

Service Manual

Telephone Equipment

Caller ID Compatible

KX-TC1232JXB

Cordless Answering System

Black Version

(for Asia, Middle Near East and Other areas)



<Handset>



<Base Unit>

SPECIFICATIONS

General

Modulation: FM, 5kHz Deviation
 Frequency Stability: ± 2.5 kHz
 Dial Type: Tone (DTMF)/Pulse
 Redial: Last dialed number each time the Redial button is pressed

Pause: 3.5 seconds per pause
 Memory Capacity: 30 telephone numbers, up to 22 digits per station

	Base Unit	Handset
Power Source: (Receiver Section)	AC adaptor PQLV14BXZ (DC 12 V)	Built-in rechargeable Ni-Cd battery
Receiving Frequency:	10 channels within 49.67 to 49.99 MHz	10 channels within 43.72 to 44.20 MHz
Adjacent Channel Rejection:	40 dB	40 dB
Sensitivity:	1dB μ V for 20 dB S/N	2 dB μ V for 20 dB S/N
(Transmitter Section)		
Transmitting Frequency:	10 channels within 43.72 to 44.20 MHz	10 channels within 49.67 to 49.99 MHz
Jacks:	DC IN, Telephone line	
Antenna:	Telescopic	Telescopic
Speaker:	8 Ω Speaker	1 ³ / ₁₆ " (3 cm) dynamic
Microphone:	Condenser microphone	Condenser microphone
Dimensions (H X W X D):	3 ¹ / ₃₂ " x 6 ³ / ₈ " x 8 ¹¹ / ₃₂ " (77 x 162 x 212 mm)	10 ⁹ / ₁₆ " x 2" x 1 ¹³ / ₃₂ " (268 x 51 x 36 mm)
Weight:	0.51 lbs. (430 g)	0.44 lbs. (170g)

Design and specifications are subject to change without notice.

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.

When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

FOR SERVICE TECHNICIANS

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.

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1 STANDARD BATTERY LIFE

1.1. Battery Strength

You can check the battery strength on the handset display while the handset is on the base unit, while it is in use (making/answering a call etc.), or after viewing the Caller List or directory items, programming etc. The battery strength will remain for a few seconds after using the handset, then the display will return to the standby mode.

The battery strength is as shown in the chart below.

Display prompt	Battery strength
{ ■■■ }	Fully charged
{ ■■ }	Medium
{ ■ }	Low
⚡{ ■ }⚡ (flashing)	Needs to be recharged.

1.2. Recharge

Recharge the battery when:

- "Recharge" is displayed on the handset,
- "{ ■ }" flashes on the display, or
- the handset beeps intermittently while it is in use.



- If you DO NOT recharge the handset battery for more than 30 minutes, the display will keep indicating "Recharge" and/or "{ ■ }" will continue to flash.

1.3. Battery Information

After your Panasonic battery is fully charged:

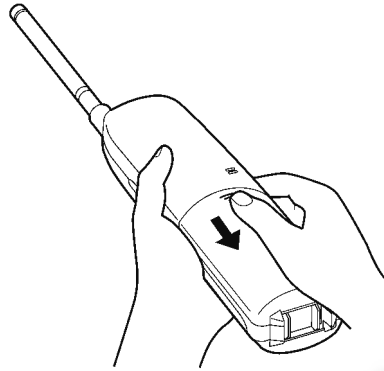
Operation	Operating time
While in use (TALK)	Up to about 6 hours
While not in use (Standby)	Up to about 20 days

- The battery operating time may be shortened depending on usage conditions, such as viewing the Caller ID Caller List or directory list, and ambient temperature.
- **Clean the handset and the base unit charge contacts with a soft, dry cloth. Clean if the unit is subject to grease, dust or high humidity.** Otherwise the battery may not charge properly.
- If the battery is fully charged, you do not have to place the handset on the base unit until "Recharge" is displayed and/or "{ ■ }" flashes. This will maximize the battery life.
- The battery cannot be overcharged.

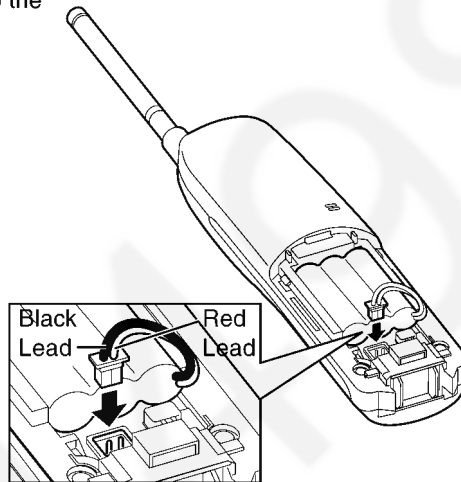
1.4. Battery Replacement

If "Recharge" is displayed and/or "[■]" flashes after being fully charged, replace the battery with a new Panasonic P-P102 battery. To avoid memory loss, replace within 3 minutes.

- 1 Press the notch on the battery cover firmly and slide it as indicated by the arrow.



- 2 Remove the old battery. Then install the new one.
 - Insert the battery plug into the connector as shown.



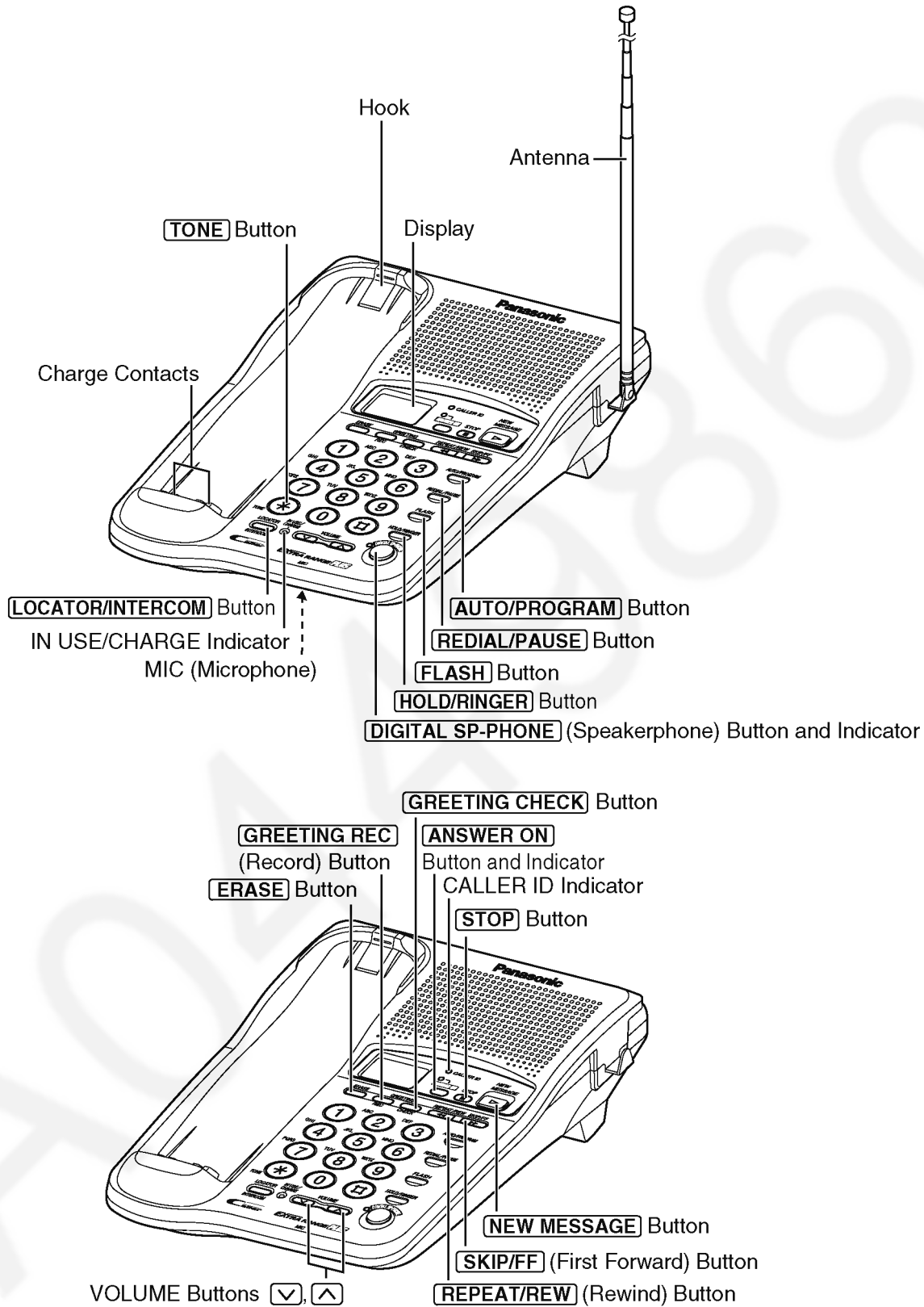
- 3 Close the cover. Make sure you charge the new battery for about 10 hours in order to display the battery strength prompt correctly.

1.5. Standby mode (While the handset is off the base unit)

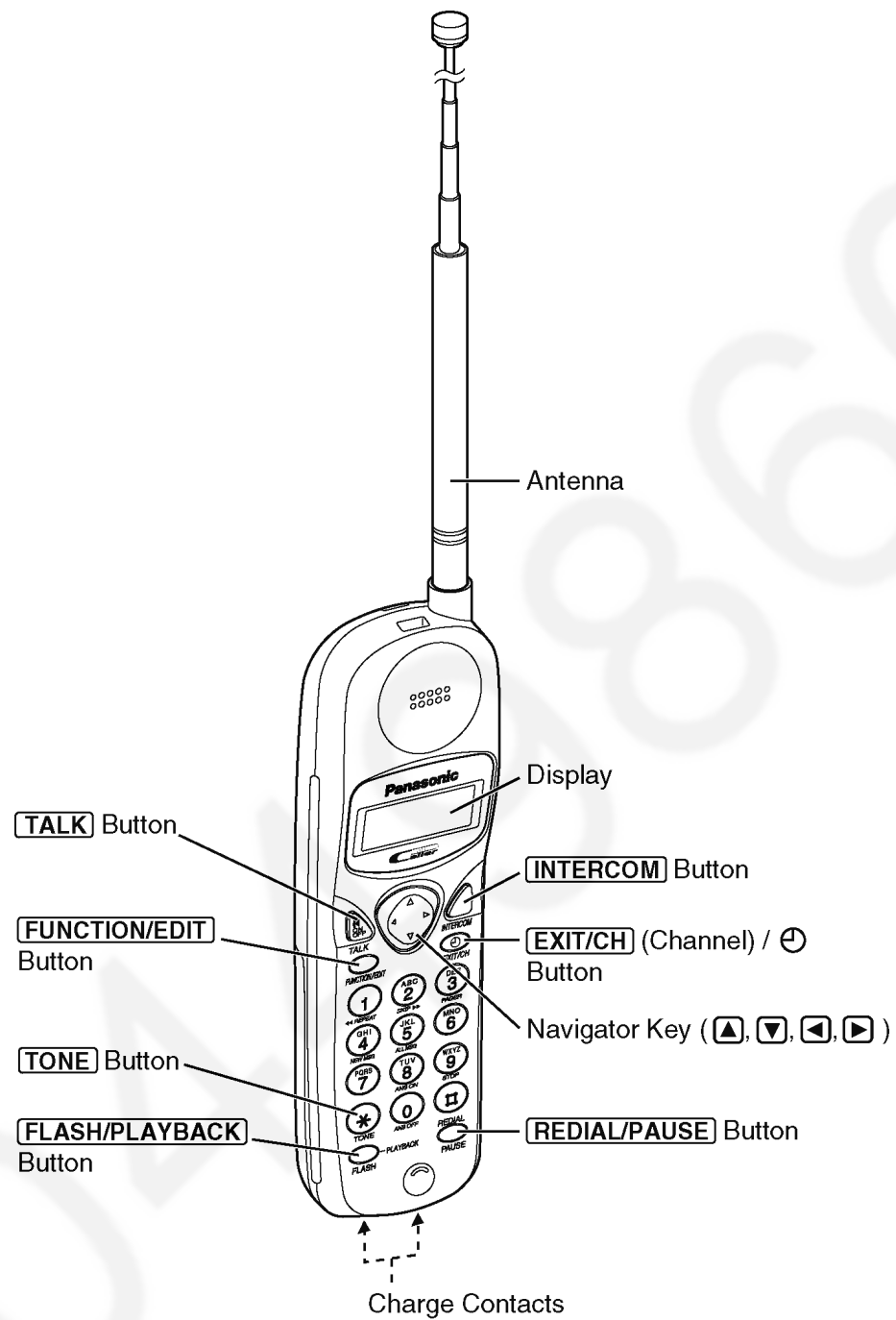
The handset goes into the standby mode after you finish using the handset (making/answering a call, viewing the Caller List or directory list etc.). The display is blank, but the handset can receive calls. The battery operating time is conserved in this mode.

