of 12 dialing keys and 11 function keys.

4.4.7. Speaker Amplifier (U2)

U2 forms a audio power amplifier for speakerphone and ringer.

4.5. Signal Flow

Note:

- BU: Base Unit
- HS: Handset

4.5.1. Talk mode:

Rx audio signal from line interface is received at “LINERX_P” path into the BU MCU (pin 45) and then signal from the BU RF is transformed, and the HS RF receives the signal and forwards it to MCU, and the signal received at the HS MCU (pin 40, 41) is sent to receiver.

Tx audio signal from MIC is received at mic path into the HS MCU and then audio signal from the HS RF is transformed, and the BU RF receives the signal and forwards it to MCU, and the BU MCU receives the audio signal from Pin 40 at “LINETX_P” path and transmits it to line interface out of PSTN.

4.5.2. Speakerphone Mode:

Rx signal from line interface is received at “LINERX_P” path into the BU MCU (pin 45) and then signal from the BU RF is transformed, and the HS RF receives the signal and forwards it to MCU, and the signal received at the HS MCU (pin 40, 41) is sent to speaker phone IC (U2) to be amplified for speaker output.

Tx audio signal from MIC is received at mic path into the HS MCU and then audio signal from the HS RF is transformed, and the BU RF receives the signal and forwards it to MCU, and the BU MCU receives the audio signal from Pin 40 at “LINETX_P” path and transmits it to line interface out of PSTN.

4.5.3. Ringer detect:

Telephone line catches ringer signal from tip ring into base unit, and then the base transistor Q8 turns on and ringer data signal for the BU MCU (Pin 54) is detected and the handset speaker/base speaker produces “Melody tone”.

4.5.4. Type I CID receive:

CID signal from tip ring is coupled at (CID1_P, CID1_N) paths and the BU MCU (Pin 37, 38) detects it, then Handset display shows the telephone no.

4.5.5. ITAD Mode:

RX mode:

Base receive ringer signal turn on the ITAD mode, the Rx audio signal from line interface at “LINERX_P” path to MCU convert to data storing in U7.

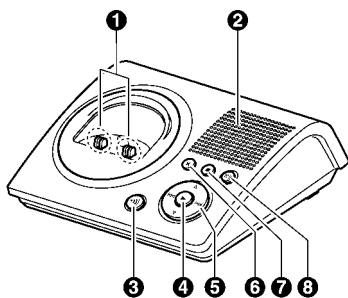
TX mode:

Base receive ringer signal turn on the ITAD mode, Base MCU call the “OGM signal” from U7 to “LINETX_P” path pass to PSTN.

5 Location of Controls and Components

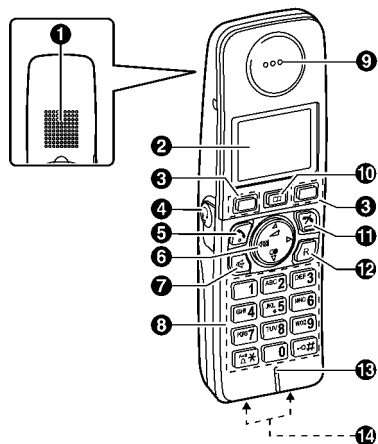
5.1. Controls

5.1.1. Base Unit



- 1 Charge contacts
- 2 Speaker
- 3 [ⓘ] (Page)
- 4 [▶] (Play)/Message indicator
- 5 Navigator key ([▲]/[▼]/[◀]/[▶])
[▲]/[▼]:
 - Adjusts the call screening volume when call screening or in standby mode.
 - Adjusts the message volume during message playback.
- 6 [X] (Erase)
- 7 [■] (Stop)
- 8 [☎] (Answer on)/Answer on indicator

5.1.2. Handset

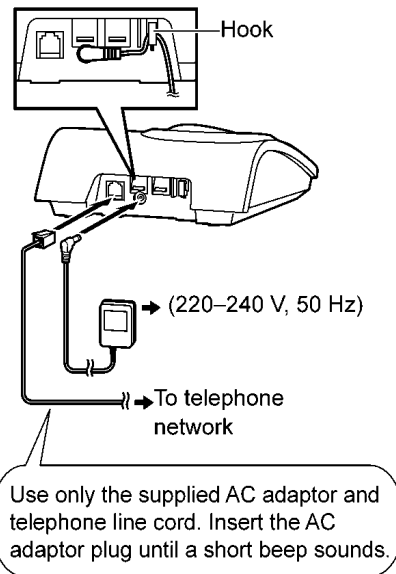


- 1 Speaker
- 2 Display
- 3 Soft keys
- 4 Headset jack
- 5 [↵] (Talk)
- 6 Navigator key ([▲]/[▼]/[◀]/[▶])
[▲]/[▼]: (Volume)
[▼/☎] (Redial)
[◀/☎] (Mute)
- 7 [☎] (Speakerphone)
- 8 Dial keypad
- 9 Receiver
- 10 [☎] (Phonebook)
- 11 [✖] (Off)
- 12 [R] (Recall)
- 13 Microphone
- 14 Charge contacts

6 Installation Instructions

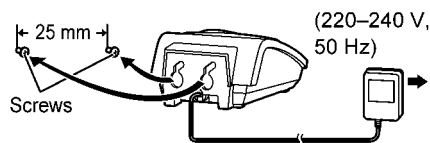
6.1. Connections

Base unit



Charger

The charger can be mounted on the wall, if required.



Note:

- Never install telephone wiring during a lightning storm.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)
- The AC adaptor should be connected to a vertically oriented or floor-mounted AC outlet. Do not connect the AC adaptor to a ceiling-mounted AC outlet, as the weight of the adaptor may cause it to become disconnected.

Location

- For maximum distance and noise-free operation, place your base unit:
 - away from electrical appliances such as TVs, radios, personal computers or other phones.
 - in a convenient, high and central location.

For DSL users

We recommend connecting a filter (contact your DSL service provider) to the telephone line between the base unit and the telephone line jack.

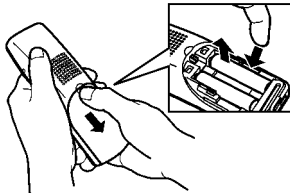
6.2. Battery

6.2.1. Battery Installation and Replacement

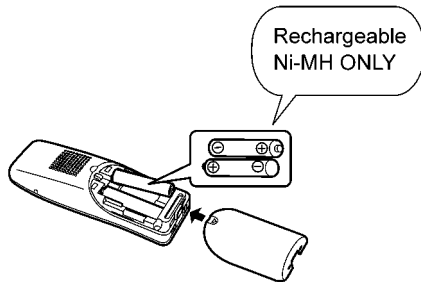
Important:

- Use only the supplied rechargeable batteries HHR-4EPT.
- USE ONLY rechargeable Ni-MH batteries AAA (R03) size.
- Do NOT use Alkaline/Manganese/Ni-Cd batteries.
- Ensure correct polarities (+, -) when installing the batteries.
- Wipe the battery ends (+, -) with a dry cloth.
- When installing the batteries, avoid touching the battery ends (+, -) or the unit contacts.
- When replacing batteries, we recommend using the Panasonic rechargeable batteries HHR-4EPT.

- 1 Press the notch on the handset cover firmly and slide it in the direction of the arrow.



- 2 Insert the batteries negative (-) end first. Close the handset cover.

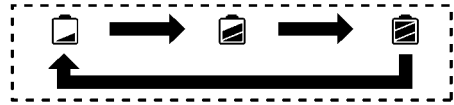



See For Service Hint (P.17)

6.2.2. Battery Charge

Place the handset on the base unit or charger for about 8 hours before initial use.

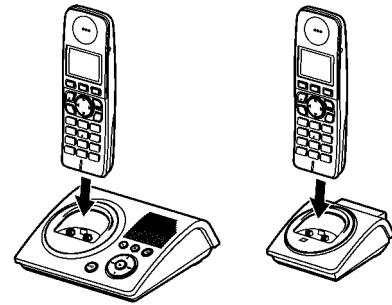
When charging, the battery icon is shown as follows.



When the batteries are fully charged,  remains on the display.

Base unit




Charger



Note:

- It is normal for the handset to feel warm during charging.
- If you want to use the unit immediately, charge the batteries for at least 15 minutes.
- Clean the charge contacts of the handset, base unit, and charger with a soft, dry cloth. Clean if the unit is subject to the exposure of grease, dust, or high humidity.

6.2.3. Battery Level

Battery icon	Battery level
	High
	Medium
	Low • When flashing: Needs to be charged.

6.2.4. Panasonic Ni-MH Battery Performance (supplied batteries)

Operation	Operating time
In continuous use	10 hours max.
In continuous standby mode	100 hours max.


Note:

- It is normal for batteries not to reach full capacity at the initial charge. Maximum battery performance is reached after a few complete cycles of charge/discharge (use).
- Actual battery performance depends on a combination of how often the handset is in use and how often it is not in use (standby).
- Even after the handset is fully charged, the handset can be left on the base unit or charger without any ill effect on the batteries.
- The battery level may not be displayed correctly after you replace the batteries. In this case, place the handset on the base unit or charger and let it charge for at least 8 hours.

7 Operating Instructions

7.1. Base Unit Settings

To customise the base unit:

- 1 **[MENU]** (right soft key)
- 2 Select  by pressing **[▲]**, **[▼]**, **[◀]**, or **[▶]**. → **[OK]**
- 3 Enter the base unit PIN (Personal Identification Number; default: "0000"). → **[OK]**
- 4 Press **[▲]** or **[▼]** to select the desired item in the base unit settings menu. → **[OK]**
- 5 Press **[▲]** or **[▼]** to select the desired item in the sub-menu. → **[OK]**
- 6 Press **[▲]** or **[▼]** to select the desired setting then press **[OK]**.
 - This step may vary depending on the feature being programmed.
 - To exit the operation, press **[✕]**.

Note:

- Use the handset to customise the base unit.
- The selected item is highlighted on the display. The currently activated setting is indicated by "■" located on the left of the item on the display.

Menu	Sub-menu	Details (default setting)
Ringer Setup	Ringer Volume	For base unit ("Volume 3")
	Ringtone	("Ringtone 1")
Call Options	Dial Mode	("Tone (DTMF)")
	Recall/Flash	Recall time ("100 msec.") ^{*1}
	PBX Access No.	Enter the 1-digit code. → [OK] ^{*2}
Base Unit PIN	—	Change base unit PIN ("0000"). ^{*3} – Enter the new 4-digit base unit PIN. ^{*4} → [OK] – Enter the new 4-digit base unit PIN again. → [OK]

^{*1} Change the recall time, if necessary, depending on the requirements of your service provider/telephone company or PBX.

^{*2} If you store the PBX access number, a pause will be added automatically between the PBX access number and the first digit of the phone number when you make calls.

^{*3} If you change the PIN, please make note of your new PIN. The unit will not reveal the PIN to you.


^{*4} If you forget your PIN, please clear PIN code following "How to Clear User Setting".

Cross Reference:

How to Clear User Setting (P.23)

7.2. Handset Settings


To customise the handset:

- 1 **[MENU]** (right soft key)
- 2 Select  by pressing **[▲]**, **[▼]**, **[◀]**, or **[▶]**. → **[OK]**
- 3 Press **[▲]** or **[▼]** to select the desired item in the handset settings menu. → **[OK]**
- 4 Press **[▲]** or **[▼]** to select the desired item in the sub-menu. → **[OK]**
- 5 Press **[▲]** or **[▼]** to select the desired setting then press **[OK]**.
 - This step may vary depending on the feature being programmed.
 - To exit the operation, press **[✕]**.

Note:

- The selected item is highlighted on the display. The currently activated setting is indicated by **"■"** located on the left of the item on the display.

Menu	Sub-menu	Details (default setting)
Set Date & Time	—	—
Ringer Setup	Ringer Volume	For handset ("Volume 5") ^{*1}
	Ext. Ringtone (External ringtone)	For outside calls ("Ringtone 1") ^{*2}
	Int. Ringtone (Intercom ringtone)	For intercom calls ("Ringtone 2")
Display Setup	Wallpaper	Wallpaper 1 ^{*3}
	Handset Name	("Handset")
	Select Language	(KX-TGA807HG: "Magyar"/ KX-TGA807FX: "English")
	Contrast	("Contrast 5")
	Dimmed Backlight	("On") ^{*4}
Auto Talk	—	("Off")
Registration	Register Handset	See "Registering a Handset to the Base Unit"
	Deregistration	See "Deregistering a Handset"
Select Base	—	("Base 1")
Tone Options	Keytones	("On")
	Battery Low	("On")
	Out of Range	("Off")

*1 When the ringer volume is turned off,  is displayed and the handset does not ring for outside calls and intercom calls. However even when the ringer volume is turned off,
 – the handset rings for paging
 – the tone sounds when receiving messages if you set the SMS alert "On"

*2 If you select one of the melody ringtones, the ringtone will continue to sound for several seconds if the caller hangs up before you answer. You may hear a dial tone or no one on the line when you answer a call.

*3 You can select between 3 kinds of wallpapers and "Off".


*4 The handset automatically switches to the selected dimmed backlight mode after 1 minute of charging without key activity:

- "Off": Backlight turns off.
- "On": Backlight is dimmed.
- "For 10 minutes": Backlight is dimmed for 10 minutes then turns off.

Special instructions for display setup

Handset names

Each handset can be given a customised name ("Bob", "Kitchen", etc.), which is shown on the display in standby mode. This is useful when you have multiple handsets. The current handset number is displayed next to the handset name.

- 1 **[MENU]** (right soft key) →  → **[OK]**
- 2 **[▲]/[▼]**: "Display Setup" → **[OK]**
- 3 **[▲]/[▼]**: "Handset Name" → **[OK]**
- 4 Edit the name (15 characters max.). → **[OK]** → **[✕]**

Cross Reference:

Registering a Handset to a Base Unit (P.16)

Deregistering a Handset (P.16)

7.3. Registering a Handset to a Base Unit

The supplied handset and base unit are pre-registered. If for some reason the handset is not registered to the base unit (for example, Ψ flashes even when the handset is near the base unit), register the handset.

- 1 Press and hold **[M]** on the base unit for about 5 seconds until a beep is heard.
 - If all registered handsets start ringing, press **[M]** to stop, then repeat this step.
 - After a beep is heard, the rest of this procedure must be completed within 1 minute.
- 2 **[MENU]** (right soft key) \rightarrow \rightarrow **[OK]**
- 3 **[\blacktriangle]/**[\blacktriangledown]**: "Registration" \rightarrow **[OK]****
- 4 **[\blacktriangle]/**[\blacktriangledown]**: "Register Handset" \rightarrow **[OK]****
- 5 **[\blacktriangle]/**[\blacktriangledown]**: Select a base unit number. \rightarrow **[OK]**
 - This number is used by the handset as a reference only.
 - The registered base unit is indicated by "*".**
- 6 "Enter PIN" is displayed. Enter the base unit PIN (default: "0000"). \rightarrow **[OK]**
 - If you forget your PIN, please clear PIN code following "How to Clear User Setting".
 - When the handset has been registered successfully, Ψ will stop flashing. If the key tone is turned on, a confirmation tone will be heard.

Cross Reference:

How to Clear User Setting (P.23)

7.4. Deregistering a Handset

A handset can cancel its own registration (or the registration of another handset) that is stored in the base unit. This will allow the base unit to "forget" the handset.

- 1 **[MENU]** (right soft key) \rightarrow \rightarrow **[OK]**
- 2 **[\blacktriangle]/**[\blacktriangledown]**: "Registration" \rightarrow **[OK]****
- 3 **[\blacktriangle]/**[\blacktriangledown]**: "Deregistration" \rightarrow **[OK]****
- 4 Enter the base unit PIN (default: "0000"). \rightarrow **[OK]**
 - If you forget your PIN, please clear PIN code following "How to Clear User Setting".
 - The numbers of all handsets registered to the base unit are displayed.
 - The handset you are using is indicated by "■" located on the left of the item on the display.
- 5 **[\blacktriangle]/**[\blacktriangledown]**: Select the handset(s) you want to cancel. \rightarrow **[OK]****
- 6 **[YES]** \rightarrow **[\blackleftarrow]**

Note:

- "Register!" is shown on the handset display when you cancel registration.
- If you want to register the handset to other base unit (s), follow "Registering a handset to a base unit".
- If the cancelled handset is registered to other base unit(s), select the base unit.
- If you do not use the handset, we recommend removing the battery to prevent malfunctioning.

Cross Reference:

How to Clear User Setting (P.23)

7.5. Key Lock

The handset can be locked so that no calls or settings can be made. Incoming calls can be answered, but all other functions are disabled while key lock is on.

To turn key lock on, press **[#]** for about 2 seconds in standby mode.

- Ψ is displayed.
- To turn key lock off, press **[#]** again for about 2 seconds in standby mode.

Note:

- Calls to emergency numbers cannot be made until key lock is turned off.

7.6. For Service Hint

Items	Contents
Battery	You could use other rechargeable batteries sold in a market, but the unit is not guaranteed to work properly.
	The battery strength may not be indicated correctly if the battery is disconnected and connected again, even after it is fully charged. In that case, by recharging the battery as mentioned in Battery Charge , you will get a correct indication of the battery strength.

Cross Reference:
Battery Charge (P.13)

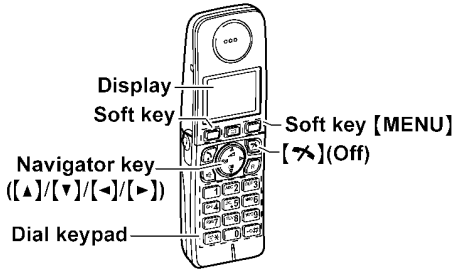
8 Service Mode

8.1. Engineering Mode

8.1.1. Base Unit

Important:

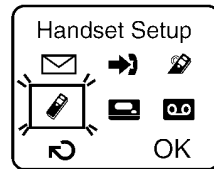
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



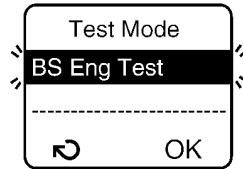
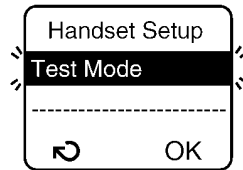
H/S key operation

- 1). Register a Handset to a Base Unit. (*1)
- 2). Press [MENU] key (right soft key), then select " " (Handset Setup) by Navigator key.
- 3). Press [OK] (right soft key) and enter "*", "7", "8", "9", "0", "#".
The Engineering Test mode will be enabled.
Note:
The display will not be changed by this operation.

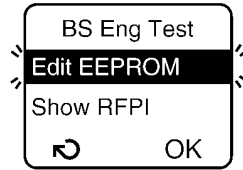
H/S LCD



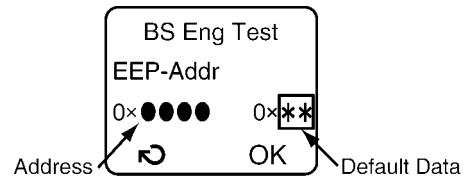
- 4). Select "Test Mode" by Navigator key.
- 5). Press [OK] and select "BS Eng Test".



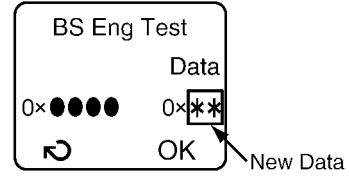
- 6). Press [OK] to enter the BS Engineering Test mode.
Note:
 - To show RFPI (ID of base unit), select "Show RFPI".
 - To show the BBIC version of base unit, select "BS SW version".



- 7). Press [OK] at "Edit EEPROM" and enter "●", "●", "●", "●" (Address). (*2) (*3)



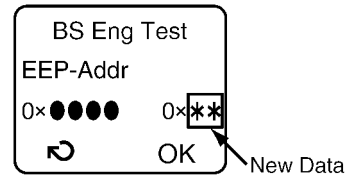
- 8). Press [OK] and enter "*", "*" (New Data). (*2) (*3)



- 9). Press [OK] to confirm and the data value will be written into EEPROM.

Note:

- Press [↶] to exit the "Edit EEPROM" menu.
- After completing all editing, unplug the cable to reload the updated setting to system.



Frequently Used Items (Base Unit)

ex.)

Items	Address	Default Data	Remarks
C-ID (FSK) sensitivity	0x0135	0x35	When reducing "35" (hex) from default value, sensitivity increases.
C-ID (DTMF) sensitivity	0x061D	0x02	When increasing "02" (hex) from default value, sensitivity increases.
Frequency for BBIC: Ref_CL	0x0132	depends on each unit	Use these items in a READ-ONLY mode to confirm the contents. Careless rewriting may cause serious damage to the computer system.
ID of Base Unit: RFPI (*4)	0x011F to 0x0123	depends on each unit.	
ID of restored H/S on Base Unit: IPEI		depends on each unit.	The number of H/S depends on the model number.
H/S #1	0x0000 to 0x0004		
#2	0x0028 to 0x002C		
#3	0x0050 to 0x0054		
#4	0x0078 to 0x007C		
#5	0x00A0 to 0x00A4		
Bell length	0x0292	11 sec: 0x6E	This is time until bell stops ringing. (Unit: 100 ms)
Reference Voltage level: RVREF	0x0130	depends on each unit.	-
BBIC Version check (*4)			-
EEPROM Version check	0x0187	depends on each unit.	-
All parameters reset; user setting → factory default, Use OGH, Caller ID, SMS data, Registration ID → clear (*5)			

Note:

(*1) Refer to **Registering a Handset to a Base Unit** (P.16). If a Handset is already registered to a Base Unit, you do not have to register it again.

(*2) When you enter the address or New Data, please refer to the table on the next page.

(*3) When copying the last digit, press [#] to left-shift the whole address string by 1 digit and duplicate the last digit to the right. To change the copied hex. digit (A-F) to other hex. digit, press [*] several times until desired hex. digit appears. In this case, the table on the next page is not applicable.

ex.) When entering "0 x 00EC", press the keys in the following order.

1. Press [*] x 5.
2. Press [#].
3. Press [*] x 4.

(*4) Refer to step 6 in the "Base Unit" section (P.18) in **Engineering Mode**.

