Service Manual

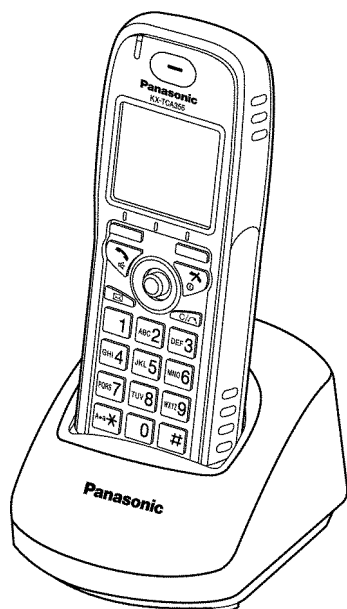**DECT Portable Station**

KX-TCA355X

(for Taiwan and Mexico)

⚠ 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 Replacements 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.

Panasonic

TABLE OF CONTENTS

1 Safety Precautions

1.1. For Service Technicians

• Repair service shall be provided in accordance with repair technology information such as service manual so as to prevent fires, injury or electric shock, which can be caused by improper repair work.

    1. When repair services are provided, neither the products nor their parts or members shall be remodeled.

    2. If a lead wire assembly is supplied as a repair part, the lead wire assembly shall be replaced.

    3. FASTON terminals shall be plugged straight in and unplugged straight out.

• ICs and LSIs are vulnerable to static electricity.

  When repairing, the following precautions will help prevent recurring malfunctions.

    1. Cover plastic parts boxes with aluminum foil.

    2. Ground the soldering irons.

    3. Use a conductive mat on worktable.

    4. Do not grasp IC or LSI pins with bare fingers.

1.2. 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 Warning

2.1. 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 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° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 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 figure, below).
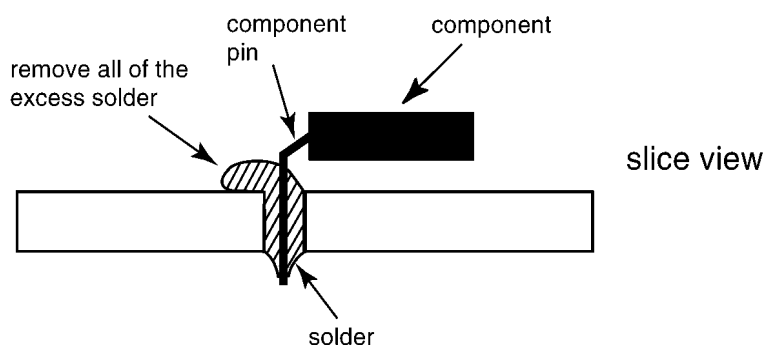
2.1.1. Suggested PbF Solder

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: 0.3mm, 0.6mm and 1.0mm.

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

3 Specifications

	Handset	Charger Unit
Standard:	DECT= (Digital Enhanced Cordless Telecommunications) GAP= (Generic Access Profile)	
Power Source:	Rechargeable Ni-MH battery	AC Adaptor
Power Consumption		Standby: Approx. 1.5W Maximum: Approx. 6W
Number of Channels:	120 Duplex Channels	
Frequency Range:	1.88GHz to 1.9GHz	
Duplex Procedure:	TDMA (Time Division Multiple Access)	
Battery Life, Handset (if batteries are fully charged):	Stand-by: Up to -270 hours (Ni-MH) Talk: Up to 17 Hours (Ni-MH)	
Channel Spacing:	1728kHz	
Bit rate Spacing:	1152kbit/s	
Operating Conditions:	5-40 °C(41°F - 104°F), 20 to 80% relative air humidity (dry)	
Modulation:	GFSK= (Gaussian Frequency Shift Keying)	
RF Transmission Power:	approx. 250mW	
Voice Coding:	ADPCM 32 kbit/s	
Operation Range:	Up to 300 m outdoors, Up to 50 m indoors	
Dimensions (D x W x L):	152 mm x 52 mm x 29 mm	84 mm x 85 mm x 61 mm
Weight:	about 171g	about 95g

4 Technical Descriptions

4.1. Block Diagram (Handset)
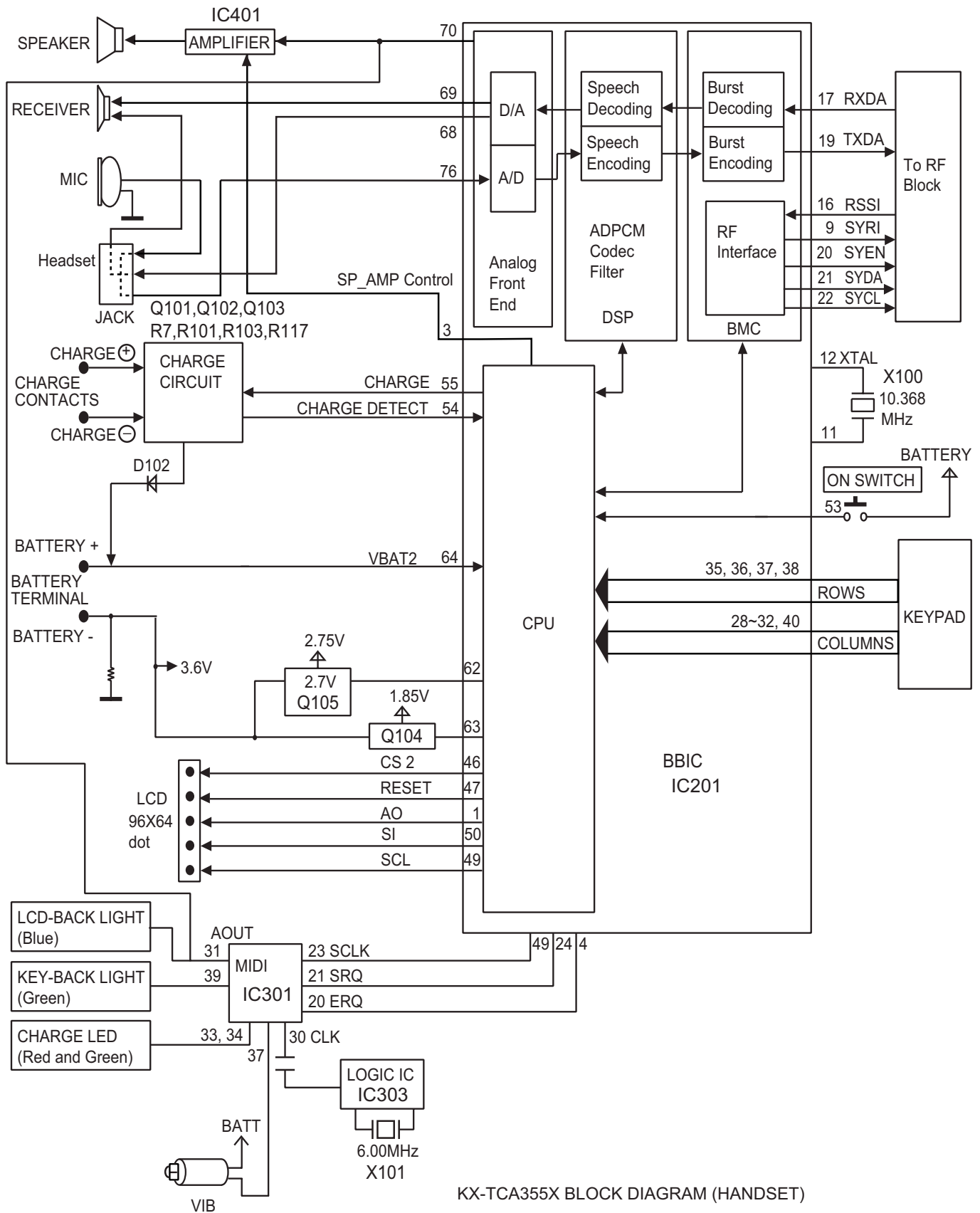
KX-TCA355X BLOCK DIAGRAM (HANDSET)

6

4.2. Circuit Operation (Handset)

4.2.1. Outline

Handset consists of the following ICs as shown in **Block Diagram (Handset)** (P.6).

• DECT BBIC (Base Band IC): IC201
- All data signals (forming/analyzing ACK or CMD signal)
- All interfaces (ex: Key, Detector Circuit, Charge, DC/DC Converter, LCD)
  Include EEPROM and Flash memory
  EEPROM stores the temporary operating parameters (for RF, etc.)

• AMP: IC401
- Single OP_AMP for SP

• MIDI: IC301
- 16-Tone 32-Poly PCM Sound Generator
- Port (LED direct driver with PWM)

• RF Block
- IC601
  PLL Oscillator
  Detector
  Compress/Expander
  Amplifier for reception
- IC602
  Amplifier for transmission
  Power control

4.2.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

When power on the Handset, the voltage is as follows;
BATTERY(3.5V~4.2V: Battery+) → Q104 (1.8V)
BATTERY(3.5V~4.2V: Battery+) → Q105 (2.7V)

The Reset signal generates IC201 (78) and 1.8V.

4.2.3. Charge Circuit

Circuit Operation:

When charging the handset on the charger, the charge current is as follows;
DC+(9V~10V) → IC601(6) → IC601(2) → L601 → JT601(Charger) → JT101(Handset) → L101 → Q101→ D102 → BAT-TERY+... Battery... BATTERY- → R115 → GND → L102→ JT102(Handset) → JT602(Charger) → R616, R617, R618, R619 → GND → DC-(GND)

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

The charge current is controlled by switching Q101 of Handset.

4.2.4. Battery Low/Power Down Detector

Circuit Operation:

"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.
The detected voltage is as follows;

• Battery Low

Battery voltage: V(Batt) ≦ 3.5V ± 50mV

The BBIC detects this level and "▭▮" starts flashing.

• Power Down

Battery voltage: V(Batt) ≦ 3.3V ± 50mV

The BBIC detects this level and power down.

4.2.5. Speakerphone and Headset Jack

The hands-free loudspeaker at CN401(1) and CN401(2) is used to generate the ring alarm. IC401 is used to switch off the telephone loudspeaker and is used to amplify the signal to drive the hands-free loudspeaker. They are selected using the SP_AMP line from pin 70 of the BBIC. 2.5mm headset jack is also available.

4.3. Block Diagram (RF Unit)
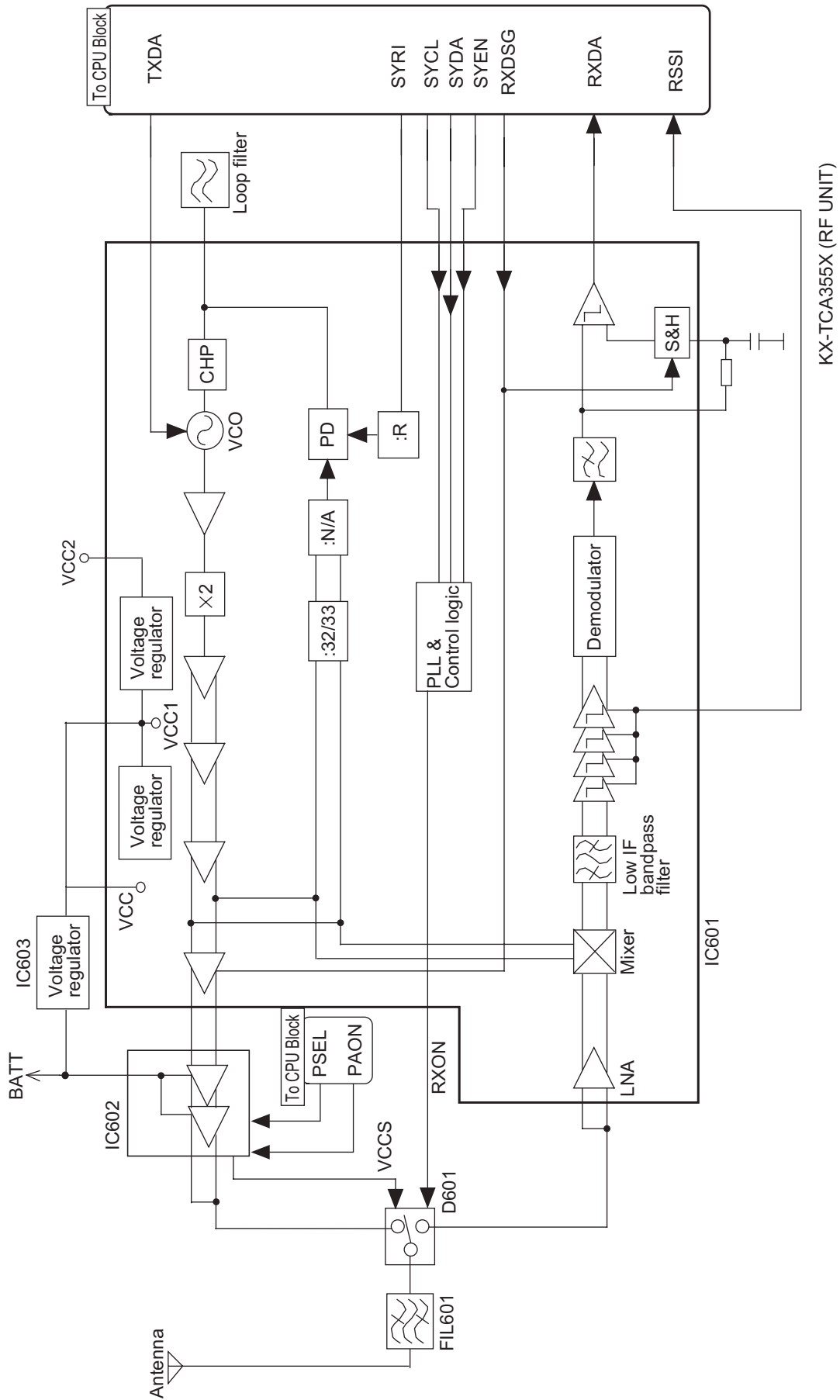
4.4. Circuit Operation (Charge Unit)

To measure the charge-current, R616-619 transfer the current to a voltage.

When the charge-current is 200mA, the voltage is 0.05V.

IC602 amplifies the voltage to 24.5time, then the output voltage is 24.5X0.05=1.225V.

IC601 is DC/DC convertor. This IC adjusts CII to 1.25V.

Then the charge current is adjusted to 204mA.

When charging is completed, the BBIC (IC201) of the portable station set the Q103-Base to "High", then Q102 is turned off. As a result, the charging current is stopped.

Charger | Portable station
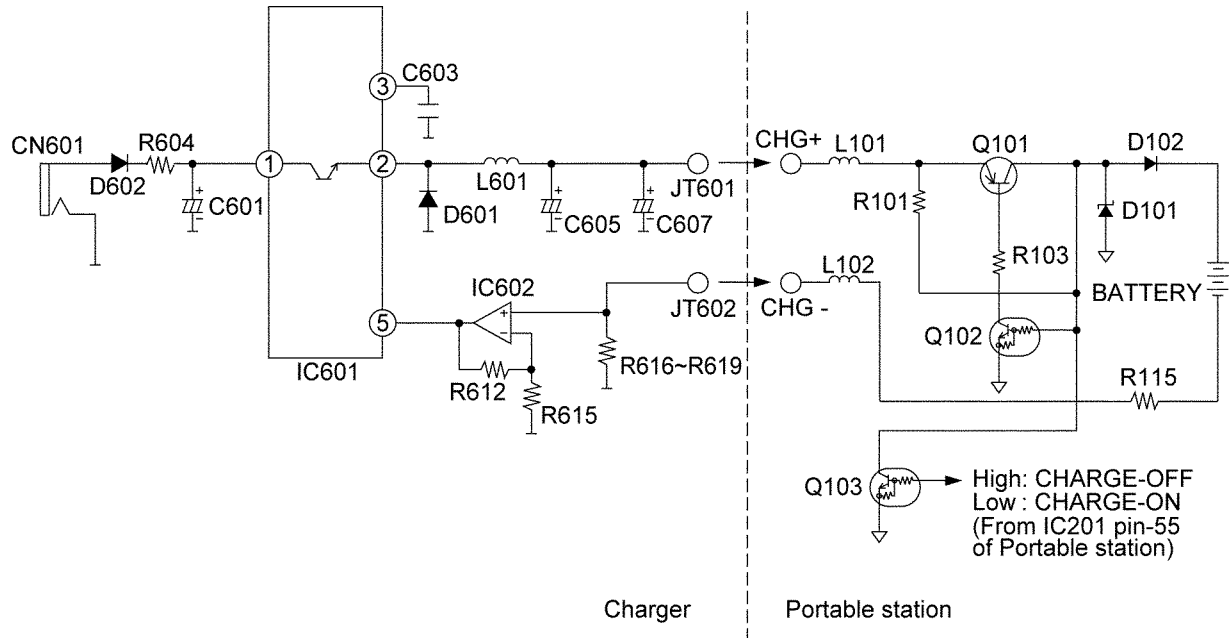
4.5. Signal Route

SIGNAL ROUTE	IN — SIGNAL ROUTE → OUT
HANDSET TX	MIC → R412 → CN404 → L103 → C420 → R411 → IC201 (19) → R611 → IC601 (17) →
	↱ IC601 (2) → R633 → C642 → IC602 (6) → IC602 (0) → L610 ↴
	↳ IC601 (3) → R634 → C643 → IC602 (5) → IC602 (1) → C653 → L614 → L615 → C657 → D601 → C665 → FIL601 → JP601 → L622
HANDSET RX	L622 → JP601 → FIL601 → C665 → D601 → C634 ↱ L606 → C631 → IC601 (9) ↱ IC601 (34) → IC201 (17) → IC201 (68) → C425 → R418 ↴
	↳ C633 → C630 → IC601 (10) ↲ ↳ CN404 → R407 → RECEIVER
SP-PHONE RX (from Tel Line)	(HANDSET) IC201 (70) → R403 → C404 → R404 ↱ IC401 (4) ──────── ↱ IC401 (8) → CN401 (1)
	↳ R405 → IC401 (5) ───────── → CN401 (2)

5 Location of Controls and Components

5.1. Location of Controls (Handset)

Ringing/Charge Indicator
Receiver

Headset Jack
Display

Open the cover.