2 LOCATION OF CONTROLS

2.1. Base Unit

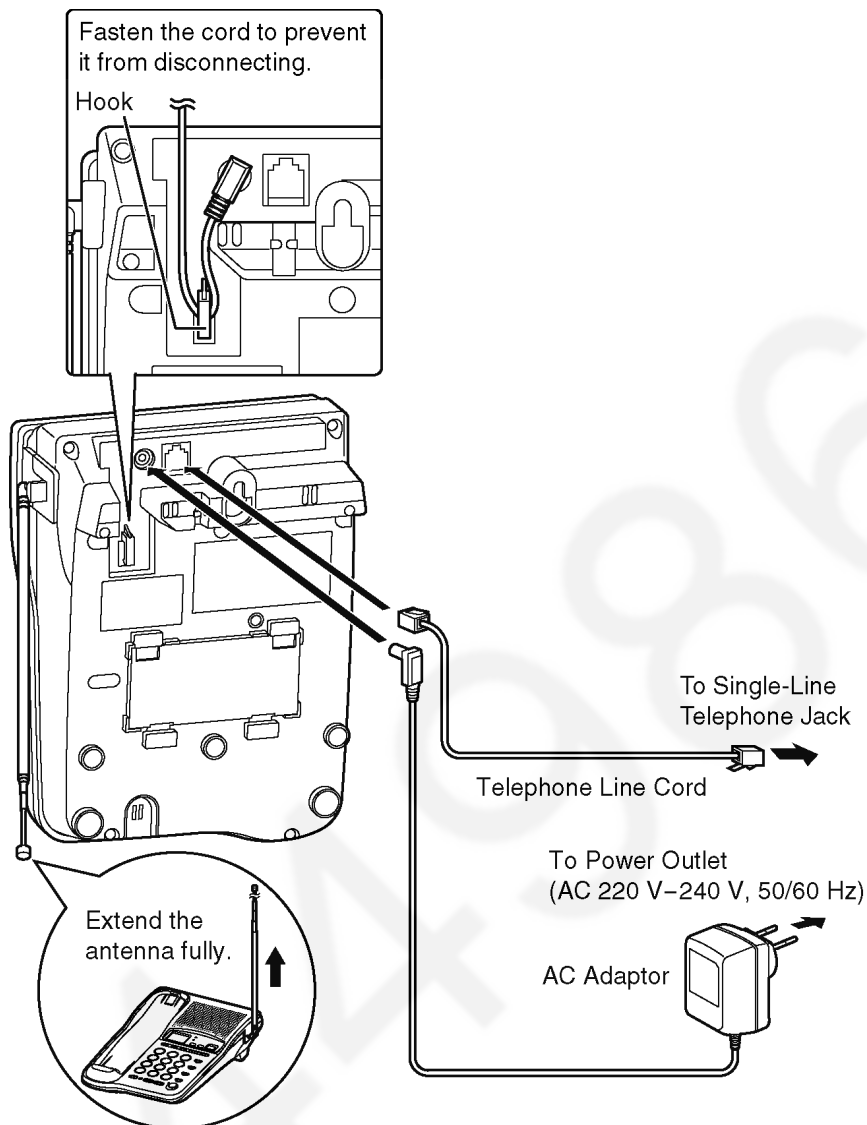


2.2. Handset



3 CONNECTION

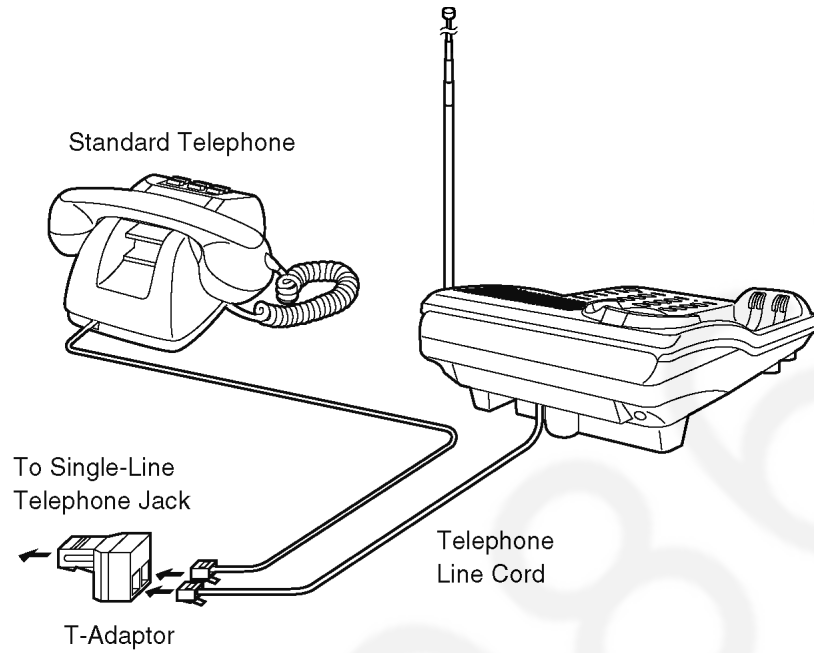
1. Connect as shown.



- USE ONLY WITH Panasonic AC ADAPTOR PQLV14BXZ.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)
- If your unit is connected to a PBX which does not support Caller ID services, you cannot access those services.
- When more than one unit is used, the units may interfere with each other. To prevent or reduce interference, please leave ample space between the base units.

3.1. Adding Another Phone

This unit will not function during a power failure. To connect a standard telephone on the same line, use the Panasonic T-adaptor.



4 OPERATIONS

4.1. Displays

Both the handset and the base unit show you information and instructions on their displays. These display prompts are shown below.

Handset display

```
No items stored
{■■■■}
```

The Caller List is empty.
This is displayed while the handset is on the base unit.

```
Recharge
{■■■■}
```

The battery needs to be charged. Place the handset on the base unit to charge the battery.

```
12 new calls
{■■■■}
```

The display shows the number of new calls and the battery strength while the handset is on the base unit.

```
10 new calls
▼=New ▲=Old
```

This display will be shown when:
— you lift the handset off the base unit, or
— ◀ or ▶ is pressed when the handset is off the base unit.

To search from the most recent call, press ▼.

To search from the oldest call, press ▲.

```
⋈Ringer off⋈
{■■■■}
```

When the handset ringer volume is set to OFF, "Ringer off" will flash for about 45 seconds before the handset returns to the standby mode.

```
10002223333
```

When a call is received, the display shows the caller's phone number after the first ring.

```
12:00A 1.1
0000
▶=Set clock
```

The clock needs adjusting.

```
Talk
01-06-35 {■■■■}
```

During a conversation, the display shows the length of the call (ex. 1 hour, 6 minutes and 35 seconds). The battery strength is also displayed.

```
No link to base
Place on cradle
and try again.
```

The handset has lost communication with the base unit. Place the handset on the base unit and try again.

```
12223334444
11:20A 20.12 X3
```

This is an information from the Caller List.

The display shows:

- the caller's phone number,
- the time and date of the last call (ex. Dec. 20, 11:20 AM), and
- the number of times called (ex. 3 times).

Ann
1234567890

This is a name from the directory. The stored name and phone number are displayed.

Press INTERCOM

The base unit is paging the handset.

Intercom
00-00-07 {■■■■}

The handset and the base unit are in the intercom mode.

Intercom hold
00-01-12 {■■■■}

An outside call has been put on hold by the handset user in the intercom mode. To release the hold, press **TALK** or **DIGITAL SP-PHONE**.

Hold
00-01-12 {■■■■}

An outside call using the handset has been put on hold by pressing **HOLD/RINGER**. To release the hold, press **TALK** or **DIGITAL SP-PHONE**.

Not available

◀▶, **FLASH/PLAYBACK** or **INTERCOM** was pressed, while the base unit was in use.

Caller's list
No item stored

When trying to enter the Caller List while the handset is off the base unit, the Caller List is empty.

Directory list
No item stored

When trying to enter the directory list while the handset is off the base unit, the directory is empty.

Memory is full

When trying to store an item in the directory, the directory memory is full.

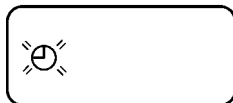
Answering
system setting
{■■■■}

The unit is in answering system programming mode.

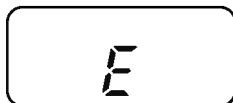
Remote
operation
{■■■■}

The handset is operating the answering system remotely.

Base unit display



The clock needs adjusting.



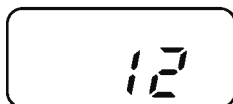
Your greeting message was not recorded correctly. Record it again.



The unit is in the answering system programming mode.



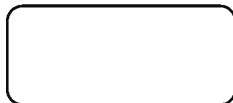
The speaker volume level is set to "5".
You can select:
—9 levels (0–8) while using the answering system.
—8 levels (1–8) while using the speakerphone.



12 messages have been recorded.



Memory is full. Erase some or all of the messages.



The recording time is set to "greeting only".
(The display is blank.)



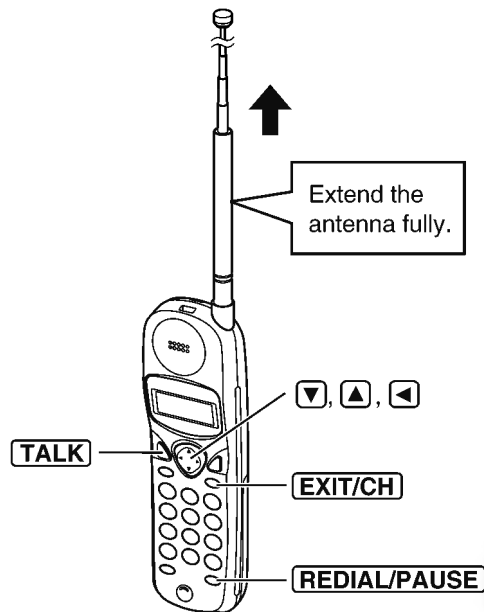
The base unit ringer volume is set to OFF.



The pager call mode is set to ON.

4.2. Making Calls

With the Handset



1 Press **TALK**.

Talk

2 Dial a phone number.

- The dialed number is displayed.
- After a few seconds, the display will show the length of the call and the battery strength.

Talk
1112222

Talk
00-00-00 [■■■■]

3 To hang up, press **TALK** or place the handset on the base unit.

Off
00-01-08 [■■■■]

- If the handset has lost communication with the base unit, 3 beeps sound and "No link to base Place on cradle and try again." is displayed.

If noise interferes with the conversation

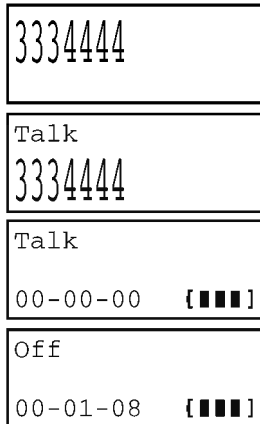
Press **EXIT/CH** to select a clearer channel or move closer to the base unit.

To redial the last number dialed on the handset

Press **TALK** and press **REDIAL/PAUSE**.

To dial after confirming the entered number

- 1 Dial a phone number.
 - If you misdial, press  and dial again.
- 2 Press **TALK**.
 - After a few seconds, the display will show the length of the call and the battery strength.
- 3 To hang up, press **TALK** or place the handset on the base unit.

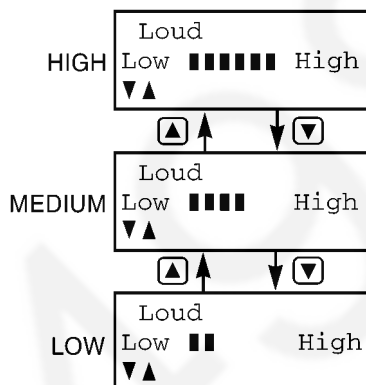


To redial after confirming the last number dialed

Press **REDIAL/PAUSE** and press **TALK**.

To adjust the receiver volume while talking

- To increase, press .
 To decrease press .
- Each time you press  or , the volume level will change.
 - The display will return to the length of the call.



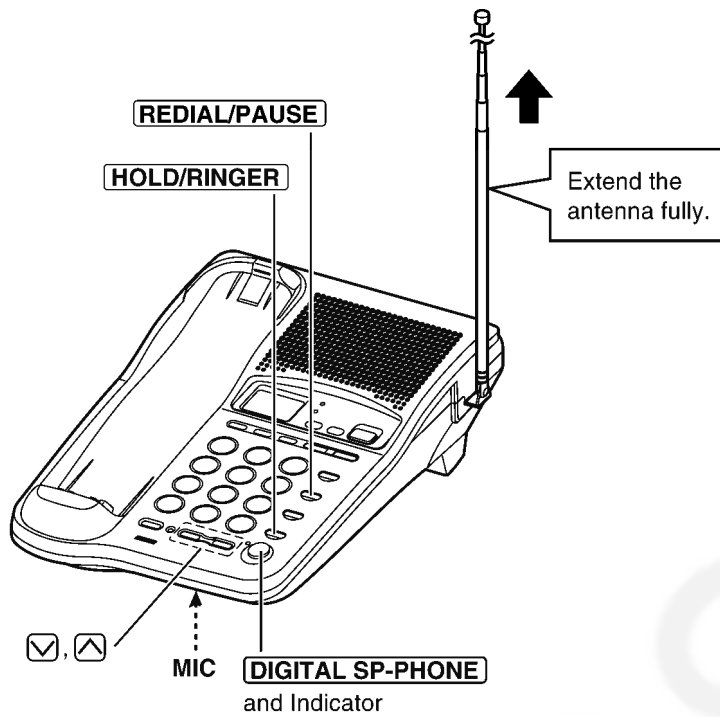
Lighted handset keypad

The handset dialing buttons will light when you press a button or lift the handset off the base unit, and flash when a call is received. The lights will go out a few seconds after pressing a button, lifting the handset, answering a call, hanging up a call, leaving the programming mode or ending the intercom.

Backlit LCD display

The lighted handset display will stay on for a few seconds after pressing a handset button, lifting the handset off the base unit, hanging up a call, leaving the programming mode or ending the intercom.

With the Base Unit (Digital Duplex Speakerphone)



- 1 Press **DIGITAL SP-PHONE**.
 - The DIGITAL SP-PHONE indicator lights.
 - 2 Dial a phone number.
 - 3 When the other party answers, talk into the **MIC** (microphone).
 - 4 To hang up, press **DIGITAL SP-PHONE**.
 - The indicator light goes out.
- To switch to the handset while using the base unit speakerphone:
 - If the handset is off the base unit, press **TALK**.
 - If on the base unit, just lift up.
 - During a call using the handset, the call can be switched to the speakerphone by pressing **DIGITAL SP-PHONE**.

Hands-free Digital Duplex Speakerphone

For best performance, please note the following:

- Talk alternately with the caller in a quiet room.
- If the other party has difficulty hearing you, press **VOLUME**  to decrease the speaker volume.
- If the other party's voice from the speaker cuts in/out during a conversation, press **VOLUME**  to decrease the speaker volume.

To adjust the speaker volume (8 levels) while talking

To increase, press **VOLUME** .

To decrease, press **VOLUME** .

To redial the last number dialed on the base unit

Press **DIGITAL SP-PHONE** and press **REDIAL/PAUSE**.

To put a call on hold

Press **HOLD/RINGER**.

- The DIGITAL SP-PHONE indicator flashes.

To release the hold

From the base unit, press **DIGITAL SP-PHONE**.

From the handset, press **TALK** or lift the handset off the base unit.

- If another phone is connected on the same line, you can also release the hold by lifting its handset.

4.3. Answering Calls

When a call is received, the unit rings, "Incoming call" is displayed on the handset and the CALLER ID indicator flashes quickly.

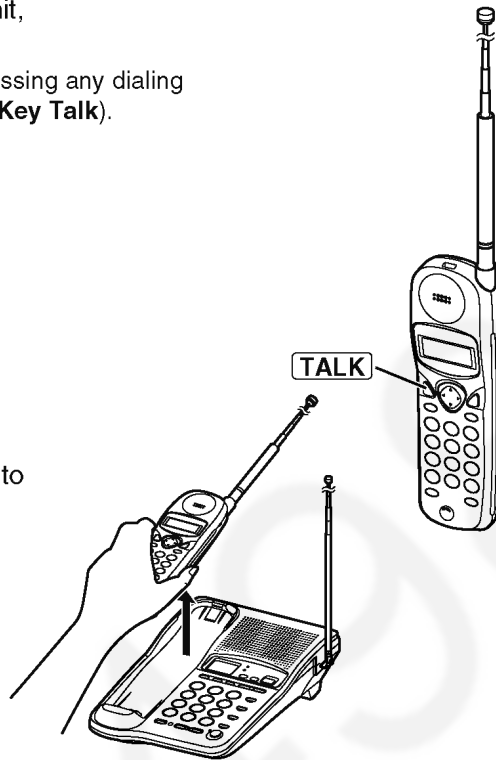
If you subscribe to a Caller ID service, the calling party information will be displayed after the first ring.