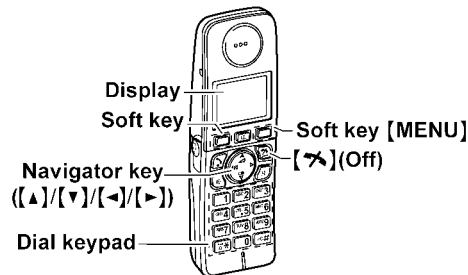
(*5) Refer to **How to Clear User Setting** (P.23).

Desired Number (hex.)	Input Keys	Desired Number (hex.)	Input Keys
0	0	A	[*] x 1
1	1	B	[*] x 2
.	.	C	[*] x 3
.	.	D	[*] x 4
.	.	E	[*] x 5
9	9	F	[*] x 6

8.1.2. Handset

Important:

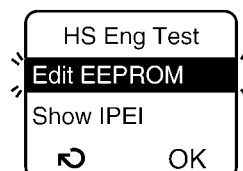
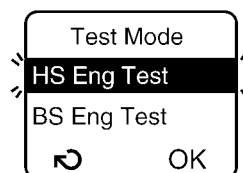
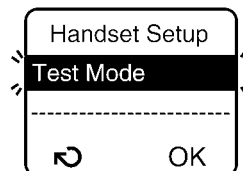
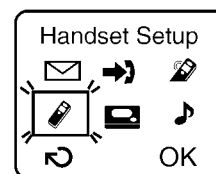
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation

- 1). Press [MENU] key (right soft key), then select "✎" (Handset Setup) by Navigator key.
- 2). Press [OK] (right soft key) and enter "*", "7", "8", "9", "0", "#".
The Engineering Test mode will be enabled.
Note:
The display will not be changed by this operation.
- 3). Select "Test Mode" by Navigator key.
- 4). Press [OK] .
- 5). At "HS Eng Test", press [OK] to enter the HS Engineering Test mode.

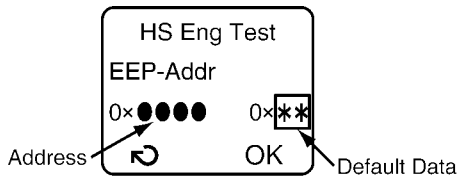
H/S LCD



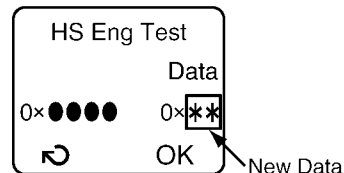
- 6). Press [OK] at "Edit EEPROM" and enter "●", "●", "●", "●" (Address). (*1) (*2)

Note:

- To show IPEI (ID of handset), select "Show IPEI".
- To show the BBIC version of handset, select "HS SW version".



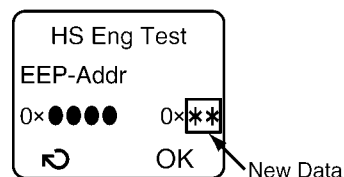
- 7). Press [OK] and enter "*", "*" (New Data). (*1) (*2)



- 8). Press [OK] to confirm and the data value will be written into EEPROM.

Note:

- Press [↶] to exit the "Edit EEPROM" menu.
- After completing all editing, remove the batteries to reload the updated setting to system.



Frequently Used Items (Handset)

ex.)

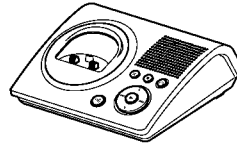
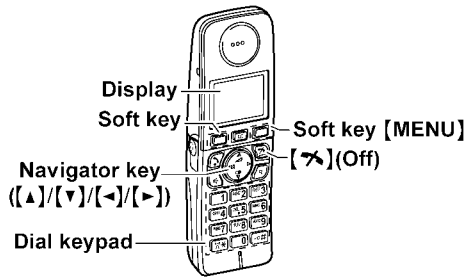
Items	Address	Default Data	Remarks
Sending level (Audio): MIC	0x0244	depends on each unit.	When adding "01" (hex) to default value, sending level increases by 0.5 dB.
Receiving level (Audio): Receiver	0x02A3	depends on each unit.	When reducing "01" (hex) from default value, receiving level increases by 3 dB.
Battery Low detection level	This is related with RVREF so there is no way to adjust.		Use these items in a READ-ONLY mode to confirm the contents. Careless rewriting may cause serious damage to the handset.
Frequency for BBIC: REF_CLK	0x0106	depends on each unit.	
ID of H/S: IPEI (*3)	0x0298 to 0x029C	depends on each unit.	
RFPI for registered Base	0x0033 to 0x0037 0x006E to 0x0072 0x00A9 to 0x00AD 0x00E4 to 0x00E8	depends on each unit.	
Reference Voltage level: RVREF	0x0105	depends on each unit.	
BBIC Version check (*3)			
EEPROM Version check	0x00CE	depends on each unit.	-
All parameters reset; user setting → factory default, Battery level, Redial list, Phonebook, Registration ID → clear (*4)			

Note:

- (*1) When you enter the address or New Data, please refer to the table below.
- (*2) When copying the last digit, press [#] to left-shift the whole address string by 1 digit and duplicate the last digit to the right. To change the copied hex. digit (A-F) to other hex. digit, press [*] several times until desired hex. digit appears. In this case, the table below is not applicable.
- ex.) When entering "0 x 00EC", press the keys in the following order.
 1. Press [*] x 5.
 2. Press [#].
 3. Press [*] x 4.
- (*3) Refer to step 5 in the "Handset" section (P.21) in Engineering Mode.
- (*4) Refer to How to Clear User Setting (P.23).

Desired Number (hex.)	Input Keys	Desired Number (hex.)	Input Keys
0	0	A	[*] x 1
1	1	B	[*] x 2
.	.	C	[*] x 3
.	.	D	[*] x 4
.	.	E	[*] x 5
9	9	F	[*] x 6

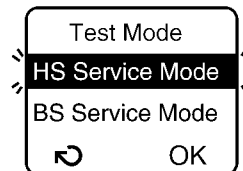
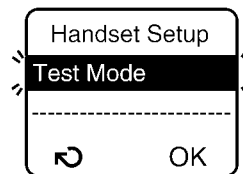
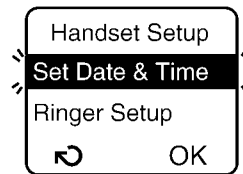
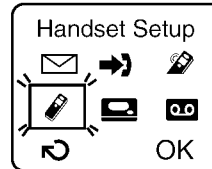
8.2. How to Clear User Setting



H/S key operation

- 1). Press [MENU] (right soft key), then select " " (Handset Setup) by Navigator key.
- 2). Press [OK] (right soft key) and enter " * , " * , " 8 , " 8 , " # , " # ".
The Service Mode will be enabled.
Note:
The display will not be changed by this operation.
- 3). Select "Test Mode" by Navigator key.
- 4). Press [OK].

H/S LCD



- 5). Select "HS Service Mode" or "BS Service Mode" by Navigator key and press [OK].

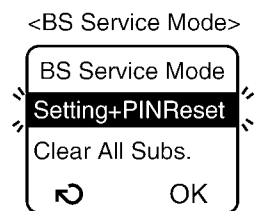
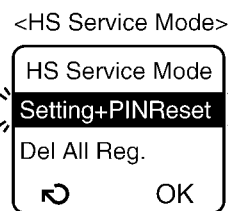
Note:

"HS Service Mode":

Change the handset settings.

"BS Service Mode":

Change the base unit settings.



- 6). * To reset PIN and settings, follow steps 7). and 8).
* To delete all registrations, follow steps 9). and 10).

7). Press [OK] at "Setting+PINReset".

<HS Service Mode>

<BS Service Mode>

HS Service Mode
ResetPin+Setting
Are You Sure?
YES NO

BS Service Mode
ResetPin+Setting
Are You Sure?
YES NO

8). Press [YES].

Note:

Press [NO] when you do not reset PIN and settings.

HS Service Mode
Setting+PINReset
Del All Reg.
↶ OK

BS Service Mode
Setting+PINReset
Clear All Subs.
↶ OK

9). <HS Service Mode>
Select "Del All Reg."and press [OK].
<BS Service Mode>
Select "Clear All Subs."and press [OK].

<HS Service Mode>

<BS Service Mode>

HS Service Mode
Del all BS- info!
Are You Sure?
YES NO

BS Service Mode
Del all HS- info!
Are You Sure?
YES NO

10). Press [YES].

Note:

<HS Service Mode>
Press [NO] when you do not delete all base unit information.

<BS Service Mode>
Press [NO] when you do not delete all handset information.

Note:

Press [↶] to go back to the previous page.

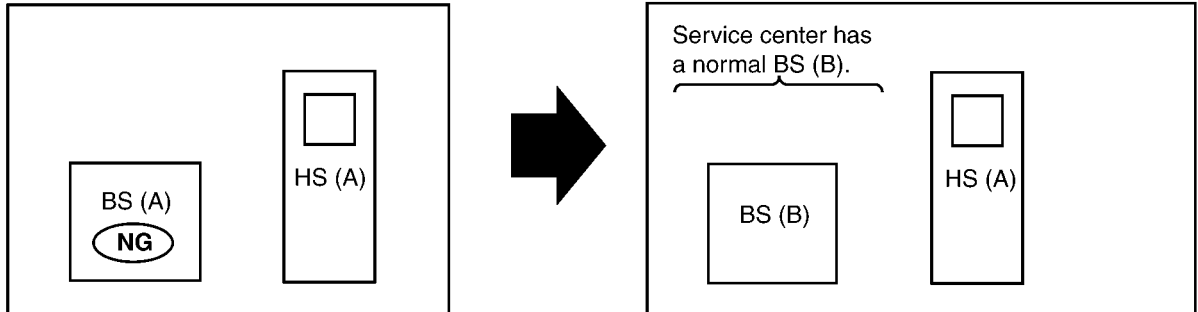
8.3. How to Set when Replacing Unit

If base unit or handset has a defect, replace with new base unit or handset. Refer to the following procedures.

Note:

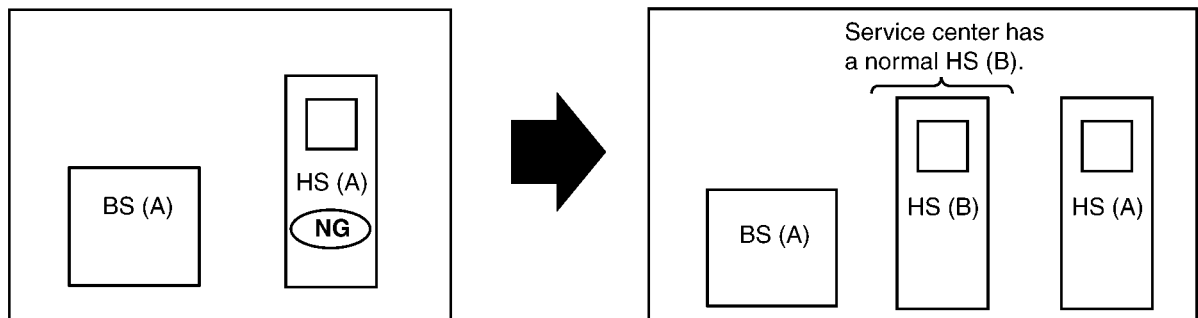
- BS=Base unit, HS=Handset
- To register a handset, refer to **Registering a Handset to a Base Unit** (P.16)

Case 1: A base unit has a defect.



1. Clear BS (A) ID info. in HS (A). (*1)
2. Register HS (A) to BS (B).

Case 2: A handset has a defect.



1. Reset the HS (A) ID info. in BS (A). (*2)
 - Press and hold [••••] on BS (A).
 - Connect BS (A) AC adaptor.
 - Keep pressing [••••] for more than 30 seconds.
2. Register HS (B) to BS (A).

Note:

(*1) Refer to steps 9 and 10 of <HS Service Mode> in **How to Clear User Setting** (P.23).

(*2) All parameters in base unit are cleared.

- User setting > factory default
- Caller ID/SMS data/Registration ID info. > clear

9 Troubleshooting Guide

9.1. Error Message

Error message	Cause & solution
Answer Sys. Full	<ul style="list-style-type: none"> • Erase unnecessary messages.
Busy	<ul style="list-style-type: none"> • Intercom call failed (the other handset cannot be found or is on an outside call). Try again later. • Another handset is being used. Try again later. • Cancelling a handset failed. Try again.
No Base Found	<ul style="list-style-type: none"> • Handset registration failed. Try again.
SMS Full	<ul style="list-style-type: none"> • Erase unnecessary messages.
SMS Transf.Fail.	<ul style="list-style-type: none"> • The message failed to be sent. Try again.
Wrong PIN!	<ul style="list-style-type: none"> • Insert the correct base unit PIN. If you forget your base unit PIN, please clear PIN code following "How to Clear User Setting". • You entered the wrong remote access code in step 5, "Turning remote operation on". Try again.

Status messages

Status message	Meaning
-Answering-	<ul style="list-style-type: none"> • The unit answers a call, callers are greeted by a greeting messages. • The answering system is being used remotely.
TAM Consulting	<ul style="list-style-type: none"> • The base unit or other handset(s) are operating the answering system. • The answering system is being used remotely.

Cross Reference:

How to Clear User Setting (P.23)

9.2. Troubleshooting

If you still have difficulties after following the instructions in this section, disconnect the base unit AC adaptor and remove the handset batteries. Then reconnect the base unit AC adaptor and install the batteries.

Telephone



Problem	Cause & solution
⏏ is flashing and “Register!” is shown on the handset display.	<ul style="list-style-type: none"> The handset is cancelled. If you want to register the handset to the base unit(s), follow “Registering a handset to a base unit”. If you want to use a base unit(s) which was registered to the handset before cancellation, select it by following “Selecting a base unit”. (*1)
⏏ is flashing and “Searching...” is shown on the handset display.	<ul style="list-style-type: none"> The handset is too far from the base unit. Move closer. The base unit AC adaptor is not connected. Check the connections. You may have selected the wrong base unit. Select the right base unit. You are using the handset or base unit in an area with high electrical interference. Place the handset and base unit away from interference sources, such as antennas and mobile phones.
The handset display is blank.	<ul style="list-style-type: none"> The handset is in screen saver mode. If charging, lift the handset to activate the handset display again. If the handset is not on the base unit or charger, activate the handset display again by: <ul style="list-style-type: none"> –pressing [▲] or [▼] when on a call or operating the answering system –pressing [✳] for all other times “Dimmed Backlight” is set to “off”. Change the setting.
The handset will not turn on.	<ul style="list-style-type: none"> Make sure that the batteries are installed correctly. Fully charge the batteries. Clean the charge contacts and charge again.
I have changed the display language to a language I cannot read.	<ul style="list-style-type: none"> Change the display language.
I cannot make or receive calls.	<ul style="list-style-type: none"> The base unit AC adaptor or telephone line cord is not connected. Check the connections. If you are using a splitter to connect the unit, remove the splitter and connect the unit to the wall socket directly. If the unit operates properly, check the splitter. Disconnect the base unit from the telephone line and connect the line to a known working telephone. If the working telephone operates properly, contact our service personnel to have the unit repaired. If the working telephone does not operate properly, contact your service provider/telephone company. The dialling mode setting is incorrect. Set to “Tone (DTMF)” or “Pulse (Impulz.)” as needed. The key lock feature is turned on. Turn it off.
The unit does not ring.	<ul style="list-style-type: none"> The ringer volume is turned off. Adjust the ringer volume.
The batteries should be charging but the battery icon does not change.	<ul style="list-style-type: none"> Clean the charge contacts and charge again.
A busy tone is heard when [📞] is pressed.	<ul style="list-style-type: none"> The handset is too far from the base unit. Move closer and try again. Another handset is in use or the answering system is being used. Wait and try again later.

Note:

(*1) Refer to the original operating instructions.

Cross Reference:

Registering a Handset to a Base Unit (P.16)

Problem	Cause & solution
Static is heard, sound cuts in and out. Interference from other electrical units.	<ul style="list-style-type: none"> Place the handset and the base unit away from other electrical appliances. Move closer to the base unit. Your unit is connected to a telephone line with DSL service.
Noise is heard during a call.	<ul style="list-style-type: none"> You are using the handset or base unit in an area with high electrical interference. Place the handset and base unit away from interference sources, such as antennas and mobile phones.
The handset/base unit stops working while being used.	<ul style="list-style-type: none"> Disconnect the base unit AC adaptor and remove the handset batteries. Connect the base unit AC adaptor, install the batteries and try again.
The handset beeps intermittently and/or  flashes.	<ul style="list-style-type: none"> Fully charge the batteries.
I fully charged the batteries, but  still flashes.	<ul style="list-style-type: none"> Clean the charge contacts and charge again. It is time to replace the batteries.
I fully charged the batteries, but the operating time seems to be short.	<ul style="list-style-type: none"> Wipe the battery ends (+, -) and the unit contacts with a dry cloth.
Caller information is not displayed.	<ul style="list-style-type: none"> You need to subscribe to Caller ID service. Consult your service provider/telephone company for details. Your unit is connected to a telephone line with DSL service.
I cannot register a handset to a base unit.	<ul style="list-style-type: none"> The maximum number of handsets (5) are already registered to the base unit. Cancel unused handset registrations from the base unit. You entered the wrong PIN. If you forget your PIN, please clear PIN code following "How to Clear User Setting". Place the handset and the base unit away from other electrical appliances.
I cannot make intercom or transfer calls.	<ul style="list-style-type: none"> Select the same base unit for each handset.

SMS (Short Message Service)

Problem	Cause & solution
I cannot send or receive SMS messages.	<ul style="list-style-type: none"> SMS is set to "OFF". Set it to "ON". You have not subscribed to the appropriate service. Consult your service provider/telephone company. The SMS message centre number(s) are not stored or are incorrect. Store the correct numbers. Message transmission was interrupted. Wait until the message has been sent before using other telephone functions. Your unit is connected to a telephone line with DSL service.
The handset does not ring when I receive SMS messages.	<ul style="list-style-type: none"> SMS alert is off. Set SMS alert "ON".

Cross Reference:
How to Clear User Setting (P.23)

Answering system

Problem	Cause & solution
The unit does not record new messages.	<ul style="list-style-type: none"> ● The answering system is turned off. Turn it on. ● If you subscribe to the voice mail service, messages are recorded by your service provider/telephone company not your telephone. Change the unit's "Number of Rings" setting or consult your service provider/telephone company.
I cannot operate the answering system with the handset or the base unit.	<ul style="list-style-type: none"> ● The base unit or another handset is being used. Wait for the other user to finish. ● A caller is leaving a message. Wait for the caller to finish. ● The handset is too far from the base unit. Move closer.
I cannot operate the answering system remotely.	<ul style="list-style-type: none"> ● You are entering the wrong remote access code. If you forget the remote access code, store a new remote access code. ● Press each key firmly. ● The answering system is turned off. ● You are using a rotary/pulse telephone. Try again using a touch-tone phone. ● Remote operation is not available unless you change the remote access code from the default setting ("0000"). Change the remote access code.
While recording a greeting message or listening to messages, the unit rings and recording stops.	<ul style="list-style-type: none"> ● A call is being received. Answer the call and try again later.
The call screening setting turns "On" or "Off" even though I set it differently.	<ul style="list-style-type: none"> ● You pressed [▲] or [▼] when screening a call or when the base unit was in standby mode. Set the call screening setting again.

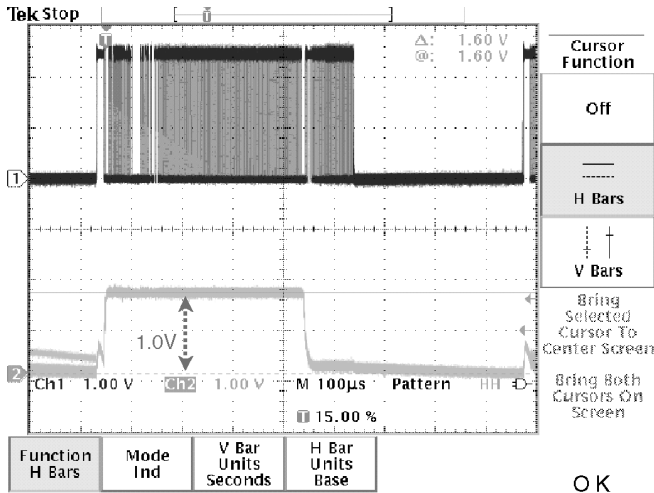
9.3. Check Point

RX Sensitivity Check

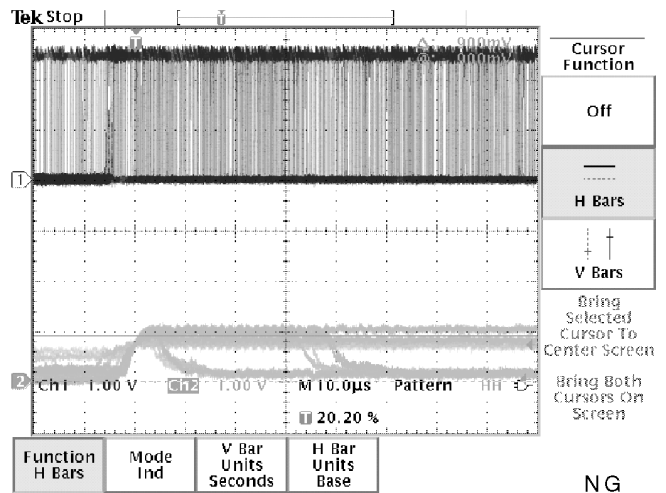
	Check Point (*2)	Value	Remarks
BU (Base Unit)	RF = Pin 6 (RX data) RF = Pin 12 (RSSI)	more than 1.0v	①Make link with BU to HS and place the HS about 10cm away from the BU. ②The wave height is confirmed in the following waveform. (*1)
HS (Handset)	same as above	same as above	same as above

(*1) When you confirm the wave height, please refer to the items below.

(*2) Refer to **Circuit Board (Base Unit_Main)**(P.53), and refer to **Circuit Board (Handset)**(P.57).



OK



NG

9.4. 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.

9.4.1. Preparation

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

Recommended Flux: Specific Gravity → 0.82.