Soft Keys

CANCEL/POWER

Joystick

CLEAR/TRANSFER

TALK/SP-PHONE

MESSAGE

INTERCOM

RECALL
Microphone

Charge Contact

Back view
Speaker
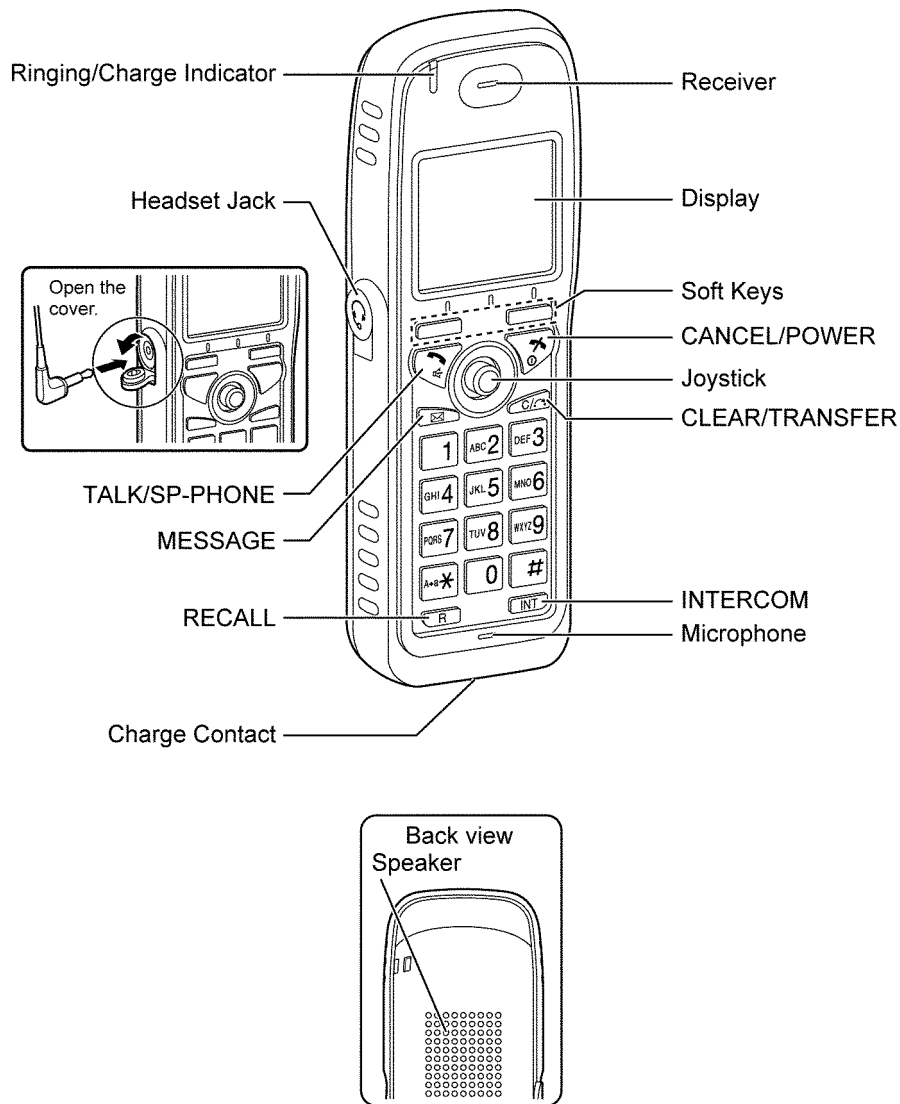
6 Installation Instructions

6.1. Connection

To AC Outlet

Fasten the AC adaptor cord to the cord holder.
Cord holder
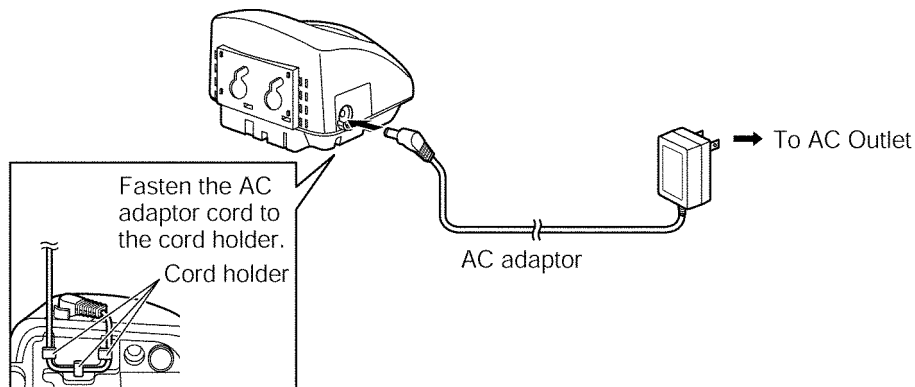
AC adaptor

• Use only the included charger.
• Use only the included Panasonic AC adaptor (PQLV206X).

6.2. Battery

6.2.1. Battery Installation

Insert the battery as shown. Close the cover as indicated by the arrow. Close the clasp to secure the cover in place.
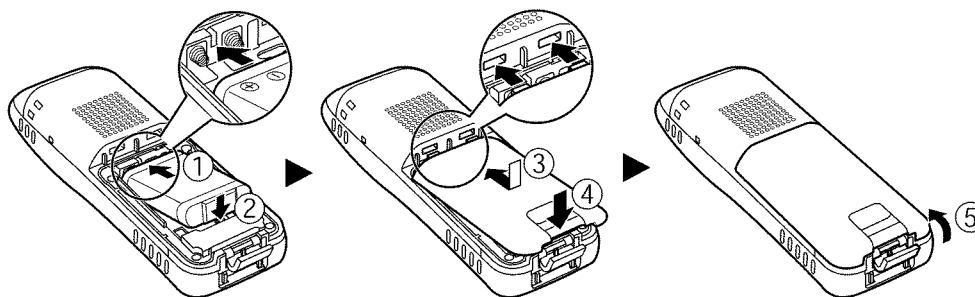
6.2.2. Battery Charge

At the time of shipment, the battery is not charged.
Please charge the battery for at least 5.5 hours before initial use.
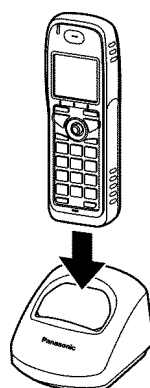
- When the battery has been completely charged, the charge indicator will change from red to green.
- It is normal for the PS and charger to feel warm while the battery is charging.
- Keep devices sensitive to magnetic fields away from the charger.

6.2.3. Battery Information

After your Panasonic battery is fully charged [at 25°C]:

Operation	Operating Time
While in use (TALK)	17 hrs approx.
While not in use (Standby)	270 hrs approx.

- Operating time may be shortened depending on usage conditions and ambient temperature.
- The battery cannot be overcharged.
- The battery will drain even while the unit is turned off.
- The PS can receive calls while charging.
- Battery consumption increases when the PS is used out of range. If "Y" flashes, turn off the PS.
- **Clean the handset and the charger contacts with a soft, dry cloth once a month. Clean more often if the unit is subject to grease, dust or high humidity.** Otherwise the battery may not charge properly.
- Read "Important Notice Concerning the Correct Use and Charging of Ni-MH Batteries".

6.2.4. Low Battery Warning

The batteries needs to be charged when "▭" flashes, or the alarm sounds every one minute during a conversation.*
* If the low battery warning occurs during a conversation, you can continue the call for a few minutes, after which the call will be automatically disconnected .

6.2.5.   Replacing the Batteries

If " ⬚🔋 "flashes after a few telephone calls even when the battery has been fully charged, it is time to replace the battery with a new one.

1. Turn the power off to prevent memory loss.
2. Release the battery cover latch and lift the cover open.
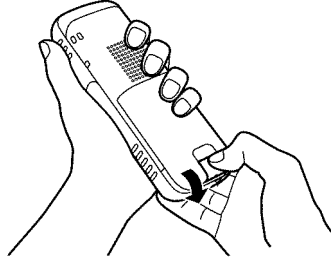
3. Replace the old battery with a new one, and close the cover.
4. Charge the handset for at least 5.5 hours.

Please replace with Panasonic battery only.

• Please order part number N4HHGMB00007.

If you replace the battery before the low battery warning appears, the battery strength icon may display an incorrect reading. In this case, use the PS as normal with the new battery installed. When the low battery warning is displayed, charge the battery for at least 5.5 hours. The battery strength icon will then display a correct reading.

7 Operating Instructions

7.1. Soft Key Display

Icons and information shown on the display will vary depending on the state of use. To select an item shown on the display, press the corresponding soft key.

Icon	Description
	Opens the Handset Phonebook.
	Opens the main menu.
	Opens the function menu.
	Displays the outgoing call log.
OK	Used to confirm the entry.
	Turns the ringer off.
PBX	Opens the PBX System Phonebook.
EXT	Opens the PBX Extension Phonebook.
	Opens the incoming call log.
→GRP	Opens the incoming call log group.
NEXT	Displays the next screen.
CLR	Clears digits or characters.
P	Inserts a dialling pause.
	Returns to the previous screen.
12/24	Used to set the time for memo alarm.

Icon	Description
H/S	Displays the caller information stored in the Handset Phonebook while receiving a call.
PBX	Displays the caller information stored in the system while receiving a call.
X	Used to clear the memo alarm display setting, or enter an X when storing the `Line Access CD`.
∨	Used to select an item when in setting mode.
ABC	Displayed when in ABC (Alphabetic) character entry mode.
0-9	Displayed when in 0-9 (Numeric) character entry mode.
ABΓ	Displayed when in ABΓ (Greek) character entry mode.
AÄÅ	Displayed when in AÄÅ (Extended 1) character entry mode.
SŚŠ	Displayed when in SŚŠ (Extended 2) character entry mode.
	Displayed when key lock is turned on.
	Used to search for an item in the Phonebook alphabetically.
	Used to place a call on hold.
	Used to establish a multiple-party conversation.

7.2. Settings Menu Chart (Handset)

1st Menu	2nd Menu	3rd Menu
Setting Handset	Memo Alarm	
	Ringer Option	Ringer Volume
		Vibration
		EXT Ringer Type
		INT Ringer Type
		Group Ring Type
		Private Ring
		Charger
	Tone Option	Key Tone
		Range Warning
	Display Option	Standby Display
		Select Language
		LED Colour
		Private Colour
		Category Name
		Caller ID Disp
		LCD Contrast
		Guidance
		Flex Base Set
		Flex Name Edit
	Call Option	Hot Line No.
		Hot Line Mode
		Line Access CD
	Registration	Register H/set
		Cancel Base
	Select Base	
	Other Option	Change H/S PIN
		Auto Talk
		Reset Handset
		Any Key Answer
		Auto Answer
		Auto Ans Delay
		Flex Key Edit

7.3. Key Lock

You can lock the dialling buttons while the PS is in idle status.

Press the **Joystick** for
more than 2 seconds
to lock/unlock.

<Display icon>

Unlocked   Locked
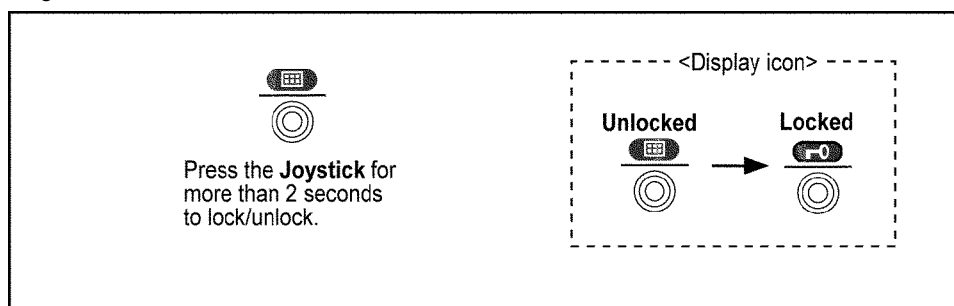
7.4. Selecting the Display Language

Press the
Joystick.

Select "⚙Setting
Handset".

Press the
Joystick.

Select "Display
Option".

Press the
Joystick.

Select "Select
Language".

Press the
Joystick.

Select the
desired language.

Press the
Joystick.
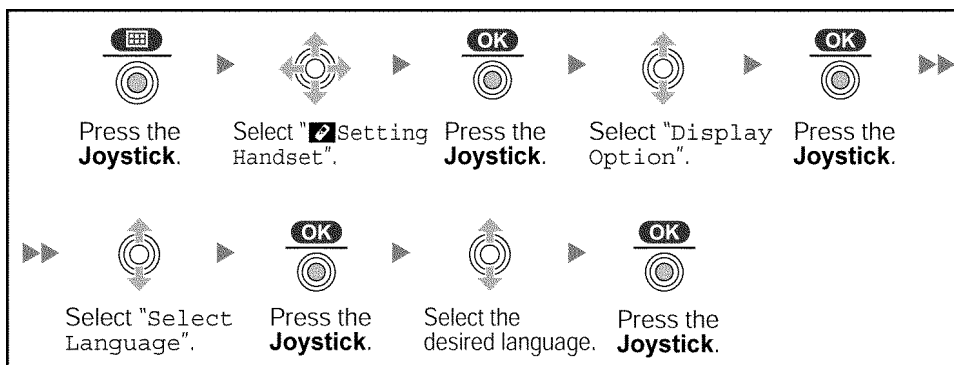
- When set to "Auto", the language settings of the Business Telephone System will be used automatically.
- The display language of both the PS and Business Telephone System can be selected, and both should be set to the same language. Refer to the Business Telephone System User manual for more details.

7.5. Display

7.5.1. Display Icons

301:Paul

3.Jul   10:08
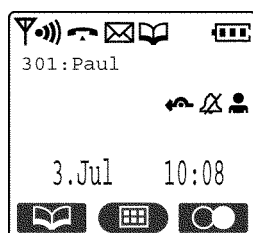
Icon	Description
Y	Within range of a Cell Station
Y	Out of range, No registration
•))	Intercom Indicator
☎	Off-hook Status
✉	Message Waiting
📖	Phonebook Mode
🔋	Battery Strength
👤	Hot Line ON
🔕	Ringer Volume OFF
N	Vibration
M	Meeting Mode
↩	Call Forwarding
•⊬	Do Not Disturb

7.5.2. Main Menu-while in standby mode
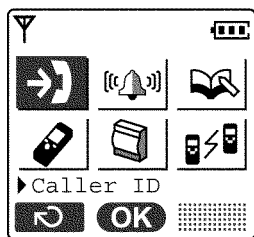
Caller ID:
Displays the incoming call log.

Ringer Option:
Displays the "Ringer Option" menu.

New Phonebook:
Creates a new item in the Handset Phonebook

Setting Handset:
Displays the "Setting Handset" menu.

PBX Program:
Enters PBX programming mode.

Walkie-Talkie:
Displays the Walkie-Talkie menu.

7.5.3. Sub menu-while in off-hook/during a conversation
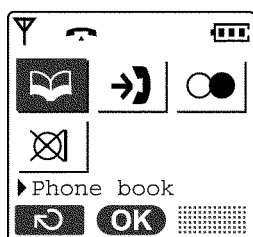
Phone book:
Opens the Handset Phonebook.

Caller ID:
Displays the incoming call log.

Redial:
Redials the last dialled number.

Mute:
Turns the microphone on/off.

7.5.4. PBX Feature Menu
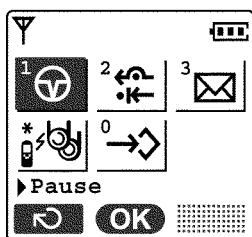
Pause:
Inserts a dialling pause.

FWD/DND:
Used to change Call Forwarding or Do Not Disturb settings.

Message:
Used to leave a message waiting indication or call back the party
who left you a message waiting indication.

Search Wave:
Searches for the strongest radio signal coming from the Cell Station.

PBX Program:
Enters the PBX programming mode.
Has the same function as " PBX Program" found in the main menu

16

7.5.5. Troubleshooting

Problem	Description and Solution
The PS does not work.	• **The battery is drained.** ➡ Charge the battery fully. • **The PS has been cancelled or the PS has not been registered.** ➡ Consult your dealer. • **The power is OFF.** ➡ Turn it ON.
The PS does not ring.	• **Ringer volume is set to "off"** ➡ Adjust the ringer volume level.
You cannot make/receive a call.	• **The PS is out of range or the Cell Station (CS) is busy.** ➡ Move closer to the CS or try again later. • **The radio channel is busy or a radio communication error occurred.** ➡ Try again later.
You cannot dial.	• **The number which you dialled is restricted by the Business Telephone System.** ➡ Consult your dealer. • **The key lock mode is ON.** ➡ To cancel the mode, press the Joystick for about 2 seconds. • **The radio channel is busy or a radio communication error occurred.** ➡ Try again later.
Noise is frequently heard.	➡ Set the PS and CS away from other electrical appliances. ➡ Move closer to the CS.
"CS BUSY" is displayed.	• **The Cell Station is busy.** ➡ Try again later.
"PS Not Connected" is displayed.	• **The called PS is out of range or is not turned on.** ➡ Try again later.
The PS stops working during operation.	➡ Turn the PS off, then turn it back on. ➡ Reinsert the battery and try again.
Two short beeps are heard during a conversation.	• **The radio signal is weak.** ➡ Move closer to the CS.

7.5.6. Power ON/OFF

Power On

Press **POWER** for about 2 seconds.

Power Off

Press **POWER** for about 2 seconds.
The display will go blank.
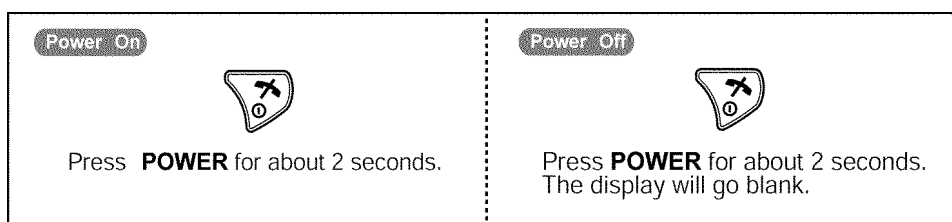
7.5.7. Using the Handset Phone book

name

Press the
left Soft Key.

Enter the first
letter of the
desired name.

Select the
desired item.

Press
**TALK/
SP-PHONE.**,

17

7.5.8. Using the PBX System Phonebook

| Press the **left Soft Key**. | Press the **left Soft Key**. | Enter the first letter of the desired name. | Select the desired item. | Press **TALK/ SP-PHONE.** |
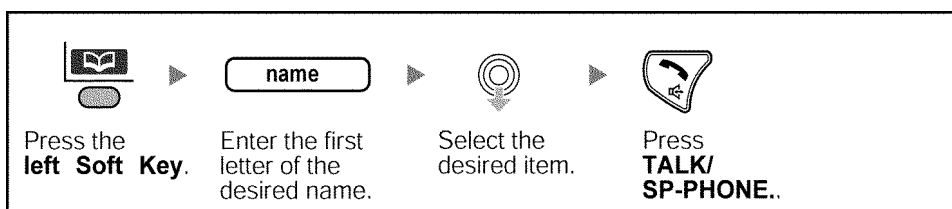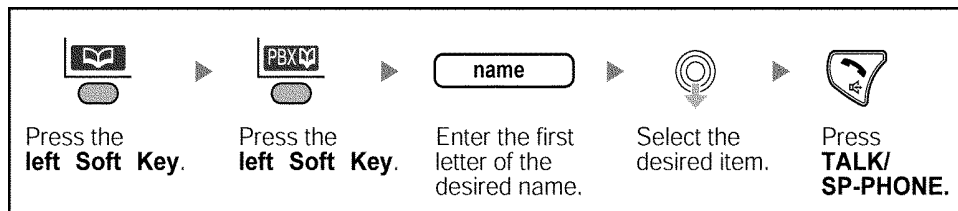
7.5.9. Using the PBX Extension Phonebook

| Press the **Left Soft Key**. | Press the **Left Soft Key**. | Press the **Left Soft Key**. | Enter the first letter of the desired name. | Select the desired item. | Press **TALK/ SP-PHONE.** |
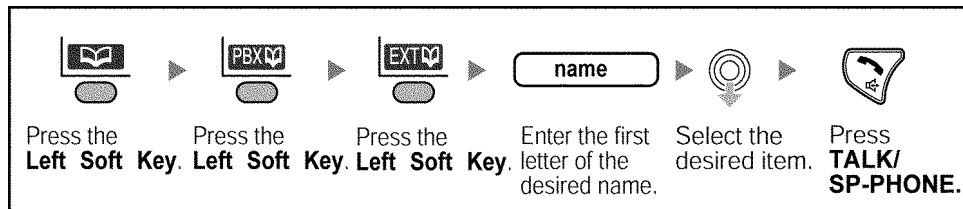
7.5.10. Character Mode Table

Buttons	ABC (Alphabet)	0–9 (Numeric)	ABΓ (Greek)	AÄÅ (Extended 1)	SŚŠ (Extended 2)
1	Space # & ' ( ) ✳ , – . / 1	1	Space # & ' ( ) ✳ , – . / 1		
2	A B C 2	2	A B Γ 2	A À Á Â Ã Ä Å Æ B C Ç 2	A Á Ä Ą B C Ć Č 2
2	a b c 2	2	A B Γ 2	a à á â ã ä å æ b c ç 2	a á ä Ą b c Ć Č 2
3	D E F 3	3	Δ E Z 3	D E È É Ê Ë Ē F 3	D Ď E É Ę Ě F 3
3	d e f 3	3	Δ E Z 3	d e è é ê ë ē f 3	d ď e é Ę ě f 3
4	G H I 4	4	H Θ I 4	G Ğ H I Ì Í Î Ï Ī ì ï 4	G H I Í 4
4	g h i 4	4	H Θ I 4	g ğ h i ì í î ï ī ì ï 4	g h i í 4
5	J K L 5	5	K Λ M 5	J K L 5	J K L Ł Ĺ Ľ 5
5	j k l 5	5	K Λ M 5	j k l 5	j k l Ł Ĺ Ľ 5
6	M N O 6	6	N Ξ O 6	M N Ñ O Ò Ó Ô Õ Ö ø 6	M N Ń Ñ O Ó Ö Ő 6
6	m n o 6	6	N Ξ O 6	m n ñ o ò ó ô õ ö ø 6	m n Ń ñ o ó ö ő 6
7	P Q R S 7	7	Π P Σ 7	P Q R S Ş ß 7	P Q R Ŕ Ř S Ś Š 7
7	p q r s 7	7	Π P Σ 7	p q r s Ş ß 7	p q r Ŕ ř s Ś Š 7
8	T U V 8	8	T Y Φ 8	T U Ù Ú Û Ü Ũ V 8	T Ť U Ú Ü Ű ů V 8
8	t u v 8	8	T Y Φ 8	t u ù ú û ü ũ v 8	t ť u ú ü ű ů v 8
9	W X Y Z 9	9	X Ψ Ω Ў 9	W Ŵ X Y ŷ z 9	W X Y ỳ Ý Z Ź Ż Ž 9
9	w x y z 9	9	X Ψ Ω Ў 9	w Ŵ x y ŷ z 9	w x y ỳ ýz Ź Ż Ž 9
0	Space 0	0	Space 0		

- The following letters are not available. They will be replaced by the uppercase (or lowercase) version of the same letter.
  ą ć č ď ę ł ĺ ľ ń Ø ŕ ş ś š ť ŵ Ý Ŷ ź ż ž
- Press ✳ to change between uppercase and lowercase.