In order to view the Caller ID information, please wait until the second ring to answer a call.

With the Handset

If the handset is off the base unit, press **TALK**.

You can also answer a call by pressing any dialing button **0** to **9**, ***** or **#** (**Any Key Talk**).

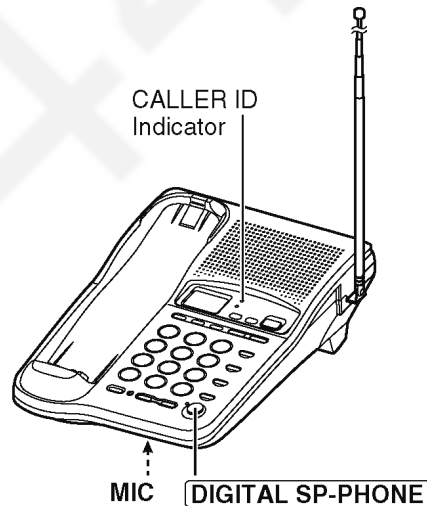


Auto Talk

If you set the Auto Talk feature to ON, you can answer a call by lifting the handset off the base unit without pressing **TALK**.

With the Base Unit (Digital Duplex Speakerphone)

- 1 Press **DIGITAL SP-PHONE**.
- 2 Talk into the **MIC**.
- 3 To hang up, press **DIGITAL SP-PHONE**.



4.4. Automatic Answering Operation

When the unit answers a call, a greeting message is played and the caller's message is recorded.

- The total recording time (including greeting message) is **about 15 minutes**.
If messages are recorded in noisy rooms, the time may be shortened by up to 3 minutes.
- A maximum of 64 messages (including greeting message) can be recorded.

Setting the Unit to Answer Calls

Press **ANSWER ON** to turn on the answering system.

- The indicator lights and "Answer set" is heard.
- The unit will announce the remaining recording time if it is less than 5 minutes.
- If you hear "Memory full", "**FULL**" is displayed on the base unit and the ANSWER ON indicator flashes rapidly, erase some, or all, of the messages.



- If you do not want the unit to answer calls, press **ANSWER ON** again to turn off the answering system. The indicator light goes out and "Answer off" is heard.
- You can also turn on the answering system remotely using any other phone.

Monitoring incoming calls

While a call is being recorded, you can monitor it through the base unit speaker.

To answer the call with the base unit, press **DIGITAL SP-PHONE**.

For the handset, press **TALK**. The unit stops recording.

4.5. Listening to Messages

You can see the total number of recorded messages on the base unit display. If the ANSWER ON indicator flashes, new messages have been recorded.

Listening to only new messages

Press **NEW MESSAGE** briefly.

- The unit announces the number of new messages and plays them back.

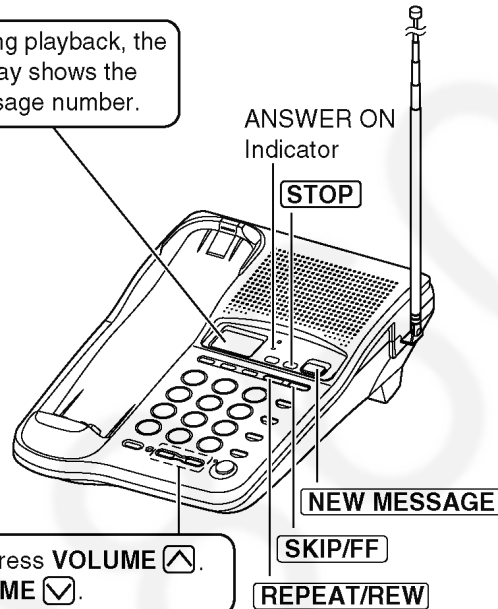
Listening to all recorded messages

Press and hold **NEW MESSAGE** until playback starts.

- At the end of the last message, "End of final message" is heard. The unit will announce the remaining recording time if it is less than 5 minutes.

To increase the volume, press **VOLUME** .
To decrease, press **VOLUME** .

During playback, the display shows the message number.



During playback

To repeat/rewind message	To repeat from the beginning of the message Press REPEAT/REW briefly. •If you press within 5 seconds of playback, the previous message will be played. To rewind part of the message Press and hold REPEAT/REW until you reach the desired place. •At the beginning of the message, 3 beeps will sound.
To skip/cue message	To skip to the next message Press SKIP/FF briefly. To cue to part of the message Press and hold SKIP/FF until you reach the desired place. •The message will be heard at twice the normal speed. •At the end of the message, 3 beeps will sound.
To stop operation	Press STOP. •To resume playback, press NEW MESSAGE. •If you do not press any button for 60 seconds or if you press STOP again, the unit will return to the standby mode.

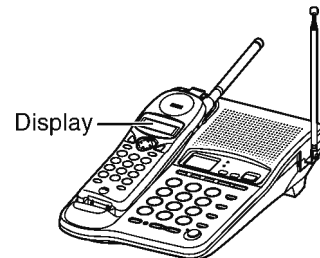
For Caller ID service users

During playback, when the handset is on the base unit, the handset display will show the name and/or number of the caller whose message is being played.

To call back the displayed number:

During playback, lift the handset and press **TALK** within 10 seconds.

- The unit stops playback and automatically dials the displayed phone number.
- After listening to new incoming messages, "✓" will be added to the call entries in the Caller ID Caller List.



From the Handset

If someone else is in the room and you want to listen to the recorded messages privately, you can use the handset.

- 1** Handset:
Press **FLASH/PLAYBACK**.

- The number of new messages is heard on the handset.

- 2** Base unit:
To listen to new messages, press **NEW MESSAGE** briefly.
To listen to all messages, press and hold **NEW MESSAGE** until playback starts.

- The messages will be heard on the handset.

- REPEAT/REW**, **SKIP/FF** and **STOP** can also be used during playback.

- 3** When finished, press **FLASH/PLAYBACK** or place the handset on the base unit.



- You can also listen to messages without using the base unit.

4.6. Flash Button

Pressing **FLASH/PLAYBACK** or **FLASH** allows you to use special features of your host PBX such as transferring an extension call or accessing special telephone services (optional) such as call waiting.

Selecting the flash time

The flash time depends on your telephone exchange or host PBX. You can select the following flash times: "700, 600, 400, 300, 250, 110, 100 or 90 ms (milliseconds)". Your phone comes from the factory set to "700 ms". **Make sure the unit is in the standby mode initially.**

1 Press **FUNCTION/EDIT**.

2 Press **▼** or **▲** repeatedly until the arrow points to "Program".

```

▶Program
▼▲           ▶=Yes
  
```

3 Press **▶** (Yes key).

4 Press **▼** or **▲** repeatedly until the arrow points to "Set flash time".

```

LCD contrast
▶Set flash time
▼▲           ▶=Yes
  
```

5 Press **▶** (Yes key).

```

Flash time
           :700ms
▼▲           =Save
  
```

6 Press **▼** or **▲** repeatedly until the desired time is displayed.

7 Press **▶** (Save key).

- A beep sounds.
- To return to the standby mode, press **EXIT/CH**.

- You can exit the programming mode any time by pressing **EXIT/CH**.
- If you are connected via a PBX, a longer flash time may be necessary to use PBX functions (transferring a call etc.). Consult your PBX supplier for the correct setting.

5 DISASSEMBLY INSTRUCTIONS

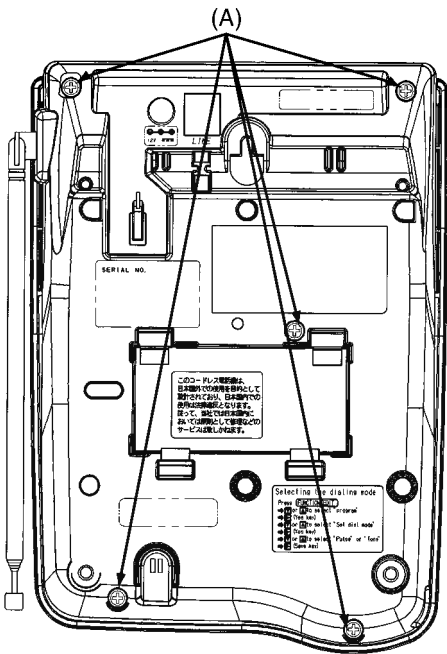
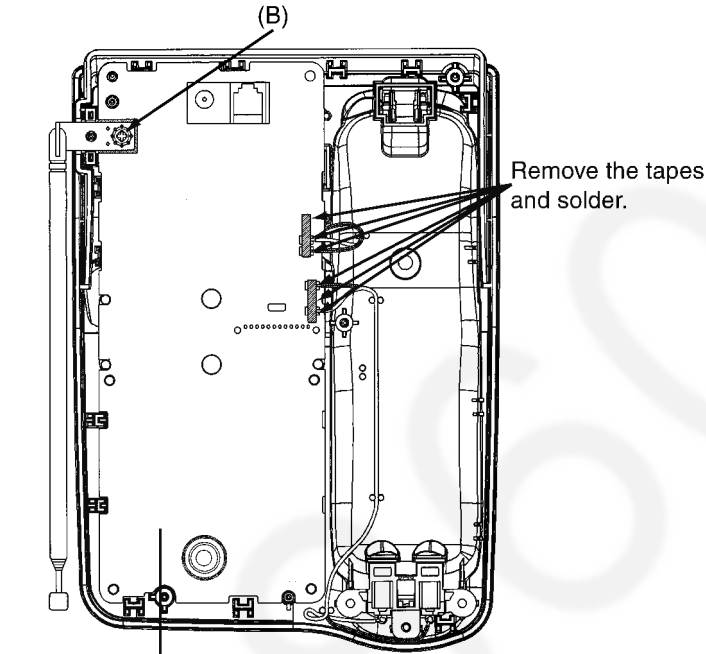


Fig. 1



Remove the P.C.Board.

Fig. 2

Show in Fig.	Procedure	To remove.	Remove.
1	1	Lower Cabinet	Screws (2.6 × 12)..... (A) × 5
2	1, 2	Antenna	Screws (3 × 14)..... (B) × 1
		Main P.C. Board	Main P.C. Board.

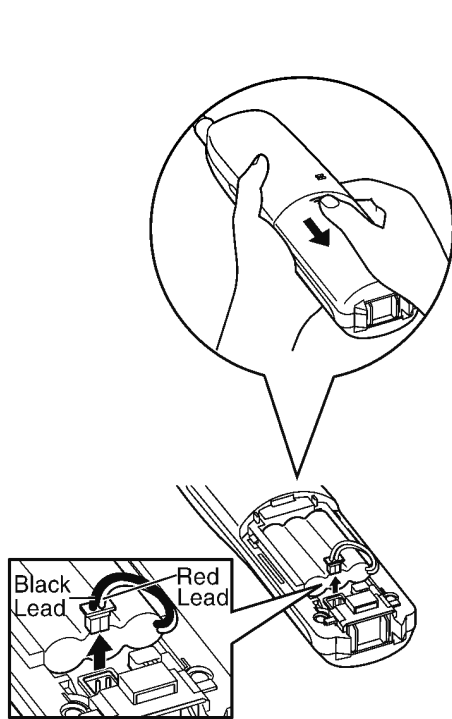


Fig. 3

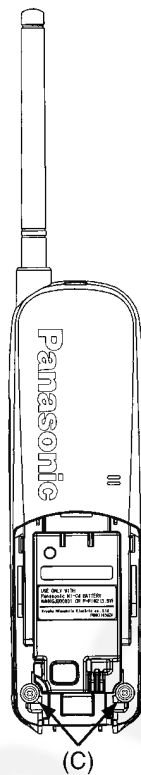


Fig. 4

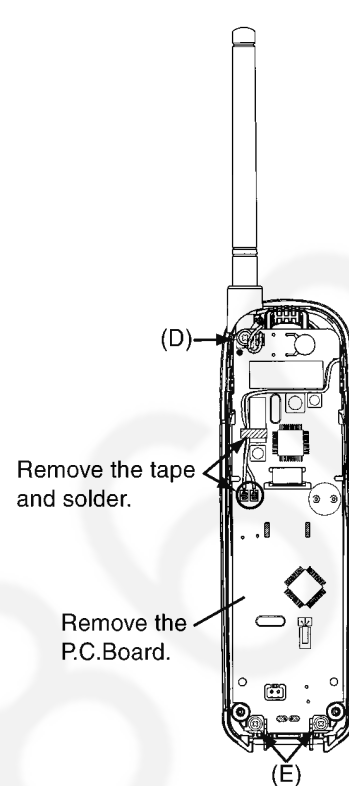


Fig. 6

Note: When opening the upper cabinet, be careful of the speaker lead wire.

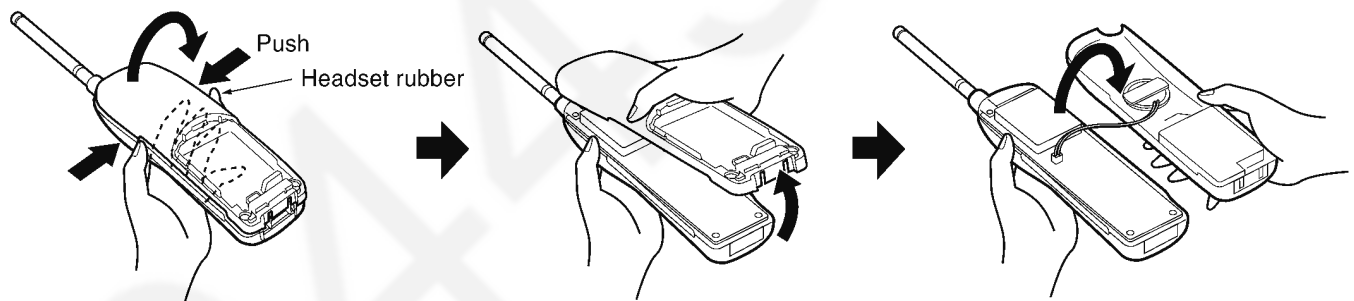
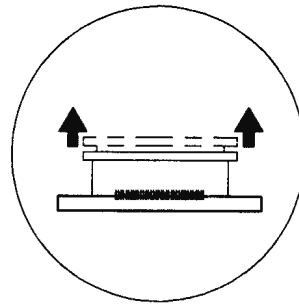
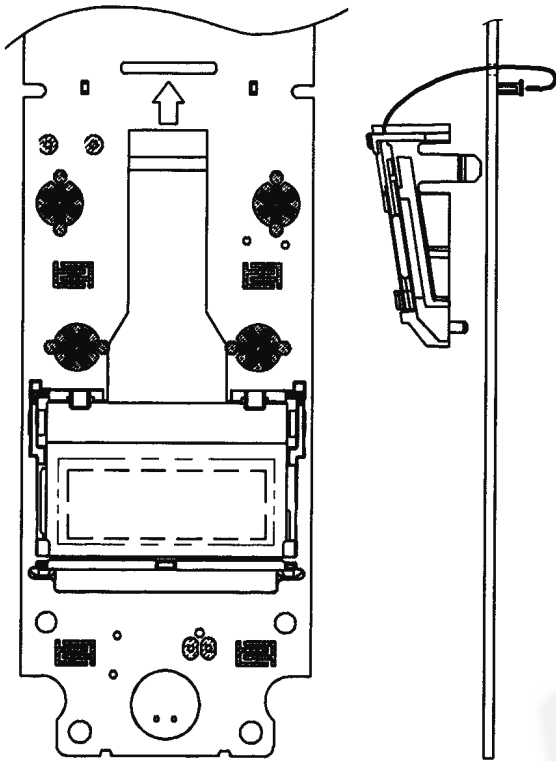


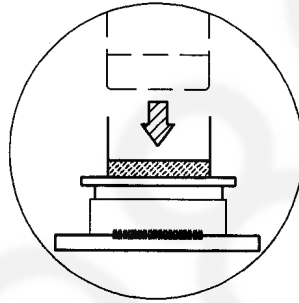
Fig. 5

Show in Fig.	Procedure	To remove.	Remove.
3	3	Rear Cabinet	Battery compartment cover.
4	3, 4		Screws (2.6 × 12).....(C) × 2
5	3, 4, 5	Main P. C. Board	Screw (2.6 × 12).....(D) × 1
			Screws (2.6 × 12).....(E) × 2
			Tape and solder.
			Main P. C. Board.