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

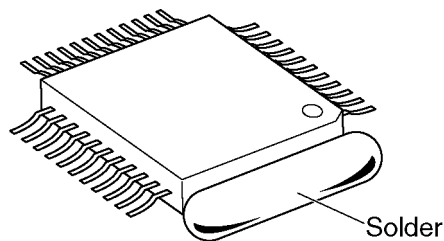
Note: See **About Lead Free Solder (Pbf: Pb free)** (P.4)

9.4.2. How to Remove the IC

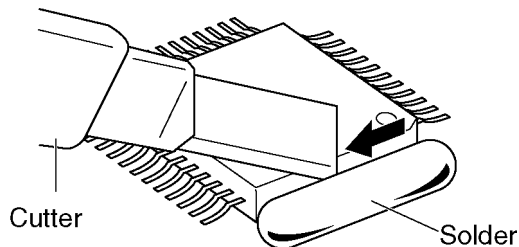
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

Note:

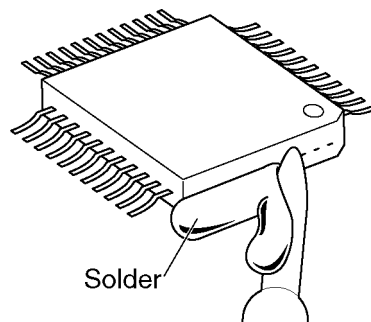
If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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



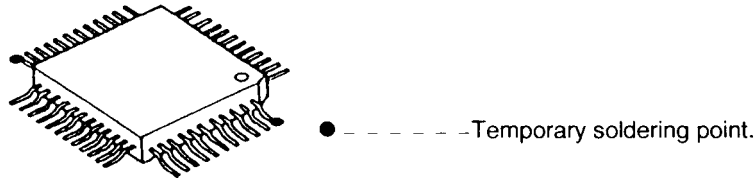
3. While the solder melts, remove it together with the IC pins.



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.

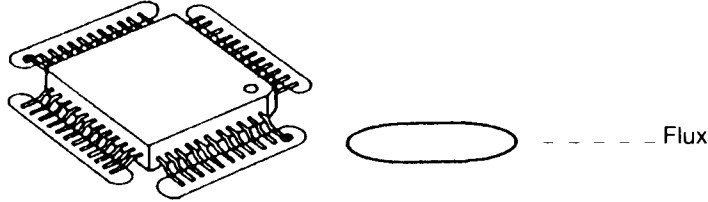
9.4.3. How to Install the IC

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

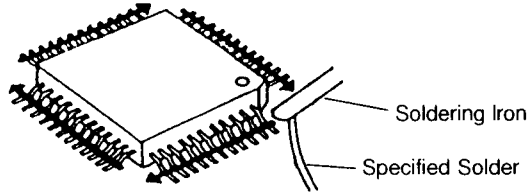


*Check the accuracy of the IC setting with the corresponding soldering foil.

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

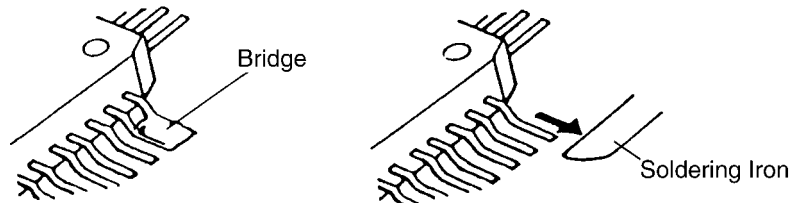


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



9.4.4. 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.

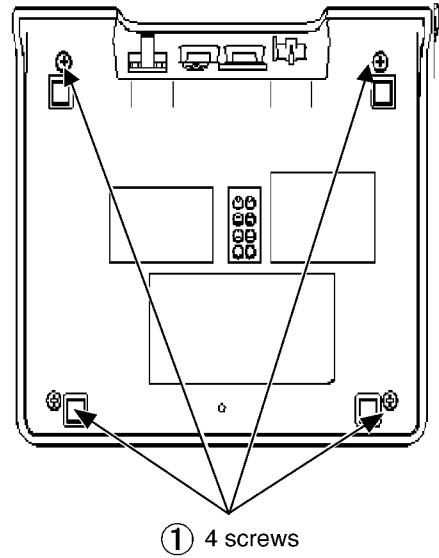


10 Disassembly and Assembly Instructions

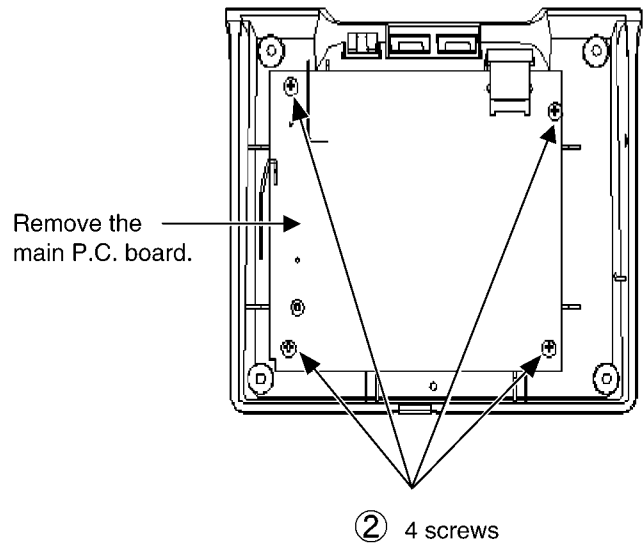
10.1. Disassembly Instructions

10.1.1. Base Unit

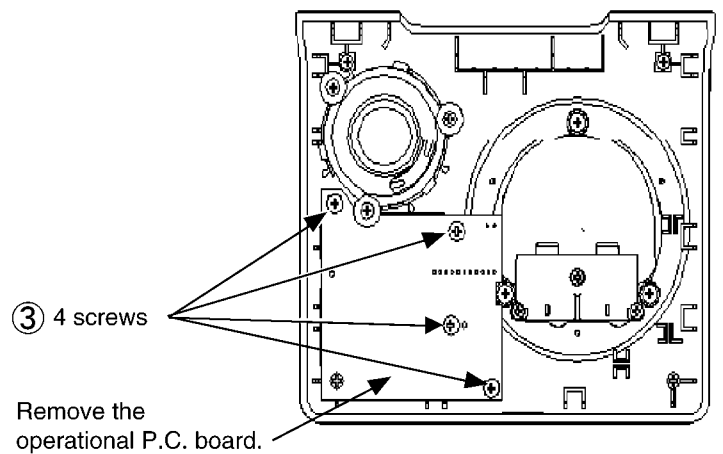
① Remove the 4 screws.



② Remove the 4 screws to remove the main P. C. board.

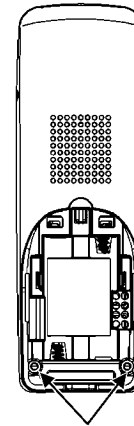


③ Remove the 4 screws to remove the operational P. C. board.

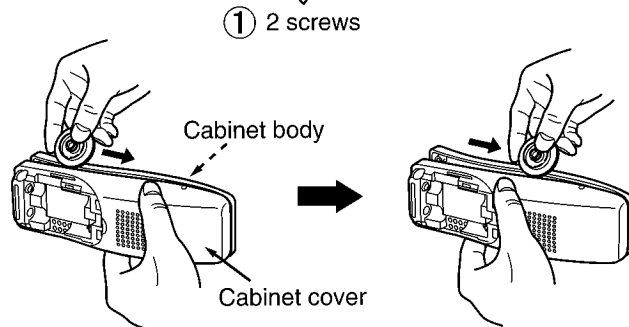


10.1.2. Handset

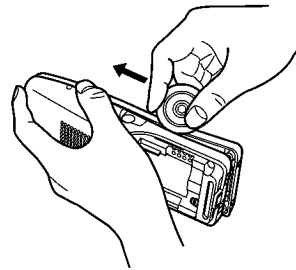
- ① Remove the 2 screws.



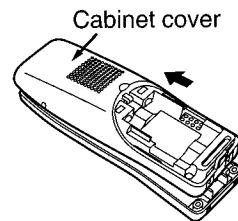
- ② Insert a JIG (PQDJ10006Y) between the cabinet body and the cabinet cover, then pull it along the gap to open the cabinet.



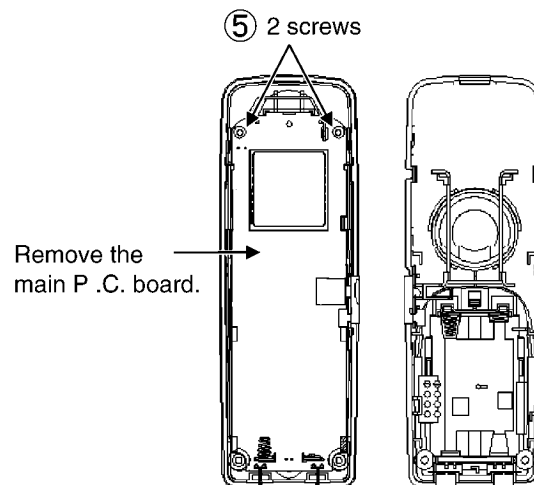
- ③ Likewise, open the other side of the cabinet.



- ④ Remove the cabinet cover by pushing it upward.

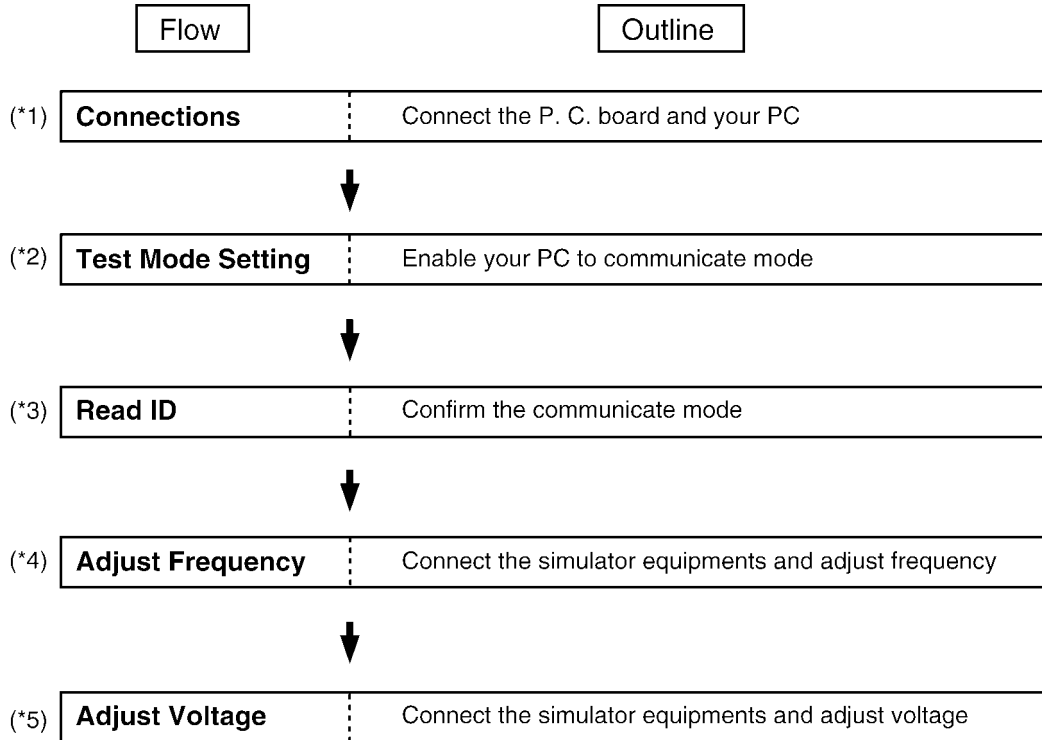


- ⑤ Remove the 2 screws to remove the main P. C. board.



11 Measurements and Adjustments

After replacing EEPROM or Main P.C. Board, do the following steps.



Cross Reference:

- (*1) Refer to **Connections** (P.36).
- (*2) Refer to **TEST Mode Settings** (P.38).
- (*3) Refer to **Read ID** (P.39).
- (*4) Refer to **Adjustment Standard** (P.40) and **Adjust Frequency** (P.42).
- (*5) Refer to **Adjustment Standard** (P.40) and **Adjust Voltage** (P.43).

11.1. Preparation

11.1.1. Equipment Required

- Frequency counter: It must be precise enough to measure intervals of 1 Hz (precision; ± 4 ppm).
Hewlett Packard, 53131A is recommended.
- Digital multi-meter (DMM): It must be able to measure voltage and current.
- Oscilloscope

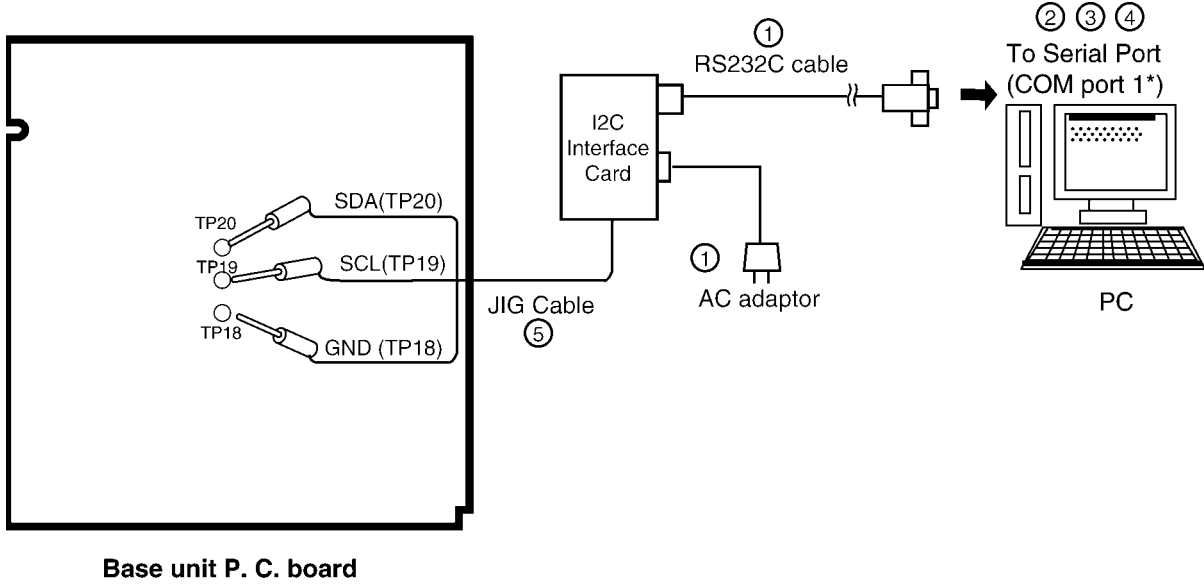
11.1.2. JIG

- RS232C cable
- I2C interface card (includes JIG cable): PNZZ1TG8070E
- **CD-ROM** for setting: PNZZTG8090E

11.2. Connections

11.2.1. Base Unit

- ① Connect the AC adaptor and RS232C cable.
- ② Turn on the PC.
- ③ Insert the CD-ROM into CD-ROM drive and copy "Panasonic DectTool xx.exe" to the directory on your PC (example: D drive).
- ④ Double-click "Panasonic DectTool xx.exe" file on the Windows.
- ⑤ Connect the JIG Cable of I2C interface card to TP18, TP19 and TP20.

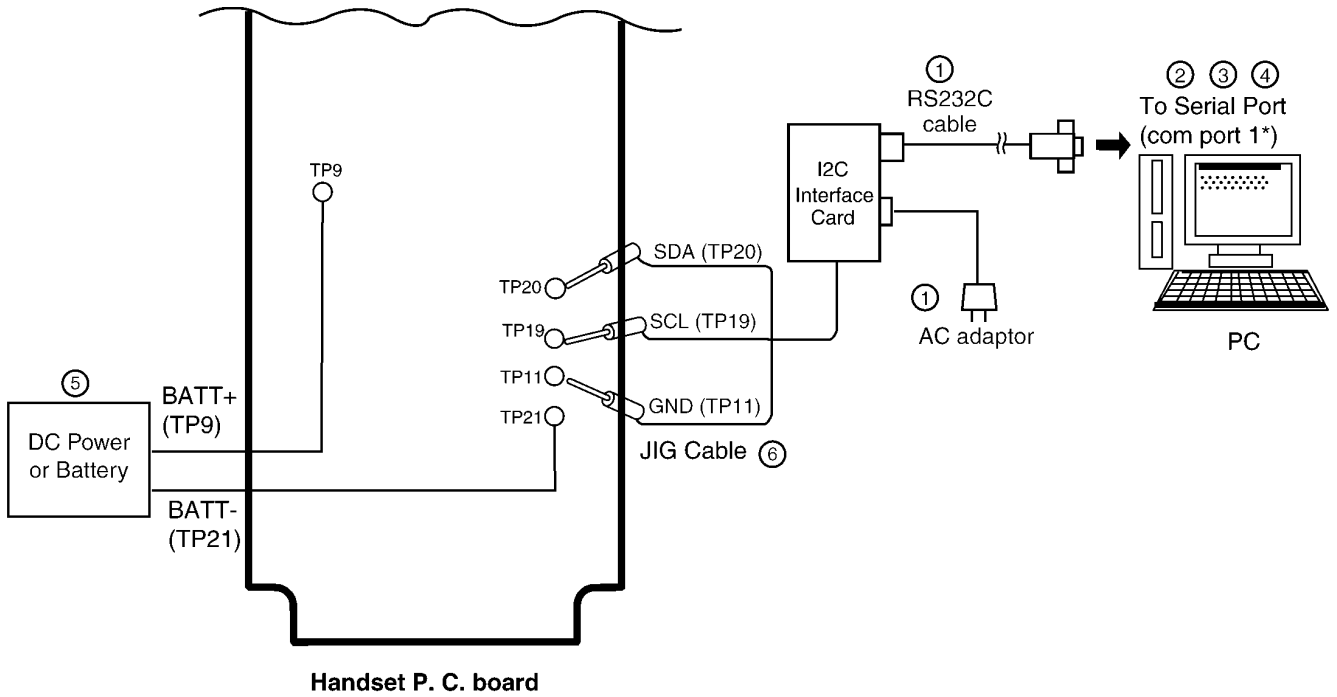


Note:

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

11.2.2. Handset

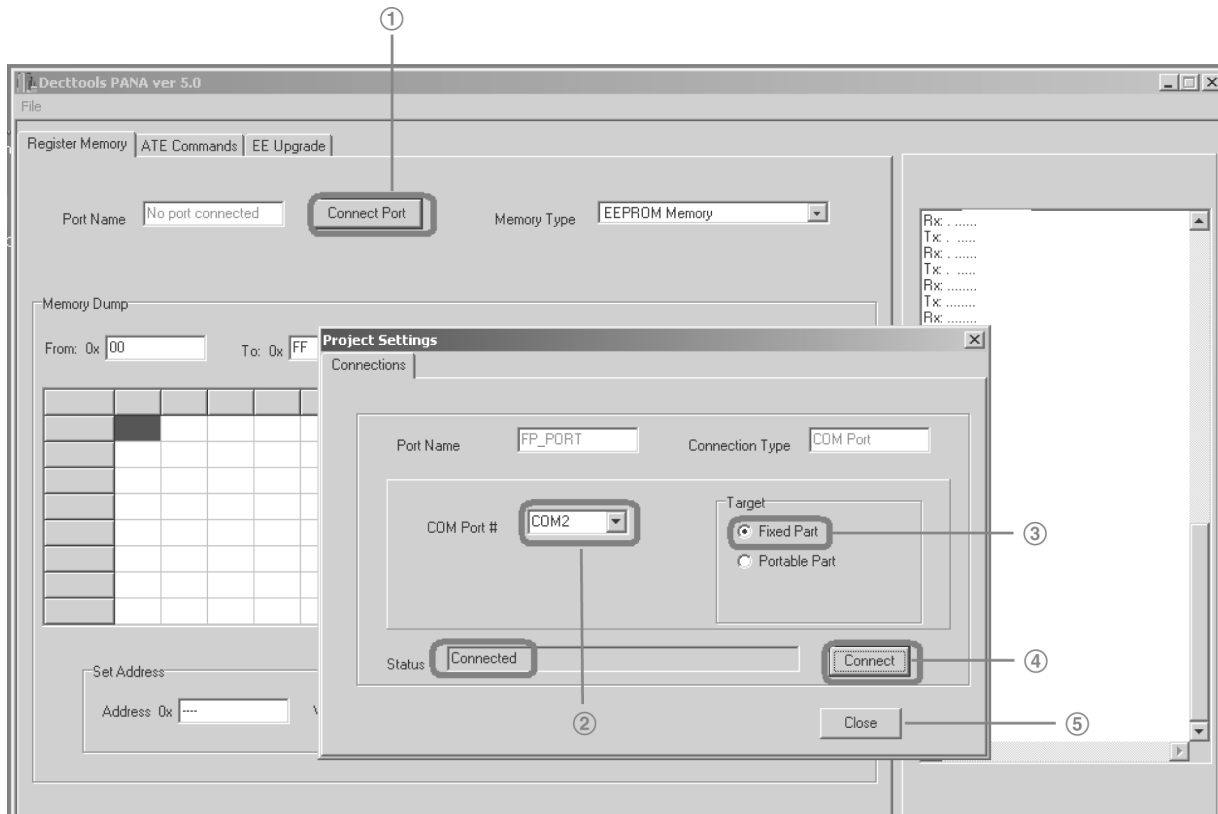
- ① Connect the AC adaptor and RS232C cable.
- ② Turn on the PC.
- ③ Insert the CD-ROM into CD-ROM drive and copy "Panasonic DectTools xx.exe" to the directory on your PC (example: D drive).
- ④ Double-click "Panasonic DectTools xx.exe" file on the Windows.
- ⑤ Connect the DC Power or Battery to TP21 (BATT+) and TP9 (BATT-).
- ⑥ Connect the JIG Cable of I2C interface card to TP11, TP19 and TP20.



Note:

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

11.3. TEST Mode Settings



(On the Window)

- ① Click “Connect Port” in “Register Memory” tab.
- ② Select correct COM port no. of your PC.
- ③ (for base unit)
Select “Fixed Part”.
- ③ (for handset)
Select “Portable Part”.
- ④ Press “Connect” button for several times so that the “Connected” be displayed in the status bar.
“CON” indicator of the I2C interface card will also be light up at the same time.
- ⑤ Click “Close” button to close the window.

11.4. Read ID

(On the Window)

- ① Select "Register Memory" tab.
- ② (For base unit)
 - Type "1FF" in To 0x Box then press "Update" button.
 - Software will download all data from address 0x000 to 0x1FF.
- ② (For handset)
 - Type "2FF" in To 0x Box then press "Update" button.
 - Software will download all data from address 0x000 to 0x2FF.