7.5.11. Editing
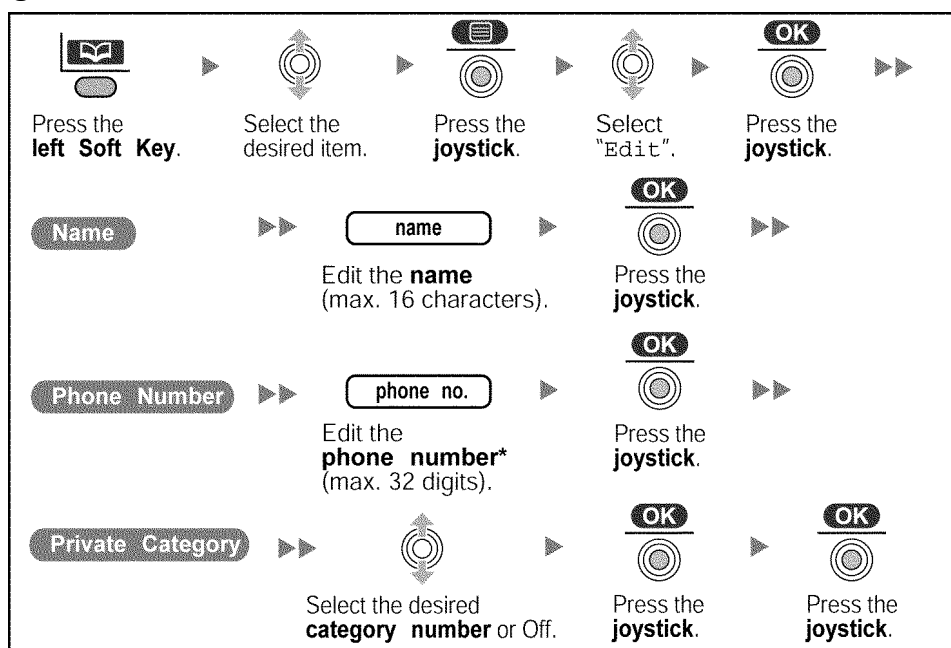
- * The valid digits are 0-9, "✱", "#", PAUSE.
- * Although up to 200 Phonebook items can be stored, each phone number stored in the Phonebook that contains over 24 digits counts as two Phonebook items.
- * If there is only one Phonebook memory location available, you cannot store a phone number that is over 24 digits long.

- To change a character or digit, move the joystick to highlight it, press to delete it, then enter the new character or digit.

- To clear an entire line, press and hold .

- To move the cursor to the left or right, move the joystick or ,respectively.

7.5.12. Deleting
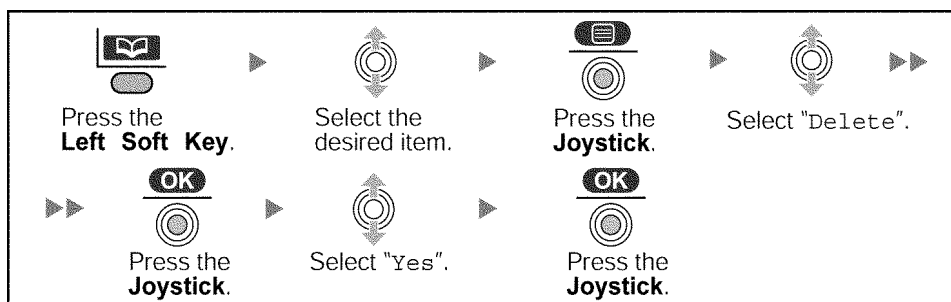
7.5.13. Storing an item in the Handset Phone book

7.5.13.1. Using the Outgoing Call Log

19

7.5.14. Using the Incoming Call Log

Select the
desired item.

Press the
Joystick.

Select "Save
Phonebook".

Press the
Joystick.

name
phone no.
category no.

Enter a **name** (max. 16 characters),
phone number (max. 32 digits), and
select the **category number** or Off.*

Press the
Joystick.

7.5.15. Using the Incoming Call Log Group

Move the
Joystick
UP or **DOWN**.

Press the
Right
Soft Key.

Enter the
incoming call
log group no.

group no.

Press the
Joystick.

Select the
desired item.

Press the
Joystick.

Select "Save
Phonebook".

Press the
Joystick.

name
phone no.
category no.

Enter a **name** (max. 16 characters),
phone number (max. 24 digits), and
select the **category number** or Off.*

Press the
Joystick.

7.5.16. Using the PBX System Phone book

Press the
Left Soft Key.

Press the
Left Soft Key.

Select the
desired item.

Press the
Joystick.

Select "Save
Phonebook".

name
phone no.
category no.

Press the
Joystick.

Enter a **name** (max. 16 characters),
phone number (max. 32 digits), and
select the **category number** or Off.*

Press the
Joystick.

• * Press ⊚ to confirm each entries.
• When storing an outside phone number, the line access number will be stored automatically. The line access number must be identical to the PS's "Line Access CD" setting (Call Option).

7.5.17. Hot Key Dial

The phone numbers stored in the handset phone book can be assigned as hot key.

Press the **Left Soft Key**. ▶ Select the desired item. ▶ Press the **Joystick**. ▶ Select "Reg. to Hot Key". ▶ Press the **Joystick**. ▶▶

▶▶ Select a blank hot key number (1-9). ▶ Press the **Joystick**. ▶ Press the **Joystick**.
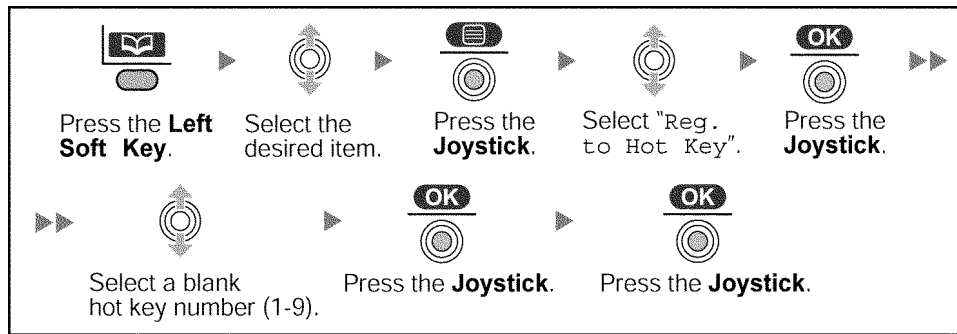
• A " ✓ " will be displayed next to hot key numbers which have a phone book item registered to them.

8 Troubleshooting Guide

Flow Chart

Power ON	Not Work	→	Check Power

OK ↓

Battery Charge	Not Charge	→	Check Battery Charge

OK ↓

Bell	No Bell	→	Bell Reception

OK ↓

Registration

OK ↓   Can not Registration → Check Link

Handset Voice Transmission	No Voice	→	Check Handset Transmission

OK ↓

Handset Voice Reception	No Voice	→	Check Handset Reception
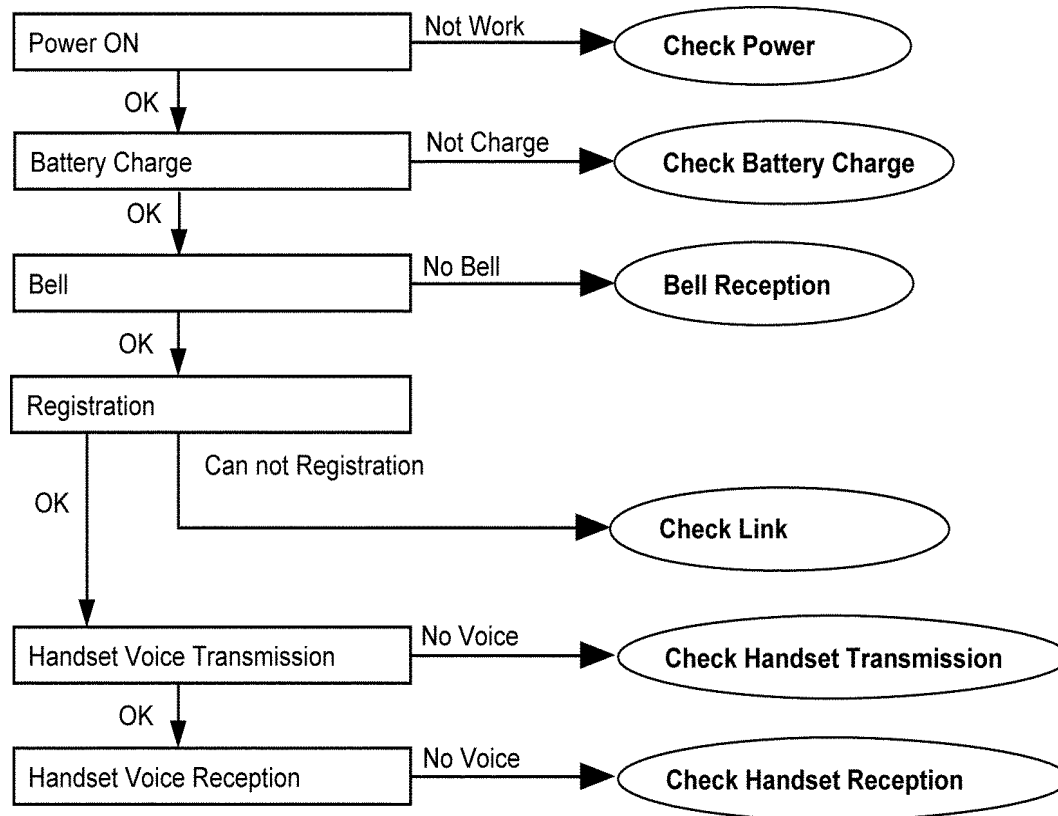
Cross Reference:
    Check Power (Handset) (P.23)
    Check Battery Charge (Handset) (P.24)
    Bell Reception (Handset) (P.27)
    Check Link (Handset) (P.26)
    Check Handset Transmission (P.27)
    Check Handset Reception (P.27)

8.1. Check Power (Handset)

Insert battery.

Is the voltage of BATT 3.5V more? — NO → Check the battery and around CK1 and CK2 are not shorted.

YES

Is the voltage of test point (CK6) about 2.75V? — NO → Check **Power Supply Circuit.**

YES

Is the voltage of test point (CK5) about 1.8V? — NO → Adjust C109 voltage to 1.8V. Refer to **Adjustment...(A).**

YES ← YES / NO

Is the voltage of test point (CK8 and CK9) about 3V? — NO → Check **Power Supply Circuit.**

YES

Does BBIC (12) oscillate at 10.368MHz? — NO → Check X100, C203.

YES

Does the handset turn off and on when you push the power Key? — NO → Check Key sheet.

YES — OK → Check BBIC.

END

Cross Reference
 Power Supply Circuit/Reset Circuit (P.7)
 Adjustment (Handset)(P.36)
Note:
 BBIC is IC201.

8.2. Charge Unit

Plug in the AC Power source.

Is the voltage over 9V between CN601 pin1 and CN601 pin2? — NO → Is the voltage over 9V at CN601? — NO → Check AC Adaptor.

YES — YES → Check IC601.

END

Cross Reference:
 Adjustment (Charger Unit)(P.41)

8.3. Check Battery Charge (Handset)

```
┌─────────────────────────────────────────┐
│ Handset power off.                        │
│ Put the handset on the cradle of the charger. │
└─────────────────────────────────────────┘
                    │
                    ▼
┌─────────────────────────────┐   NO    ┌──────────────────────┐   NO    ┌──────────────────────────────┐
│ Does the handset display a   │───────▶│ Is BBIC (CHGDET) high? │───────▶│ Check the circuits around D103, │
│ detecting charger?           │        └──────────────────────┘        │ R101 and R118.                 │
└─────────────────────────────┘                    │                    └──────────────────────────────┘
                    │ YES                          │ Yes
                    ▼                              ▼
┌─────────────────────────────┐   NO    ┌──────────────────────┐
│ Is BBIC (CHARGE : 54) high?  │───────▶│ Check BBIC.            │
└─────────────────────────────┘        └──────────────────────┘
                    │ YES
                    ▼
┌─────────────────────────────┐   NO    ┌──────────────────────┐
│ Is the voltage of D102 over  │───────▶│ Check the circuits around │
│ 4.0V?                        │        │ Q101.                  │
└─────────────────────────────┘        └──────────────────────┘
                    │ YES
                    ▼
                ┌───────┐
                │  END  │
                └───────┘
```

Note:
    BBIC is IC201.

8.3.1. Charge OFF

Power ON the HANDSET
Connect the PC cable to the HANDSET
Read the EEPROM value of address
0049 and 004A, and note the value.
        Address 0049 :XX
        Address 004A :YY
Write "FF" to these address
        Address 0049 :FF
        Address 004A :FF
Dis-connect the PC
Power OFF the HANDSET.

↓

Provide 4.7V between CHG+ and CHG-.

↓

Light on Red LED. — NO → Check around MIDI (IC301) IC303, ···.

YES ↓

Wait 10 minites.

↓

Light on Green LED. — NO → Check around MIDI(IC301),IC303,···.

YES ↓

Is the voltage of Q102 "0.5 or less"? — NO → Check BBIC.

YES ↓

Is the voltage at D101 "0V"? — NO → Check Q101 and D102.

YES ↓

Connect the PC cable to the HANDSET
Write the original value to these address.
        Address 0049 :XX
        Address 004A :YY
Dis-connect the PC
Power OFF the HANDSET.

YES ↓

END

Note:
BBIC is IC201.

8.4. Check Link (Handset)

Does the RF clock (MCLK) oscillate: 10.368MHz in Handset Test Mode?
Refer to **Adjustment...(H).**

→ NO → Check around X100 and RF module and adjust clock frequency.
Refer to **Adjustment...(H).**

YES ↓

Is there CMD60 (: Dect Tester)? → NO →

YES ↓

Does Handset make link with CMD60 in Handset Test Mode?
Refer to **Adjustment...(I).** → NO →

YES ↓

Is the NTP value OK?
Refer to **Adjustment...(I).** → NO → Check around IC601 and IC602.

YES ↓

Is the modulation OK?
Refer to **Adjustment...(J).** → NO →

YES ↓

Is the Frequency Offset OK?
Refer to **Adjustment...(K).** → NO →

YES ↓

Is the Frequency Drift OK?
Refer to **Adjustment...(L).** → NO →

YES ↓

Is the Sensitivity Receiver OK?
Refer to **Adjustment...(M).** → NO →

YES ↓

Is the Timing OK?
Refer to **Adjustment...(N).** → NO → Check around IC601 and IC602.

YES ↓

Is the RSSI Level OK?
Refer to **Adjustment...(O) and (U).** → NO →

YES ↓

Is the Power RAMP OK?
Refer to **Adjustment...(P).** → NO →

Cross Reference
 Adjustment (Handset) (P.36)

8.5. Check Handset Transmission

Check MIC of Handset.

↓ OK

Check HANDSET TX in **SIGNAL ROUTE.**

Cross Reference:

Signal Route (P.9)

8.6. Check Handset Reception

Check Handset Receiver in **HOW TO CHECK THE HANDSET RECEIVER.**

↓ OK

Check HANDSET RX in **SIGNAL ROUTE.**

Cross Reference:
How to Check the Handset Receiver (P.42).

Signal Route (P.9)

8.7. Bell Reception (Handset)

When bell signal is coming, is there bell sound signal at MIDI-IC(IC301):10 or 11?	NO →	Check clock (IC301: 30) of frequency around 6MHz.

↓ YES

When bell signal is coming, is there bell sound signal at CN401(1), CN401(2)?	NO →	Check around IC401.

↓ YES

Does the bell sound from SPEAKER?	NO →	Check cable of SPEAKER and resistance value of SPEAKER.

Cross Reference:
Check Link (Handset) (P.26)

How to Check the Handset Speaker (P.42)

9 Service Fixture & Tools

PSZZ2CA155EU
(PC Cable)
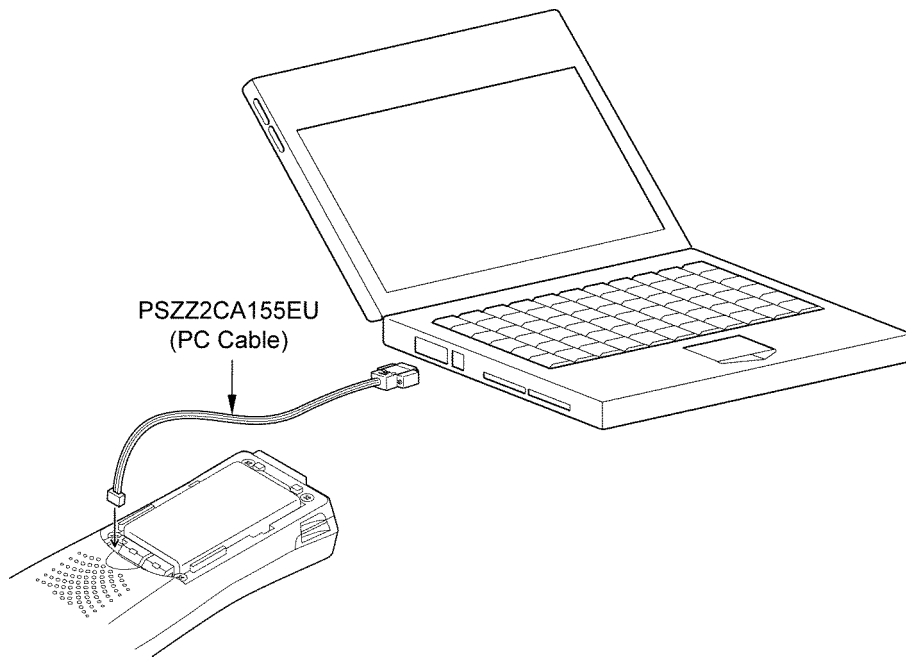
10 Disassembly and Assembly Instructions

10.1. Handset

Rear Cabinet

Don't remove LCD block,
if unnecessary

Release the Lock switch of Connector
(CN405) before removing LCD Block.