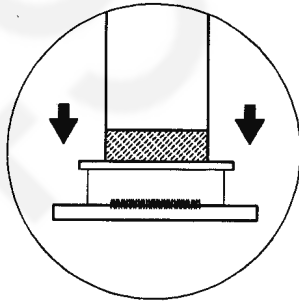
6 ASSEMBLY INSTRUCTION



1. RELEASE THE LOCK OF THE CONNECTOR.



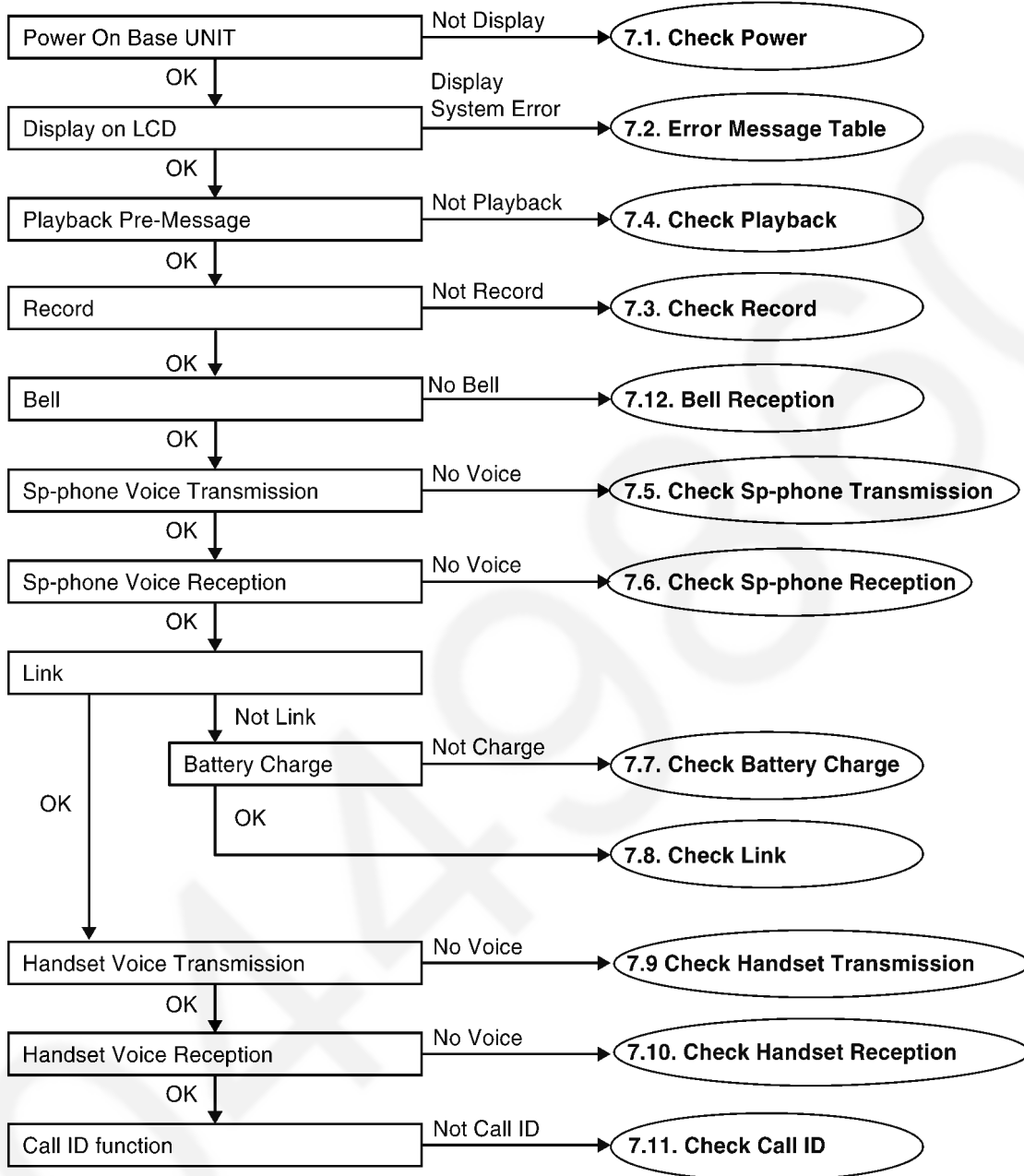
2. INSERT THE EDGE OF FPC (Flexible Print Circuit) DEEPLY INTO THE CONNECTOR.



3. PUSH HATCHED PARTS SIMULTANEOUSLY.

7 TROUBLESHOOTING GUIDE

MAIN



Cross Reference:

Check Power (P.26).

Error Message Table (P.27).

Check Record (P.28).

Check Playback (P.29).

Check Sp-phone Transmission (P.29).

Check Sp-phone Reception (P.30).

Check Battery Charge (P.31).

Check Link (P.32).

Check Handset Transmission (P.34).

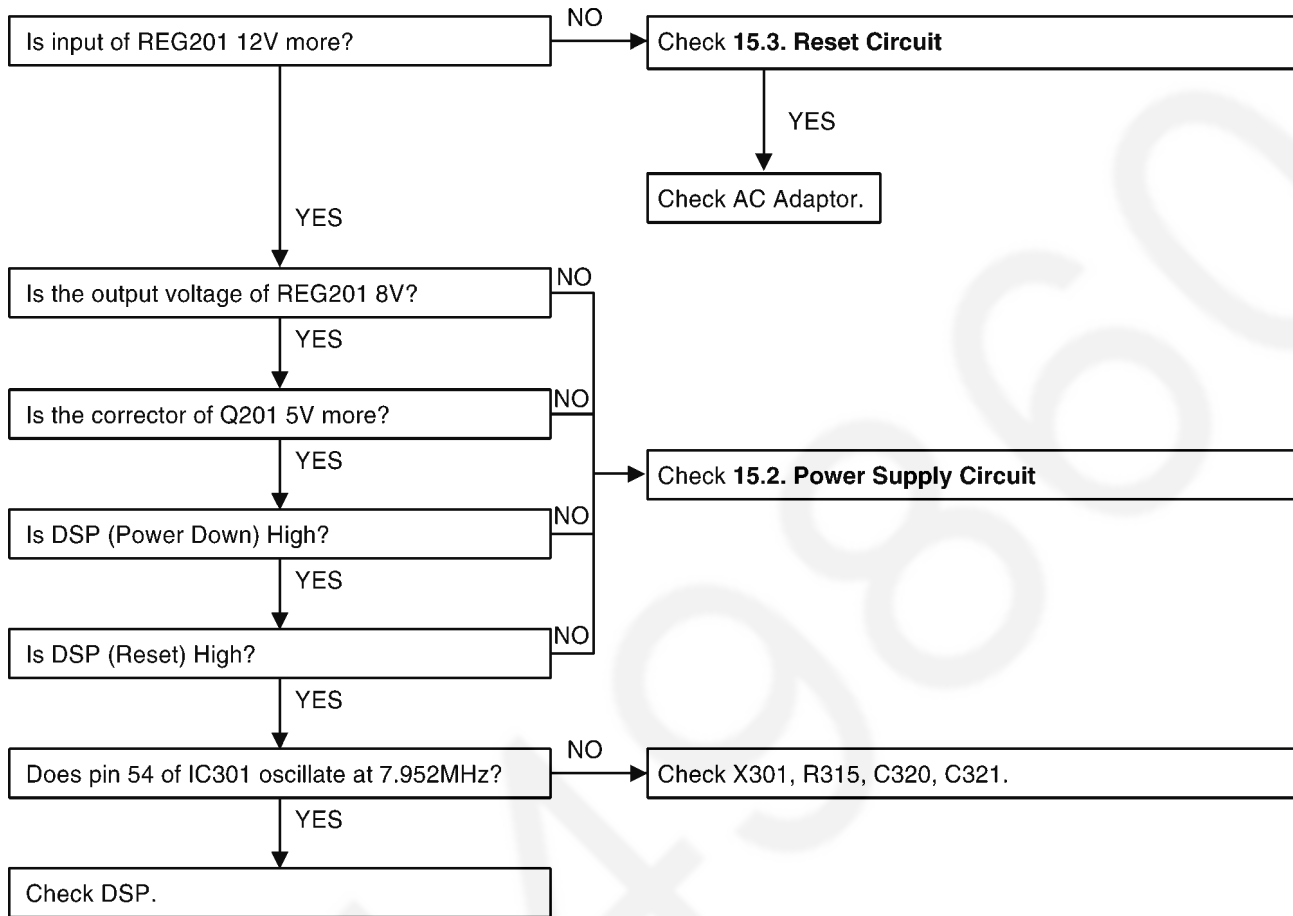
Check Handset Reception (P.34).

Check Call ID (P.34).

7.1. Check Power

BASE UNIT

Is the AC Adaptor inserted into 220V (or 230V) outlet?
(AC Adaptor PQLV14BXZ)



Cross Reference

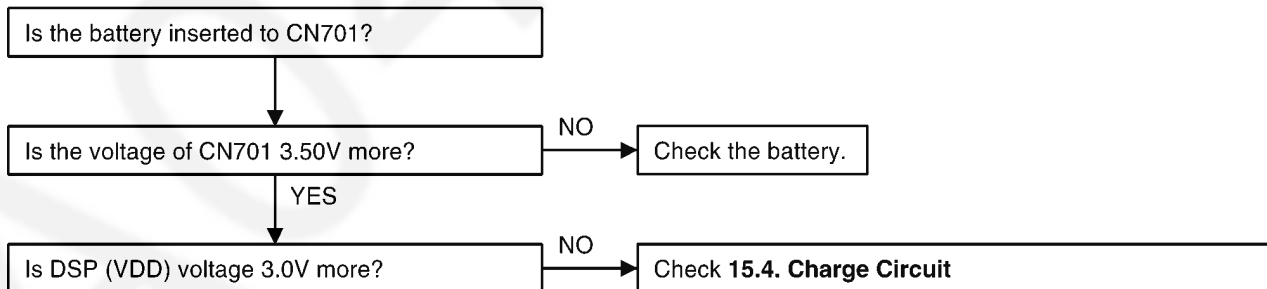
Reset Circuit (P.50).

Power Supply Circuit (P.49).

NOTE:

DSP is IC301.

HANDSET



Cross Reference

Charge Circuit (P.51).

NOTE:

DSP is IC601.

7.2. Error Message Table

Display	Symptom	Remedy
E 1	The initialization was tried, but it could not be done.	1. Check the peripheral circuit of Flash Memory visually. 2. Confirm that the voltage is added to the power supply pin. If no voltage is detected, replace the Flash Memory because it might be defect. 3. Solder the Flash Memory again.
E 3 E 9	When the adjustment data was checked, an error was detected. (The adjustment data may not be written.)	
E 7	The defect of synthesized voice was detected. (The synthesized voice may not be written.)	
E 2	The defect of Flash Memory was detected.	When Flash Memory has the fatal detect, replace Flash Memory. This error hardly occurs.
E 4	The defect of DSP was detected. (The chip in DSP may have a defect.)	1. Confirm Pins of DSP or resoldering. 2. Confirm the oscillation frequency of DSP. If no frequency is found, replace DSP because it might be defect.
E 5 E 6	The defect of DSP was detected.	Replace DSP.

NOTE:

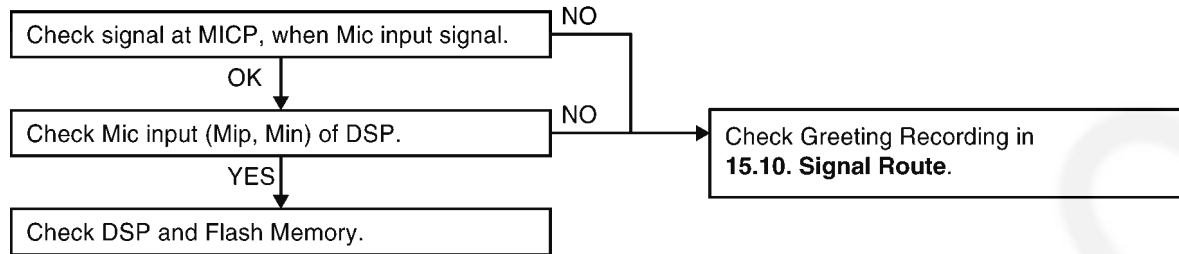
Flash Memory is IC304.

DSP (CPU) is IC301.

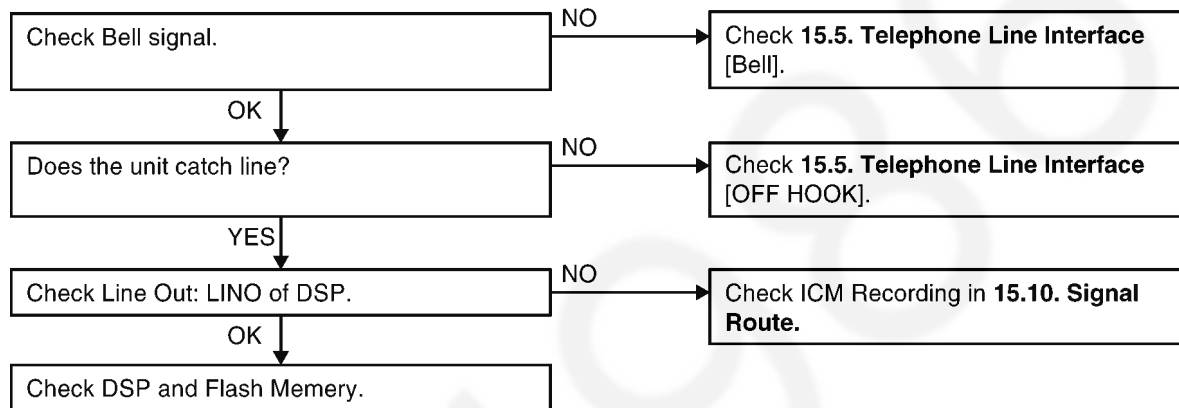
7.3. Check Record

BASE UNIT

- Not record Greeting Message



- Not record Incoming Message



Cross Reference:

Telephone Line Interface (P.52).