You are recommended to write down the ID address.

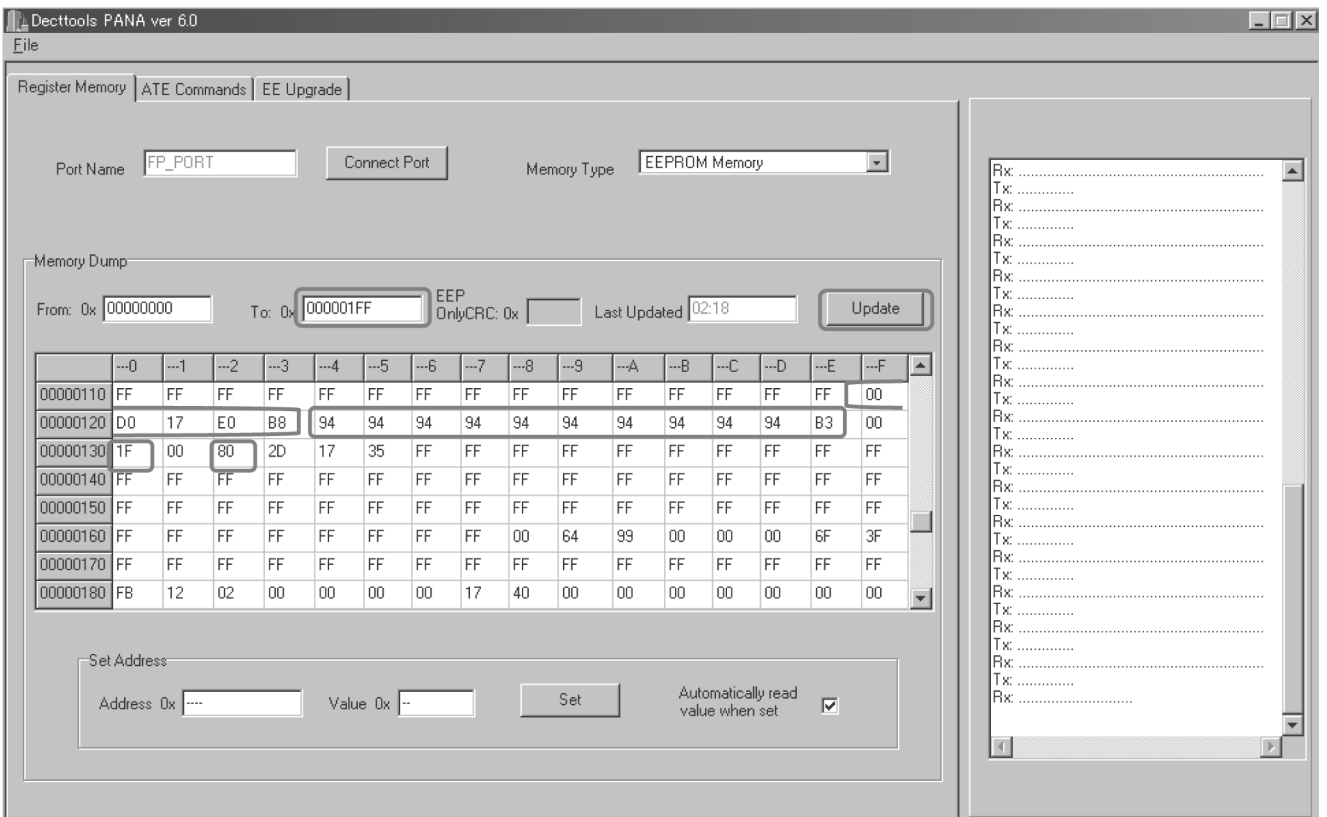
The following parameters should be backup form the data map.

(For base unit)

- 1) RFPi -0x11F to 0x123

(For handset)

- 1) IPEI -0x298 to 0x29C



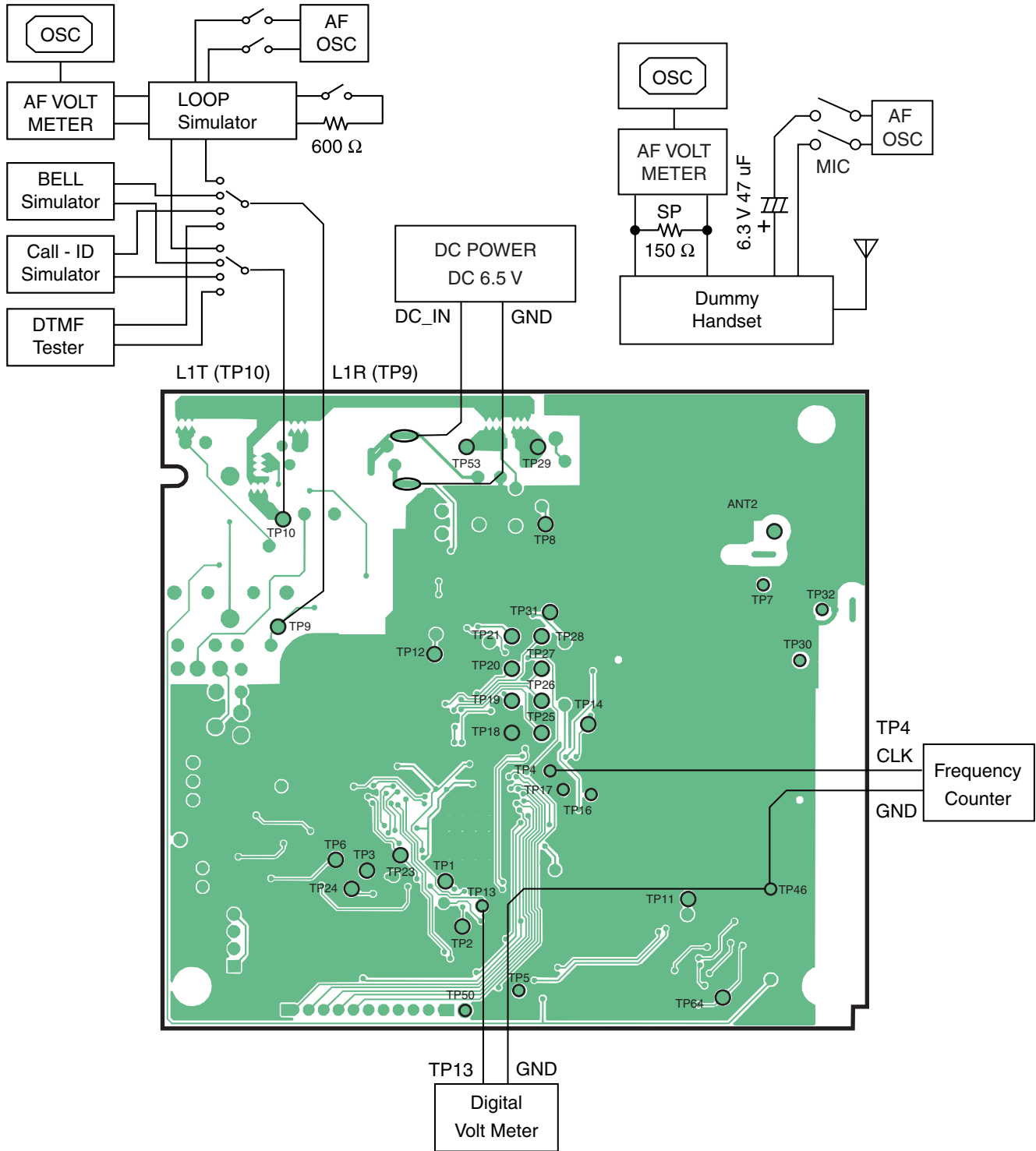
Note:

The window is for base unit.

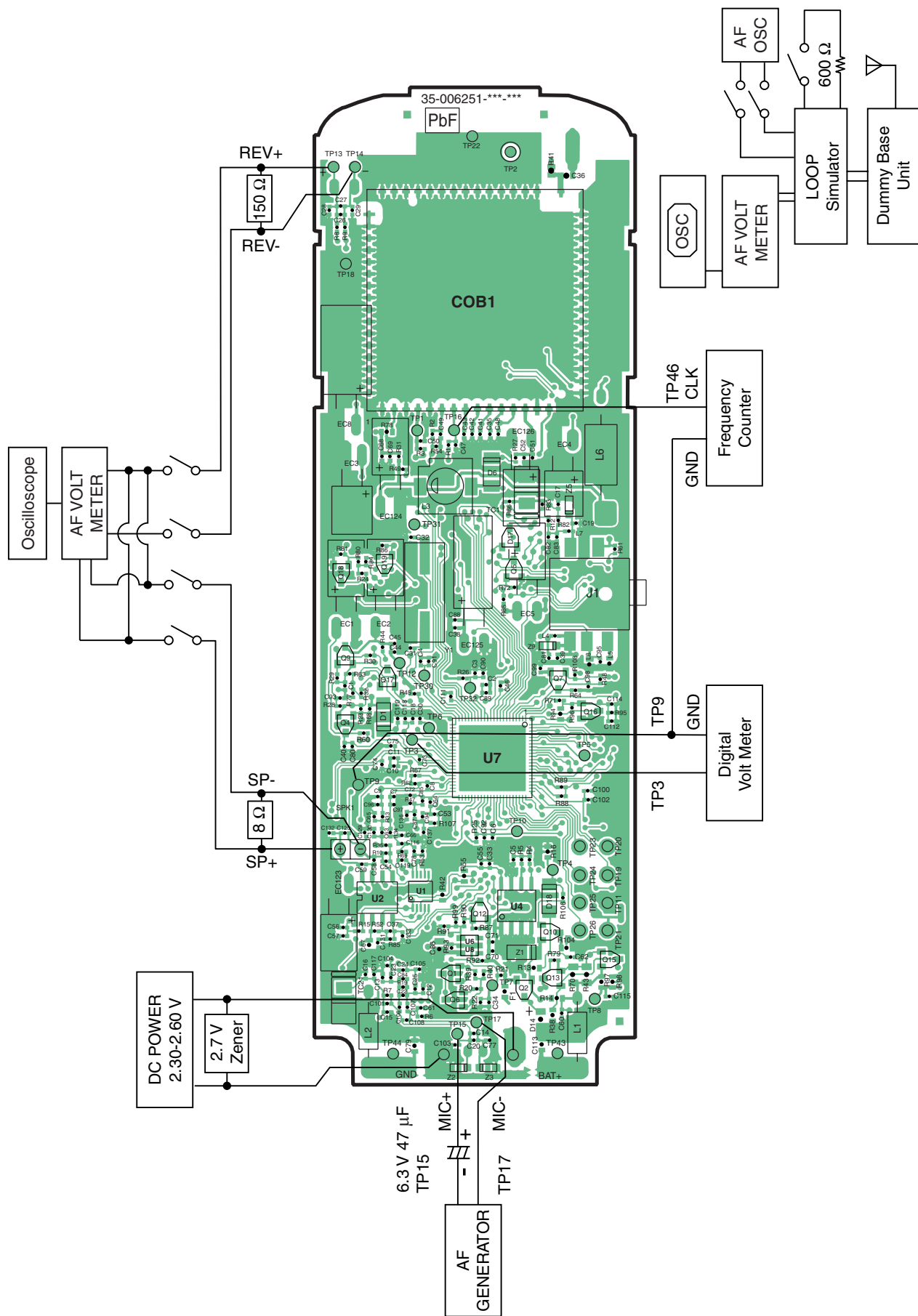
11.5. Adjustment Standard

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

11.5.1. Base unit (Flow Solder Side View)

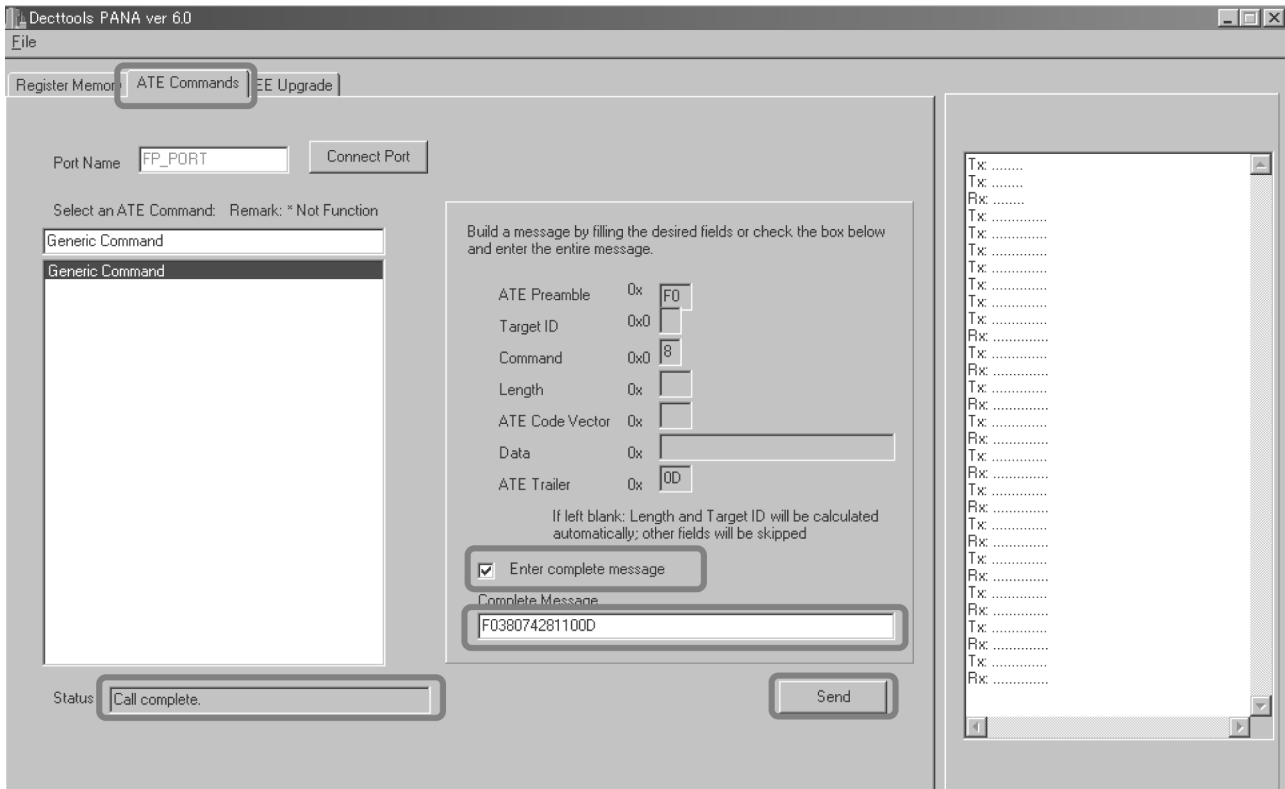


11.5.2. Handset (Component View)



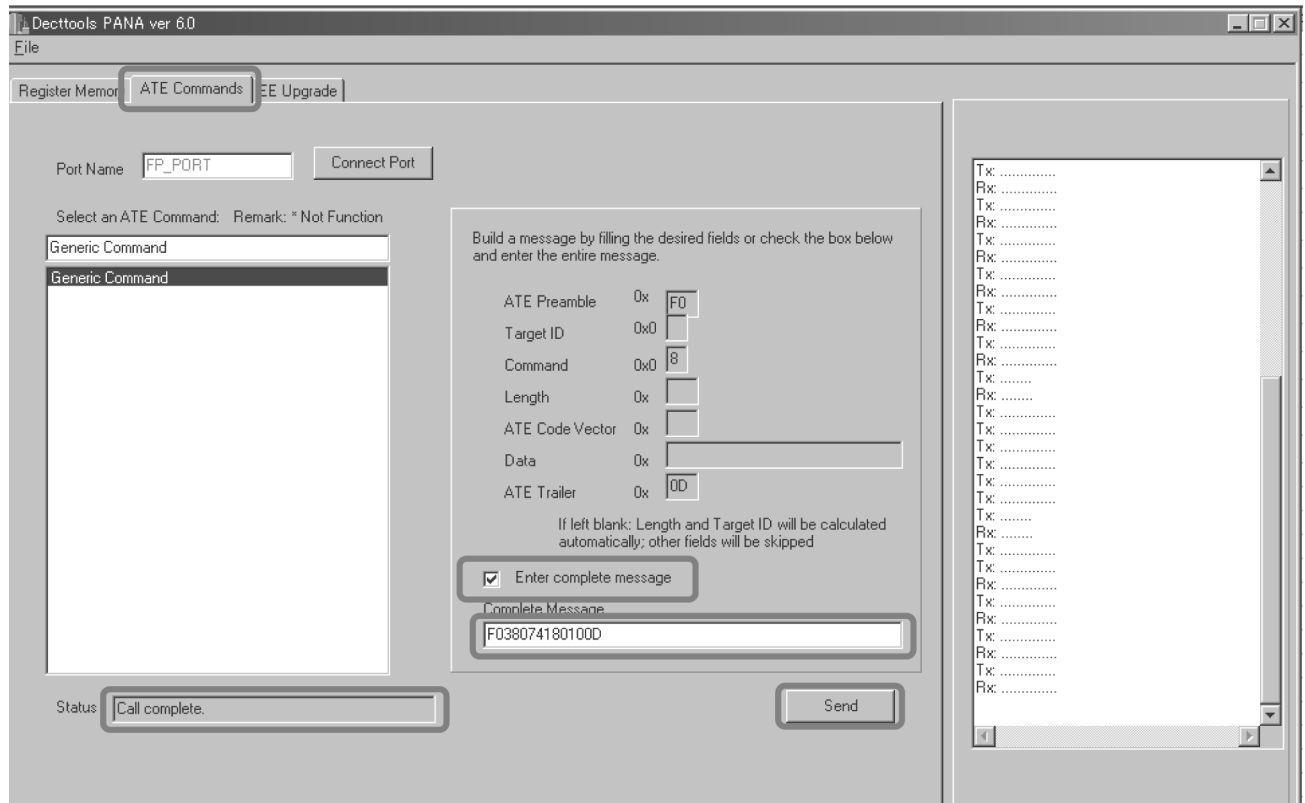
11.6. Adjust Frequency

- ① Press "ATE Commands" tab.
 - ② Tick the "Enter complete message".
Don't care the items from "ATE Preamble" to "ATE Trailer".
 - ③ (For base unit)
Type "F038074280100D" and "F038074281100D" to enable the reference clock and press "Send" button for each type.
 - ③ (For handset)
Type "F078074280100D" and "F078074281100D" to enable the reference clock and press "Send" button for each type.
"Call complete" will be display in status bar.
Frequency around 13.8 MHz will be read out from the frequency counter.
 - ④ (For base unit)
If the frequency is too low (< 13.824 MHz), type "F038074282100D"
If the frequency is too high (> 13.824 MHz), type "F038074284100D"
 - ④ (For handset)
If the frequency is too low (< 13.824 MHz), type "F078074282100D"
If the frequency is too high (> 13.824 MHz), type "F078074284100D"
- Each increment or decrement will have around 8 Hz per steps
Target frequency should be 13.824000 MHz+/- 10 Hz.
- ⑤ Simply disconnect the RS232C cable will finish the process and save the data.



11.7. Adjust Voltage

- ① Press "ATE Commands" tab and tick the "Enter complete message".
Don't care the items from "ATE Preamble" to "ATE Trailer".
 - ② (For base unit)
Type "F0380741B0100D" and "F038074181100D" to enable the reference clock and press "Send" button for each type.
 - ② (For handset)
Type "F0780741B0100D" and "F078074181100D" to enable the reference clock and press "Send" button for each type.
"Call complete" will be display in status bar.
DC voltage around 1.90~2.10 V (for base unit) 1.85~2.05 V (for handset) will be read out from the digital multi-meter.
 - ③ (For base unit)
If the voltage is too low (< 2.000 V), type "F038074182100D".
If the voltage is too high (> 2.000 V), type "F038074184100D".
 - ③ (For handset)
If the voltage is too low (< 1.960 V), type "F078074182100D".
If the voltage is too high (> 1.960 V), type "F078074184100D".
- Each increment or decrement will have around 0.01 V per steps.
Target DC voltage should be 2.000 V +/- 0.015 V (for base unit), 1.960 V +/- 0.015 V (for handset).
- ④ Simply disconnect the RS232C cable will finish the process and save the data.



Memo

12 Schematic Diagram

12.1. For Schematic Diagram

12.1.1. Base Unit (Base Unit)

12.1.1.1. Acoustic Testing Mode

Press “STOP”, “▶▶” and “▲” simultaneously, and insert the plug of AC adaptor.

- No beep sound.

It is easier to measure the transmit level with acoustic testing mode.