Remove the
Main P.C. Board.

(A)
Fig.1

Name Plate

Fig.2

Insert a Tool (PQDJ10006Y)
between the Front and the
Rear Cabinet, then pull it
along the gap to open the
Cabinet.

Likewise, open the other
side of the Cabinet.

Rear Cabinet

Remove the Rear Cabinet
by pushing it upward.

Fig.3

Shown in Fig.-	To Remove	Remove
1	Rear Cabinet	Screws (2 × 10).........(A) × 4
2		Follow the procedure.
3	Main P.C. Board	Main P.C. Board

10.2. Charger Unit

(B)

Remove the Main P.C. Board.
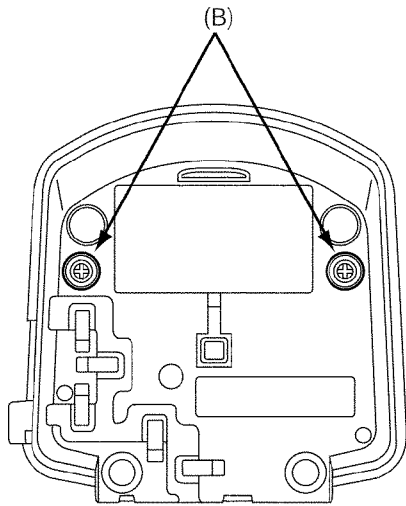
Fig. 4
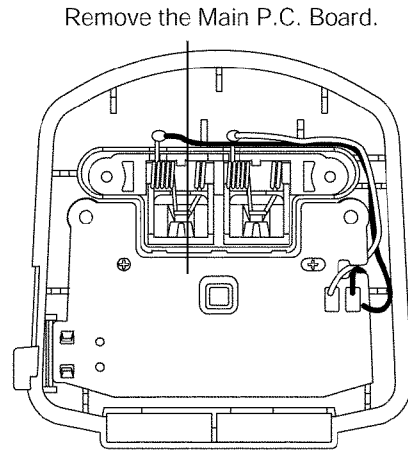
Fig. 5

Shown in Fig.-	To Remove	Remove
4	Lower Cabinet	Screws (2.6 × 14)..........(B) × 2
5	Main P.C. Board	Main P.C. Board

11 Measurements and Adjustments

11.1. Check Procedure (Handset)

11.1.1. Preparation

11.1.1.1. Equipment Required
• DECT tester: Rhode & Schwartz, CMD 60 is recommended.
• Frequency counter: it must be precise to be able to measure 1Hz (precision; ±4ppm).
  Hewlett Packard, 53131A is recommended.
• DC power supply: it must be able to output at least 1A current at 3.8V for Handset, 9V for Tool.
• Digital multi-meter (DMM): it must be able to measure voltage and current.
• Oscilloscope

11.1.1.2. Tool and PC
• EEPROM serial Tool
  Tool: PSZZ2CA155EU
• PC which runs in DOS mode.

11.1.2. PC Setting

11.1.2.1. Connections
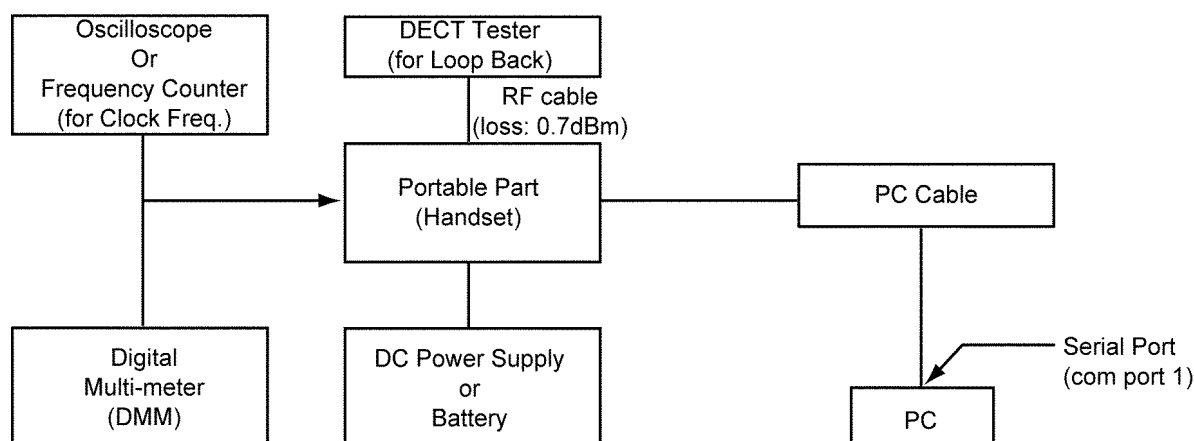
11.1.2.2. PC Setting
1. Open a window of MS-DOS mode from the start-up menu.
2. Change a directory.
3. Type "**SET_COM 1**" from the keyboard (when COM port 1 is used for the connection).
4. Type "doskey".

Note:
  See the table below for frequently used commands.

Command name	Function	Example
ratepayer	Read the data of EEPROM	Type "ratepayer 00 00 FF", and the data from address "00 00" to "FF" is read out.
Siegfried	adjust Frequency of RFIC	Type "Siegfried an".
Glitch	Read checksum	Type "glitch".
Repairmen	write eeprom	Type "repairmen 01 23 45". "01 23" is address and "45" is data to be written.

11.1.3.   Download Manual

11.1.3.1.   Step [1] Before Downloading (Configuration Setting)

[1]-(1) Execute "Flash Program.exe"
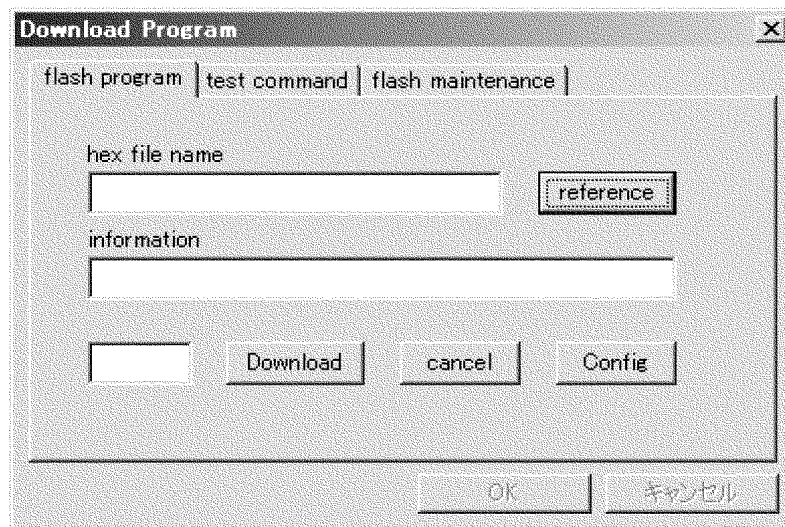
11.1.3.2.   [1]-(2) Press Config
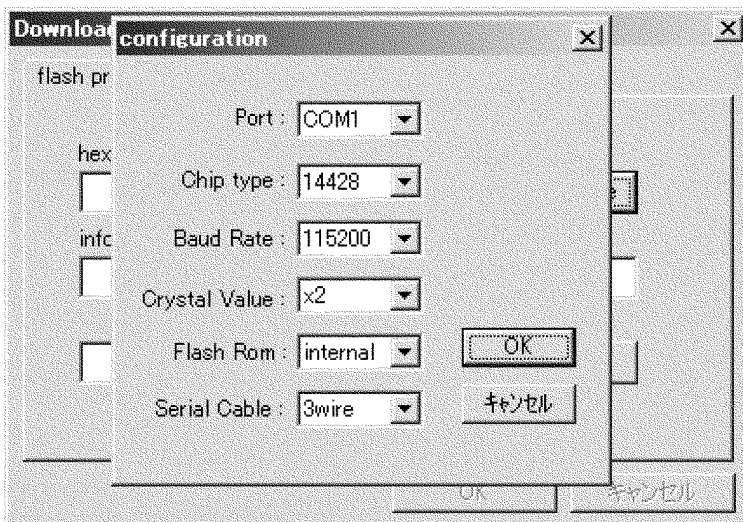
Select following desired item.

[Port]	select COM1/COM2/COM3/COM4
[Chip Type]	select "14428" only
[Baud Rate]	select "115200"
[Crystal Type]	select "x2"
[Flash Rom]	select "Internal" only
[Serial Cable]	select "3wire" only

[1]-(3) Press OK

Selected item will be stored.

Connect the download PC cable with selected come port (COM1 or COM2 or COM3 or COM4).

11.1.3.3. Step [3] Select Download file

[3]-(1) Download Program Main Menu

Push "Reference" to select the download file. (Download Filename tca355vXXX.hex) XXX=Version
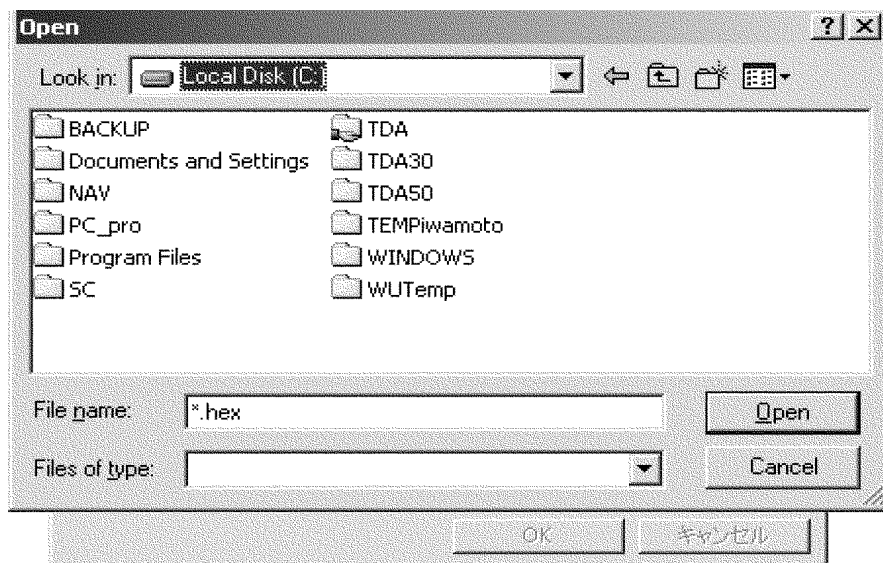
select file
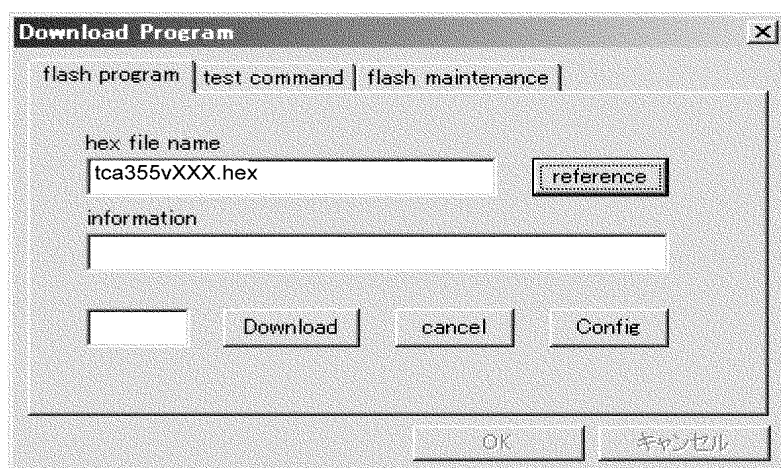
Display shows selected file name.

11.1.3.4. Step [4] Download Start

[4]-(1) Click "download" key
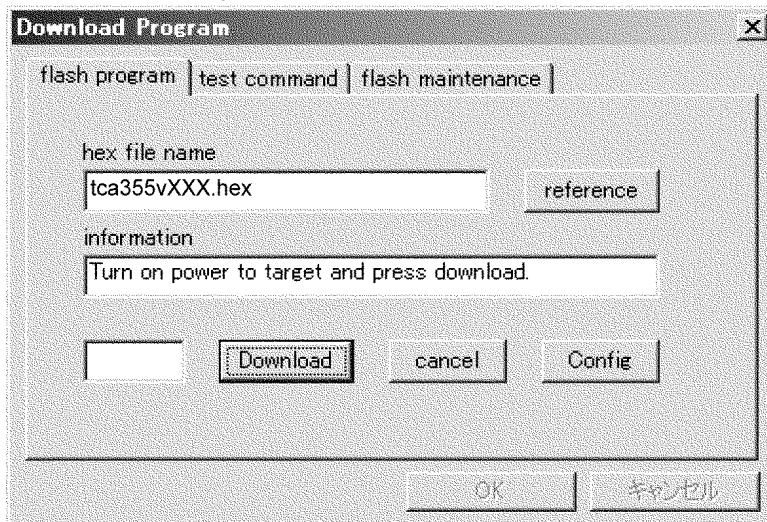
Display turn to ready to download.

[4]-(2) Turn the power of target (TCA355) to [OFF]
(Keep pressing "POWER" key for while 2 seconds)

[4]-(3) Keep pressing "POWER" key until step [4]-(6)
This operation will not turn the power of target to on.

If target power turns on, check following item. Then try again from step [1]-(1).

(A) Check serial PC cable connection "PC" with "TCA355".

(B) Check Configuration. (Refer to Step [1]-(2))

(C) Check PC cable attachment of target.

[4]-(4) Click "Download"
Communicating PC with Target.

Don't release the "POWER" key in this step. If release the "OFF" key, downloading will be failed.
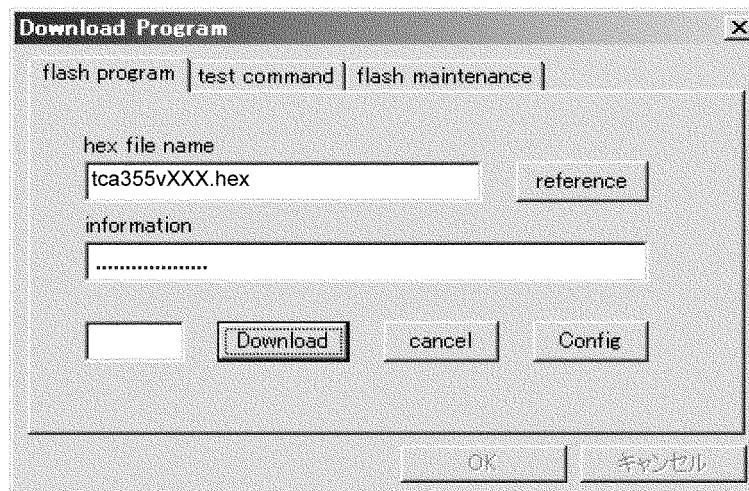
[4]-(5) Communication check "OK"

If communication check become "OK", Display will show "CRC OK".

If communication NG, click "cancel" key, then back to step [4]-(1) and try download again.
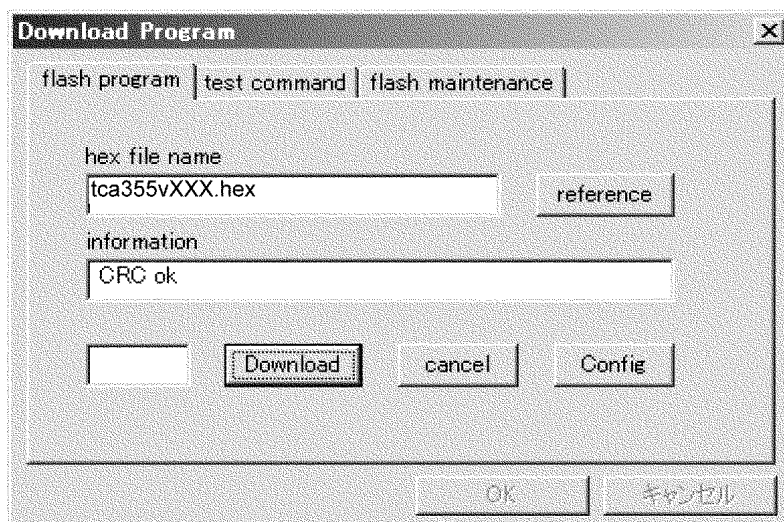
[4]-(6) Downloading Start

After several seconds, Display shows "Flash Program Start".

You can release the "POWER" key in this step.

35

[4]-(7) Downloading Complete
If downloading finished, display shows "Download finished successfully!".
Click "off" then disconnect the serial PC cable.
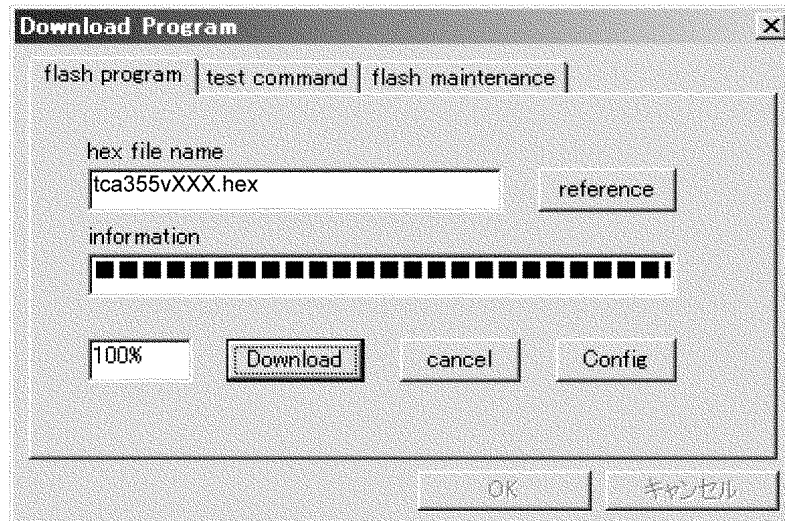
11.2. Adjustments (Handset and Charger Unit)