Signal Route (P.56).

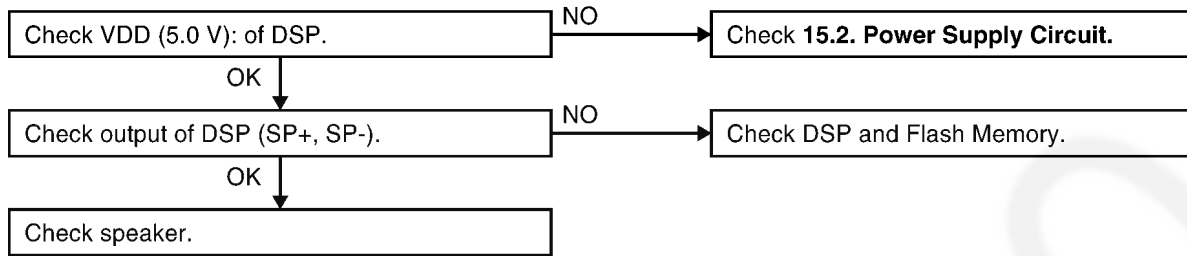
NOTE:

Flash Memory is IC304.

DSP is IC301.

7.4. Check Playback

BASE UNIT



Cross Reference:

Power Supply Circuit (P.49).

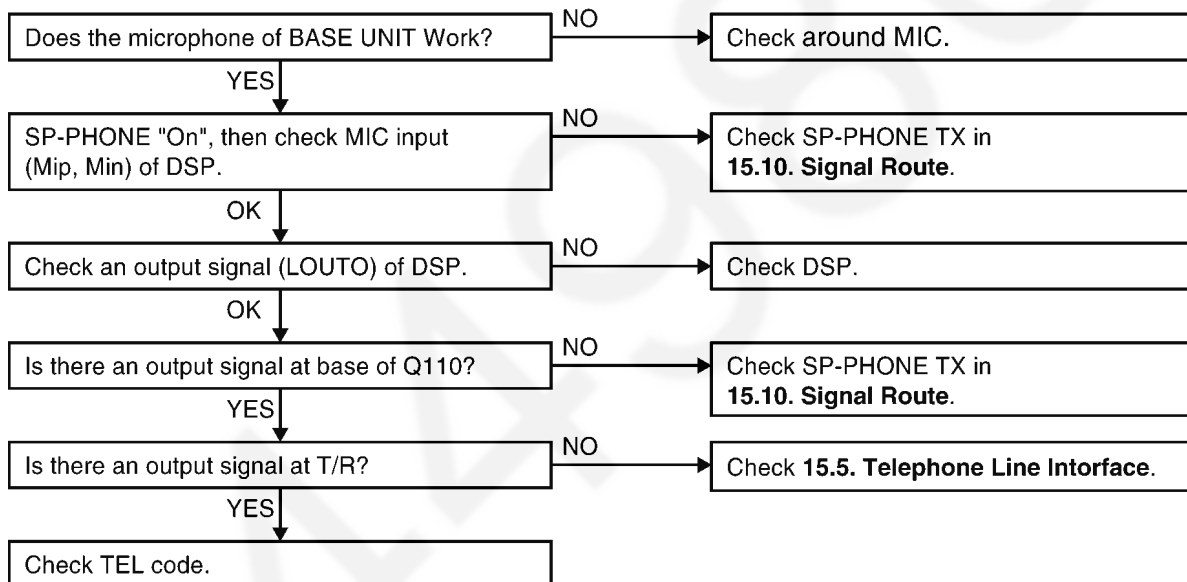
NOTE:

Flash Memory is IC304.

DSP is IC301.

7.5. Check Sp-phone Transmission

BASE UNIT



Crossn Reference:

Telephone Line Interface (P.52).

Signal Route (P.56).

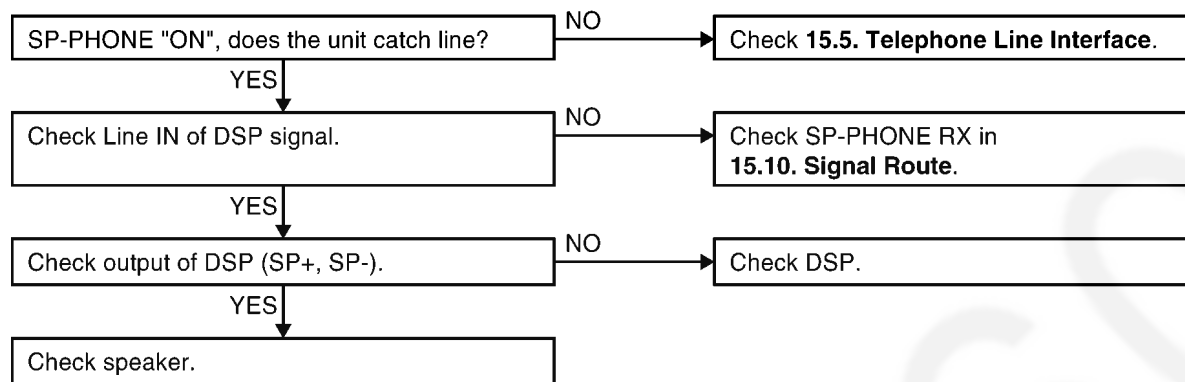
NOTE:

Flash Memory is IC304.

DSP is IC301.

7.6. Check Sp-phone Reception

BASE UNIT



Cross Reference:

Telephone Line Interface (P.52).

Signal Route (P.56).

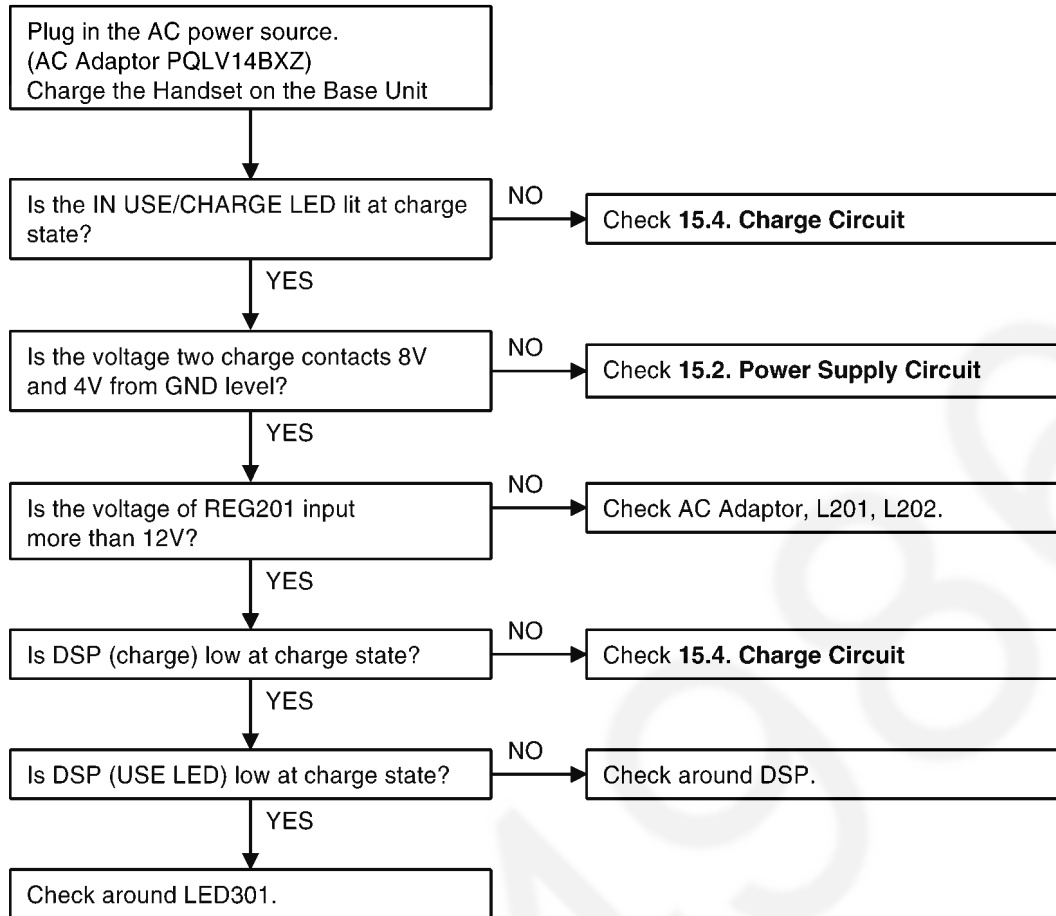
NOTE:

Flash Memory is IC304.

DSP is IC301.

7.7. Check Battery Charge

BASE UNIT



Cross Reference:

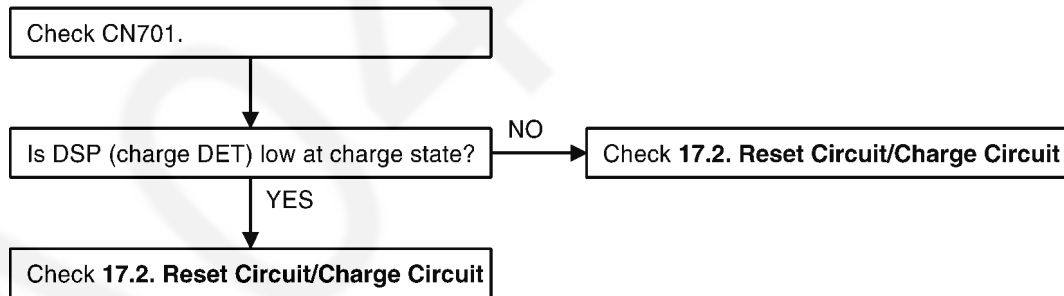
Charge Circuit (P.51).

Power Supply Circuit (P.49).

NOTE:

DSP is IC301.

HANDSET



Cross Reference:

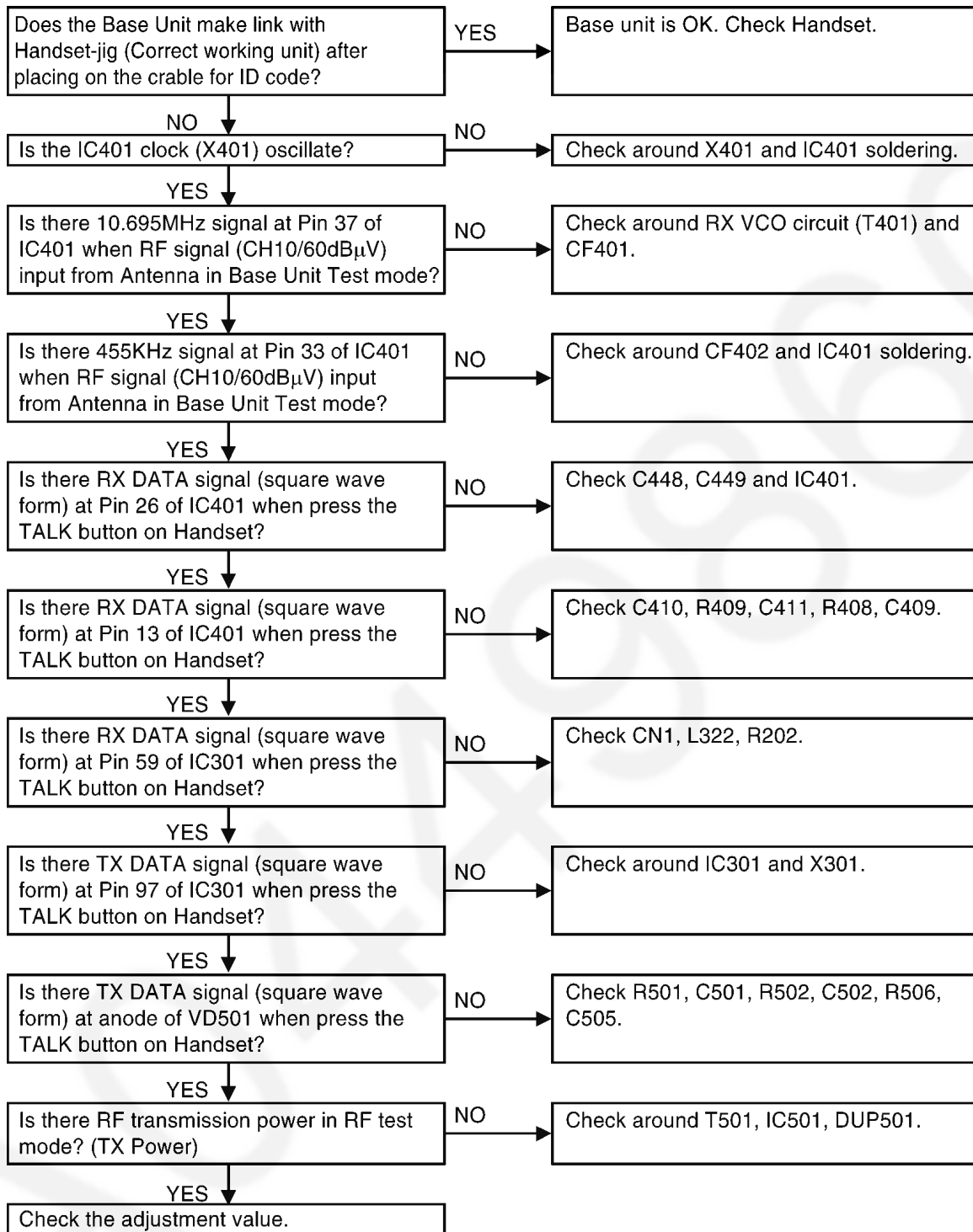
Reset Circuit/Charge Circuit (P.58).