Notes:

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

Important Safety Notice:

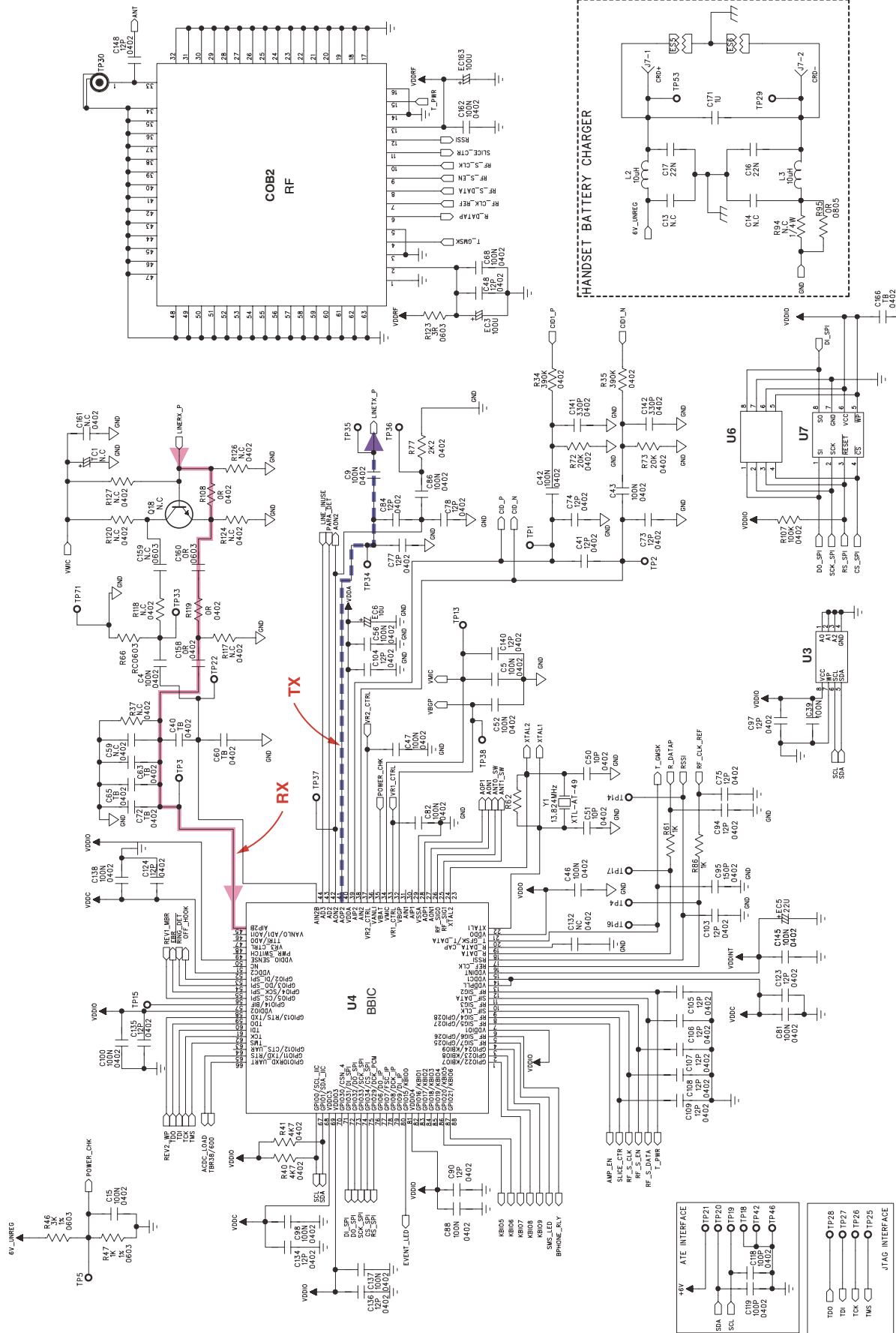
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

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

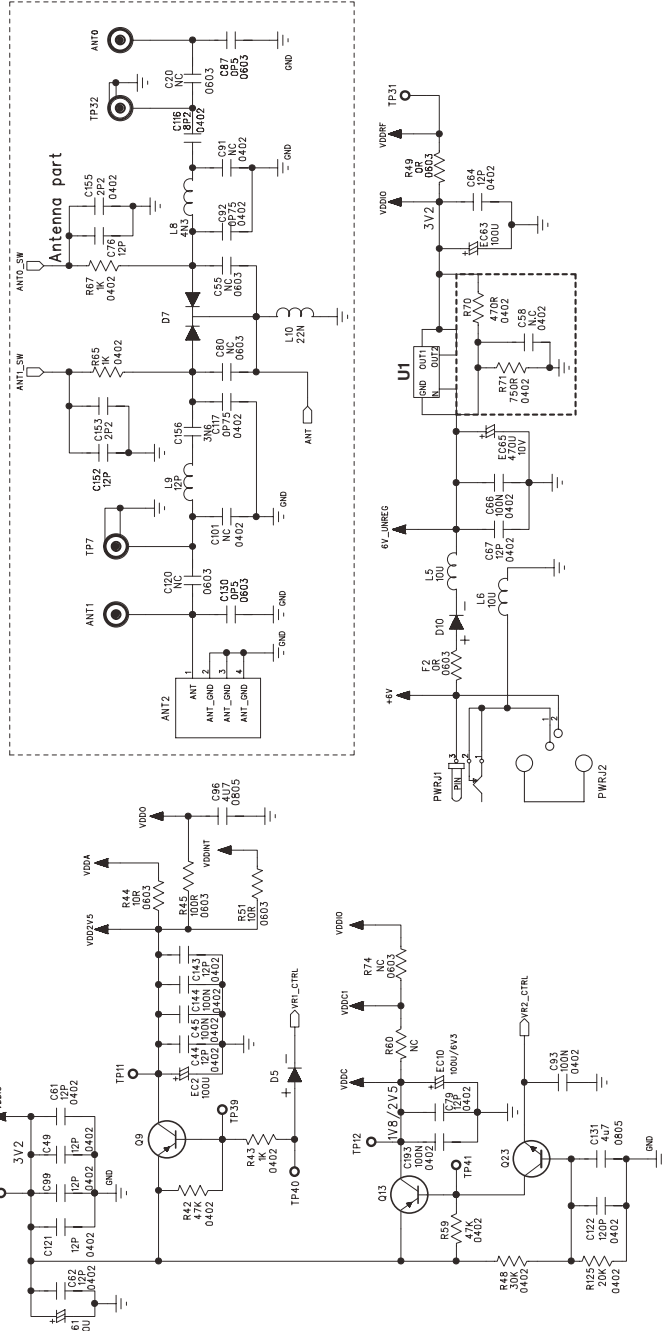
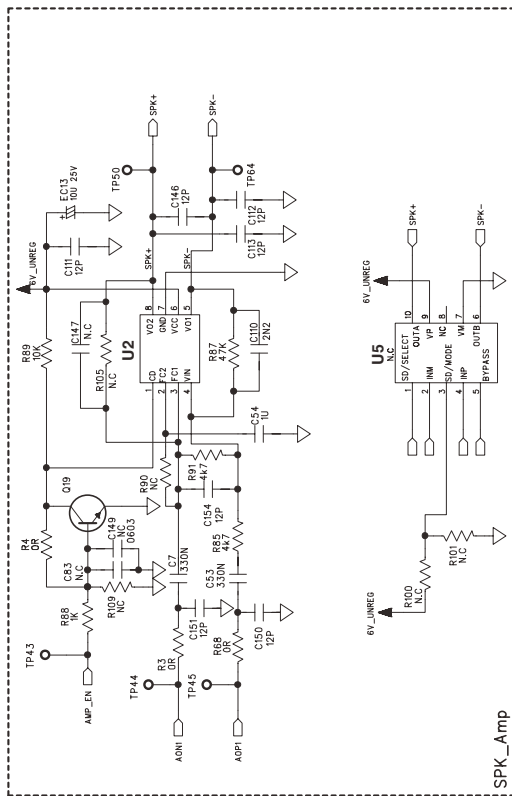
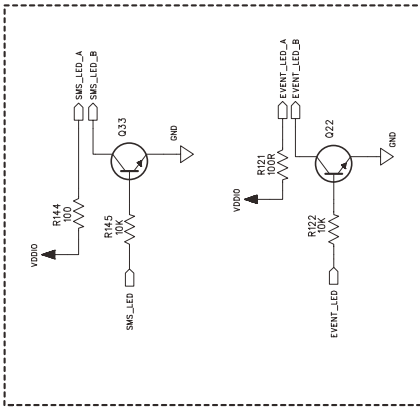
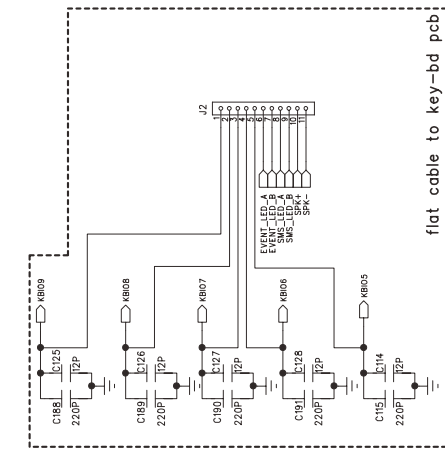
12.1.2. Handset (Schematic Diagram (Handset))

Notes:

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

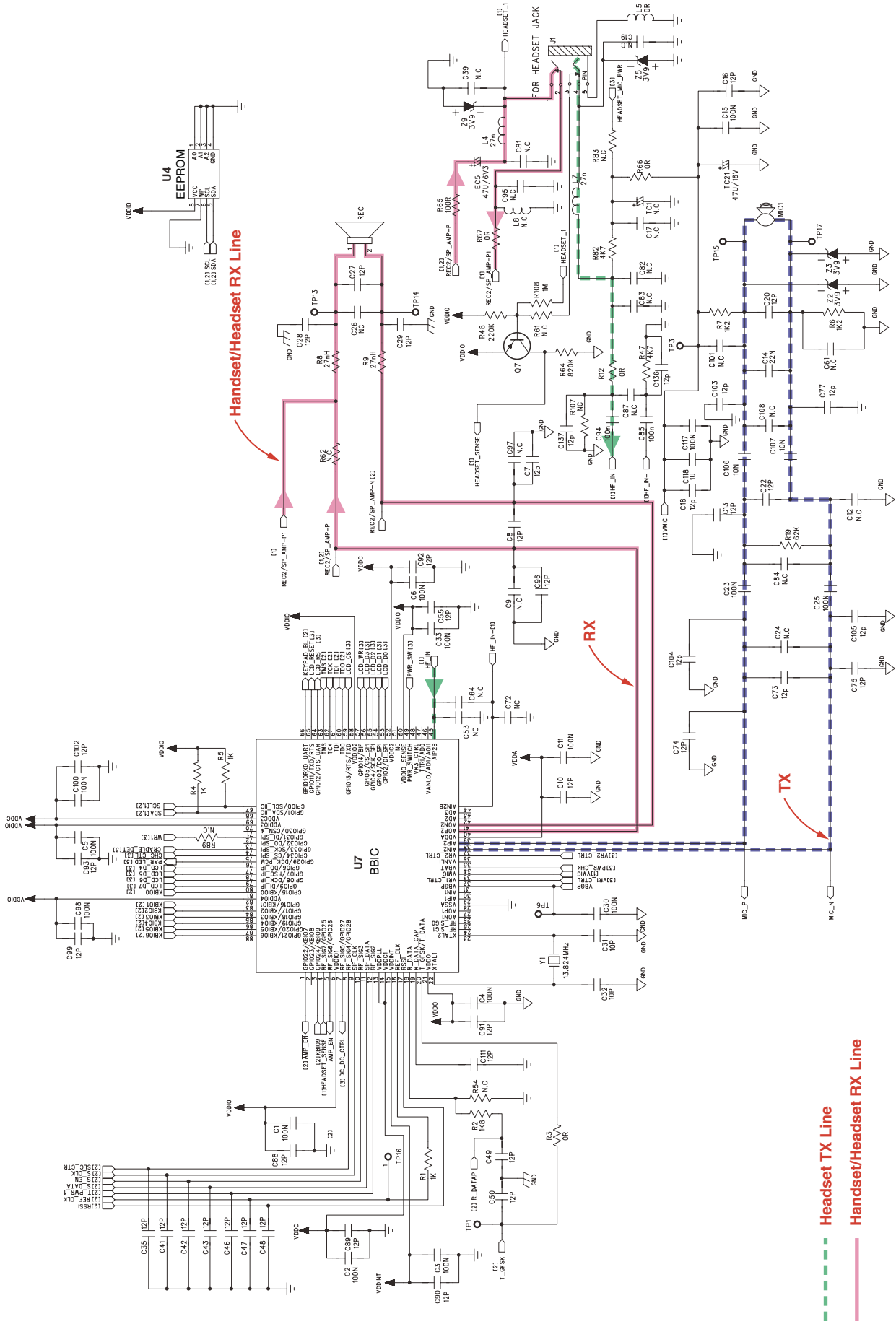


KX-TG8090HG Schematic Diagram (Base Unit 2/3)
N.C: No Components



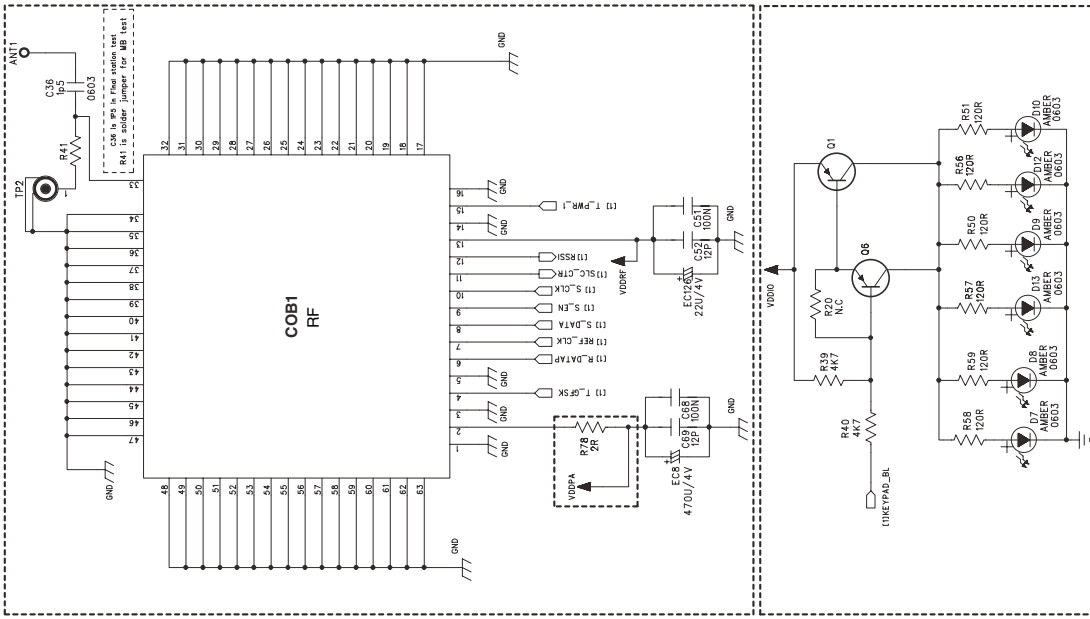
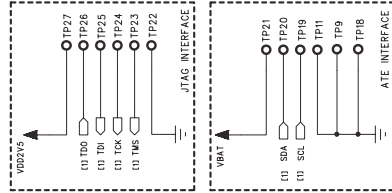
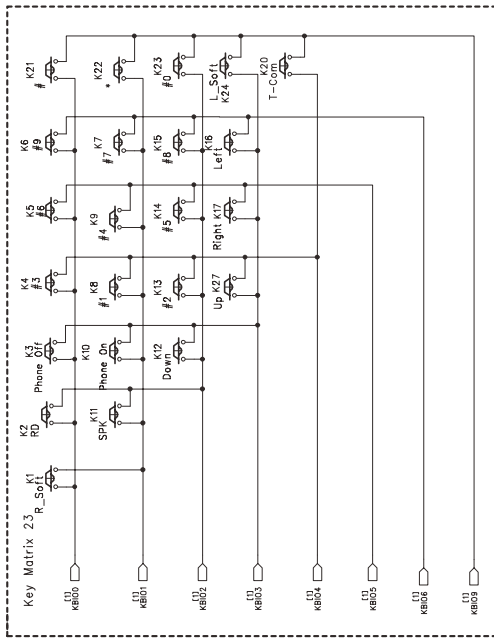
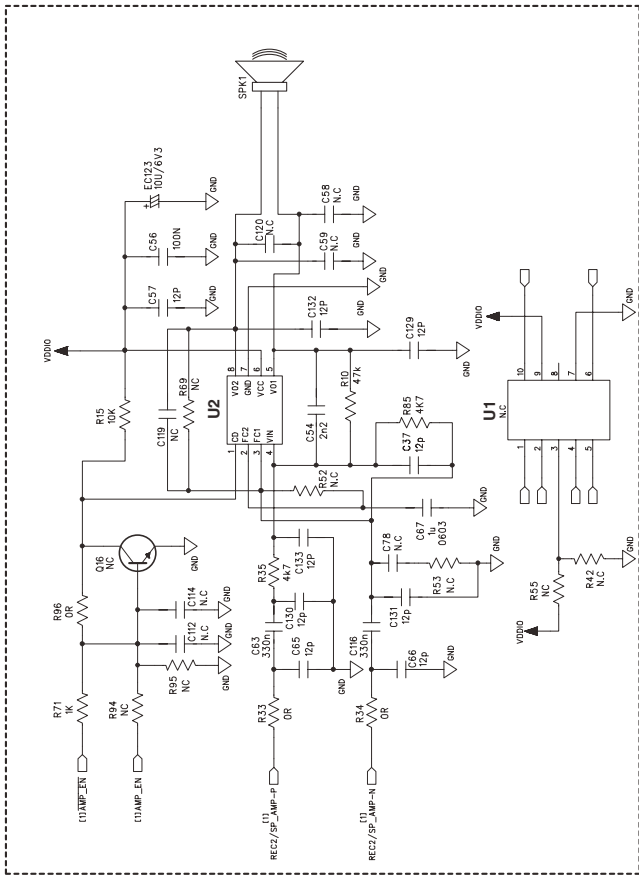
N.C.: No Components
KX-TG8090HG SCHEMATIC DIAGRAM (Base Unit 3/3)

12.3. Schematic Diagram (Handset)

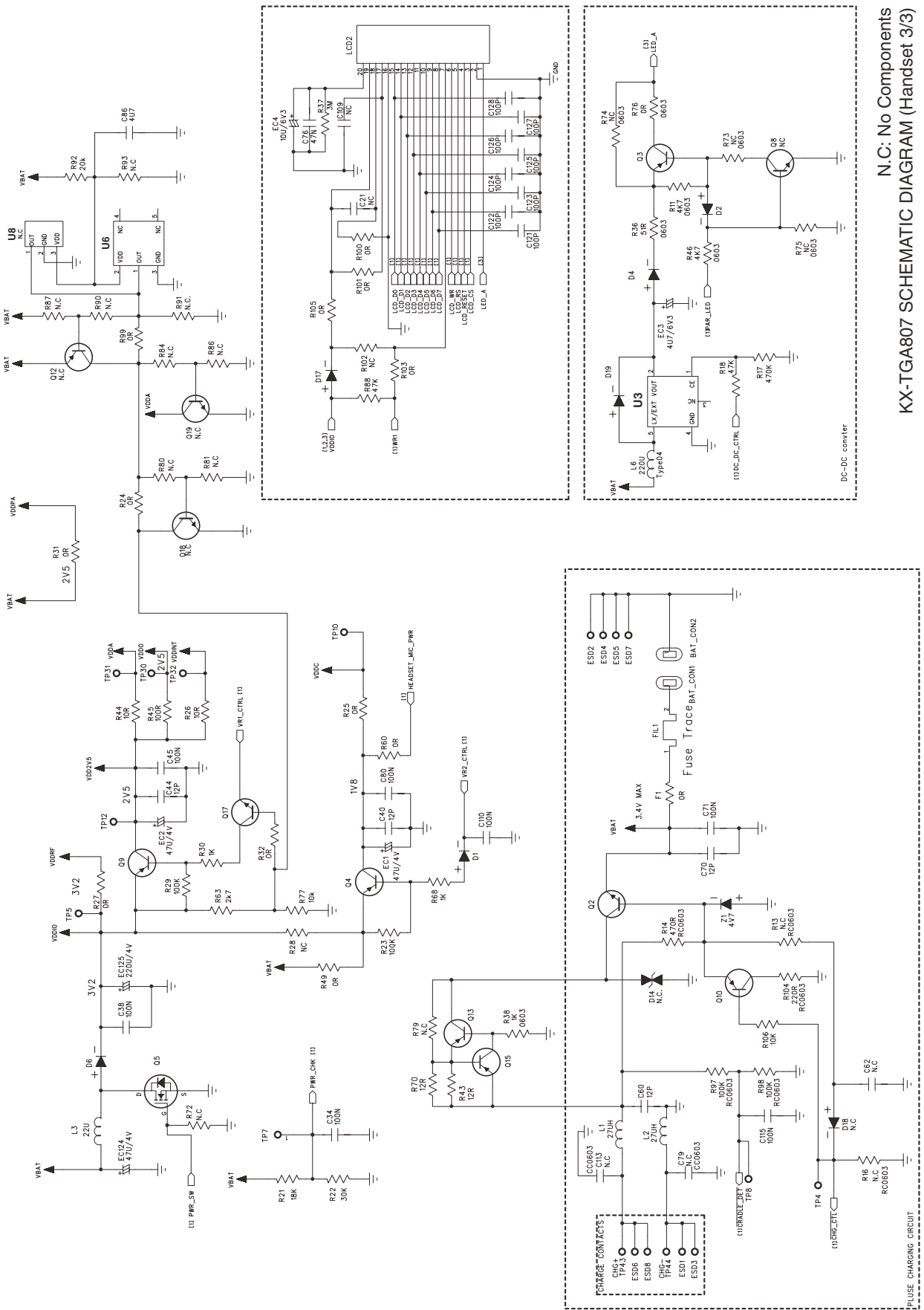


Headset TX Line
Handset/Headset RX Line

N.C: No Components
KX-TGA807 SCHEMATIC DIAGRAM (Handset 1/3)



N.C: No Components
KX-TGA807 SCHEMATIC DIAGRAM (Handset 2/3)