11.2.1. Adjustment (Handset)

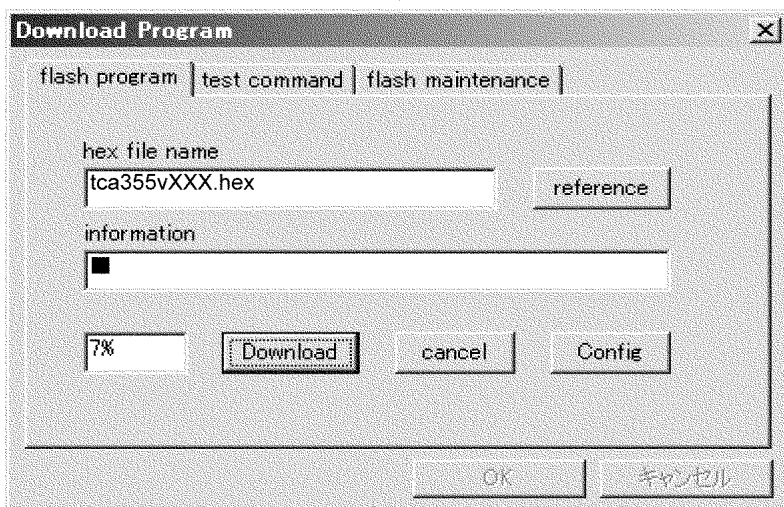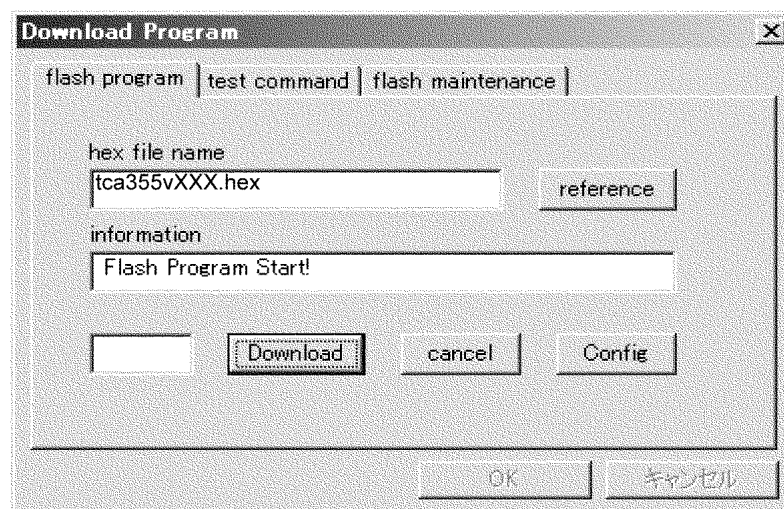|	Items	Adjustment Point	Procedure*	Check or Replace Parts
(**A**)*	1.8V Supply Confirmation	CK5	1. Confirm that the voltage between test point "CK5" and GND is 1.85V±0.02V. 2. Adjust the 1.8V voltage of CK5 executing command "bandgap XX" (XX is the value).	IC201, Q104, R110
(**B**)	2.7V Supply Confirmation	-	1. Confirm that the voltage between "CK6" and GND is 2.775V±0.15V.	IC201, Q105,R111, R112,R113
(**C**)*	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) 　check sum value: 6159　program number: U411AG	IC201, X100,C203
(**D**)	Charge Control Check & Charge Current Monitor Confirmation	-	1. Apply 6V between JT101(+) and JT102(-) with current limit of PSU to 200mA. 2. Confirm that the charge current is ON/OFF. 3. SW to decrease current limit of PSU to 100mA. 4. Confirm that the charge current is stable.	IC201, Q101,L101, L102,Q102, R101,R103, Q103,R117, D101,D102, D103
(**E**)*	Charge Detection (OFF) Confirmation	-	1. Stop supplying 6V to JT101(+) and JT102(-). 2. Execute the command "charge". 3. Confirm that the returned value is 0x01 (hex).	IC201, R118,C111, L101,L102,
(**F**)*	Battery Monitor Confirmation	-	1. Apply 3.8V ± 0.005V between BATT(+) and BATT(-). 2. Execute the command "Backloff", then "readbatt". 3. Confirm: $29 \leqq$ returned value $\leqq 36$ (Hex) 4. Adjust the Battery Monitor executing command "wreeprom 00 01 01 XX", then "wreeprom 00 36 01 XX-0E" (XX is the value).	IC201, R216,R217, C230
(**G**)	Battery low Confirmation	-	1. Apply 3.5V between BATT(+) and BATT(-). 2. Confirm that there is no flashing of Battery Icon. 3. Apply 3.3V between BATT(+) and BATT(-). 4. Confirm that there is flashing of Battery.	IC201, R216,R217, C230
(**H**)*	BBIC Clock Adjusment	SYRI	1. Execute the command "conttx". 2. Adjust the frequency of SYRI executing the command "setfreq xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz ±10Hz.	IC201, X100,C203, C232,L201, C231,C610

	Items	Adjustment Point	Procedure*	Check or Replace Parts

(I)*	Transmitted Power Confirmation	TP601	Remove the Antenna before starting step from 1 to 4.
			1. Configure the DECT tester (CMD60) as follows;
			   <Setting>
			   • Test mode: PP
			   • RFPI: 0102030408
			   • Traffic Carrier: 5
			   • Traffic Slot: 4
			   • Mode: Loopback
			   • RF LEVEL=-80dBm
			2. Execute the command "regcmd60 01 02 03 04 08".
			3. Initiate connection from DECT tester.
			4. Confirm that the NTP value at TP601 is 20dBm~25dBm.
				IC201, IC601, IC602, IC603, FIL601, C665,C661, L618, D601, C654,L616, R625,C657, L615,L614, C656,L610, C653,L611, C650,C646, R623,C642, C643,C645, R633,R634, R645,L619, C662,L617, L605,L603, R615,L612, L620

(J)*	Modulatoin Check and Adjusment	-	Follow steps 1 to 3 of **(I)** above. 4.Confirm that the B-Field Modulation is 360kHz/div~380kHz/div using data type Fig 31. 5.Adjust the B-Field Modulation if required. (Execute the command "Readmod" and "wrtmod xx", where xx is the value.)	IC201, IC601
(K)	Frequency Offset Confirmation	-	Follow steps 1 to 3 of **(I)** above. 4.Confirm that the frequency Offset is < ± 45kHz.	IC201, IC601, IC602, IC603, FIL601, C665,C661, L618, D601, C654,L616, R625,C657, L615,L614, C656,L610, C653,L611, C650,C646, R623,C642, C643,C645, R633,R634, R645,L619, C662,L617, L605,L603, R615,L612, L620,C608, R603,C609, C607,R613, C606,L601, L602
(L)	Frequency Drift Confirmation	-	Follow steps 1 to 3 of **(I)** above. 4.Confirm that the frequency Drift is < ± 30kHz/ms.	IC601, IC603, L619,L620, C662,L617, C660,R626, C634,L606, C633,C632, L608,C631, C630,C661, L618
(M)	Sensitivity Receiver Confirmation	-	Follow steps 1 to 3 of **(I)** above. 4.Set DECT tester power to -88dBm. 5.Confirm that the BER is < 1000ppm.	IC1,IC3, L2,C54, C60,C61, C62,C63, C64,C65, C66,C67, C69,C81, C82,C56, R58,R55, R76

	Items	Adjustment Point	Procedure*	Check or Replace Parts
(N)	Timing Confirmation	-	Follow steps 1 to 3 of **(I)** above. 4.Confirm that the Timing accuracy is < ± 0.5ppm.	IC601, R631,C649, IC201

(O)*	RSSI Level Confirmation	-	Follow steps 1 to 3 of **(I)** above.
			   4.Set DECT tester power to -81dBm.
			   5.Execute the command "readrssi".
			   6.Confirm that the returned value is 0x11±8 (hex).
			   7.Set DECT tester power to -63dBm.
			   8.Execute the command "readrssi".
			   9.Confirm that the returned value is 0x1E±8 (hex).
				IC601,
				R610,C624,
				R614

(P)	Power RAMP Confirmation	-	Follow steps 1 to 3 of **(I)** above. 4.Confirm that Power RAMP is matching.	IC602, C651
(Q)	Audio Check and confirmation	-	1. Link to standard BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1KHz to MIC and measure Line output level. 4. Confirm that the level is reference sample? 1.5dBm and confirm that the distortion level is < 5%. 5. Input -20dBm/1KHz to Line I/F and measure Receiving level at CN402-1 and CN402-2. 6. Confirm that the level is reference sample±1.5dBm and confirm that the distortion level is < 5%.	IC201, R407,C413, C415, CN404, R418,C425, CN404
(R)	SP phone Audio check and confirmation	-	1. Link to standard Base which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Set the handset off-hook using SP-Phone key. 4. Input -45dBm/1KHz to MIC and measure Line output level. 5. Confirm that the level is reference sample±1.5dBm and confirm that the distortion level is < 5%. 6. Input -20dBm/1KHz to Line I/F and measure Receiving level at CN401-1 and CN401-2. 7. Confirm that the level is reference sample±1.5dBm and confirm that the distortion level is < 5%.	IC201, R408,C410, IC401, R405,C430, C405,C409, C408,R406, C407,C432, IC301, IC201, R404,C404, R403,C403
(S)	Headset Audio check and confirmation	-	1. Link to standard BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1kHz across Mic terminals on headset cable. 4. Confirm that the level is reference sample±1.5dBm and confirm that the distortion level is < 5%. 5. Input -20dBm/1kHz to Line I/F. 6. Confirm that the level is reference sample±1.5dBm and confirm that the distortion level is < 5%. (SP terminals on headset cable is load of 150 ohm)	IC201, R424,R423, Q401, CN404
(T)*	EEP-ROM confirmation	-	1. EEP-ROM Confirmation (Execute the command "chk255Xv0.1.bat") 2. confirm the returned check sum Value (check sum is 7F1C)	IC201, CN202, R206,R207, R202,R203, R204

(U)	RSSI Calibration Confirmation	-	1. Set DECT Tester Power to -81dbm.
			2. Run "ReadRSSI" and record the returned value.
			3. Run "eeprom write" and write the returned value.
			   WrEeprom 00 50 1 XX
			   RdEeprom 00 50 1
			4. Set DECT Tester Power to -63dbm.
			5. Run "ReadRSSI" and record the returned value.
			6. Run "eeprom write" and write the returned value.
			   WrEeprom 00 51 1 XX
			   RdEeprom 00 51 1
				IC201,
				CN202,
				R206,R207,
				R202,R203,
				R204

11.2.2. Adjustment Standard (Handset)

When connecting the Simulator Equipments for checking, please refer to below.

KX-TCA355X CIRCUIT BOARD (HANDSET) Component View
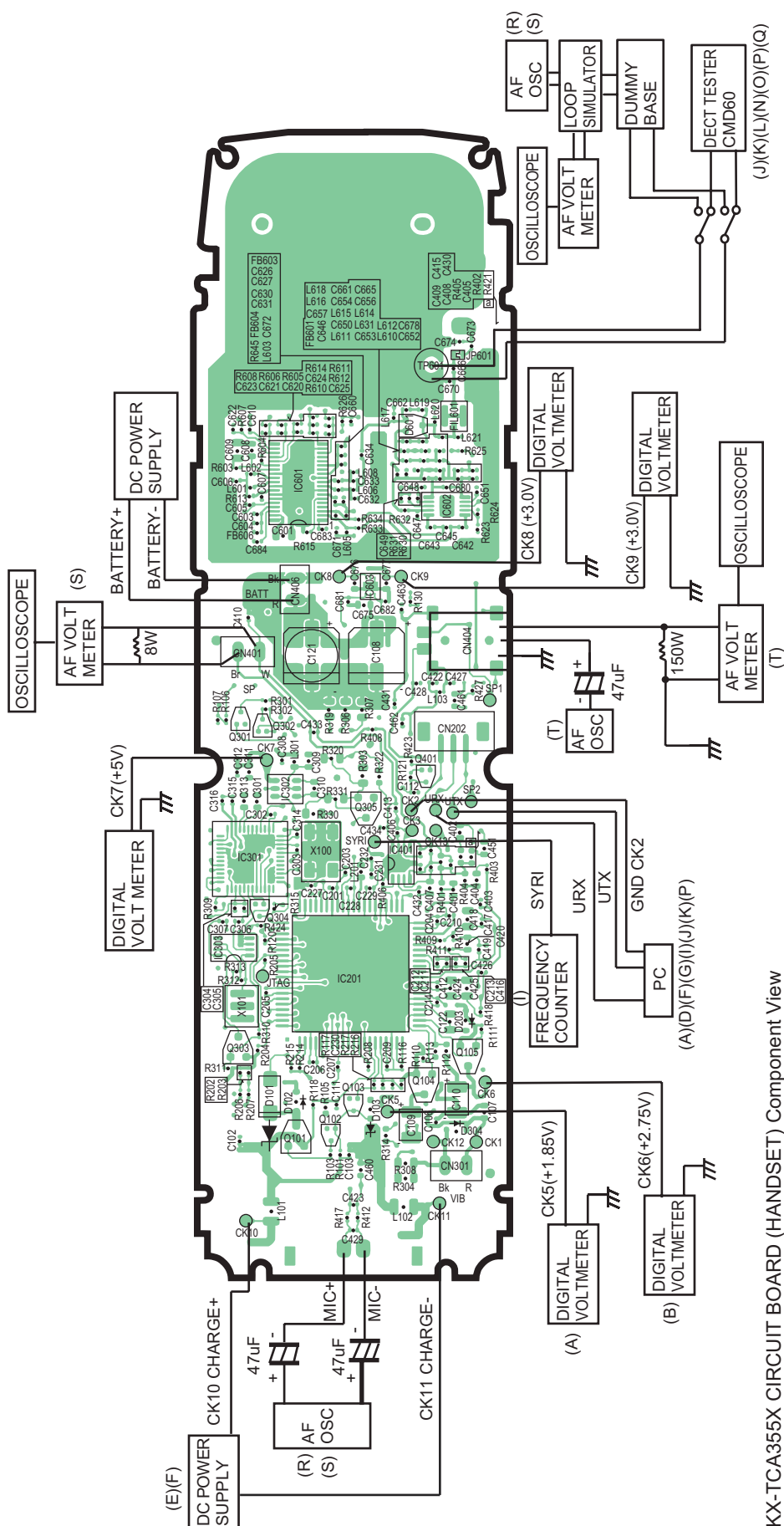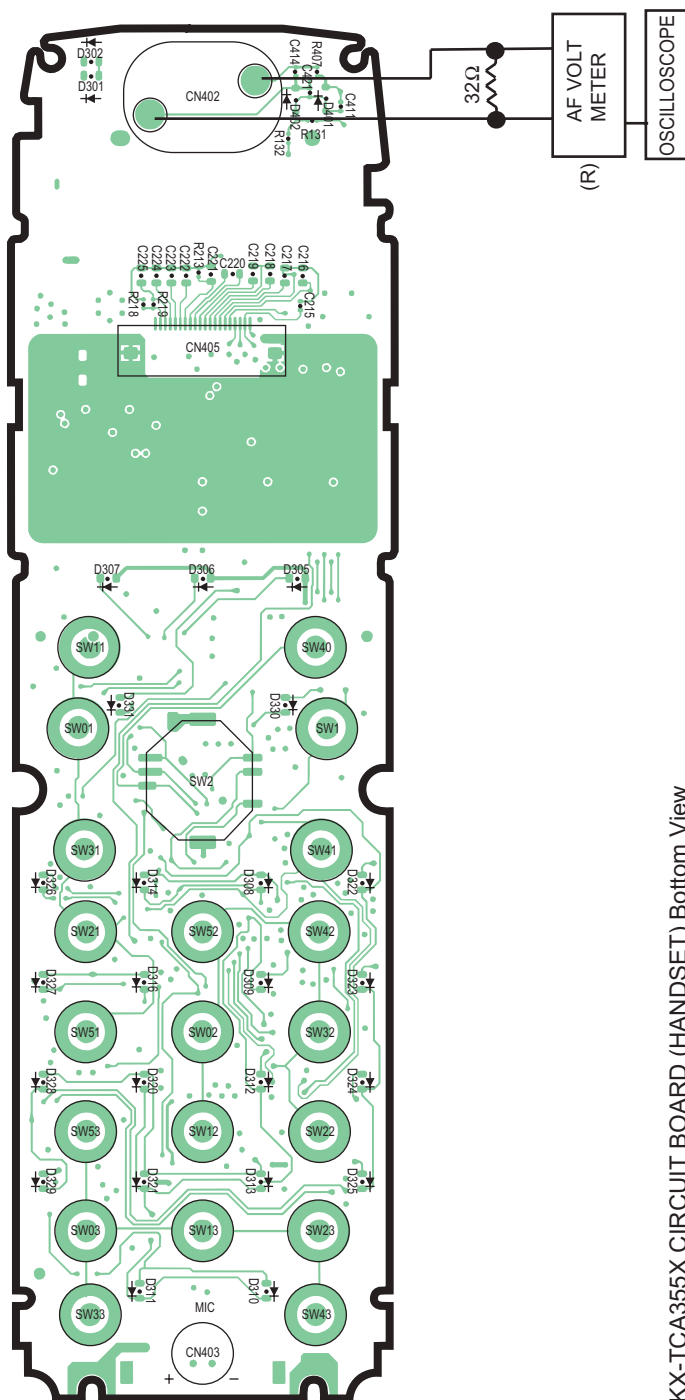
KX-TCA355X CIRCUIT BOARD (HANDSET) Bottom View

11.2.3.   Adjustment (Charger Unit)

	Items	Adjustment Point	Procedure	Check or Replace Parts
(A)	Charging Check	-	1. Connect Charge Contact 12Ω/2W register between charge+ and charge-. 2. Measure and confirm voltage across the register is 2.7V±0.2V.	

Note:
After the measuring, sock up the solder of TP.

11.2.4.   Adjustment Standard (Charger Unit)
When connecting the Simulator Equipments for checking, please refer to below.

11.2.4.1.   Flow Solder Side View

KX-TCA355X CIRCUIT BOARD
(CHARGER UNIT) Flow Solder Side View

11.3.   RF Specification (Handset)

Item	Value	Refer to -. **	Remarks
TX Power	20 dBm~25 dBm	**Adjustment (Handset) (I)**	
Modulation	360 kHz/div~380 kHz/div	**Adjustment (Handset) (J)**	
Frequency Offset	-45 kHz~+45 kHz	**Adjustment (Handset) (K)**	
Frequency Drift	< ± 30 kHz / ms	**Adjustment (Handset) (L)**	
RX Sensitivity	< 1000 ppm	**Adjustment (Handset) (M)**	
Timing Accuracy	< ± 0.5 ppm	**Adjustment (Handset) (N)**	
RSSI Level	0x11 hex±8 hex (at -81dBm) 0x1E hex±8 hex (at -63dBm)	**Adjustment (Handset) (O)**	
Power RAMP	Power RAMP is matching	**Adjustment (Handset) (P)**	

: Refer to **Adjustment (Handset) (P.36)

11.4.　How to Check the Handset Speaker

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

Is the value between
(+) terminal and (–) terminal about 8Ω?

YES　　　　　　　　NO

OK　　　　　　　　NG

Replace the new
speaker.

Handset speaker
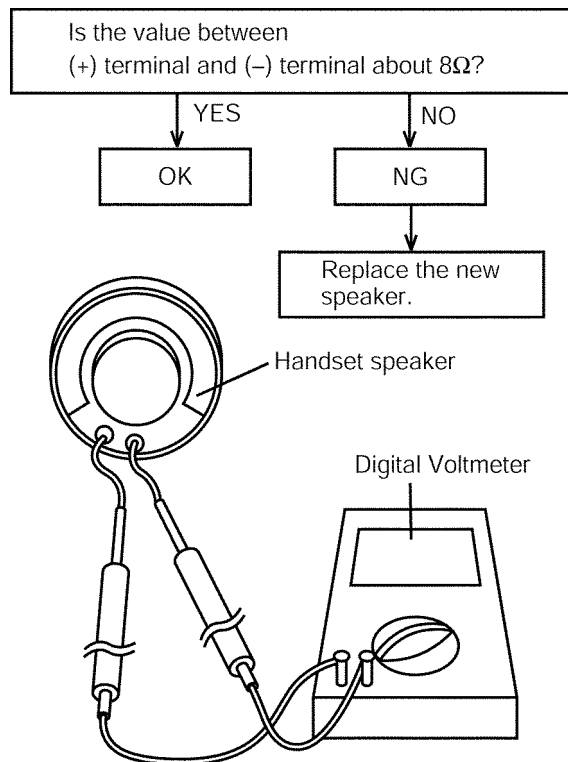
Digital Voltmeter

11.5.　How to Check the Handset Receiver

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

Is the value between
(+) terminal and (–) terminal about 32Ω ± 3?

YES　　　　　　　　NO

OK　　　　　　　　NG

Replace the new
receiver.