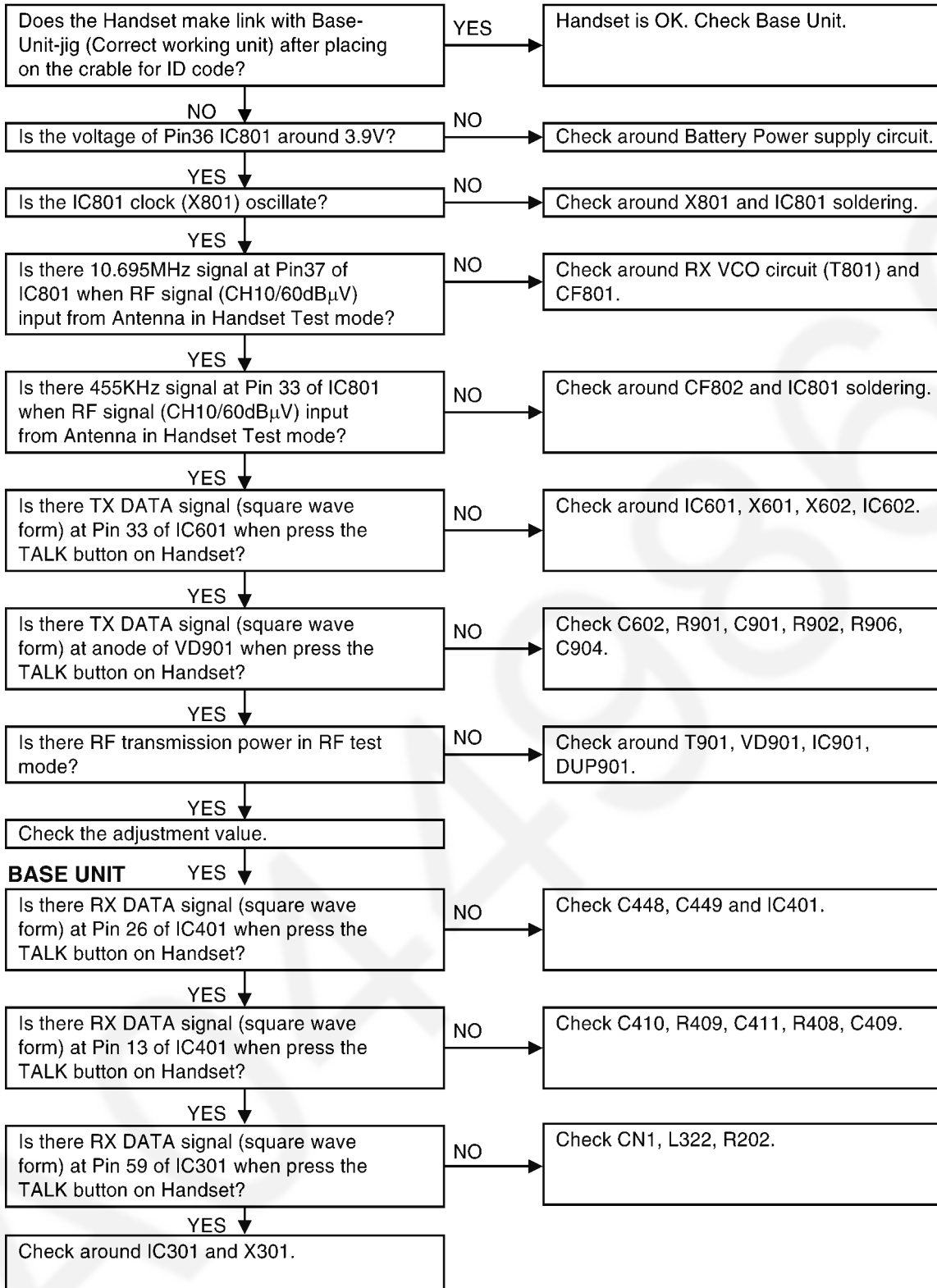
NOTE:

DSP is IC601.

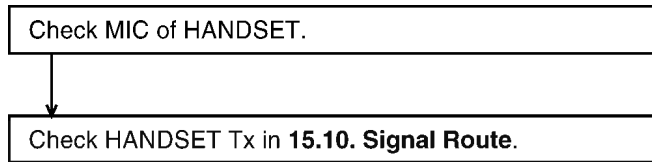
7.8. Check Link

BASE UNIT



HANDSET

7.9. Check Handset Transmission



Cross Reference:

Signal Route (P.56).

7.10. Check Handset Reception



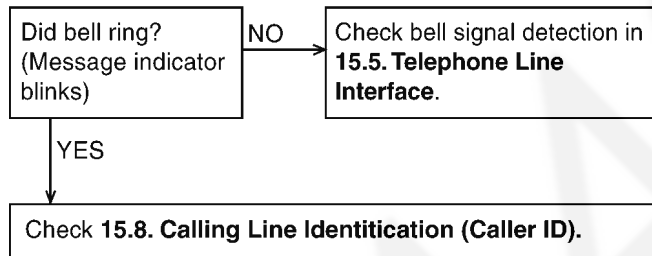
Cross Reference:

HOW TO CHECK THE HANDSET SPEAKER (P.42).

Signal Route (P.56)

7.11. Check Call ID

BASE UNIT



Cross Reference:

Telephone Line Interface (P.52).

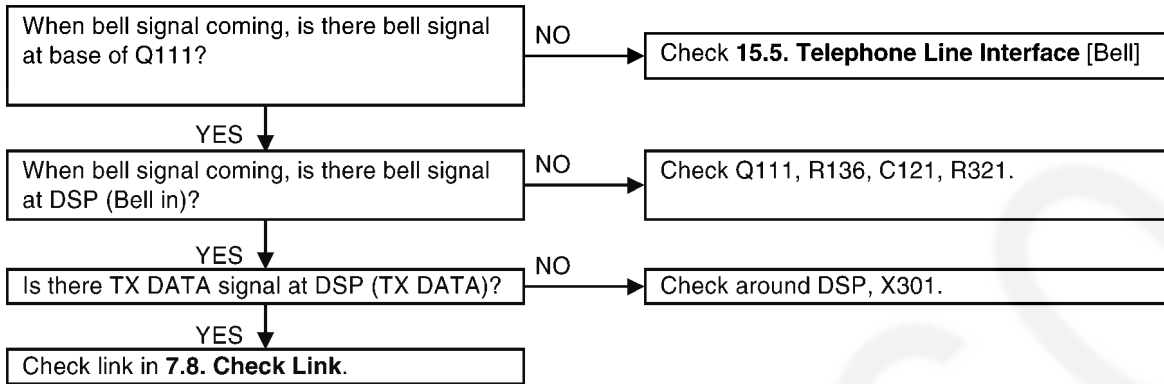
Calling Line Identification Circuit (Caller ID) (P.54).

NOTE:

- Make sure the format of the Caller ID service of the Telephone company that the customer subscribed to.
- Also we recommend to confirm that the customer is really a subscriber of the service.

7.12. Bell Reception

BASE UNIT



Cross Reference:

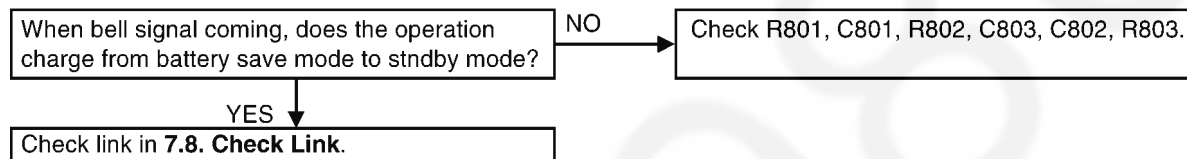
Telephone Line Interface (P.52).

Check Link (P.32)

NOTE:

DSP is IC301.

HANDSET



Cross Reference:

Check Link (P.32)

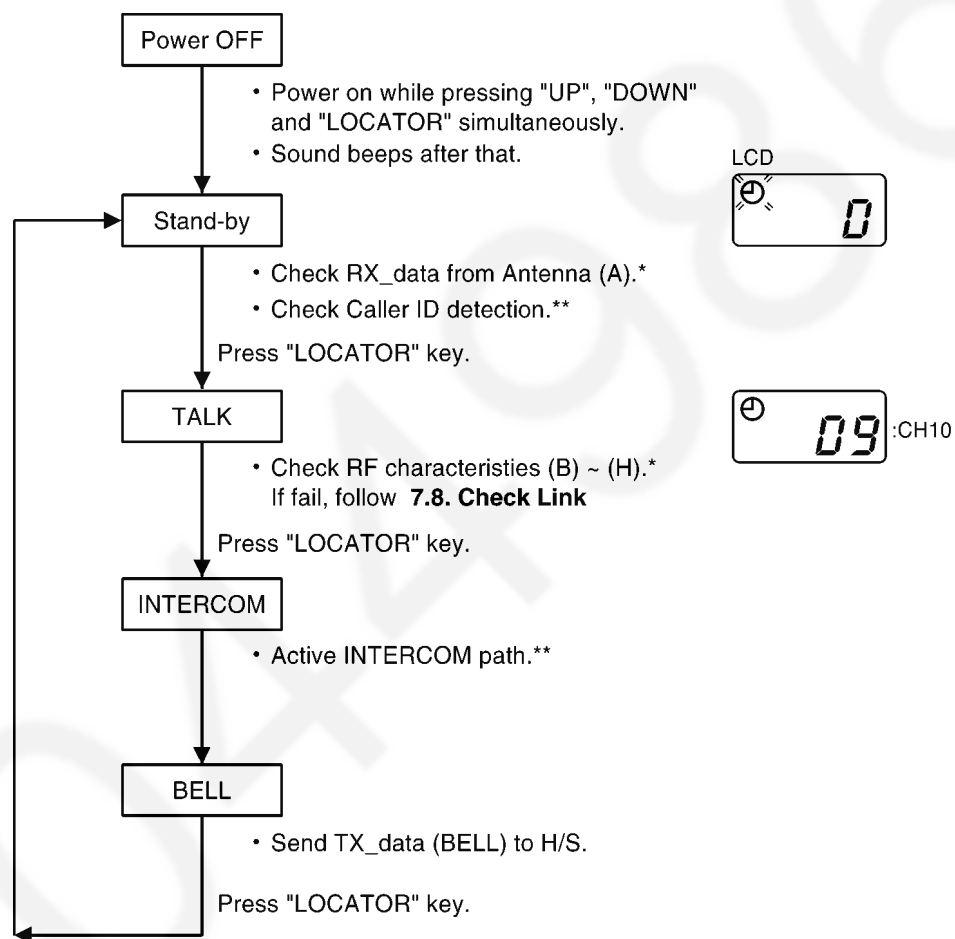
8 ADJUSTMENTS (BASE UNIT)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy
The base unit dose not respond to a call from handset.	Make adjustments in item (A)
The base unit dose not transmit or the transmit frequency is off.	Make adjustments in item (B)
The transmit frequency is off.	Make confirmation in item (C)
The transmit power output is low, and the operating distance between base unit and handset is less than normal.	Make confirmation in item (D)
The reception sensitivity of base unit is low with noise.	Make confirmation in item (E)
The transmit level is high or low.	Make confirmation in item (F)
The reception level is high or low.	Make adjustments in item (G)
The unit does not link.	Make confirmation in item (H)

8.1. Test Mode Flow Chart (Base Unit)

The operation-flow of Test mode and main check items are shown below.



Note :

* Refer to the above table.

** **Signal Route** (P.56)

Cross Reference : Check Link (P.32)

8.2. How to Set the Test Mode

Remove the antenna lead wire from P.C.Board of the base unit.

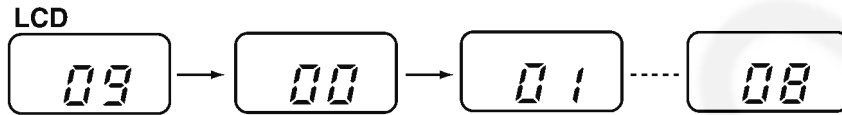
CH10 Test mode

1. Turn on the power supply while pressing "UP", "DOWN" and "LOCATOR" keys. Bell rings while the keys being pressed. (To confirm the set enters the test mode) As the keys are being released, the set enters the test mode.