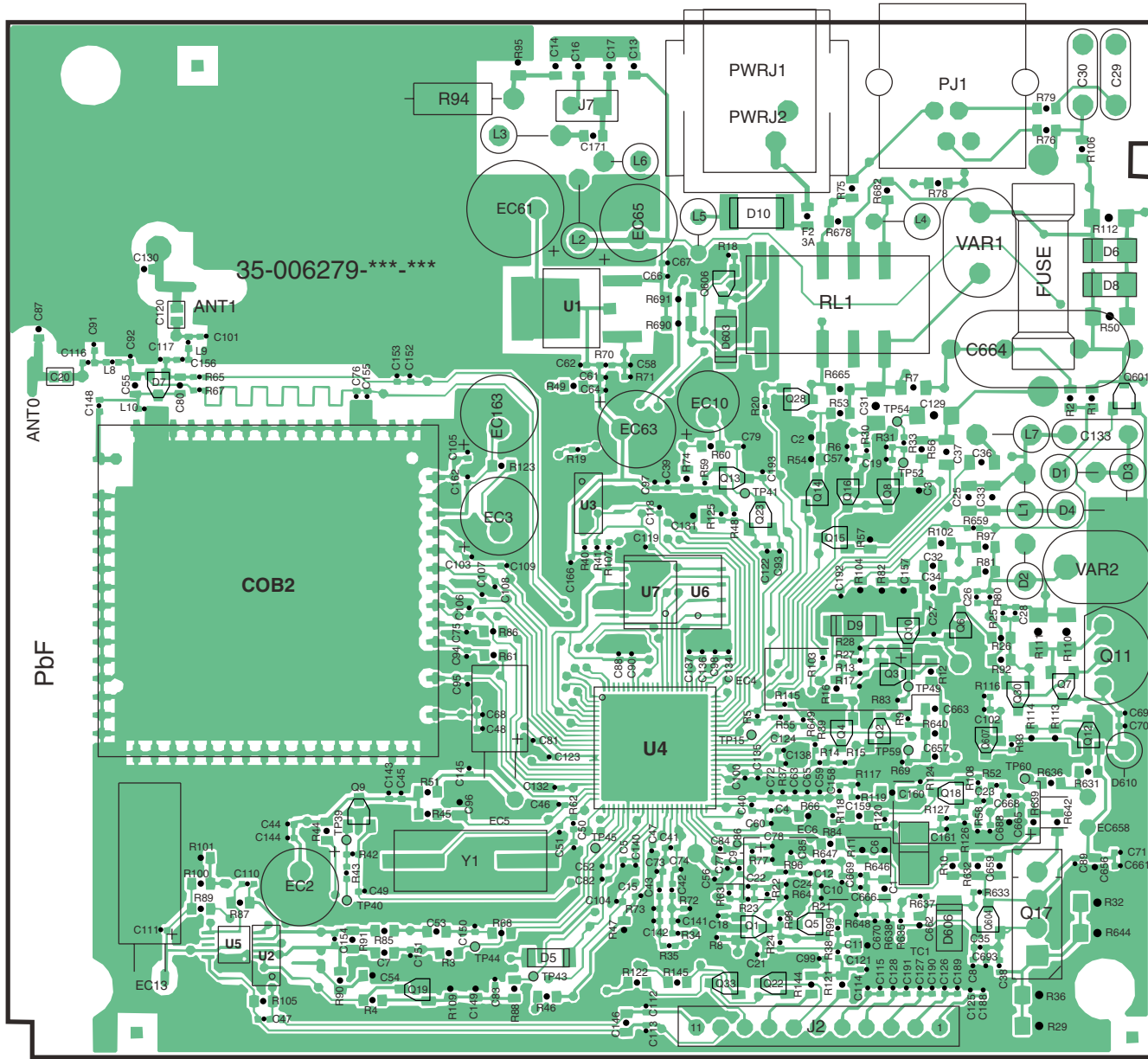
N.C: No Components
KX-TGA807 SCHEMATIC DIAGRAM (Handset 3/3)

Memo

13 Printed Circuit Board

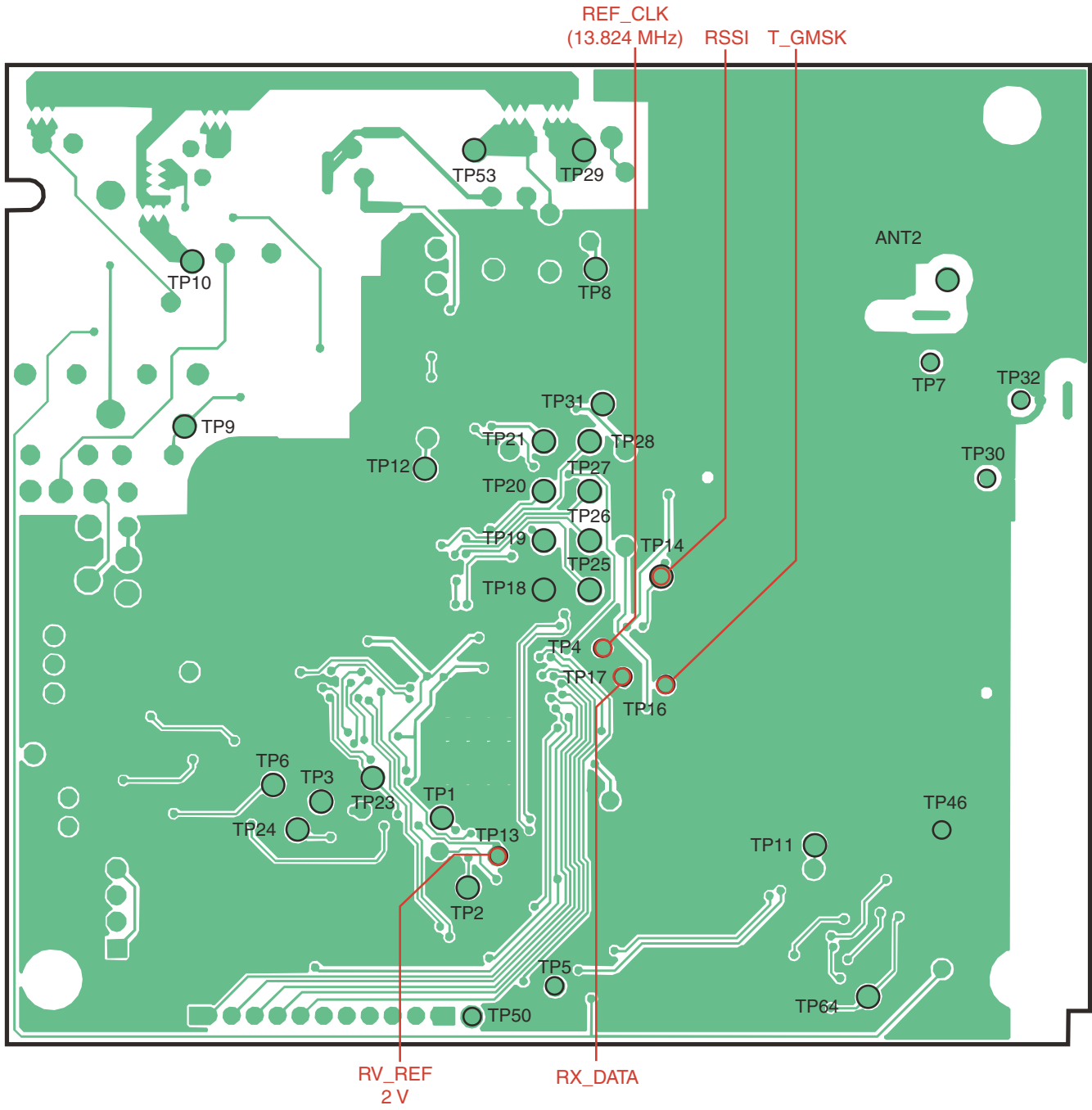
13.1. Circuit Board (Base Unit_Main)

13.1.1. Component View



KX-TG8090 CIRCUIT BOARD (Base Unit_Main (Component View))

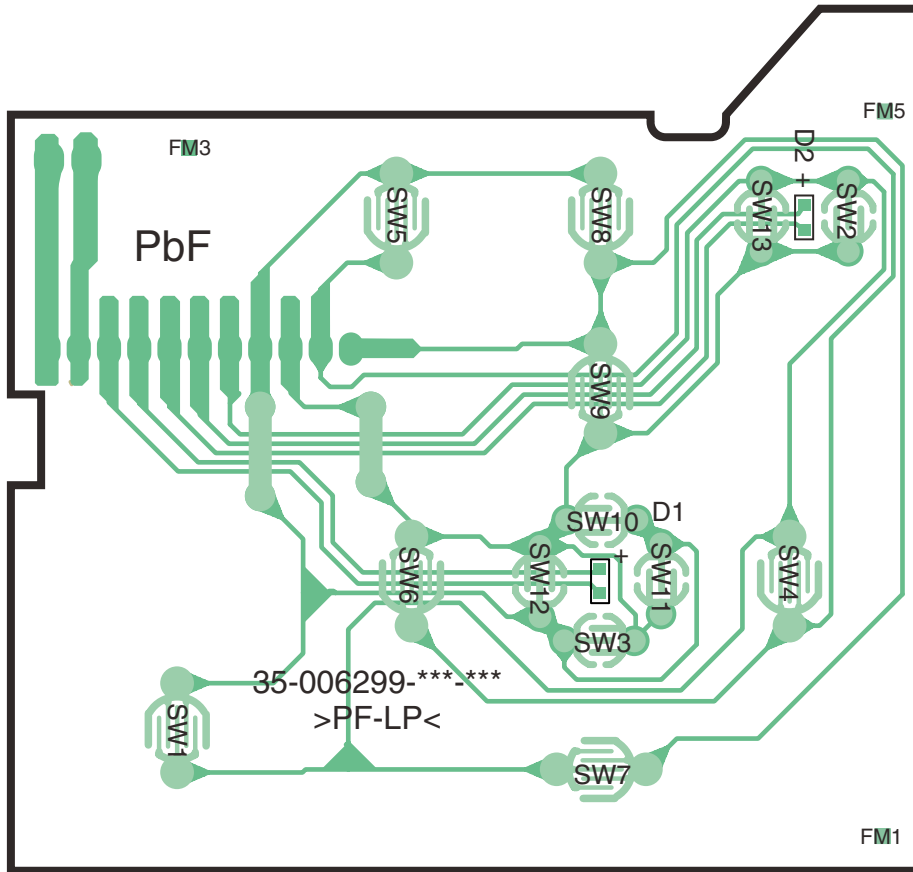
13.1.2. Flow Solder Side View



KX-TG8090 CIRCUIT BOARD (Base Unit_Main (Flow Solder Side View))

13.2. Circuit Board (Base Unit_Operation)

13.2.1. Component View

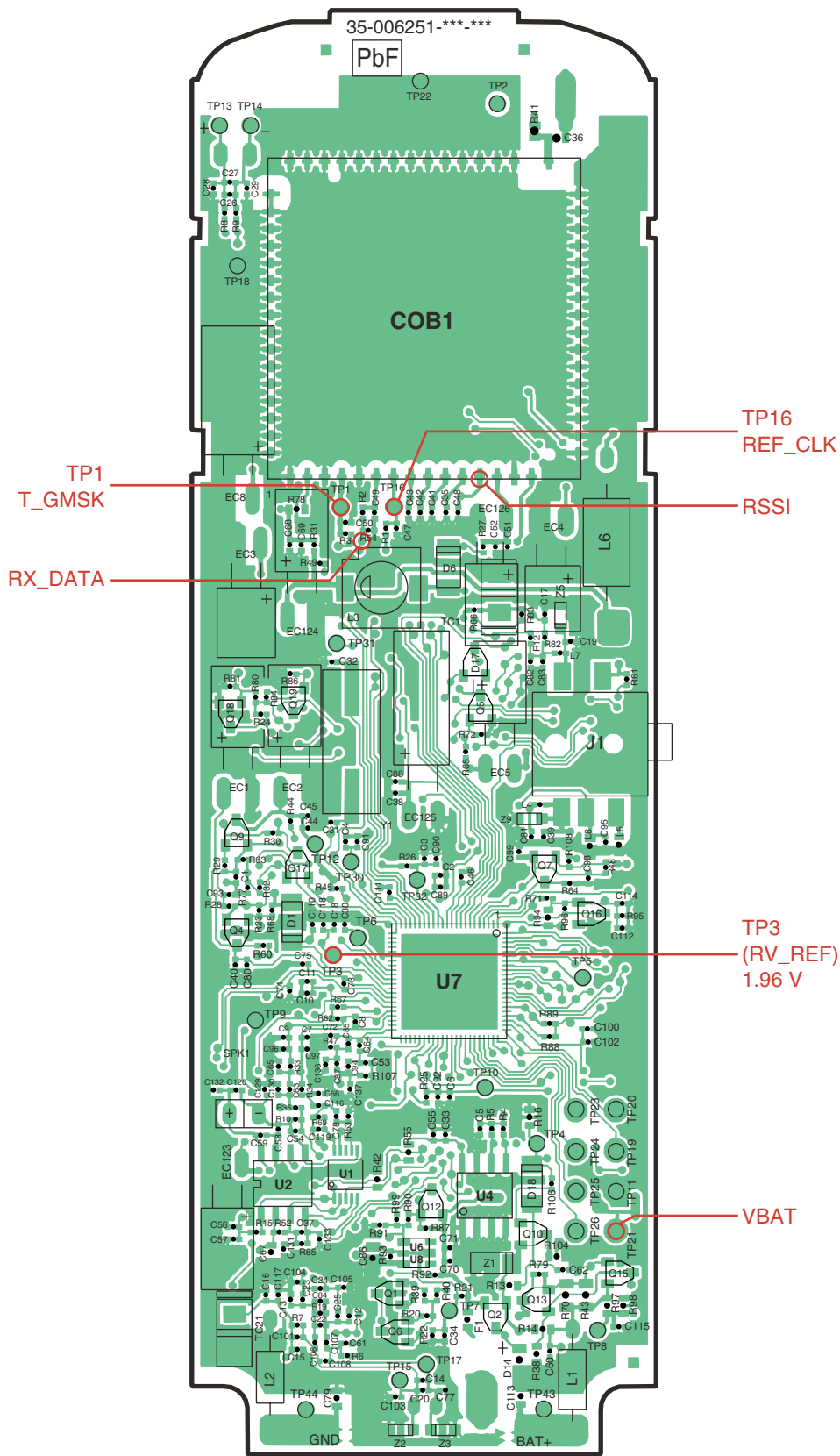


KX-TG8090 CIRCUIT BOARD (Base Unit_Operation (Component View))

Memo

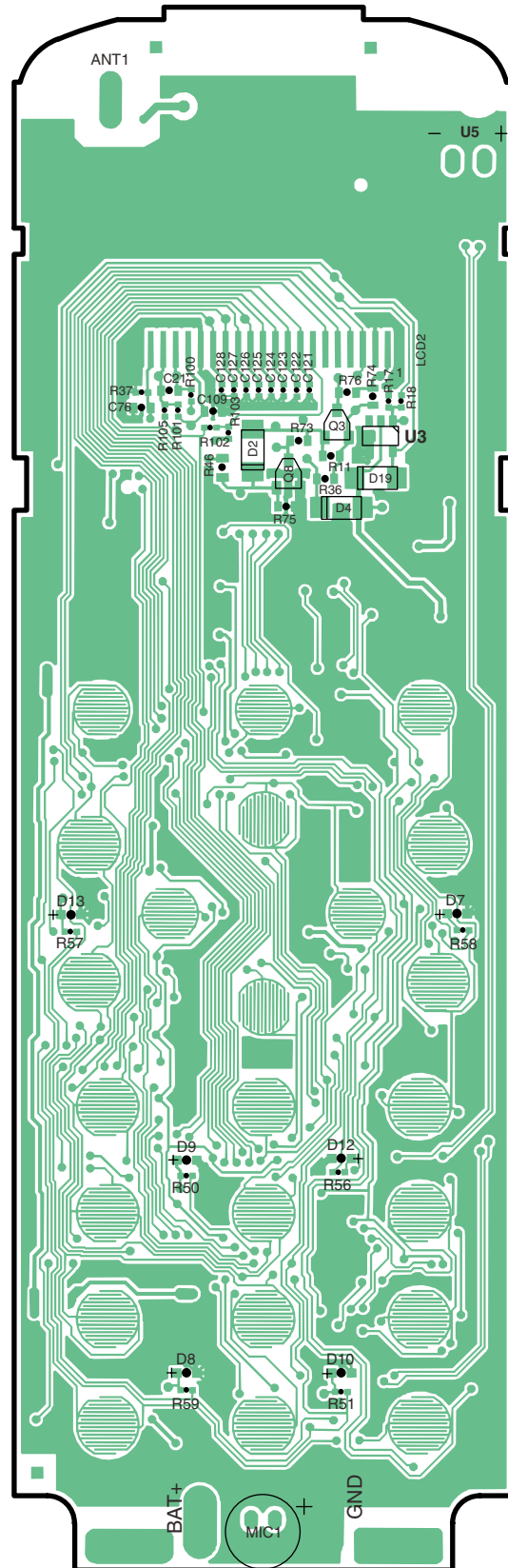
13.3. Circuit Board (Handset)

13.3.1. Component View



KX-TGA807 CIRCUIT BOARD (Handset (Component View))

13.3.2. Flow Solder Side View

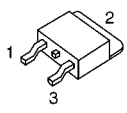
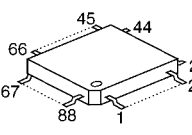
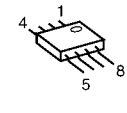
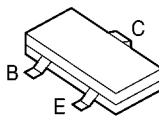
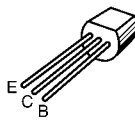
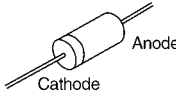

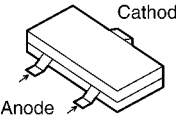
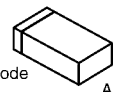
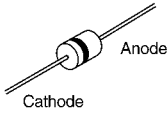
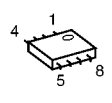
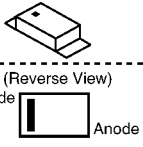


KX-TGA807 CIRCUIT BOARD (Handset (Flow Solder Side View))

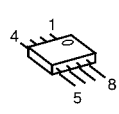
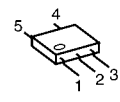
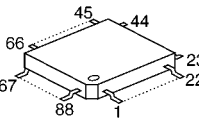
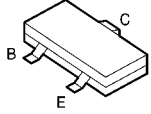


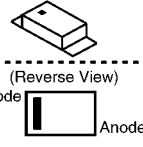
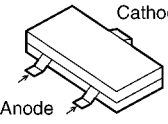
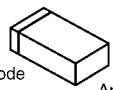
14 Appendix Information of Schematic Diagram

14.1. Terminal Guide of the ICs, Transistors and Diodes

14.1.1. Base unit

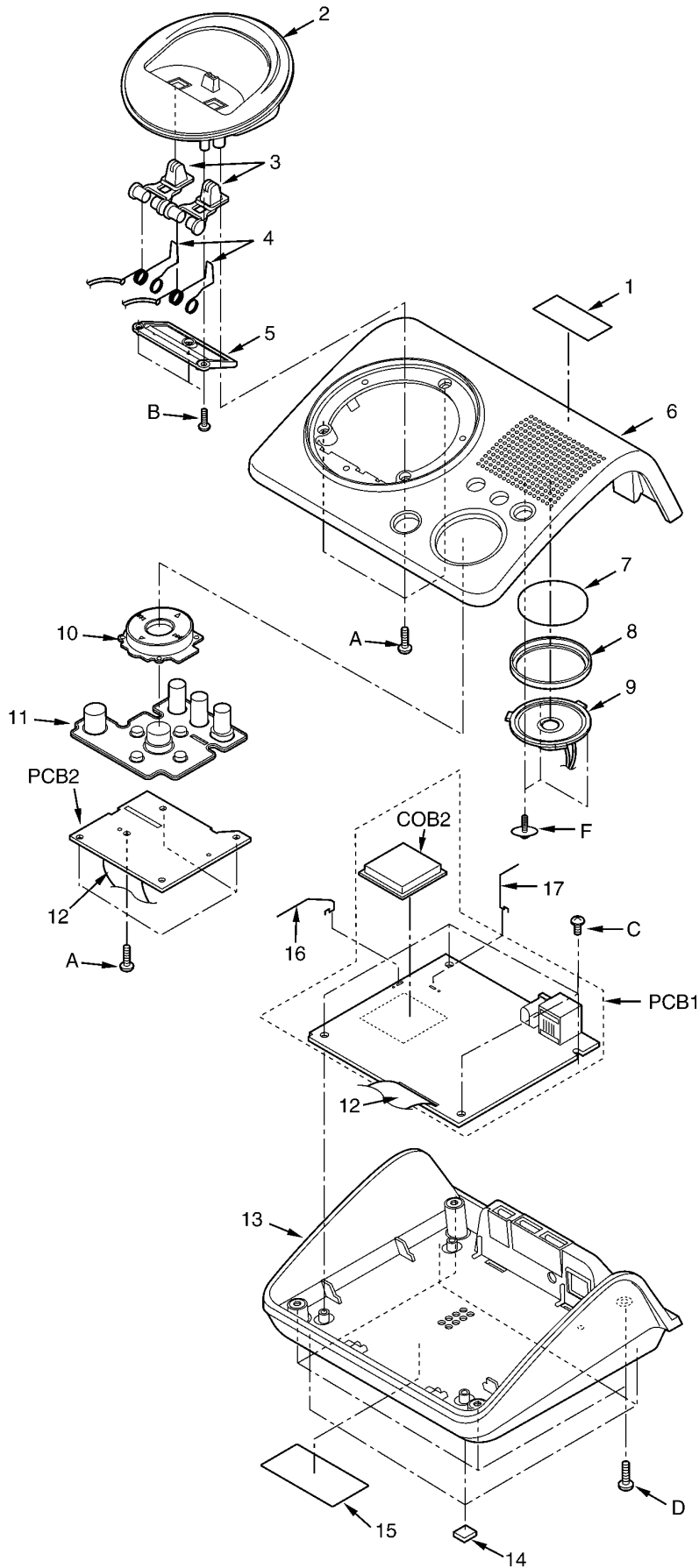
 <p>270206704100</p>	 <p>S27035301100</p>	 <p>PNWI18090HGH S27700803102</p>	 <p>200119403100, 200120502100, 200004101103, 200120403100</p>	
 <p>200118801100</p>	 <p>S21001200105</p>	 <p>210101504133</p>	 <p>210116704100</p>	 <p>S21603300100 S21111004100</p>
 <p>210605600100</p>	 <p>PNWI28090PDH</p>	 <p>(Reverse View) Cathode Anode</p> <p>S43406500100</p>		






14.1.2. Handset

 <p>2707008031P4 PNWIGA807FXR</p>	 <p>S27236400100 S27237900100</p>	 <p>S27030351100</p>	 <p>200003901100, 200120303100 200120403100, 200119003100 S20004101100</p>	
 <p>210101504133 S21102204103 S21606400100</p>	 <p>210118200100</p>	 <p>(Reverse View) Cathode Anode</p> <p>S43131000100</p>  <p>S21000101100</p>  <p>210117600100</p>		