Handset receive

Digital Voltmeter
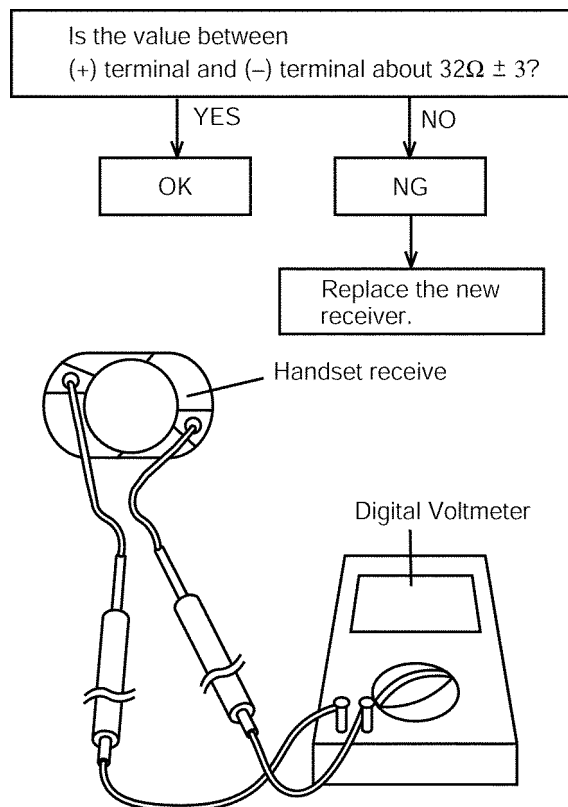
11.6. Frequency Table (MHz)

Channel No	HANDSET	
	Transmit Frequency	Receive Frequency
1	1897.344	1897.344
2	1895.616	1895.616
3	1893.888	1893.888
4	1892.160	1892.160
5	1890.432	1890.432
6	1888.704	1888.704
7	1886.976	1886.976
8	1885.248	1885.248
9	1883.520	1883.520
10	**1881.792**	**1881.792**
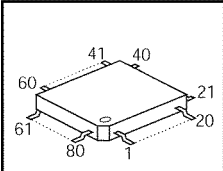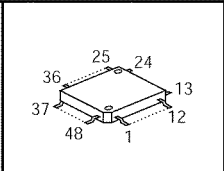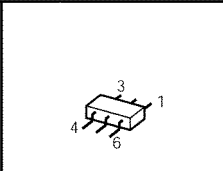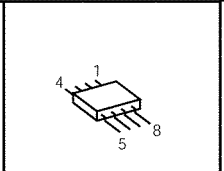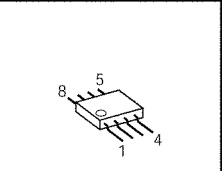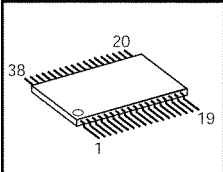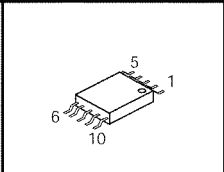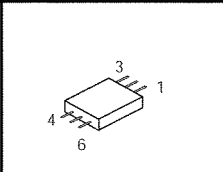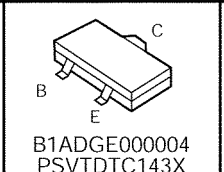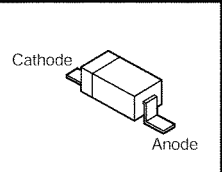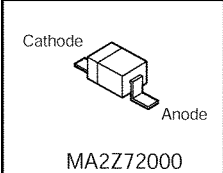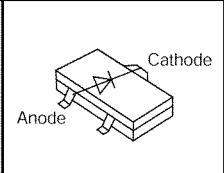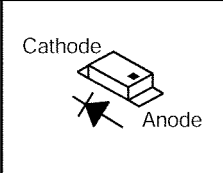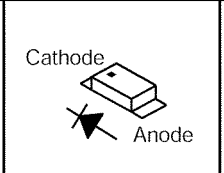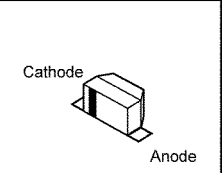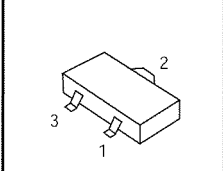
Note:

Channel No. 10: In the Test Mode on Handset.
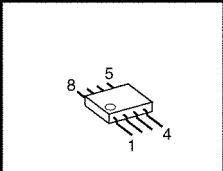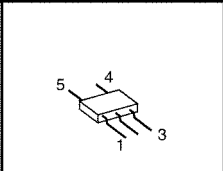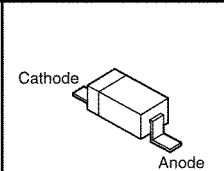
12 Miscellaneous

12.1. Terminal Guide of the ICs, Transistors and Diodes

12.1.1. Handset

C1CB00002107	C1BB00000830	C0DBAHC00030	C0JBAB000633	C0ABAA000058
C1CB00001690	C1CB00001691	C0DBCGC00051	B1ADGE000004 PSVTDTC143X B1ABCF000103 B1GBCFGA0001	B0BC4R900003
MA2Z72000 MA111 MA8047	PSVDUDZ20B	PQVDBR1111C	LNJ308G8JRA	B3AEB0000074
B0DDCL000001				

12.1.2. Charger Unit

PQVIMC34063M	C0ABAA000088	MA738

44

12.2. How To Replace a Flat Package IC

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

12.2.1. Preparation

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

12.2.2. Removal Procedure

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.
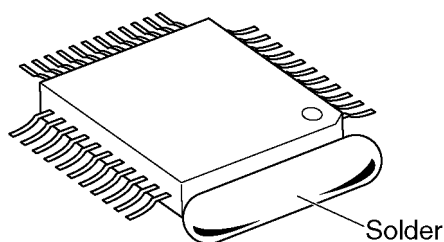
Solder

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

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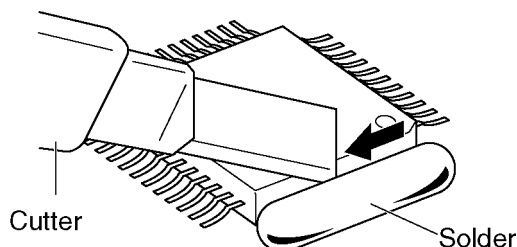
3. While the solder melts, remove it together with the IC pins.
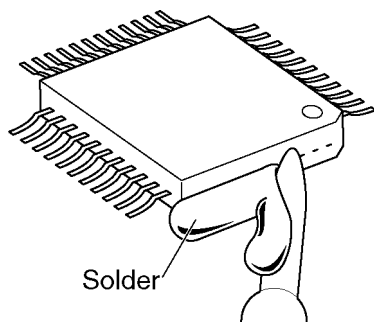
Solder

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

12.2.3. Procedure

1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.
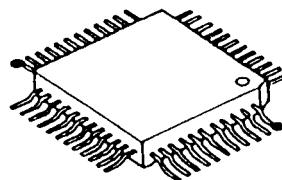
● – – – – – – Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.

– – – – – Flux
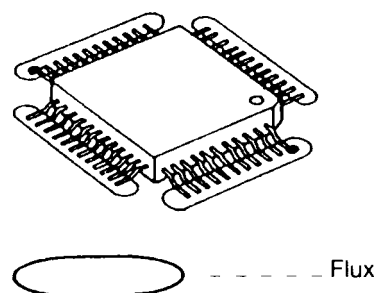
3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

Soldering iron
Specified solder
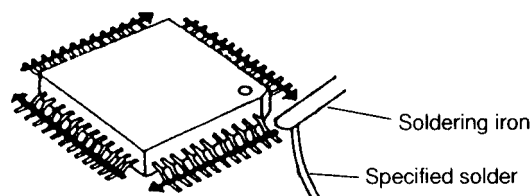
12.2.4. Removing Solder From Between Pins

1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.

bridge
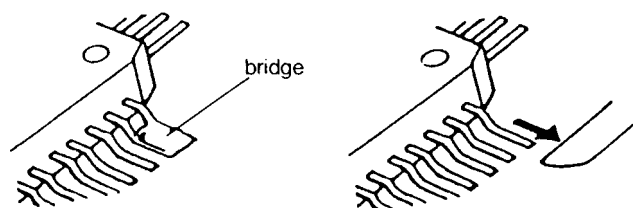
13 Schematic Diagram

13.1. Handset
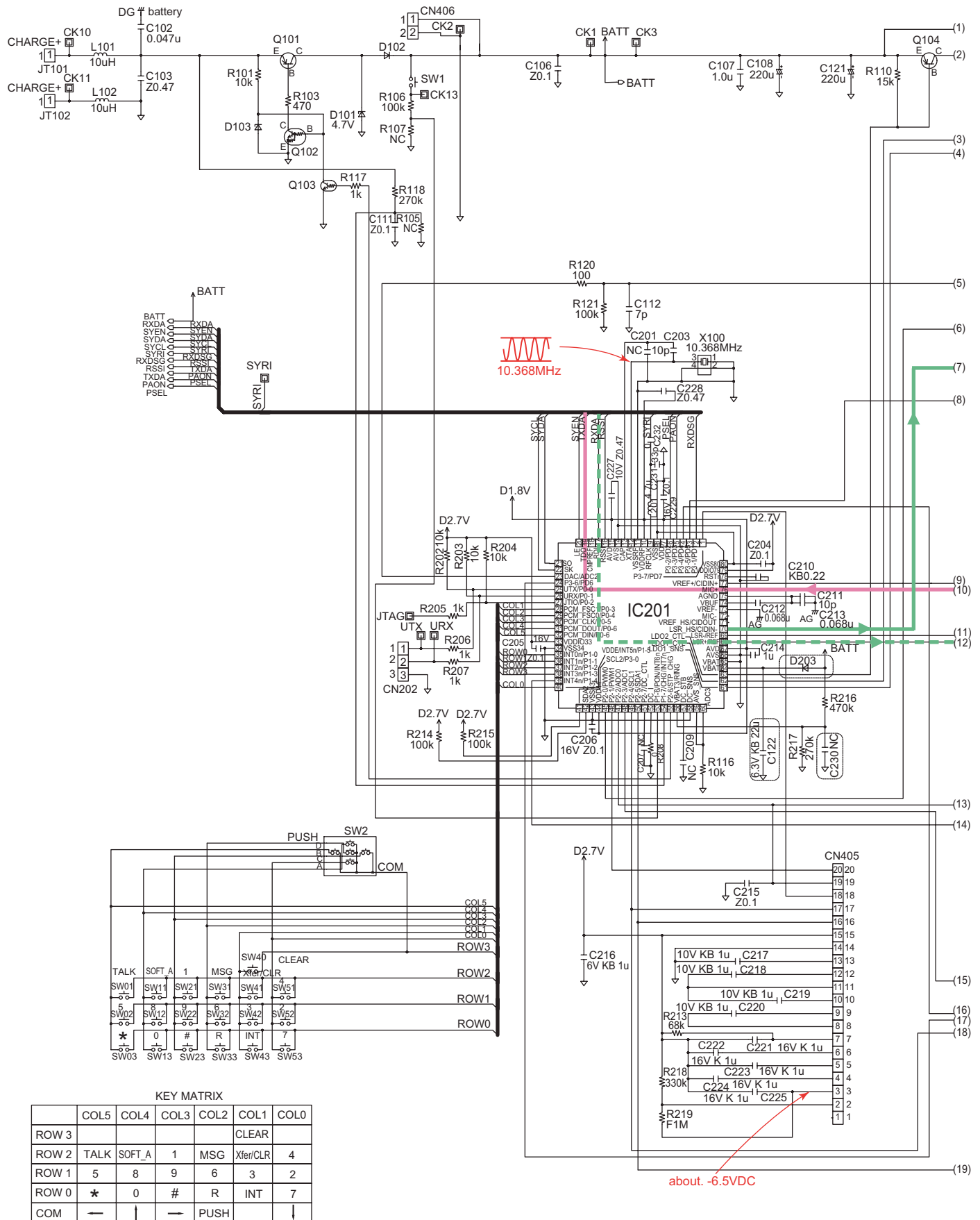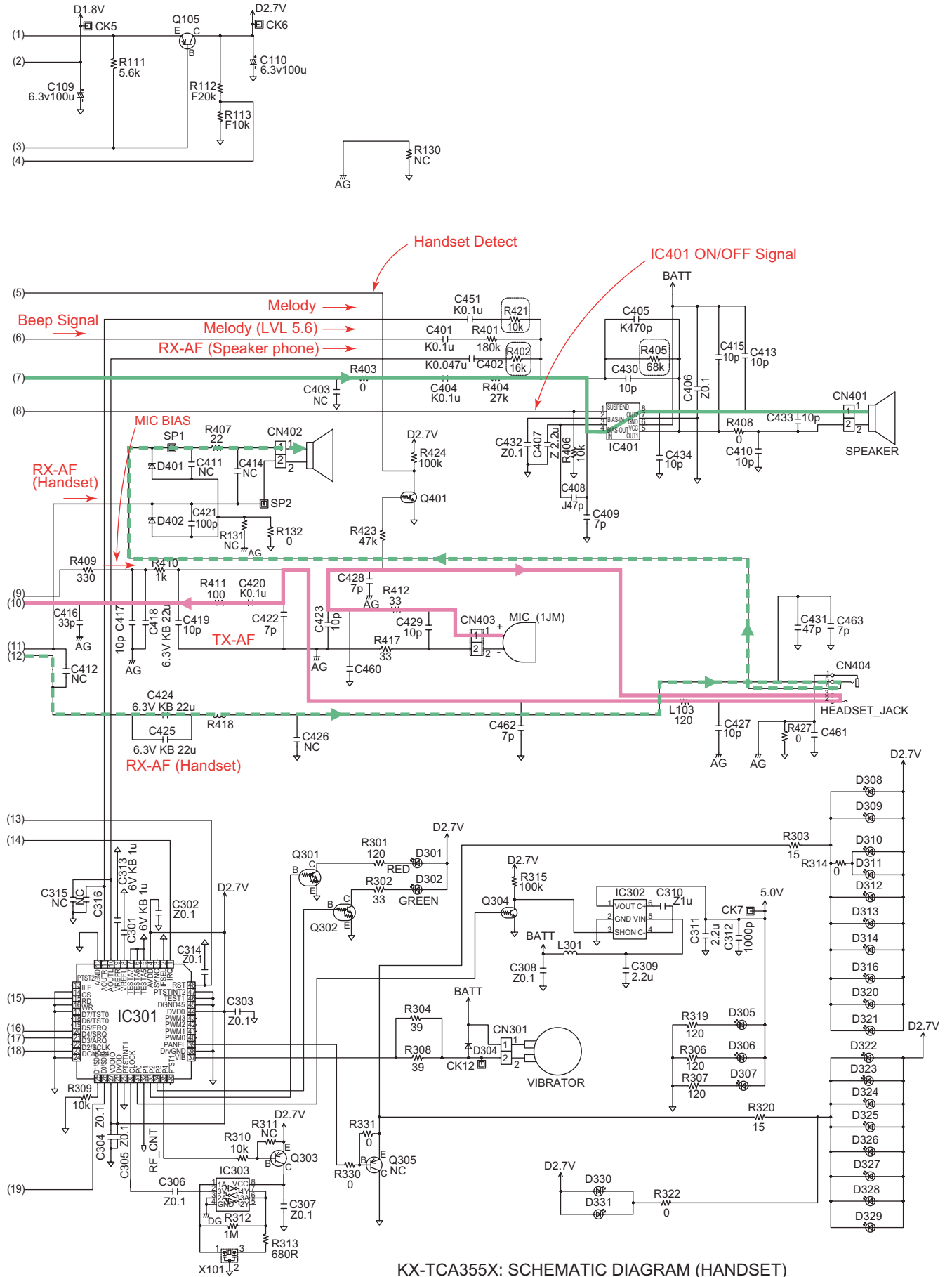
KX-TCA355X: SCHEMATIC DIAGRAM (HANDSET)

13.2. Handset (RF Unit)

KX-TCA355X SCHEMATIC DIAGRAM (RF UNIT)
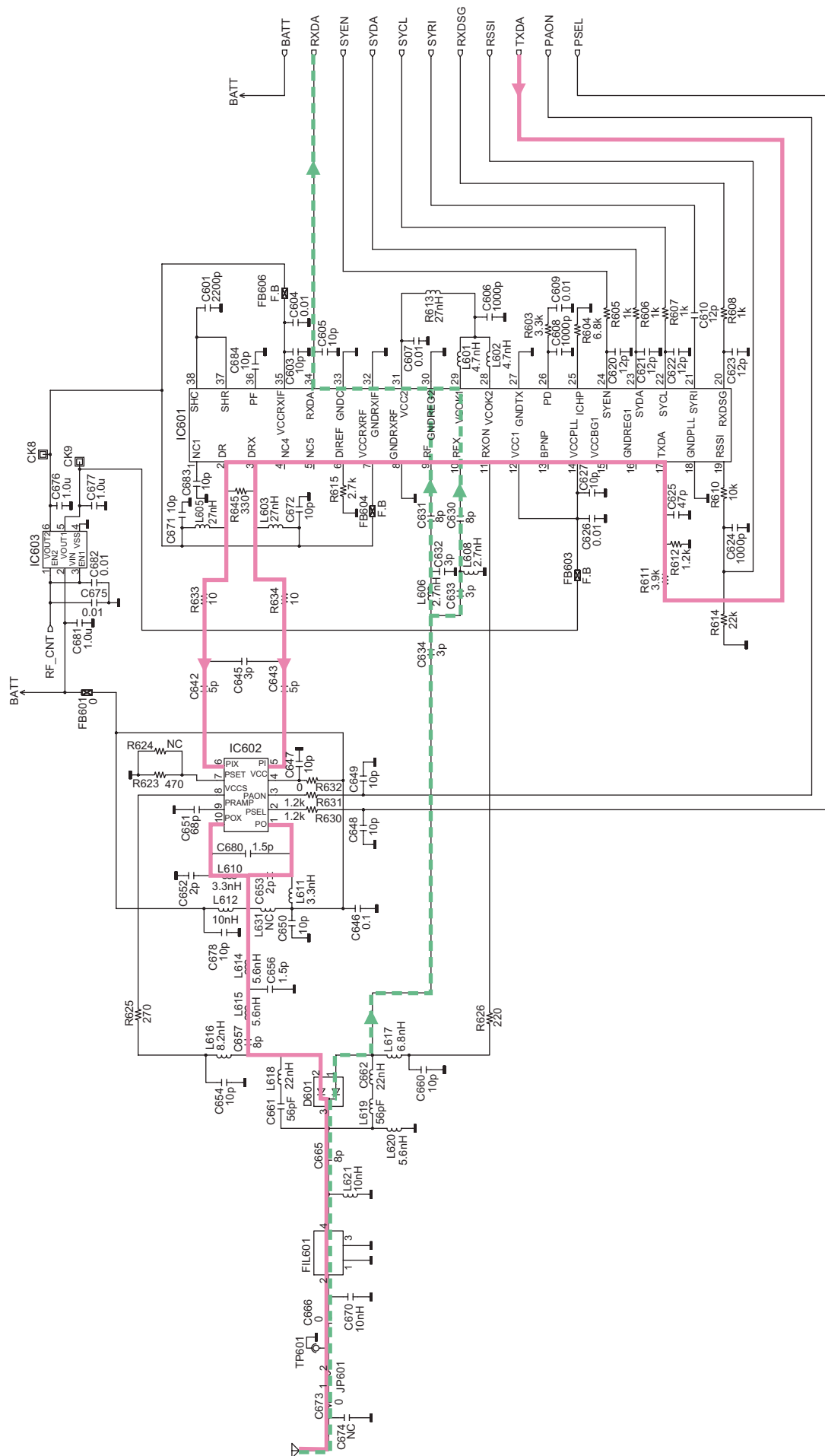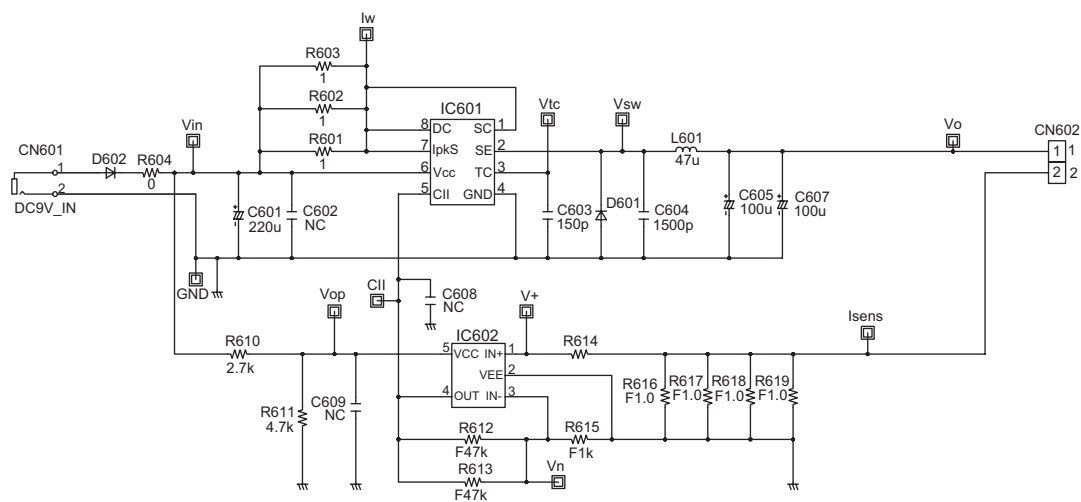
13.3. Charger Unit