2. Press "LOCATOR" key. The set becomes CH10 Test mode.

3. Press "UP" key.

CH10 → CH1 → CH2CH9



4. Press "DOWN" key.

CH10 → CH9 → CH8CH1



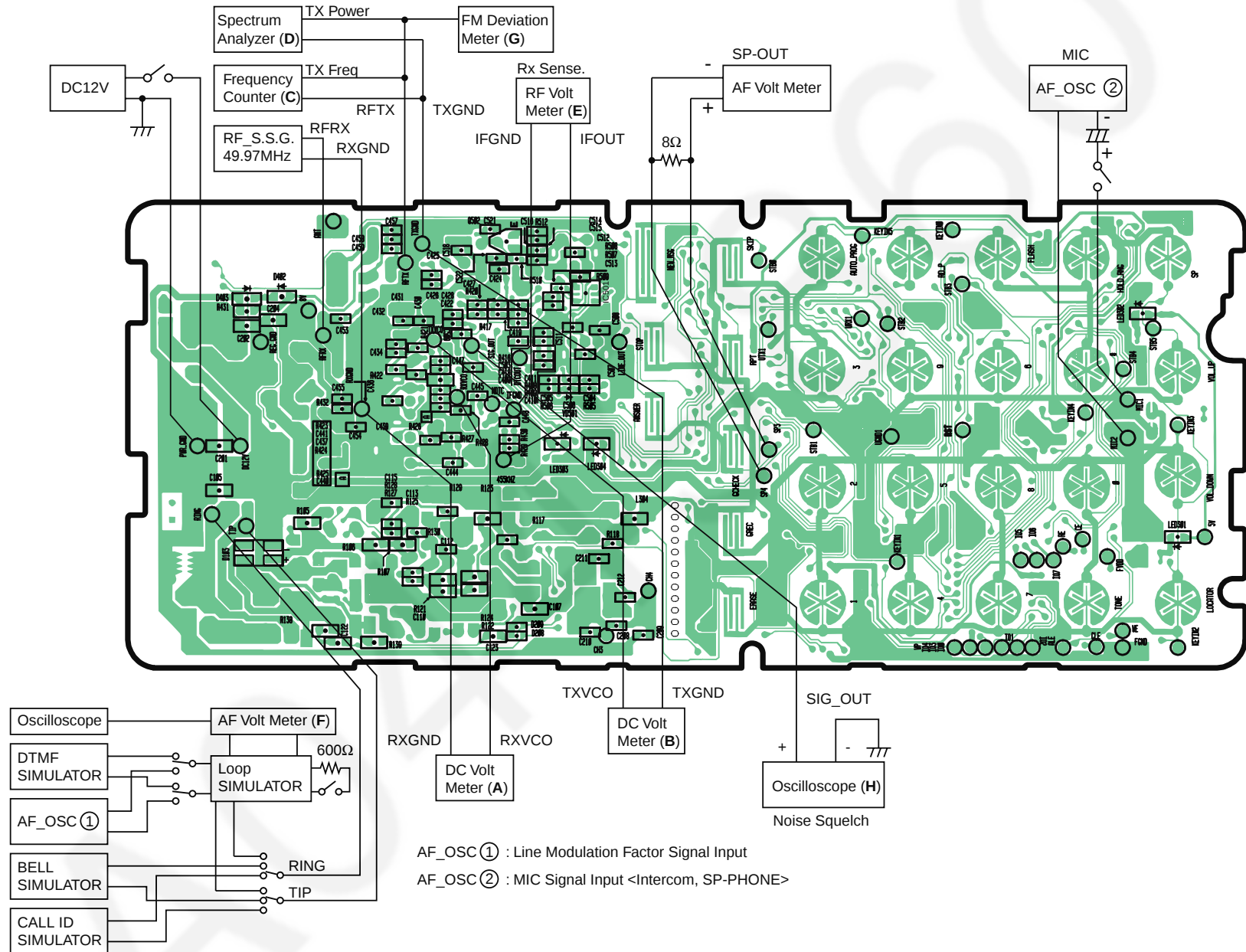
8.3. Adjustment

Replace Parts	Adjustment Items	Test Mode	Adjustment Point	Procedure
IC401, T401, C439	(A) RX VCO Adjustment	CH10 Talk	T401	• Adjust T401 so that the reading of the Digital Voltmeter is $1.7V \pm 0.1V$.
IC501, VD501, T501	(B) TX VCO Adjustment	CH10 Talk	T501	• Adjust T501 so that the reading of the Digital Voltmeter is $1.7V \pm 0.1V$.
IC501, X401, T501, VD501, C430, C431	(C) TX Frequency Confirmation	CH10 Talk	-	• Confirm so that the reading of the frequency counter is $44.200MHz \pm 0.7kHz$.
IC501, Q502, DUP501, T502	(D) TX Power Adjustment	CH10 Talk	T502	• Adjust T502 so that the reading of the RF VTVM is more than 10dBm.
DUP401, CF401, CF402	(E) RX Sensitivity Confirmation (2nd IF output)	CH10 Talk	-	1. Apply 60dBuVemf output from S.S.G. (modulation frequency 1kHz, dev. 0kHz). 2. Confirm that the reading of RF VTVM is the maximum value (more than 20mV)
IC401 Q110	(F) Line Output Level Confirmation	CH10 Talk	-	1. Apply 60dBuVemf output from S.S.G. (modulation frequency 1kHz, dev. 3kHz). 2. Confirm that the reading of AF VTVM is $-7dBm \pm 2.5dBm$ (600Ω load).
IC401, VD501, VOL402	(G) Line Input Modulation Adjustment	CH10 Talk	VOL402	1. Input via loop simulator 1.0kHz, -20dBm (measured at T-R) signal. 2. Apply 60dBuVemf output from S.S.G. (modulation frequency 1kHz, dev. 0kHz). 3. Adjust VOL402 so that the reading of FM Deviation Meter is $3.8kHz \pm 0.2kHz$.
IC401, DUP401	(H) Noise Squelch Confirmation	CH10 Talk	-	1. Measure the SSG output level when the noise squelch changes from Low to High. 2. Confirm that the SSG output level is $-3 \sim +12dBuVemf$.

The connection of adjustment equipment are as shown in **Adjustment Standard (Base Unit)** (P.38).

SSG Frequency : 49.97 MHz.

8.4. Adjustment Standard (Base Unit)



Note : (A) - (H) is referred to **ADJUSTMENTS (BASE UNIT)** (P.36)

9 ADJUSTMENTS (HANDSET)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

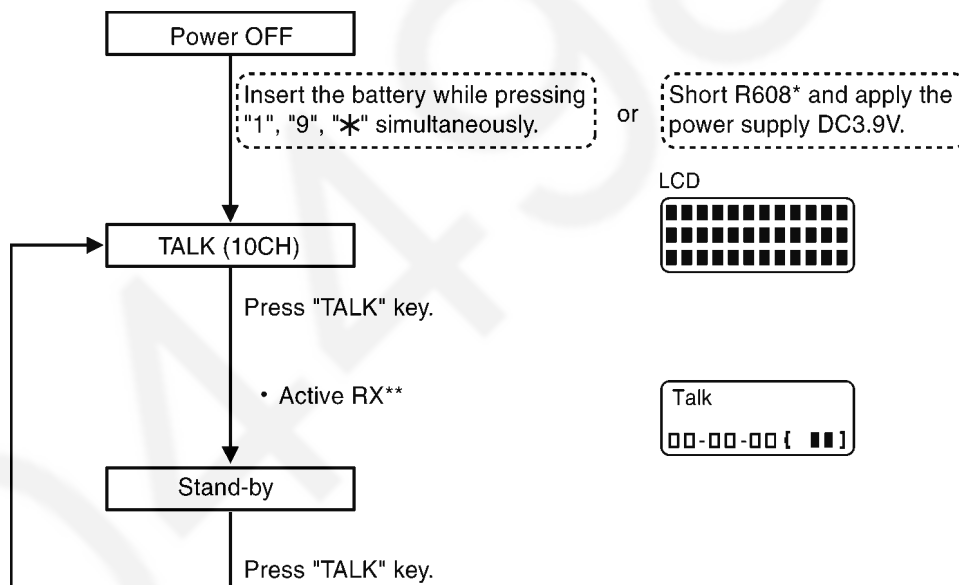
Symptom	Remedy
The movement of Battery Low Indicator is wrong.	Make confirmation in item (A)
The base unit does not respond to a call from handset.	Make adjustment in item (B)
The base unit does not transmit or the transmit frequency is off.	Make adjustment in item (C)
The transmit frequency is off.	Make confirmation in item (D)
The transmit power output is low, and the operating distance between base unit and Handset is less than normal.	Make confirmation in item (E)
The reception sensitivity of base unit is low with noise.	Make confirmation item (F)
Does not link between base unit and handset.	Make confirmation in item (G)
The reception level is high or low.	Make confirmation item (H)
The transmit level is high or low.	Make adjustment in item (I)

Unit condition:

1. Remove the antenna lead wire from P.C Board of the handset.
2. Power Supply: DC 3.9V (DC power supply)
3. Volume: HIGH (When P.C. Board of handset is in test mode, volume condition is medium. Press Navigator key ▲, once.)
4. Speaker Load: 150Ω

CH	TX Frequency	RX Frequency
CH10	49.970MHz	44.20MHz

9.1. Test Mode Flow Chart (Handset)



Note :

* Refer to **CIRCUIT BOARD (HANDSET)** (P.85)

** **Signal Route** (P.56)

9.2. How to set the test mode

CH10 Test Mode

- 1). Before setting handset to test mode, charge handset with battery on the base set.
- 2). After connecting the resistor R608 and apply a power supply DC 3.9 V.
(The unit becomes CH10 Talk)
- 3). Press **TALK** button.
(The unit becomes CH10 standby)
4. Press **TALK** button.

- 5). Press **EXIT/CH** button.

CH10 → CH1 → CH2.....CH9

- 6). Press the **FLASH** button.

CH10 → CH9 → CH8 →.....CH1

* Refer to **CIRCUIT BOARD (HANDSET)** (P.85).

R608: 0Ω resistor

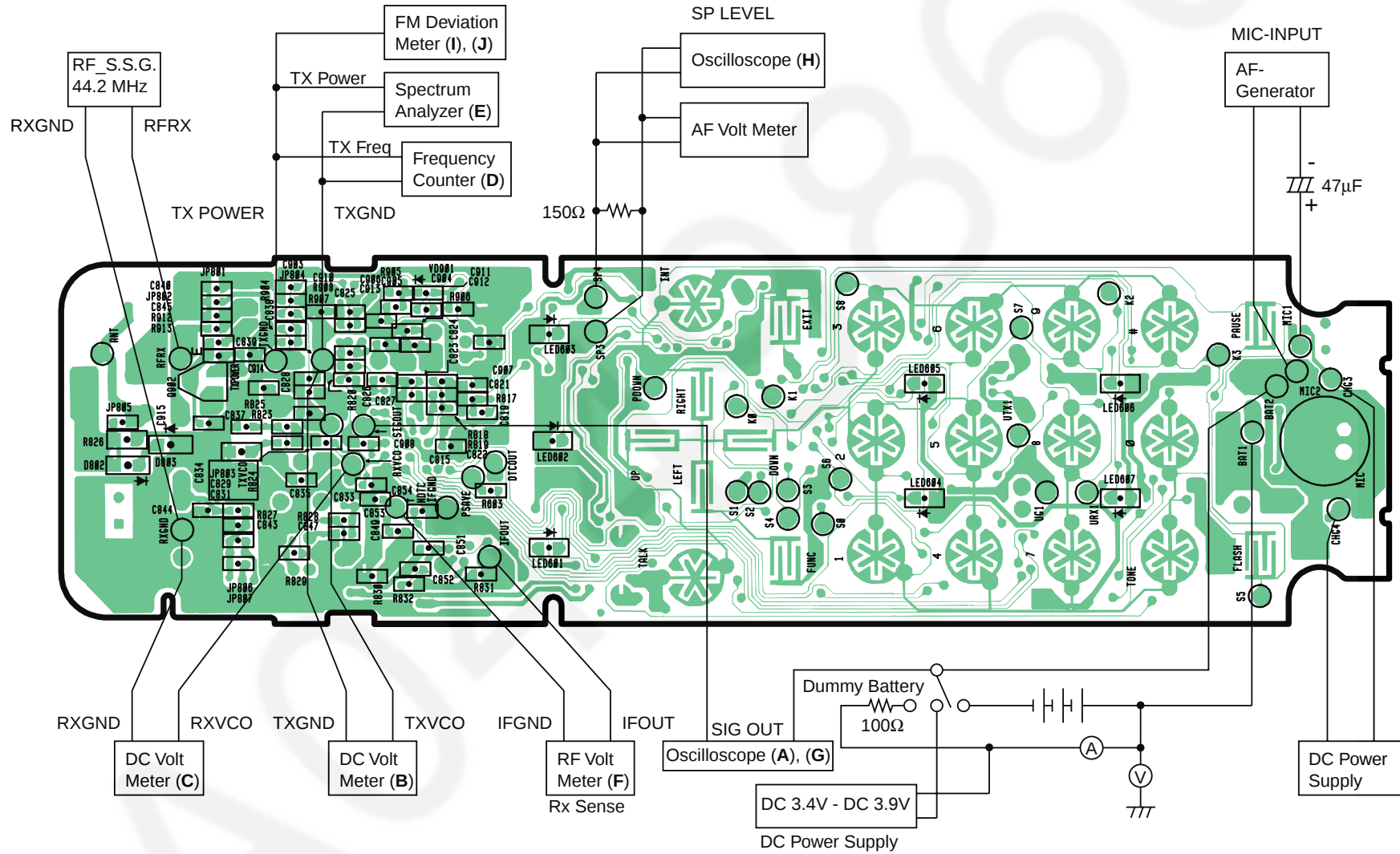
9.3. Adjustment

Replace Parts	Adjustment Items	Test Mode	Adjustment Point	Procedure
IC801	(A) Battery Low Confirmation	CH10 Talk	-	1. Set the power supply voltage to DC3.60V, and confirm so that the reading of oscilloscope is High. 2. Set the power supply voltage to DC 3.40V, and confirm so that the reading of oscilloscope.
IC801, X801, T901, VD901	(B) TX VCO Voltage Adjustment	CH10 Talk	T901	• Adjust T901 so that the reading of the Digital Voltmeter is $1.5V \pm 0.1V$.
IC801, X801, T801	(C) RX VCO Voltage Adjustment	CH10 Talk	T801	• Adjust T801 so that the reading of the Digital Voltmeter is $1.2V \pm 0.1V$.
IC801, X801, T901, VD901, C828, C829	(D) TX Frequency Confirmation	CH10 Talk	-	• Confirm so that the reading of the frequency counter is $49.970MHz \pm 0.7kHz$.
IC901, DUP901	(E) TX Power Adjustment	CH10 Talk	-	• Output level should be over 700mV on RF VTVM (50Ω load).
DUP801, IC801, CF801, CF802	(F) RX Sensitivity Confirmation (2nd IF output)	CH10 Talk	-	1. Apply 60dBuVemf output from S.S.G. (modulation frequency 1kHz, dev. 0kHz). 2. Confirm 2nd IF output so that the reading of RF VTVM is more than 15mV.
IC801, DUP801	(G) Noise Squelch Confirmation	CH10 Talk	-	1. Measure the SSG output level when the noise squelch changes from Low to High. (modulation frequency 1kHz, dev. 3kHz) 2. Confirm that the SSG output level is $-3 \sim +12dBuVemf$.
IC801	(H) Speaker Output Level confirmation	CH10 Talk	-	1. Apply 60dBuVemf output from S.S.G. (modulation frequency 1kHz, dev. 3kHz). 2. Confirm that SP output level is $-14 \pm 5dBm$. (distortion: less than 7%) (volume High).
IC801, VD901, VOL802	(I) Mic Modulation Factor Adjustment	CH10 Talk	VOL802	1. Apply a MIC signal (1kHz, -40 dBm at 600Ω load). 2. Adjust VR901 so that the reading FM Deviation Meter is $3.90kHz \pm 0.7kHz$.
	(J) Data Modulation Confirmation	CH10 Talk	-	1. Keep pressing the "1" key. 2. Confirm for 4.0kHz ~ 8.0kHz FM Deviation Meter reading.

The connections of adjustment equipment are as shown in **Adjustment Standard (Handset)** (P.41).

SSG Frequency: 44.200 MHz

9.4. Adjustment Standard (Handset)



Note : (A) - (J) is referred to **Adjustment** (P.40)

10 RF SPECIFICATION

10.1. Base Unit

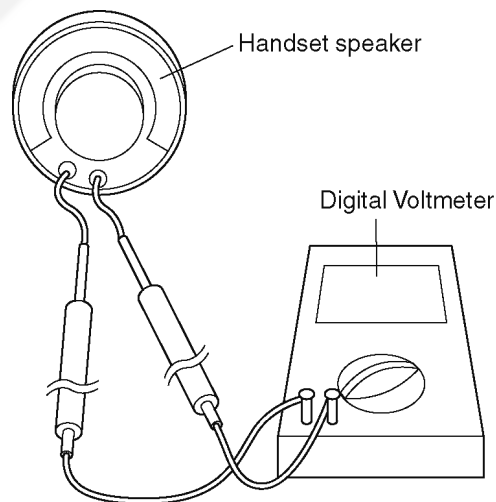
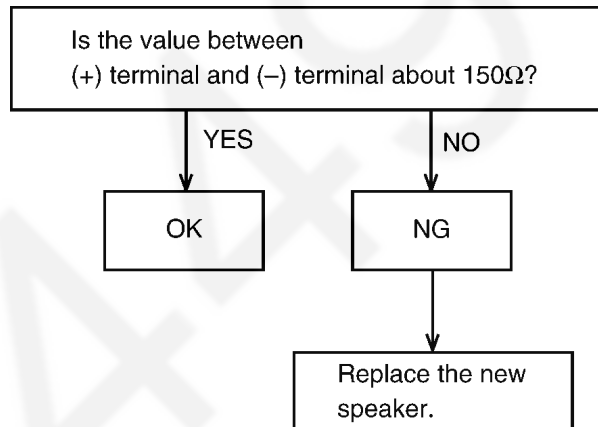
Item	Value	Refer to -.	Remarks
TX Frequency	44.200 MHz $\pm$ 0.7kHz	ADJUSTMENTS (BASE UNIT) (C)	at CH10
TX Power	More than 10dBm (CH10)	ADJUSTMENTS (BASE UNIT) (D)	at CH10
Line Modulation factor	2.9 kHz~3.3 kHz	ADJUSTMENTS (BASE UNIT) (G)	
Line Modulation factor (Max.)	4.5 kHz~8.5 kHz	—	
Data Modulation factor	3 kHz~7 kHz	—	
Line Out factor	-7dBm	—	

10.2. Handset

Item	Value	Refer to -.	Remarks
TX Frequency	49.970 MHz $\pm$ 0.7kHz	ADJUSTMENTS (HANDSET) (D)	at CH10
TX Power	More than 9dBm	ADJUSTMENTS (HANDSET) (E)	at CH10 (Antenna soldering point 50 Ω Load)
Data Modulation factor	4.0 kHz/dev~8.0 kHz/dev	ADJUSTMENTS (HANDSET) (J)	at CH10
MIC Modulation factor	2.3 kHz/dev~3.7 kHz/dev	ADJUSTMENTS (HANDSET) (I)	at CH10 (MIC terminal -40dBm Input)
SP Out factor	-14 $\pm$ 5dBm	—	

11 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.