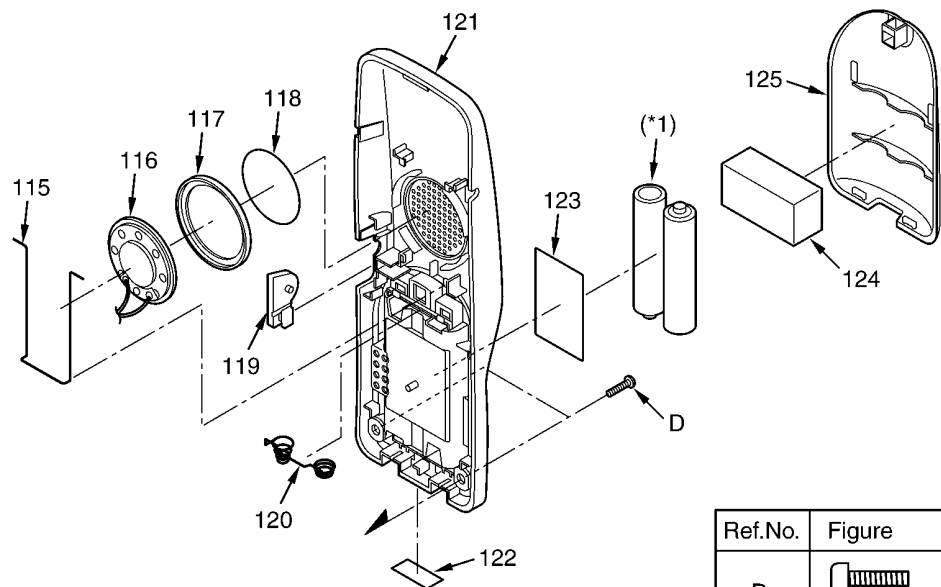
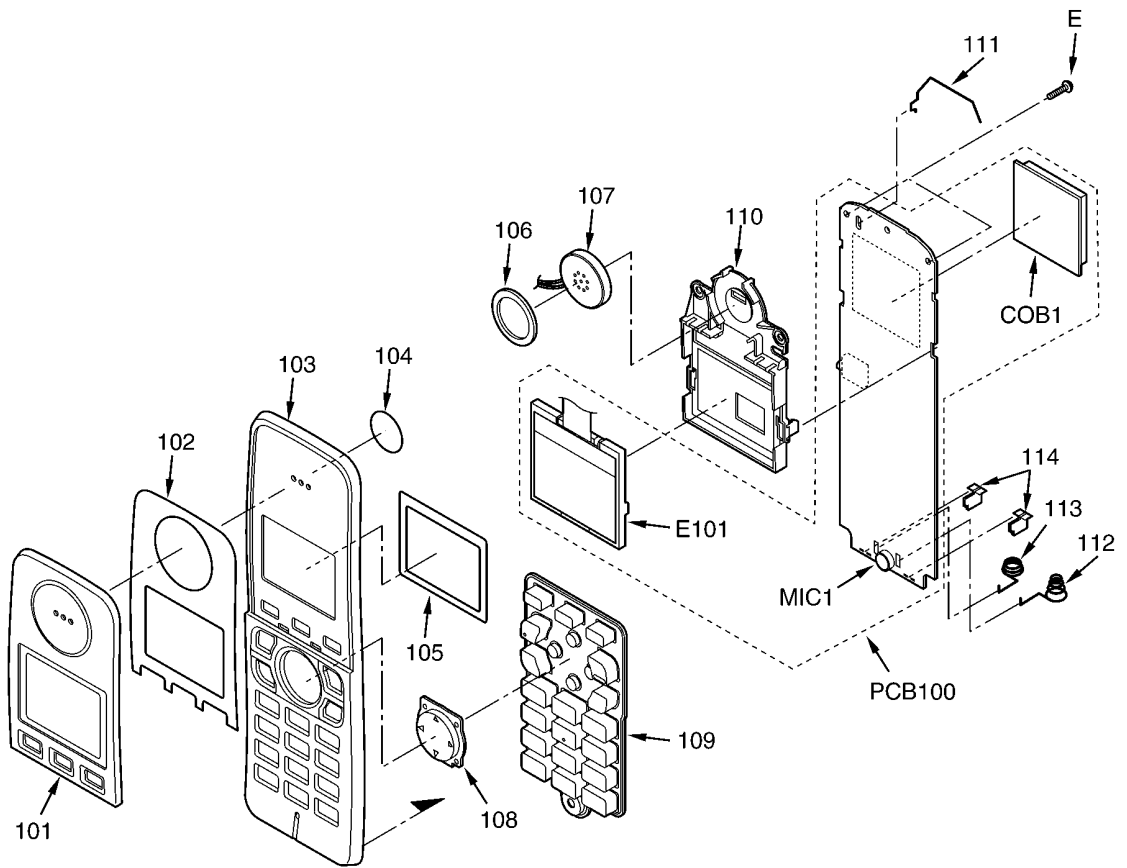
15 Exploded View and Replacement Parts List



15.1. Cabinet and Electrical Parts (Base Unit)



Ref.No.	Figure
A	 φ2.6 × 6 mm
B	 φ2.0 × 6 mm
C	 φ2.6 × 5 mm
D	 φ2.6 × 8 mm
F	 φ2.6 × 8 mm

15.2. Cabinet and Electrical Parts (Handset)



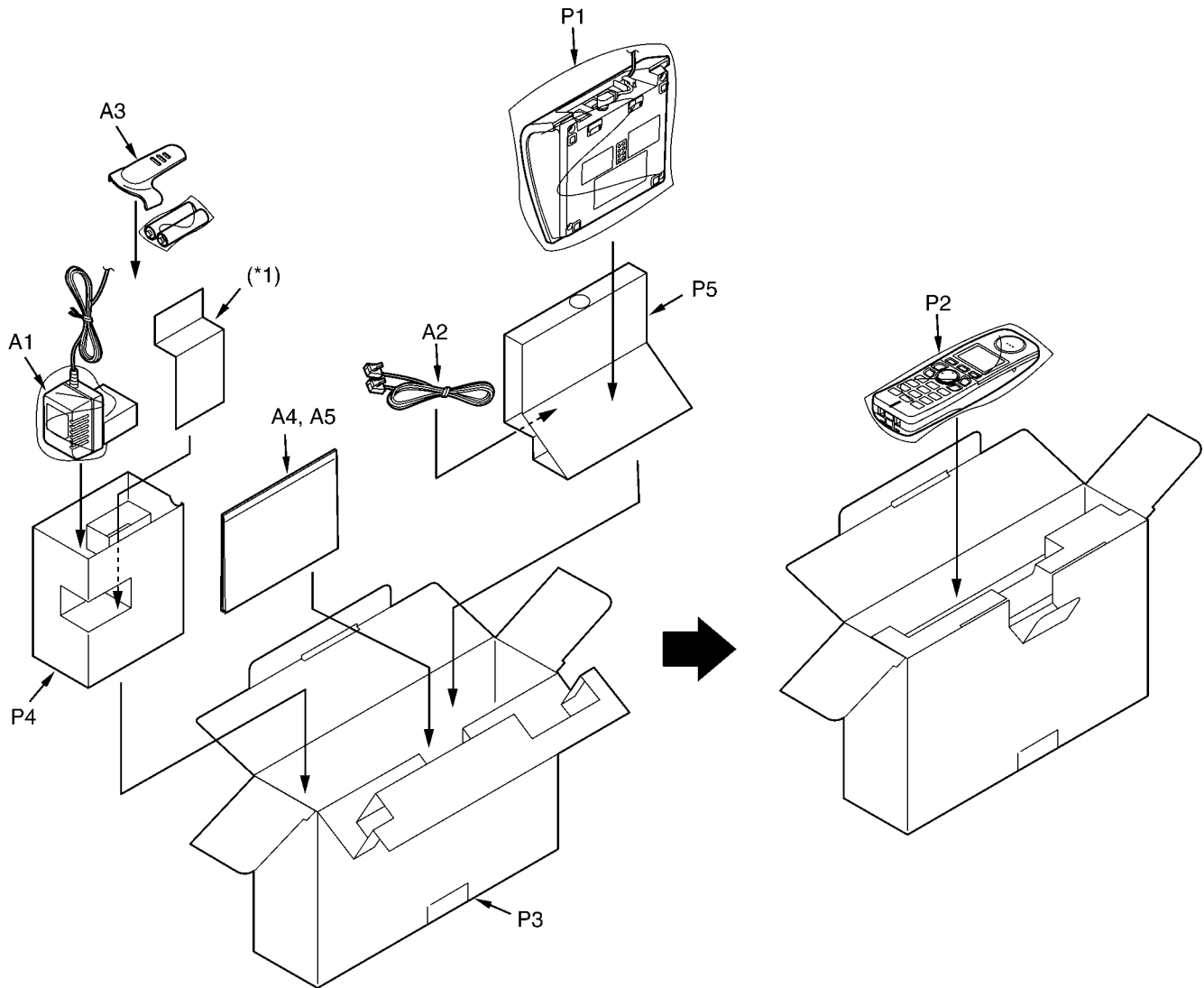
Ref.No.	Figure
D	 φ 2.6 × 8 mm
E	 φ 2.0 × 8 mm

Note:

(*1) The rechargeable Ni-MH battery P03P (HHR-4EPT, Capacity: up to 750 mAh) is available through sales route of Panasonic.

15.3. Accessories and Packing Materials

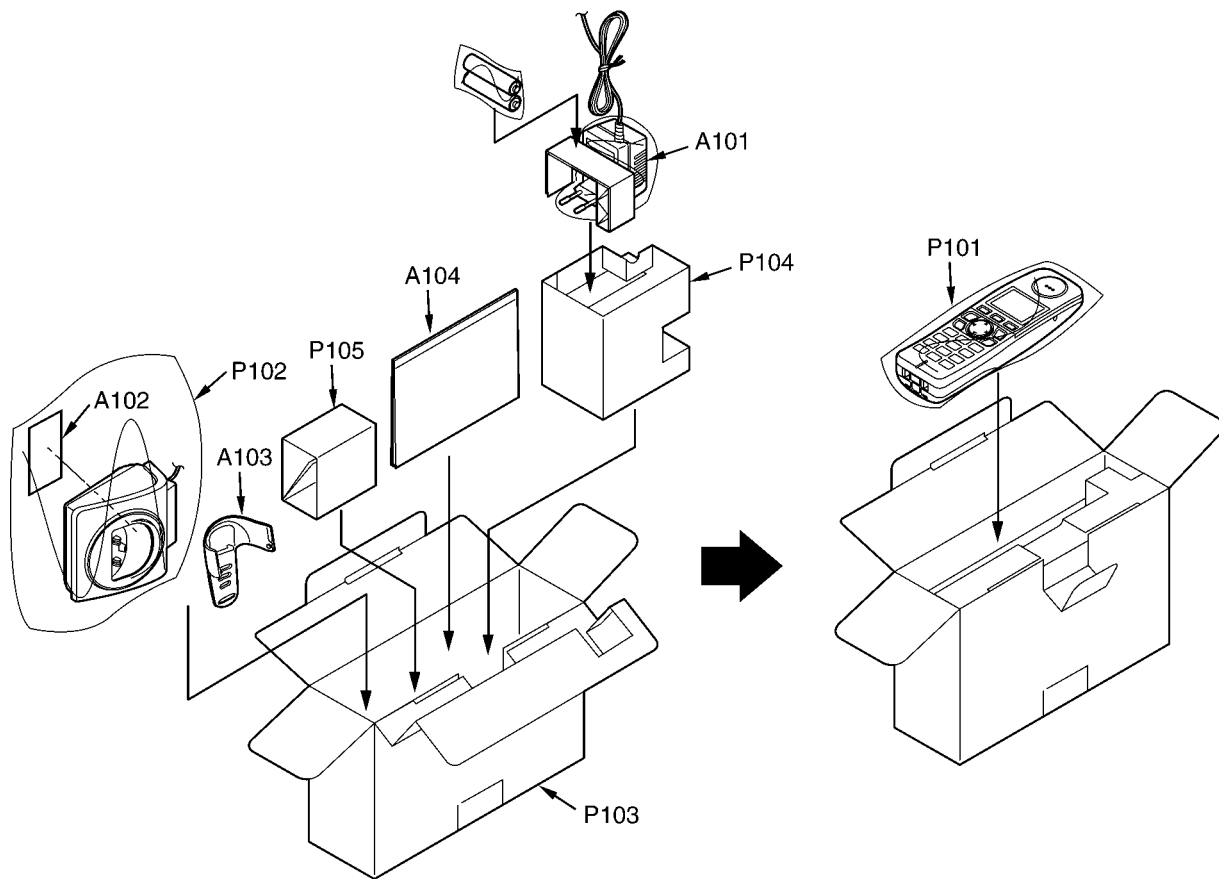
15.3.1. KX-TG8090HGT



Note:

(*1) This pad is a piece of Ref No. P4 (ACCESSORY BOX).

15.3.2. KX-TGA807FXT



15.4. Replacement Part List

1. RTL (Retention Time Limited)

Note:

The "RTL" marking indicates that its Retention Time is Limited.

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

This period of time depends on the type of item, and the local laws governing parts and product retention.

At the end of this period, the item will no longer be available.

2. Important safety notice

Components identified by the 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 ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ERO:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor
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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 ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV: Ceramic ECQE,ECQV,ECQG: Polyester ECEA,ECST,EEE: Electlytic ECQP: Polypropylene
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Voltage

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

15.4.1. Base Unit

15.4.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PQQT23412Z	LABEL, ATTENTION	
	2	S30748710200	GUIDE, CRADLE	ABS-HB
	3	S30748900200	HOLDER, CHARGE CONTACTS	POM-HB
	4	S34495601200	CHARGE CONTACT	
	5	S30748800200	CHASSIS, CHARGE CONTACTS	POM-HB
	6	S30749220200	CABINET BODY	ABS-HB
	7	S32447100200	SPACER, SPEAKER NET	
	8	S39535700200	GUIDE, SP HOLDER	
	9	S28118700100	SPEAKER	
	10	S30749400200	BUTTON, NAVIGATOR KEY	ABS-HB
	11	S39597700200	KEYBOARD SWITCH	
	12	S46125900200	LEAD WIRE	
	13	S30749310200	CABINET COVER	ABS-HB

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	14	390438600200	RUBBER PARTS, FOOT CUSHION	
	15	PQGT19778Y	NAME PLATE	
	16	S34501600200	ANTENNA HORIZONTAL	
	17	S34483000200	ANTENNA VERTICAL	

15.4.1.2. Main P.C. Board Parts

Note:

(*1) When replacing PCB1 or U3, measurements and adjustments need to be done. Refer to **Measurements and Adjustments (P.35)**.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWP18090HGH	MAIN P.C.BOARD ASS'Y (RTL) (*1)	S
			(ICs)	
	U1	270206704100	IC	S
	U2	S27700803102	IC	S
	U3	PNWI18090HGH	IC (EEPROM) (*1)	S
	U4	S27035301100	IC (BBIC (MASK))	S
	U6	PNWI28090PDH	IC (TAM FLASH)	S
			(TRANSISTORS)	
	Q6	200119403100	TRANSISTOR (SI)	S
	Q7	200120502100	TRANSISTOR (SI)	S
	Q8	200004101103	TRANSISTOR (SI)	S
	Q9	200120403100	TRANSISTOR (SI)	S
	Q12	200120502100	TRANSISTOR (SI)	S
	Q13	200120403100	TRANSISTOR (SI)	S
	Q17	200118801100	TRANSISTOR (SI)	S
	Q19	200004101103	TRANSISTOR (SI)	S
	Q22	200004101103	TRANSISTOR (SI)	S
	Q23	200004101103	TRANSISTOR (SI)	S
	Q33	200004101103	TRANSISTOR (SI)	S
	Q30	200120502100	TRANSISTOR (SI)	S
	Q604	200004101103	TRANSISTOR (SI)	S
	Q607	200004101103	TRANSISTOR (SI)	S
			(DIODES)	
	D1	S21001200105	DIODE (SI)	S
	D2	S21001200105	DIODE (SI)	S
	D3	S21001200105	DIODE (SI)	S
	D4	S21001200105	DIODE (SI)	S
	D5	210101504133	DIODE (SI)	S
	D6	S21603300100	DIODE (SI)	
	D7	210116704100	DIODE (SI)	S
	D8	S21603300100	DIODE (SI)	
	D10	S21111004100	DIODE (SI)	S
	D610	210605600100	DIODE (SI)	S
			(COILS)	
	L2	250111400167	COIL	S
	L3	250111400167	COIL	S
	L4	S25710201100	COIL	S
	L5	250111400167	COIL	S
	L6	250111400167	COIL	S
	L7	S25710201100	COIL	S
	L8	S25743B01100	COIL	S
	L10	S25722A86152	COIL	S
			(JACKS)	
	PJ1	S40506202167	JACK, TELEPHONE	S
	PWRJ1	400691500100	JACK, DC	S
			(RESISTORS)	
	R3	ERJ3GEY0R00	0	
	R6	ERJ2GEY0R00	0	
	R7	ERJ3GEYJ102	1K	
	R11	ERJ3GEYJ273	27K	
	R12	ERJ3GEYJ431	430	
	R10	ERJ3GEYJ184	180K	
	R25	ERJ2GEYJ224	220K	
	R26	ERJ3GEYJ822	8.2K	
	R27	ERJ2GEYJ222	2.2K	
	R28	ERJ2GEYJ222	2.2K	
	R29	PQ4R18XJ271	270	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R30	ERJ2GEYJ124	120K	
	R31	ERJ2GEYJ912	9.1K	
	R32	PQ4R18XJ271	270	S
	R33	ERJ2GEYJ394	390K	
	R34	ERJ2GEYJ394	390K	
	R35	ERJ2GEYJ394	390K	
	R36	PQ4R18XJ271	270	S
	R39	ERJ2GEYJ103	10K	
	R40	ERJ2GEYJ472	4.7K	
	R41	ERJ2GEYJ472	4.7K	
	R42	ERJ2GEYJ473	47K	
	R43	ERJ2GEYJ102	1K	S
	R44	ERJ3GEYJ100	10	
	R45	ERJ3GEYJ101	100	
	R46	ERJ3GEYJ302	3K	
	R47	ERJ3GEYJ102	1K	
	R48	ERJ2GEYJ303	30K	
	R49	ERJ3GEY0R00	0	
	R51	ERJ3GEYJ100	10	
	R52	ERJ2GEYJ123	12K	
	R58	ERJ2GEYJ273	27K	
	R59	ERJ2GEYJ473	47K	
	R61	ERJ3GEYJ102	1K	
	R65	ERJ2GEYJ102	1K	S
	R66	ERJ3GEYJ103	10K	
	R66	ERJ3GEYJ123	12K	
	R66	ERJ3GEYJ822	8.2K	
	R67	ERJ2GEYJ102	1K	S
	R68	ERJ3GEY0R00	0	
	R70	ERJ2GEYJ471	470	
	R71	ERJ2GEYJ751	750	
	R72	ERJ2GEYJ203	20K	
	R73	ERJ2GEYJ203	20K	
	R76	ERJ3GEY0R00	0	
	R77	ERJ2GEYJ222	2.2K	
	R79	ERJ3GEY0R00	0	
	R83	ERJ2GEY0R00	0	
	R84	ERJ3GEYJ332	3.3K	
	R85	ERJ3GEYJ472	4.7K	
	R86	ERJ3GEYJ102	1K	
	R87	ERJ3GEYJ473	47K	
	R88	ERJ3GEYJ102	1K	
	R89	ERJ3GEYJ103	10K	
	R91	ERJ3GEYJ472	4.7K	
	R93	ERJ2GEYJ102	1K	
	R95	ERJ6GEY0R00	0	
	R96	ERJ2GEY0R00	0	
	R97	ERJ3GEYJ106	10M	
	R102	ERJ3GEYJ106	10M	
	R103	ERJ2GEYJ332	3.3K	
	R104	ERJ3GEYJ824	820K	
	R106	ERJ3GEY0R00	0	
	R107	ERJ2GEYJ104	100K	
	R108	ERJ2GEY0R00	0	
	R109	ERJ3GEYJ103	10K	
	R110	ERJ8GEY0R00	0	
	R113	ERJ3GEYJ470	47	
	R114	ERJ3GEYJ470	47	
	R116	ERJ2GEYJ104	100K	
	R119	ERJ2GEY0R00	0	
	R121	ERJ3GEYJ221	220	
	R122	ERJ3GEYJ103	10K	
	R123	ERJ3GEYJ3R0	3	
	R125	ERJ2GEYJ203	20K	
	R144	ERJ3GEYJ331	330	
	R145	ERJ3GEYJ103	10K	
	R631	ERJ3GEYJ472	4.7K	
	R632	ERJ3GEYJ393	39K	
	R633	ERJ2GEYJ104	100K	
	R635	ERJ2GEYJ102	1K	S
	R636	ERJ3GEYJ221	220	
	R637	ERJ2GEYJ683	68K	
	R638	ERJ2GEYJ224	220K	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R639	ERJ3GEYJ332	3.3K	
	R642	ERJ3GEYJ912	9.1K	
	R644	PQ4R18XJ271	270	S
	R646	ERJ2GEYJ153	15K	
	R647	ERJ2GEYJ103	10K	
	R648	ERJ2GEYJ753	75K	
	R649	ERJ2GEYJ103	10K	
	R682	ERJ3GEY0R00	0	
	C25	ERJ6GEY0R00	0	
	C158	ERJ2GEY0R00	0	
	C160	ERJ3GEY0R00	0	
			(CAPACITORS)	
	C1	ECUV1E104KBV	0.1	
	C4	ECUE1C473ZFB	0.047	
	C5	ECUE1C104ZFB	0.1	
	C6	ECUV1E104KBV	0.1	
	C7	ECUV1C334KBV	0.33	
	C9	ECUE1C104ZFB	0.1	
	C15	ECUE1C104ZFB	0.1	
	C16	ECUV1E223KBV	0.022	
	C17	ECUV1E223KBV	0.022	
	C19	ECUE1H103ZFB	0.01	
	C23	ECUE1H104ZFB	0.1	
	C28	ECUE1H332KBV	0.0033	
	C29	220310277144	0.001	S
	C30	220310277144	0.001	S
	C31	220310466104	0.1	S
	C35	ECUE1H120JCC	12P	S
	C36	220310367100	0.01	S
	C37	220310367100	0.01	S
	C38	ECUE1H120JCC	12P	S
	C39	ECUE1C104ZFB	0.1	
	C41	ECUE1H120JCC	12P	S
	C42	ECUE1C104ZFB	0.1	
	C43	ECUE1C104ZFB	0.1	
	C44	ECUE1H120JCC	12P	S
	C45	ECUE1C104ZFB	0.1	
	C46	ECUE1C104ZFB	0.1	
	C47	ECUE1C104ZFB	0.1	
	C48	ECUE1H120JCC	12P	S
	C49	ECUE1H120JCC	12P	S
	C50	ECUE1H100CCV	10P	
	C51	ECUE1H100CCV	10P	
	C52	ECUE1C104ZFB	0.1	
	C53	ECUV1C334KBV	0.33	
	C54	ECUV1A105ZFB	1	
	C56	ECUE1C104ZFB	0.1	
	C61	ECUE1H120JCC	12P	S
	C62	ECUE1H120JCC	12P	S
	C64	ECUE1H120JCC	12P	S
	C66	ECUE1C104ZFB	0.1	
	C67	ECUE1H120JCC	12P	S
	C68	ECUE1C104ZFB	0.1	
	C70	ECUE1H120JCC	12P	S
	C71	ECUE1H120JCC	12P	S
	C73	ECUE1H120JCC	12P	S
	C74	ECUE1H120JCC	12P	S
	C75	ECUE1H120JCC	12P	S
	C76	ECUE1H120JCC	12P	S
	C77	ECUE1H120JCC	12P	S
	C78	ECUE1H120JCC	12P	S
	C79	ECUE1H120JCC	12P	S
	C81	ECUE1C104ZFB	0.1	
	C82	ECUE1C104ZFB	0.1	
	C84	ECUE1H120JCC	12P	S
	C85	ECUE1H120JCC	12P	S
	C86	ECUE1C104ZFB	0.1	
	C87	ECUV1H0R5CCV	0.5P	S
	C88	ECUE1C104ZFB	0.1	
	C89	ECUE1H120JCC	12P	S
	C90	ECUE1H120JCC	12P	S
	C92	ECUE1HR75BCV	0.75	
	C93	ECUE1C104ZFB	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C94	ECUE1H120JCQ	12P	S
	C95	ECUE1H151JCV	150P	
	C96	PQCUV1A475ZF	4.7	
	C97	ECUE1H120JCQ	12P	S
	C98	ECUE1C104ZFV	0.1	
	C99	ECUE1H120JCQ	12P	S
	C100	ECUE1C104ZFV	0.1	
	C101	ECUE1H1R0CCV	1P	
	C102	ECUE1H120JCQ	12P	S
	C103	ECUE1H120JCQ	12P	S
	C104	ECUE1H120JCQ	12P	S
	C105	ECUE1H120JCQ	12P	S
	C106	ECUE1H120JCQ	12P	S
	C107	ECUE1H120JCQ	12P	S
	C108	ECUE1H120JCQ	12P	S
	C109	ECUE1H120JCQ	12P	S
	C110	ECUE1H222KBV	0.0022	
	C111	ECUE1H120JCQ	12P	S
	C112	ECUE1H120JCQ	12P	S
	C113	ECUE1H120JCQ	12P	S
	C114	ECUE1H120JCQ	12P	S
	C115	ECUE1H221KBV	220P	
	C116	ECUE1H8R2CCV	8.2P	
	C117	ECUE1HR75BCV	0.75	
	C118	ECUE1H101JCV	100P	
	C119	ECUE1H101JCV	100P	
	C121	ECUE1H120JCQ	12P	S
	C122	ECUE1H121JCV	120P	
	C123	ECUE1H120JCQ	12P	S
	C124	ECUE1H120JCQ	12P	S
	C125	ECUE1H120JCQ	12P	S
	C126	ECUE1H120JCQ	12P	S
	C127	ECUE1H120JCQ	12P	S
	C128	ECUE1H120JCQ	12P	S
	C129	220310466104	0.1	
	C130	ECUV1H0R5CCV	0.5P	S
	C131	PQCUV1A475ZF	4.7	
	C134	ECUE1H120JCQ	12P	S
	C135	ECUE1H120JCQ	12P	S
	C136	ECUE1H120JCQ	12P	S
	C137	ECUE1H104ZFV	0.1	
	C140	ECUE1H120JCQ	12P	S
	C141	ECUE1H331KBV	330P	
	C142	ECUE1H331KBV	330P	
	C143	ECUE1H120JCQ	12P	S
	C144	ECUE1C104ZFV	0.1	
	C145	ECUE1C104ZFV	0.1	
	C146	ECUV1H120JCV	12P	S
	C148	ECUE1H120JCQ	12P	S
	C150	ECUE1H120JCQ	12P	S
	C151	ECUE1H120JCQ	12P	S
	C152	ECUE1H120JCQ	12P	S
	C153	ECUE1H2R2CCV	2.2	
	C154	ECUE1H120JCQ	12P	S
	C155	ECUE1H2R2CCV	2.2P	
	C156	S25736BA7110	0.1	S
	C162	ECUE1C104ZFV	0.1	
	C166	ECUE1H330JCV	33P	
	C171	ECUV1A105ZFV	1	
	C188	ECUE1H221KBV	220P	
	C189	ECUE1H221KBV	220P	
	C190	ECUE1H221KBV	220P	
	C191	ECUE1H221KBV	220P	
	C192	ECUE1H102KBV	0.001	
	C193	ECUE1C104ZFV	0.1	
	C656	ECUV1H222KBV	0.0022	
	C659	ECUV1H681JCV	680P	
	C661	ECUE1H120JCQ	12P	S
	C662	ECUV1H683KBV	0.068	
	C664	S22610566135	1	
	C665	ECUV1H332KBV	0.0033	S
	C666	ECUE1H103ZFV	0.01	
	C668	ECUE1H104ZFV	0.1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C669	ECUE1E682KEV	0.0068	
	C670	ECUE1H120JCQ	12P	S
	C688	ECUE1H120JCQ	12P	S
	EC2	ECEA1AKA101	100	
	EC5	ECEA1HU220	22	S
	EC6	ECEA1HU100	10	S
	EC10	ECEA1AU101	10	S
	EC13	ECEA1HU100	10	S
	EC61	ECEA0JUL102	1000	
	EC63	ECEA1AKA101	100	
	EC65	ECEA1AU471	470	S
	EC163	ECEA1AKA101	100	
	EC658	ECEA1HU100	10	S
	L9	ECUE1H120JCQ	12P	S
			(OTHERS)	
	COB2	S8064840000	RF UNIT	
	F2	S44302600100	FUSE RESISTOR	S
	VAR1	210605700100	VARISTOR	S
	Y1	2503625001C3	CRYSTAL OSCILLATOR	S