KX-TCA355X SCHEMATIC DIAGRAM (CHARGER UNIT)

14 Printed Circuit Board

14.1. Handset

14.1.1. Component View

KX-TCA355X
CIRCUIT BOARD Component View

14.1.2. Flow Solder Side View

KX-TCA355X
CIRCUIT BOARD Bottom View

14.2. Charger Unit

14.2.1. Component View
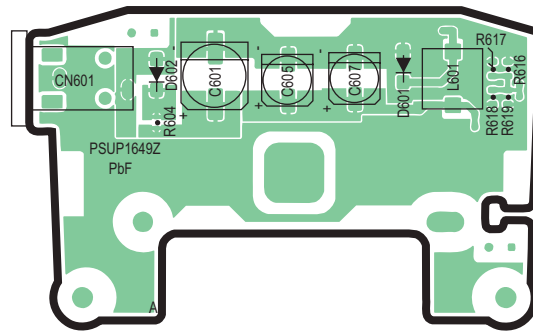
KX-TCA355X CIRCUIT BOARD
(CHARGER UNIT) Component View

14.2.2. Flow Solder Side View
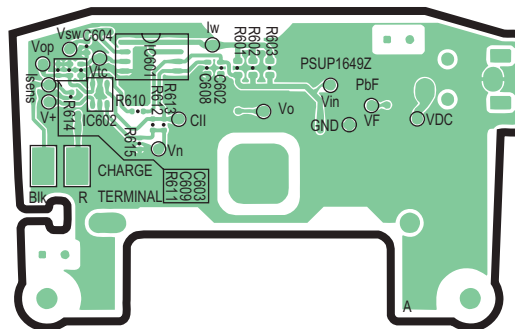
KX-TCA355X CIRCUIT BOARD
(CHARGER UNIT) Flow Solder Side View

15 Appendix Information of Schematic Diagram

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

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.

16 Exploded View and Replacement Parts List

16.1. CPU Data (Handset)

16.1.1. IC201 (BBIC)

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
1	P3_7/PD7	D,O	LCD_A0	O	O
2	P3_1/PD1	D,O	RXDSG	O	O
3	P3_5/PD5	D,O	SPAMP CD	O	O
4	P3_4/PD4	D,I/O	MIDI ERQ	I	O
5	P3_3/PD3	D,O	PAON	O	O
6	P3_2/PD2	D,O	PSEL	O	O
7	VDD	-	-	-	-
8	VSS	-	-	-	-
9	RFCLK	D,O	SYRI	O	O
10	VDDRF	-	-	-	-
11	VSSRF	-	-	-	-
12	Xtal1	A,I	←	I	O
13	CAP	A,I	←	I	O
14	AVS	-	-	-	-
15	AVD	-	-	-	-
16	RSSI	A,I	RSSI	I	O
17	RDI	D,I	RXDA	I	O
18	CMPREF	A,I	NC	OPEN	O
19	TDO	A,O	TXDA	A,O	O
20	LE	D,O	SYEN	D,O	O
21	SO	D,O	SYDA	D,O	O
22	SK	D,O	SYCL	D,O	O
23	DAC/ADC2	D,I	JACK DETECTION	I	O
24	P3_6/PD6	D,I/O	MIDI_SRQ	I	O
25	UTX/P0_0	D,O	UTX	O	O
26	URX/P0_1	D,I	URX	I	O
27	JTIO/P0_2	D,I	JTAG	I	O
28	PCM_FSC1/P0_3	D,I	COL1	I	O
29	PCM_FSC0/P0_4	D,I	COL2	I	O
30	PCM_CLK/P0_5	D,I	COL3	I	O
31	PCM_DOUT/P0_6	D,I	COL4	I	O
32	PCM_DIN/P0_7	D,I	COL5	I	O
33	VDDIO	-	-	-	-
34	VSS	-	-	-	-
35	INT0n/P1_0	D,O	ROW0	O	O
36	INT1n/P1_1	D,O	ROW1	O	O
37	INT2n/P1_2	D,O	ROW2	O	O
38	INT3n/P1_3	D,O	ROW3	O	O
39	INT4n/P1_4	D,I	MIDI_IRQ	I	O
40	VDDE/INT5n/P1_5	D,O	COL0	O	-
41	SCL2/P3_0	D,O	SCL	O	O
42	SDA2	D,I/O	SDA	I/O	O
43	VSS	-	-	-	-
44	VDD	-	-	-	-
45	P2_0/PWM0	D,O	PWM0	O	O
46	P2_1/PWM1	D,O	CS2	O	O
47	P2_2/ADC0	D,O	EX_RESET	O	O
48	P2_3/ADC1	D,O	MIDI-CS	O	O
49	P2_4/SCL1	D,O	LCD-SCLK MIDI_SCLK	O	O
50	P2_5/SDA1	D,O	LCD-SCLK MIDI_SCLK	O	O
51	P2_7/DC_CTRL	D,O	DC_CTRL	O	O
52	DC_I	A,I	←	I	O
53	P1_6/PON/INT6n	A,I	PON	I	O
54	P1_7/CHARGE/INT7n	A,I	CHARGE	I	O
55	P2_6/stop_charge	A,O	STOP-CHARGE	O	O
56	VBAT3/RINGING	A,I	VBAT3	I	O
57	DC_stab	A,O	←	O	O
58	DC_Sense	A,I	←	I	O

Pin No	Description	I/O	Connection	at Normal mode	at Reset mode
59	AVS_sense	A,I	←	I	O
60	ADC3	A,I	←	I	O
61	LDO1_sense	A,I	←	I	O
62	LDO1_CTRL	A,O	←	O	O
63	LDO2_CTRL	A,O	←	O	O
64	VBAT2	A,I	←	I	O
65	VBAT1	A,I	←	I	O
66	AVS2	-	-	-	-
67	AVD2	-	-	-	-
68	LSR+/REF	A,O	LSR+	O	O
69	LSR-/REF	A,O	LSR-	O	O
70	LSR_HS/CIDIN-	A,O	LSR_HS	O	O
71	VREF_HS/CIDOUT	A,O	NC	OPEN	-
72	MIC-	A,I	←	I	O
73	VREF-	A,O	←	O	O
74	VBUF	A,O	←	O	O
75	AGND	A,O	←	O	O
76	MIC+	A,I	←	I	O
77	VREF+/CIDIN+	A,O	VREF+	O	O
78	RSTN	D,I	←	I	O
79	VDDIO	-	-	-	-
80	VSS	-	-	-	-

Note:

JACK DETECTION; Detect if a Headset is inserted into the JACK or not. Without a Headset, 1.5V is measured at pin 23, while with a Headset, 0V is measured at pin 23.

16.2. Cabinet and electrical Parts Location (Handset)

16.2.1. Handset
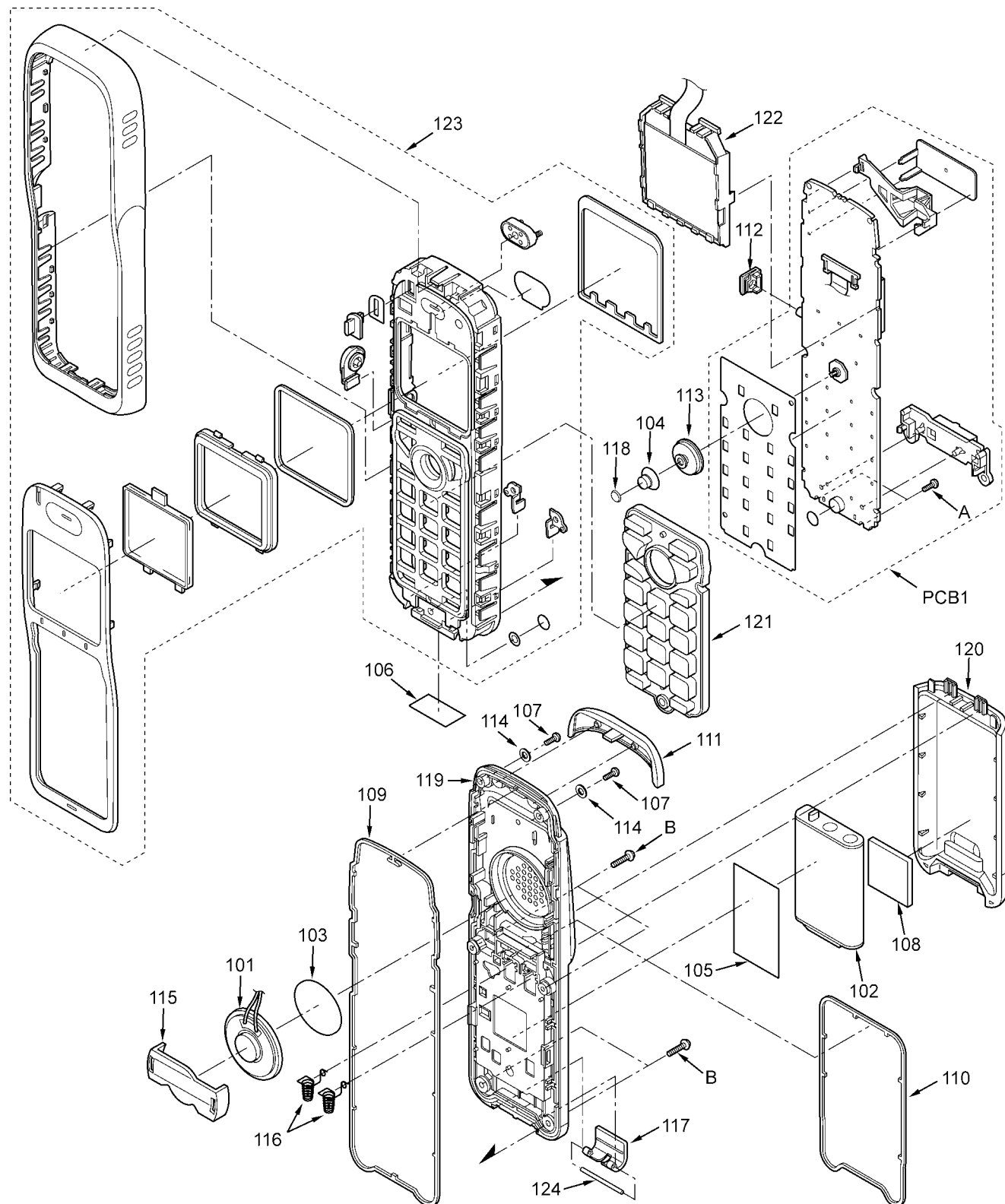
Ref.No.	Figure
A	φ2 × 5mm
B	φ2 × 10mm

16.2.2. Charger Unit
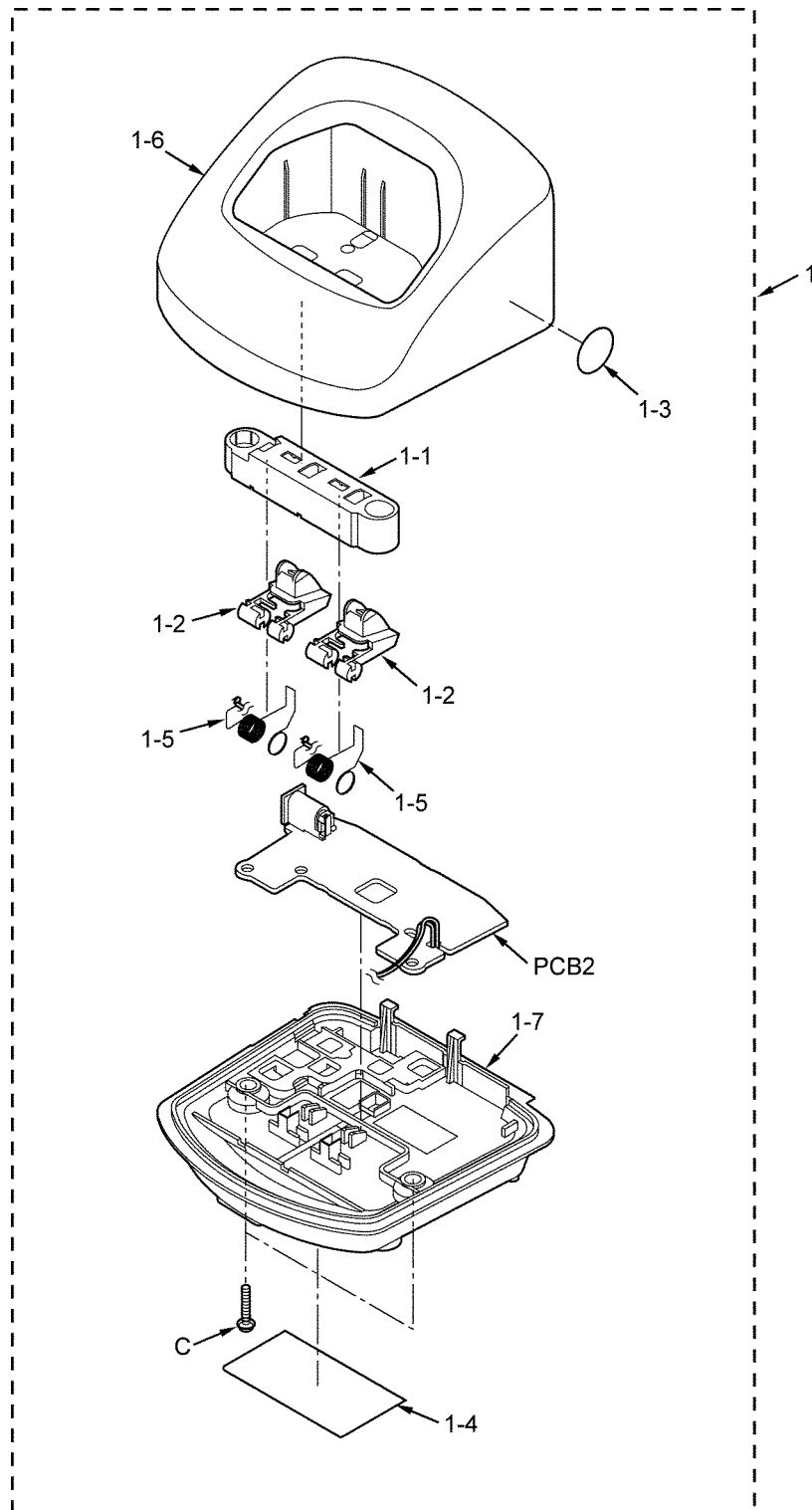
Ref.No.	Figure
C	⎓ㅤㅤㅤㅤ φ2.6 × 14mm

16.3. Accessories and Packing Materials

16.4. Replacement Part List

Note:

1. RTL (Retention Time Limited)

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

   When production is discontinued, this item will continue to be available only for

   a specific period of time. This period of time depends on the type of item,

   and the local laws governing parts and product retention.

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

2. Important safety notice

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

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

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

5. RESISTORS & CAPACITORS

   Unless otherwise specified;

   All resistors are in ohms (Ω), k=1000Ω, M=1000kΩ

   All capacitors are in MICRO FARADS (μF), p=μμF

   *Type & Wattage of Resistor

   Type

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

   Wattage

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

   *Type & Voltage Of Capacitor

   Type

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

   Voltage

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

16.4.1. Handset

16.4.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
101	L0AD02A00010	SPEAKER	
102	N4HHGMB00007	BATTERY	△
103	PQHG10666Z	SPEAKER, RUBBER SHEET	PE+PET
104	PSBC1055Z1	PUSH BUTTON, NAVI	PC+ABS-UL94HB
105	PSGT2756Z	NAME PLATE	
106	PSGT2758Z	LABEL, COVER	
107	PSHE1205Z	SCREW	
108	PSHE1209Z	SPACER, BATTERY CUSHION	
109	PSHG1272Z	RUBBER PARTS, O-RING CABINET	SI
110	PSHG1273Z	RUBBER PARTS, O-RING BATTERY	SI
111	PSHG1275Z1	RUBBER PARTS, CORNER	TPE-UL94HB

Ref. No.	Part No.	Part Name & Description	Remarks
112	PSHG1278Z1	RUBBER PARTS, UPPER CABINET ERASTOMER	TPE-UL94HB
113	PSHG1279Z1	PACKING, NAVI	SI
114	PSHG1283ZA	RUBBER PARTS, O-RING (SCREW)	SI
115	PSHR1364Z	COVER, SPEAKER HOLDER	ABS-UL94HB
116	PSJC1009Z	BATTERY TERMINAL	
117	PSKE1095Z1	DOOR-LID, BATTERY LOCK KNOB	POM-UL94HB
118	PSKE1097Z1	COVER, NAVI KEY CAP	
119	PSKF1128Z1	CABINET COVER	PC+ABS-UL94HB
120	PSKK1056Z1	SPACER, BATTERY COVER	PC+ABS-UL94HB
121	PSSX1038Z1	KEYBOARD SWITCH	SI
122	PSWETCA355CE	LIQUID CRYSTAL DISPLAY	
123	PSYMTCA355CE	CABINET BODY ASS'Y	PC+ABS-UL94HB
124	XPJ16C20WV	KEY-PIN	
A	XTB2+5JFJA	SCREW	
B	XTN2+10JFJA	SCREW	

16.4.1.2. Main P.C.Board Parts

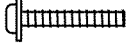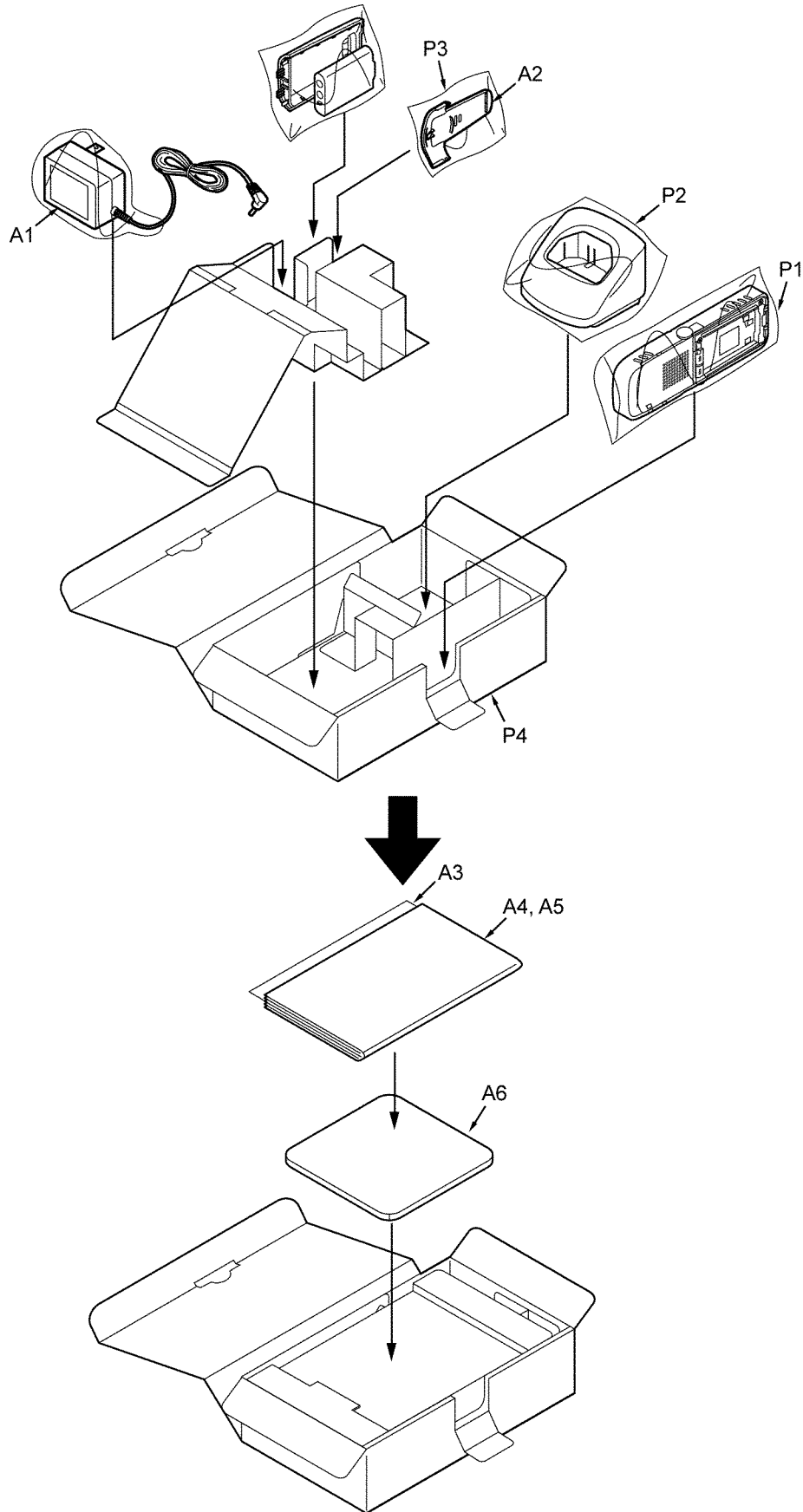| Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWPA355CERU	HANDSET AND RF P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC201	C1CB00002107	IC	
IC301	C1BB00000830	IC	
IC302	C0DBAHC00030	IC	
IC303	C0JBAB000633	IC	
IC401	C0ABAA000058	IC	
IC601	C1CB00001690	IC	
IC602	C1CB00001691	IC	
IC603	C0DBCGC00051	IC	
		(TRANSISTORS)	
Q101	B1ADGE000004	TRANSISTOR(SI)	
Q102	PSVTDTC143X	TRANSISTOR(SI)	S
Q103	B1ABCF000103	TRANSISTOR(SI)	
Q104	B1ADGE000004	TRANSISTOR(SI)	
Q105	B1ADGE000004	TRANSISTOR(SI)	
Q301	PSVTDTC143X	TRANSISTOR(SI)	S
Q302	PSVTDTC143X	TRANSISTOR(SI)	S
Q303	B1ADGE000004	TRANSISTOR(SI)	
Q304	B1GBCFGA0001	TRANSISTOR(SI)	
Q401	B1ABCF000103	TRANSISTOR(SI)	
		(DIODES)	
D101	B0BC4R900003	DIODE(SI)	
D102	MA2Z72000	DIODE(SI)	
D103	PSVDUDZ20B	DIODE(SI)	S
D203	MA2Z72000	DIODE(SI)	
D301	PQVDBR1111C	DIODE(SI)	S
D302	LNJ308G8JRA	LED	
D304	MA111	DIODE(SI)	S
D305	B3AEB0000074	LED	
D306	B3AEB0000074	LED	
D307	B3AEB0000074	LED	
D308	LNJ308G8JRA	LED	
D309	LNJ308G8JRA	LED	
D310	LNJ308G8JRA	LED	
D311	LNJ308G8JRA	LED	
D312	LNJ308G8JRA	LED	
D313	LNJ308G8JRA	LED	
D314	LNJ308G8JRA	LED	
D316	LNJ308G8JRA	LED	
D320	LNJ308G8JRA	LED	
D321	LNJ308G8JRA	LED	
D322	LNJ308G8JRA	LED	
D323	LNJ308G8JRA	LED	
D324	LNJ308G8JRA	LED	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D325	LNJ308G8JRA	LED		C121	EEE0JA221WP	220	S
D326	LNJ308G8JRA	LED		C122	F1J0J2260002	22	
D327	LNJ308G8JRA	LED		C203	F1G1H100A420	10P	
D328	LNJ308G8JRA	LED		C204	F1G1C104A083	0.1	
D329	LNJ308G8JRA	LED		C205	F1G1C104A083	0.1	
D330	LNJ308G8JRA	LED		C206	F1G1C104A083	0.1	
D331	LNJ308G8JRA	LED		C210	F1G1A2240008	0.22	
D401	MA8047	DIODE(SI)	S	C211	F1G1H100A420	10P	
D402	MA8047	DIODE(SI)	S	C212	ECUE1A683KBQ	0.068	S
D601	B0DDCL000001	DIODE(SI)		C213	ECUE1A683KBQ	0.068	S
				C214	F1G0J1050007	1	
		(COILS)		C215	F1G1C104A083	0.1	
C662	G1C22NJ00010	COIL		C216	ECUV0J105KBV	1	S
C670	PQLQR4C10NJ	COIL	S	C217	F1H1A105A036	1	
L101	G1C100MA0072	COIL		C218	F1H1A105A036	1	
L102	G1C100MA0072	COIL		C219	F1H1A105A036	1	
L201	G1C4R7M00012	COIL		C220	F1H1A105A036	1	
L301	PQLQR2KA12T	COIL	S	C221	F1H1C105A118	1	
L601	G1C4N7Z00017	COIL		C222	F1H1C105A118	1	
L602	G1C4N7Z00017	COIL		C223	F1H1C105A118	1	
L603	PSLQR1S27NJ	COIL		C224	F1H1C105A118	1	
L605	PSLQR1S27NJ	COIL		C225	F1H1C105A118	1	
L606	PQLQR4C2N7S	COIL	S	C227	F1G1A4740003	0.47	
L608	PQLQR4C2N7S	COIL	S	C228	F1G1A4740003	0.47	
L610	G1C3N3ZA0061	COIL		C229	F1G1C104A083	0.1	
L611	G1C3N3ZA0061	COIL		C231	F1G1H330A565	33P	
L612	PQLQR4C10NJ	COIL	S	C232	ERJ2GEJ000	0	S
L614	PQLQR4C5N6S	COIL	S	C301	ECUV0J105KBV	1	S
L615	PQLQR4C5N6S	COIL	S	C302	F1G1C104A083	0.1	
L616	G1C8N2J00004	COIL		C303	F1G1C104A083	0.1	
L617	G1C6N8J00004	COIL		C304	F1G1C104A083	0.1	
L618	G1C22NJ00010	COIL		C305	F1G1C104A083	0.1	
L620	PQLQR4C5N6S	COIL	S	C306	F1G1C104A083	0.1	
L621	PQLQR4C10NJ	COIL	S	C307	F1G1C104A083	0.1	
R418	PSLQR2S471MT	COIL		C308	F1G1C104A083	0.1	
R613	PSLQR1S27NJ	COIL		C309	ECJ1VB0J225	2.2	
				C310	F1H1A105A036	1	
		(CONNECTOR)		C311	ECJ1VB0J225	2.2	
CN202	K1KA03AA0083	CONNECTOR, 3P		C312	ECUE1H102KBQ	0.001	S
CN405	K1MN20BA0070	CONNECTOR, 20P		C313	ECUV0J105KBV	1	S
				C314	F1G1C104A083	0.1	
		(CRYSTAL OSCILLATORS)		C401	ECUV1C104KBV	0.1	S
X100	H0J103500013	CRYSTAL OSCILLATOR		C402	ECUV1C473KBV	0.047	S
X101	H2D600400004	CRYSTAL OSCILLATOR		C404	ECUV1C104KBV	0.1	S
				C405	ECUE1H471KBQ	470P	S
		(FILTERS)		C406	F1G1C104A083	0.1	
FB603	J0JBC0000043	IC FILTER		C407	ECJ1VB0J225	2.2	
FB604	J0JBC0000043	IC FILTER		C408	F1G1H470A565	47P	
FB606	J0JBC0000043	IC FILTER		C409	ECUE1H070DCQ	7P	S
FIL601	J0D1890B0002	CERAMIC FILTER		C410	F1G1H100A420	10P	
				C413	F1G1H100A420	10P	
		(JACK)		C415	F1G1H100A420	10P	
CN404	K2HD103D0001	JACK		C416	F1G1H330A565	33P	
				C417	F1G1H100A420	10P	
		(SWITCHES)		C418	F1J0J2260002	22	
SW2	K0C115A00003	SWITCH, SEESAW		C419	F1G1H100A420	10P	
				C420	ECUV1C104KBV	0.1	S
		(VARISTORS)		C421	F1G1H101A566	100P	
C460	D4ZZ00000024	VARISTOR		C422	ECUE1H070DCQ	7P	S
C461	D4ZZ00000024	VARISTOR		C423	F1G1H100A420	10P	
				C424	F1J0J2260002	22	
		(CAPACITORS)		C425	F1J0J2260002	22	
L103	D0GA121JA021	120		C427	F1G1H100A420	10P	
L619	ECUE1H560JCQ	56P	S	C428	ECUE1H070DCQ	7P	S
C102	F1G1C473A048	0.047		C429	F1G1H100A420	10P	
C103	F1G1C474A108	0.47		C430	F1G1H100A420	10P	
C106	F1G1C104A083	0.1		C431	F1G1H470A565	47P	
C107	F1H1A1050029	1		C432	F1G1C104A083	0.1	
C108	EEE0JA221WP	220	S	C433	F1G1H100A420	10P	
C109	F3K0J107A002	100		C434	F1G1H100A420	10P	
C110	F3K0J107A002	100		C451	ECUV1C104KBV	0.1	S
C111	F1G1C104A083	0.1		C462	ECUE1H070DCQ	7P	S
C112	ECUE1H070DCQ	7P	S	C463	ECUE1H070DCQ	7P	S

Ref. No.	Part No.	Part Name & Description	Remarks
C601	F1J1H2220008	2200P	
C603	F1G1H100A420	10P	
C604	F1G1C1030008	0.01	
C605	F1G1H100A420	10P	
C606	ECUE1H102KBQ	0.001	S
C607	F1G1C1030008	0.01	
C608	F1H1H102A831	0.001	
C609	ECHU1C103GB	0.01	
C610	F1G1H120A565	12P	
C620	F1G1H120A565	12P	
C621	F1G1H120A565	12P	
C622	F1G1H120A565	12P	
C623	F1G1H120A565	12P	
C624	ECUE1H102KBQ	0.001	S
C625	F1G1H470A565	47P	
C626	F1G1C1030008	0.01	
C627	F1G1H100A420	10P	
C630	F1G1H8R0A420	8P	
C631	F1G1H8R0A420	8P	
C632	F1G1H3R0A609	3P	
C633	F1G1H3R0A609	3P	
C634	F1G1H3R0A609	3P	
C642	F1G1H5R0A564	5P	
C643	F1G1H5R0A564	5P	
C645	F1G1H3R0A609	3P	
C646	F1G1A1040006	0.1	
C647	F1G1H100A420	10P	
C648	F1G1H100A420	10P	
C649	F1G1H100A420	10P	
C650	F1G1H100A420	10P	
C651	F1G1H680A565	68P	
C652	F1G1H2R0A577	2P	
C653	F1G1H2R0A577	2P	
C654	F1G1H100A420	10P	
C656	F1G1H1R5A577	1.5P	
C657	F1G1H8R0A420	8P	
C660	F1G1H100A420	10P	
C661	ECUE1H560JCQ	56P	S
C665	F1G1H8R0A420	8P	
C666	ERJ2GEJ000	0	S
C671	F1G1H100A420	10P	
C672	F1G1H100A420	10P	
C673	ERJ2GEJ000	0	S
C675	ECUV0J105KBV	1	S
C676	ECUV0J105KBV	1	S
C677	ECUV0J105KBV	1	S
C678	F1G1H100A420	10P	
C680	F1G1H1R5A577	1.5P	
C681	F1G1C1030008	0.01	
C682	F1G1C1030008	0.01	
C683	F1G1H100A420	10P	
C684	F1G1H100A420	10P	
		(RESISTORS)	
FB601	ERJ2GEJ000	0	S
R101	D0GA103JA021	10K	
R103	D0GA471JA021	470	
R106	D0GA104JA021	100K	
R110	D0GA153JA021	15K	
R111	D0GA562JA021	5.6K	
R112	D1BB2002A055	20K	
R113	D1BB10020004	10K	
R116	D0GA103JA021	10K	
R117	D0GA102JA021	1K	
R118	D0GA274JA021	270K	
R120	D0GA101JA021	100	
R121	D0GA104JA021	100K	
R132	ERJ2GEJ000	0	S
R202	D0GA103JA021	10K	
R203	D0GA103JA021	10K	
R204	D0GA103JA021	10K	
R205	D0GA102JA021	1K	
R206	D0GA102JA021	1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R207	D0GA102JA021	1K	
R208	ERJ2GEJ000	0	S
R213	D0GA683JA021	68K	
R214	D0GA104JA021	100K	
R215	D0GA104JA021	100K	
R216	D0GA474JA021	470K	
R217	D0GA274JA021	270K	
R218	D1BA3303A015	330K	
R219	D1BA1004A015	1M	
R301	D0GA121JA021	120	
R302	D0GA330JA021	33	
R303	PQ4R10XJ150	15	S
R304	D1BD39R0A083	39	
R306	PQ4R10XJ121	120	S
R307	PQ4R10XJ121	120	S
R308	D1BD39R0A083	39	
R309	D0GA103JA021	10K	
R310	D0GA103JA021	10K	
R312	D0GA105JA021	1M	
R313	ERJ2GEYJ681	680	S
R314	D0GBR00Z0002	0	
R315	D0GA104JA021	100K	
R319	PQ4R10XJ121	120	S
R320	PQ4R10XJ150	15	S
R322	D0GBR00Z0002	0	
R330	D0GDR00Z0002	0	
R331	D0GDR00Z0002	0	
R401	D0GB184JA057	180K	
R402	D0GB163JA057	16K	
R403	ERJ2GEJ000	0	S
R404	D0GB273JA057	27K	
R405	D0GB683JA057	68K	
R406	D0GA103JA021	10K	
R407	D0GA220JA021	22	
R408	ERJ2GEJ000	0	S
R409	D0GA331JA021	330	
R410	D0GA102JA021	1K	
R411	D0GA101JA021	100	
R412	D0GA330JA021	33	
R417	D0GA330JA021	33	
R421	D0GB103JA057	10K	
R423	D0GA473JA021	47K	
R424	D0GA104JA021	100K	
R427	ERJ2GEJ000	0	S
R603	D0GA332JA021	3.3K	
R604	D0GA682JA021	6.8K	
R605	D0GA102JA021	1K	
R606	D0GA102JA021	1K	
R607	D0GA102JA021	1K	
R608	D0GA102JA021	1K	
R610	D0GA103JA021	10K	
R611	D1BA3901A015	3.9K	
R612	ERJ2GEJ122	1.2K	S
R614	D0GA223JA021	22K	
R615	D0GA272JA021	2.7K	
R623	D0GA471JA021	470	
R625	D0GA271JA021	270	
R626	ERJ2GEJ221	220	S
R630	ERJ2GEJ122	1.2K	S
R631	ERJ2GEJ122	1.2K	S
R632	ERJ2GEJ000	0	S
R633	D0GA100JA021	10	
R634	D0GA100JA021	10	
R645	D0GA331JA021	330	

16.4.2.   Charger Unit

16.4.2.1.   Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PSWETCA355XU	ACCESSORY PARTS, CHARGER UNIT	
1-1	PQHR11063Z	COVER, TERMINAL HOLDER	

Ref. No.	Part No.	Part Name & Description	Remarks
1-2	PQKE10338Z3	COVER, CHARGE TERMINAL	POM-UL94HB
1-3	PQQT23002Z	LABEL, WEEE	
1-4	PSGT2752Z	NAME PLATE	
1-5	PSJT1055Z	CHARGE TERMINAL	
1-6	PSKM1163Z1	CABINET BODY	PS-UL94HB
1-7	PSYF1072Z1	CABINET COVER	PS-UL94HB
C	XTW26+14PFJ7	SCREW	

16.4.2.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PSWPCA355CEU	CHARGER P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC601	PQVIMC34063M	IC	
IC602	C0ABAA000088	IC	
		(DIODE)	
D601	MA738	DIODE(SI)	S
D602	MA738	DIODE(SI)	S
		(COIL)	
L601	G0A470EA0020	COIL	
		(JACK)	
CN601	K2ECYB000001	JACK	
		(CAPACITORS)	
C601	EEEFK1E221P	220	
C603	ECJ1VC1H151J	150P	
C604	ECUV1H152KBV	0.0015	S
C605	EEE1EA101XP	100	
C607	EEE1EA101XP	100	
		(RESISTORS)	
R601	ERJ6GEYJ1R0	1	S
R602	ERJ6GEYJ1R0	1	S
R603	ERJ6GEYJ1R0	1	S
R604	D0YBR0000020	0	
R610	D0GB272JA057	2.7K	
R611	D0GB472JA057	4.7K	
R612	D1BB47020003	47K	
R613	D1BB47020003	47K	
R614	ERJ3EKF1001	1K	S
R615	ERJ3EKF1001	1K	S
R616	ERJ6ENF1R00	1	S
R617	ERJ6ENF1R00	1	S
R618	ERJ6ENF1R00	1	S
R619	ERJ6ENF1R00	1	S

16.4.2.3. Accessories and Packing Materials

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV206X	AC ADAPTOR	⚠
A2	PSKE1098Z1	HANGER, BELT CLIP	PC+ABS-UL94HB
A3	PSQW2624Z	LEAFLET, RECYCLE for TAIWAN	
A4	PSQX4455X	INSTRUCTION BOOK, QUICK GUIDE	
A5	PSQX4456Z	INSTRUCTION BOOK, QUICK GUIDE	
A6	PSQX4461YCD	INSTRUCTION BOOK, CD-ROM	
P1	PQPP10084Z	PROTECTION COVER	
P2	PQPP10086Z	PROTECTION COVER	

Ref. No.	Part No.	Part Name & Description	Remarks
P3	PQPP10101Z	PROTECTION COVER	
P4	PSZKTCA355XU	GIFT BOX	

16.4.2.4. Fixtures and Tools

Ref. No.	Part No.	Part Name & Description	Remarks
	PSZZ2CA155EU	PC CABLE	

H

KXTCA355XUK