15.4.1.3. Operational P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PQWP2G8090EH	OPERATIONAL P.C.BOARD ASS'Y (RTL)	S
			(DIODES)	
	D1	S43406500100	LED	S
	D2	S43406500100	LED	S

15.4.2. Handset

15.4.2.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	101	S30748020200	PANEL, FRONT LENS	PMMA-HB
	102	S32572000200	TAPE, DOUBLE SIDED (LENS)	
	103	S30747710200	CABINET BODY	ABS-HB
	104	320518400200	SPACER, RECEIVER FELT	
	105	S39577000200	SPACER, LCD CUSHION	
	106	390560200200	SPACER, GASKET RECEIVER	
	107	S28109510100	RECEIVER	
	108	S30748300200	BUTTON, NAVIGATOR KEY	ABS-HB
	109	S39597410200	KEYBOARD SWITCH	
	110	S30748100200	GUIDE, LCD HOLDER	ABS-HB
	111	S34463700200	ANTENNA	
	112	S34492300200	CHARGE TERMINAL (-)	
	113	S34492400200	CHARGE TERMINAL (+)	
	114	S31541800200	CHARGE TERMINAL	
	115	S34479800200	BAR SPRING, SPEAKER	
	116	280112000100	SPEAKER	
	117	390508000200	SPACER, SPEAKER RUBBER	
	118	320540800200	SPACER, SPEAKER FELT	
	119	S39597500200	COVER, EARPHONE JACK	
	120	S34492500200	BATTERY TERMINAL, (+/-)	
	121	S30747810200	CABINET COVER	ABS-HB
	122	PQGT19798Y	NAME PLATE (for KX-TGA807HGT)	
	122	PQGT19793Y	NAME PLATE (for KX-TGA807FXT)	
	123	PQQT23431Z	BATTERY COVER SHEET (for KX-TGA807HGT)	
	123	PQQT23381Z	BATTERY COVER SHEET (for KX-TGA807FXT)	
	124	390590300200	SPACER, BATTERY COVER	
	125	S30747910200	LID, BATTERY COVER	ABS-HB

15.4.2.2. Main P.C. Board Parts

Note:

(*1) When replacing PCB100 or U4, measurements and

adjustments need to be done. Refer to **Measurements and Adjustments (P.35)**.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB100	PNWPGA807FXR	MAIN P.C.BOARD ASS'Y (RTL) (*1)	S
			(ICs)	
	U2	2707008031P4	IC	S
	U3	S27236400100	IC	S
	U4	PNWIGA807FXR	IC (EEPROM) (*1)	S
	U6	S27237900100	IC	S
	U7	S27030351100	IC (BBIC (MASK))	S
			(TRANSISTORS)	
	Q1	200003901100	TRANSISTOR (SI)	S
	Q2	200120303100	TRANSISTOR (SI)	S
	Q3	200003901100	TRANSISTOR (SI)	S
	Q4	200120403100	TRANSISTOR (SI)	S
	Q5	200119003100	TRANSISTOR (SI)	S
	Q6	200003901100	TRANSISTOR (SI)	S
	Q7	200003901100	TRANSISTOR (SI)	S
	Q9	200120403100	TRANSISTOR (SI)	S
	Q10	200003901100	TRANSISTOR (SI)	S
	Q13	200120403100	TRANSISTOR (SI)	S
	Q15	200003901100	TRANSISTOR (SI)	S
	Q17	S20004101100	TRANSISTOR (SI)	S
			(DIODES)	
	D1	210101504133	DIODE (SI)	S
	D2	210101504133	DIODE (SI)	S
	D4	210101504133	DIODE (SI)	S
	D6	210118200100	DIODE (SI)	S
	D7	S43131000100	LED	S
	D8	S43131000100	LED	S
	D9	S43131000100	LED	S
	D10	S43131000100	LED	S
	D12	S43131000100	LED	S
	D13	S43131000100	LED	S
	D17	S21000101100	DIODE (SI)	S
	D19	S21102204103	DIODE (SI)	S
	Z1	S21606400100	DIODE (SI)	S
	Z2	210117600100	DIODE (SI)	S
	Z3	210117600100	DIODE (SI)	S
	Z5	210117600100	DIODE (SI)	S
	Z9	210117600100	DIODE (SI)	S
			(COILS)	
	L1	250727000166	COIL	S
	L2	250727000166	COIL	S
	L3	2507220B8100	COIL	S
	L4	S25727A00101	COIL	S
	L6	S25722701100	COIL	S
	L7	S25727A00101	COIL	S
	F1	S25756B04100	COIL	S
	R8	S25727A00101	COIL	S
	R9	S25727A00101	COIL	S
			(RESISTORS)	
	R1	ERJ2GEYJ102	1K	S
	R2	ERJ2GEYJ182	1.8K	
	R3	ERJ2GEYOR00	0	
	R4	ERJ2GEYJ102	1K	S
	R5	ERJ2GEYJ102	1K	S
	R6	ERJ2GEYJ122	1.2K	
	R7	ERJ2GEYJ122	1.2K	
	R10	ERJ2GEYJ473	47K	
	R11	ERJ3GEYJ472	4.7K	
	R12	ERJ2GEYOR00	0	
	R14	ERJ3GEYJ471	470	
	R15	ERJ2GEYJ103	10K	
	R17	ERJ2GEYJ474	470K	
	R18	ERJ2GEYJ473	47K	
	R19	ERJ2GEYJ623	62K	
	R21	ERJ2GEYJ183	18K	
	R22	ERJ2GEYJ303	30K	
	R23	ERJ2GEYJ104	100K	
	R24	ERJ2GEYOR00	0	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R25	ERJ2GEYOR00	0	
	R26	ERJ2GEYJ100	10	
	R27	ERJ2GEYOR00	0	
	R29	ERJ2GEYJ104	100K	
	R30	ERJ2GEYJ102	1K	S
	R31	ERJ2GEYOR00	0	
	R32	ERJ2GEYOR00	0	
	R33	ERJ2GEYOR00	0	
	R34	ERJ2GEYOR00	0	
	R35	ERJ2GEYJ472	4.7K	
	R36	ERJ3GEYJ510	51	
	R37	ERJ2GEYJ305	3M	
	R38	ERJ3GEYJ102	1K	
	R39	ERJ2GEYJ472	4.7K	
	R40	ERJ2GEYJ472	4.7K	
	R43	PQ4R10XJ120	12	S
	R44	ERJ2GEYJ100	10	
	R45	ERJ2GEYF101	100	
	R46	ERJ3GEYJ472	4.7K	
	R47	ERJ2GEYJ472	4.7K	
	R48	ERJ2GEYJ224	220K	
	R49	ERJ2GEYOR00	0	
	R50	ERJ2GEYJ121	120	
	R51	ERJ2GEYJ121	120	
	R56	ERJ2GEYJ121	120	
	R57	ERJ2GEYJ121	120	
	R58	ERJ2GEYJ121	120	
	R59	ERJ2GEYJ121	120	
	R60	ERJ2GEYOR00	0	
	R63	ERJ2GEYJ272	2.7K	
	R64	ERJ2GEYJ824	820K	
	R65	ERJ2GEYF101	100	
	R66	ERJ2GEYOR00	0	
	R67	ERJ2GEYOR00	0	
	R68	ERJ2GEYJ102	1K	S
	R70	PQ4R10XJ120	12	S
	R71	ERJ2GEYJ102	1K	S
	R76	ERJ3GEYOR00	0	
	R77	ERJ2GEYJ103	10K	
	R78	ERJ3GEYJ2R0	2	
	R82	ERJ2GEYJ472	4.7K	
	R85	ERJ2GEYJ472	4.7K	
	R88	ERJ2GEYJ473	47K	
	R92	ERJ2GEYJ203	20K	
	R96	ERJ2GEYOR00	0	
	R97	ERJ3GEYJ104	100K	
	R98	ERJ3GEYJ104	100K	
	R99	ERJ2GEYOR00	0	
	R100	ERJ2GEYOR00	0	
	R101	ERJ2GEYOR00	0	
	R103	ERJ2GEYOR00	0	
	R104	ERJ3GEYJ221	220	
	R105	ERJ2GEYOR00	0	
	R106	ERJ2GEYJ103	10K	
	R108	ERJ2GEYJ105	1M	
	C95	ERJ2GEYJ335	3.3M	
	L5	ERJ3GEYOR00	0	
			(CAPACITORS)	
	C1	ECUE1C104ZFV	0.1	
	C2	ECUE1C104ZFV	0.1	
	C3	ECUE1C104ZFV	0.1	
	C4	ECUE1C104ZFV	0.1	
	C5	ECUE1C104ZFV	0.1	
	C6	ECUE1C104ZFV	0.1	
	C7	ECUE1H120JCQ	12P	S
	C8	ECUE1H120JCQ	12P	S
	C10	ECUE1H120JCQ	12P	S
	C11	ECUE1C104ZFV	0.1	
	C13	ECUE1H120JCQ	12P	S
	C14	ECUE1C223KBV	0.022	
	C15	ECUE1C104ZFV	0.1	
	C16	ECUE1H120JCQ	12P	S
	C18	ECUE1H120JCQ	12P	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C20	ECUE1H120JCQ	12P	S
	C22	ECUE1H120JCQ	12P	S
	C23	ECUE1C104KBQ	0.1	
	C25	ECUE1C104KBQ	0.1	
	C27	ECUE1H120JCQ	12P	S
	C28	ECUE1H120JCQ	12P	S
	C29	ECUE1H120JCQ	12P	S
	C30	ECUE1C104ZFV	0.1	
	C31	ECUE1H100CCV	10P	
	C32	ECUE1H100CCV	10P	
	C33	ECUE1C104ZFV	0.1	
	C34	ECUE1C104ZFV	0.1	
	C35	ECUE1H120JCQ	12P	S
	C36	ECUV1H1R5BCV	1.5P	
	C37	ECUE1H120JCQ	12P	S
	C38	ECUE1C104ZFV	0.1	
	C40	ECUE1H120JCQ	12P	S
	C41	ECUE1H120JCQ	12P	S
	C42	ECUE1H120JCQ	12P	S
	C43	ECUE1H120JCQ	12P	S
	C44	ECUE1H120JCQ	12P	S
	C45	ECUE1C104ZFV	0.1	
	C46	ECUE1H120JCQ	12P	S
	C47	ECUE1H120JCQ	12P	S
	C48	ECUE1H120JCQ	12P	S
	C49	ECUE1H120JCQ	12P	S
	C50	ECUE1H120JCQ	12P	S
	C51	ECUE1C104ZFV	0.1	
	C52	ECUE1H120JCQ	12P	S
	C54	ECUE1H222KBV	0.0022	
	C55	ECUE1H120JCQ	12P	S
	C56	ECUE1C104ZFV	0.1	
	C57	ECUE1H120JCQ	12P	S
	C60	ECUE1H120JCQ	12P	S
	C63	ECUE1A334KBV	0.33	
	C65	ECUE1H120JCQ	12P	S
	C66	ECUE1H120JCQ	12P	S
	C67	ECUV1A105ZFV	1	
	C68	ECUE1C104ZFV	0.1	
	C69	ECUE1H120JCQ	12P	S
	C70	ECUE1H120JCQ	12P	S
	C71	ECUE1C104ZFV	0.1	
	C73	ECUE1H120JCQ	12P	S
	C74	ECUE1H120JCQ	12P	S
	C75	ECUE1H120JCQ	12P	S
	C76	ECUV1C473KBV	0.047	
	C77	ECUE1H120JCQ	12P	S
	C80	ECUE1C104ZFV	0.1	
	C85	ECUE1C104KBQ	0.1	
	C86	PQCUV1A475ZF	4.7	
	C88	ECUE1H120JCQ	12P	S
	C89	ECUE1H120JCQ	12P	S
	C90	ECUE1H120JCQ	12P	S
	C91	ECUE1H120JCQ	12P	S
	C92	ECUE1H120JCQ	12P	S
	C93	ECUE1H120JCQ	12P	S
	C94	ECUE1C104KBQ	0.1	
	C96	ECUE1H120JCQ	12P	S
	C98	ECUE1C104ZFV	0.1	
	C99	ECUE1H120JCQ	12P	S
	C100	ECUE1C104ZFV	0.1	
	C102	ECUE1H120JCQ	12P	S
	C103	ECUE1H120JCQ	12P	S
	C104	ECUE1H120JCQ	12P	S
	C105	ECUE1H120JCQ	12P	S
	C106	ECUE1C103KBQ	0.01	
	C107	ECUE1C103KBQ	0.01	
	C110	ECUE1C104ZFV	0.1	
	C111	ECUE1H120JCQ	12P	S
	C115	ECUE1C104ZFV	0.1	
	C116	ECUE1A334KBV	0.33	
	C117	ECUE1C104ZFV	0.1	
	C118	ECUE0J105ZFV	1	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C121	ECUE1H101JCV	100P	
	C122	ECUE1H101JCV	100P	
	C123	ECUE1H101JCV	100P	
	C124	ECUE1H101JCV	100P	
	C125	ECUE1H101JCV	100P	
	C126	ECUE1H101JCV	100P	
	C127	ECUE1H101JCV	100P	
	C128	ECUE1H101JCV	100P	
	C129	ECUE1H120JCQ	12P	S
	C130	ECUE1H120JCQ	12P	S
	C131	ECUE1H120JCQ	12P	S
	C132	ECUE1H120JCQ	12P	S
	C133	ECUE1H120JCQ	12P	S
	C136	ECUE1H120JCQ	12P	S
	C137	ECUE1H120JCQ	12P	S
	EC1	ECEA1AU470	47	S
	EC2	ECEA1AU470	47	S
	EC3	ECEA1HU4R7	4.7	
	EC4	ECEA0JU100	10	
	EC5	ECEA1AU470	47	S
	EC8	ECEA0JU471	470	
	EC123	ECEA0JU100	10	
	EC124	ECEA1AU470	47	S
	EC125	ECEA1AU221	220	S
	EC126	ECEA1HU220	22	S
	TC21	220247611122	47	S
			(OTHERS)	
	COB1	S8064840000	RF UNIT	
	MIC1	S28105713100	MICROPHONE	S
	E101	S43410102100	LIQUID CRYSTAL DISPLAY	S
	J1	S40620701100	JACK, TELEPHONE	S
	Y1	2503625001C3	CRYSTAL OSCILLATOR	S

15.4.3. Accessories and Packing Materials

Note:

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

15.4.3.1. KX-TG8090HGT

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1	PQWATG8090CE	AC ADAPTOR	
	A2	PQJA10075Z	CORD, TELEPHONE	
	A3	300748200200	HANGER, BELT CLIP	ABS-HB
	A4	PQQX15898Z	INSTRUCTION BOOK (for English) (*1)	
	A5	PQQW15653Z	LEAFLET, QUICK GUIDE (for English)	
	P1	PQPP10152Z	PROTECTION COVER (for Base Unit)	
	P2	XZB08X25B02	PROTECTION COVER (for Handset)	
	P3	PQPK15715Z	GIFT BOX	
	P4	S93674400210	ACCESSORY BOX	
	P5	S93674500200	ACCESSORY BOX	

15.4.3.2. KX-TGA807FXT

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A101	PQWETGA807CE	CHARGER UNIT with AC ADAPTOR (RTL)	
	A102	PQGT19844Y	NAME PLATE, CHARGER	
	A103	300748200200	HANGER, BELT CLIP	ABS-HB
	A104	PQQX15915Z	INSTRUCTION BOOK (*1)	
	P101	XZB08X25B02	PROTECTION COVER (for Handset)	
	P102	PQPP10152Z	PROTECTION COVER (for Charger Unit)	
	P103	PQPK15732Z	GIFT BOX	
	P104	S93695500200	CUSHION	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	P105	S93685400200	CUSHION	

15.4.4. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	100303100200	SMALL SCREW	S
	B	S10105900200	SMALL SCREW	S
	C	S10300000200	SMALL SCREW	S
	D	100300100200	SMALL SCREW	S
	E	100301300200	SMALL SCREW	S
	F	100110500200	TAPPING SCREW	S

15.4.5. Fixtures and Tools

Note:

(*1) See JIG (P.35).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PNZZ1TG8070E	JIG CABLE (*1)	
		PNZZTG8090E	CD-ROM (*1)	