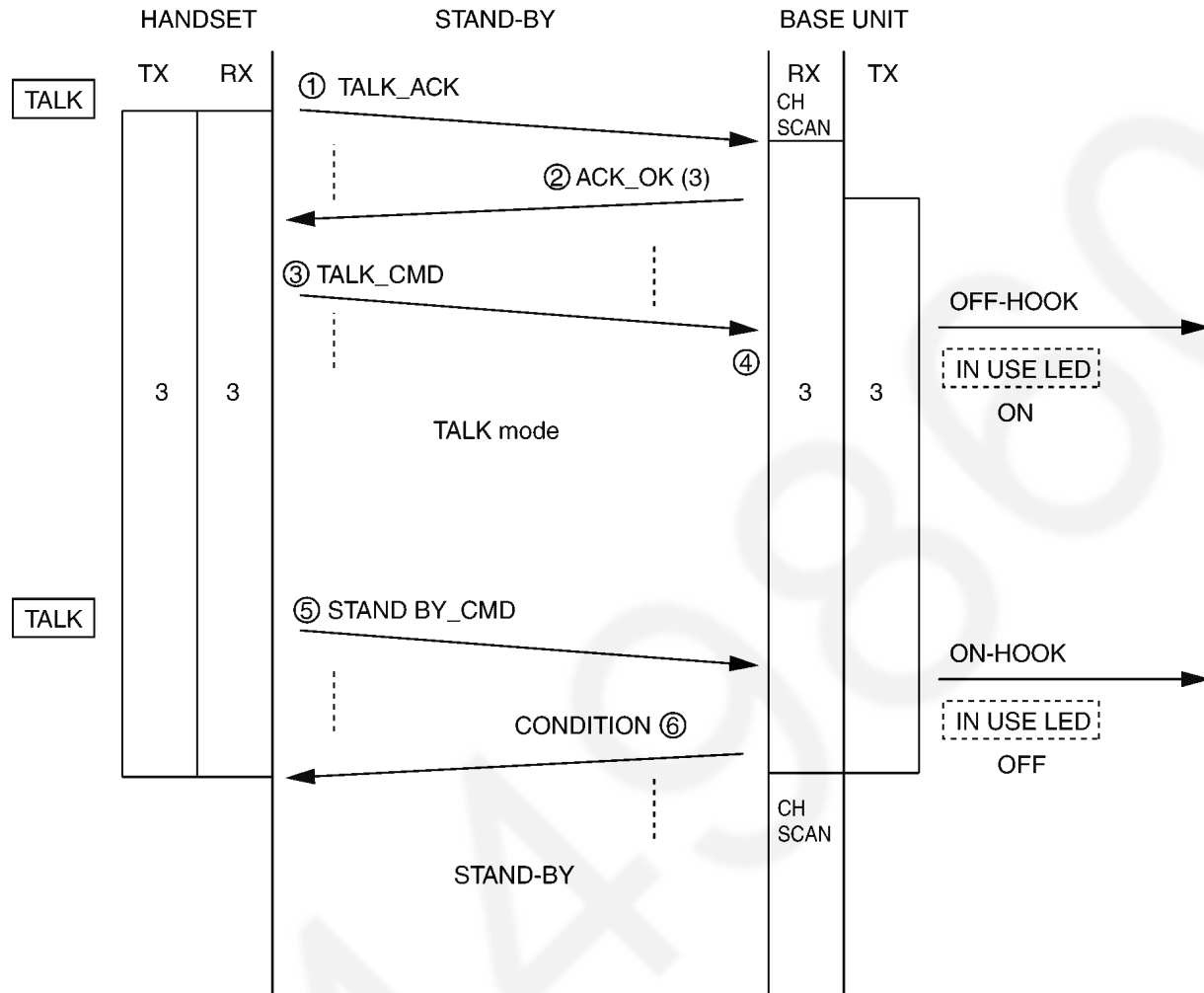


12 FREQUENCY TABLE (MHz)

Channel	BASE UNIT		HANDSET	
	Transmit Frequency	Receive Frequency	Transmit Frequency	Receive Frequency
1	43.720	49.670	49.670	43.720
2	43.740	49.845	49.845	43.740
3	43.820	49.860	49.860	43.820
4	43.840	49.770	49.770	43.840
5	43.920	49.875	49.875	43.920
6	43.960	49.830	49.830	43.960
7	44.120	49.890	49.890	44.120
8	44.160	49.930	49.930	44.160
9	44.180	49.990	49.990	44.180
10	44.200	49.970	49.970	44.200

13 EXPLANATION OF CPU DATA COMMUNICATION

13.1. STAND-BY -> TALK, TALK -> STAND-BY



Press the TALK button

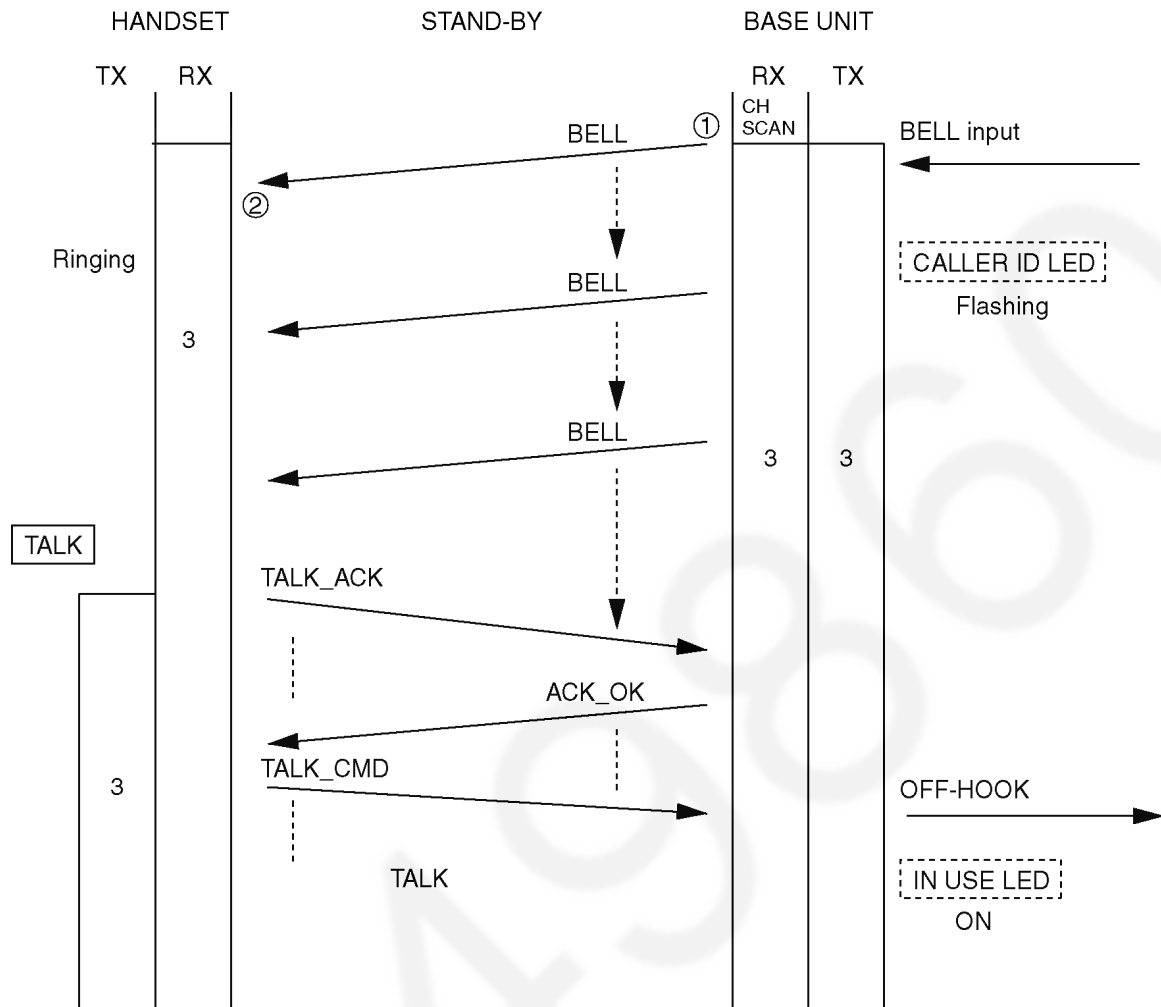
- ① The handset transmits TALK_ACK.
- ② Then base unit transmits ACK_OK including the channel number (Example: 3).
- ③ The handset transmits TALK_CMD.
- ④ The base unit goes to off-Hook mode.

Press the TALK button.

- ⑤ The handset transmits STANDBY_CMD at the channel.
- ⑥ The base unit transmits CONDITION at the TALK channel.

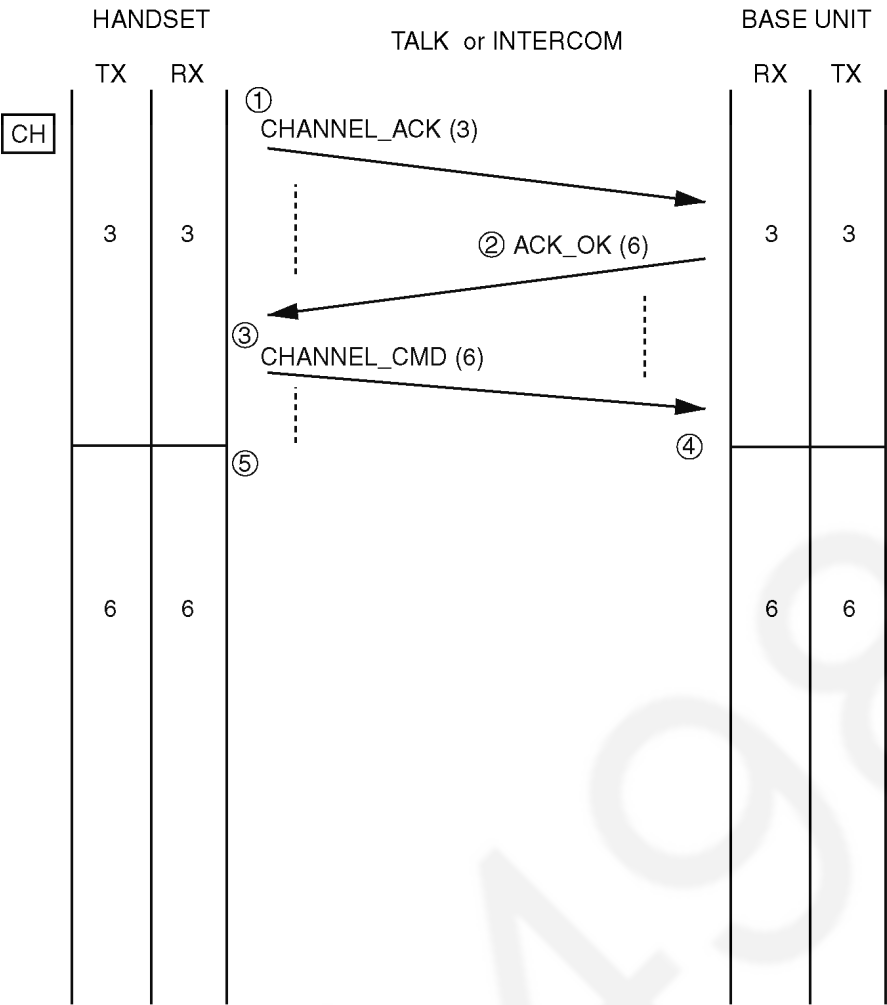
Note: Channel = 1 ~ 10

13.2. Ringing



- ① When the bell signal is input, the base unit transmits BELL.
 ② The handset rings the bell on receiving BELL.

13.3. Changing the channel



Press the **CH** button.

- ① The handset transmits CHANNEL_ACK.
- ② The base unit replies with ACK_OK including "vacant channel number (Example: 6)".
Note: The "vacant channel number" is selected at random by the base unit.
- ③ Then handset transmits CHANNEL_CMD.
- ④ The base unit moves to the vacant channel after receiving CHANNEL_CMD.
- ⑤ The handset moves to the vacant channel when the transmission of CHANNEL_CMD has been completed.

13.4. Ports for transmitting and receiving of data

Handset:

transmitting (TX)... 33 Pin

receiving (RX)... 27 Pin

Base Unit:

transmitting (TX)... 97 Pin

receiving (RX)... 59 Pin

13.5. Waveform of DATA used for cordless transmission and reception

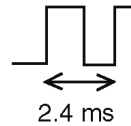
The DATA which is transmitted from the Handset to the Base Unit is combination of DATA 0, DATA 1, DATA Delimit.

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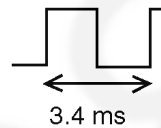
13.5.1. Handset

Transmitting DATA Element Format

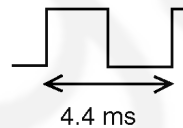
DATA 0



DATA 1

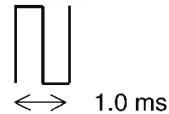


DATA Delimit

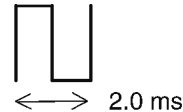


13.5.2. Base Unit

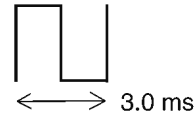
DATA 0



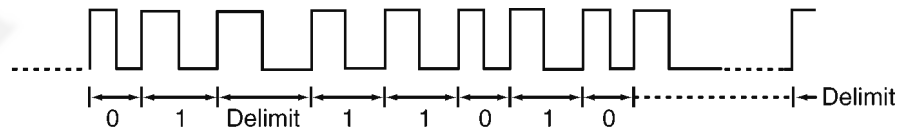
DATA1



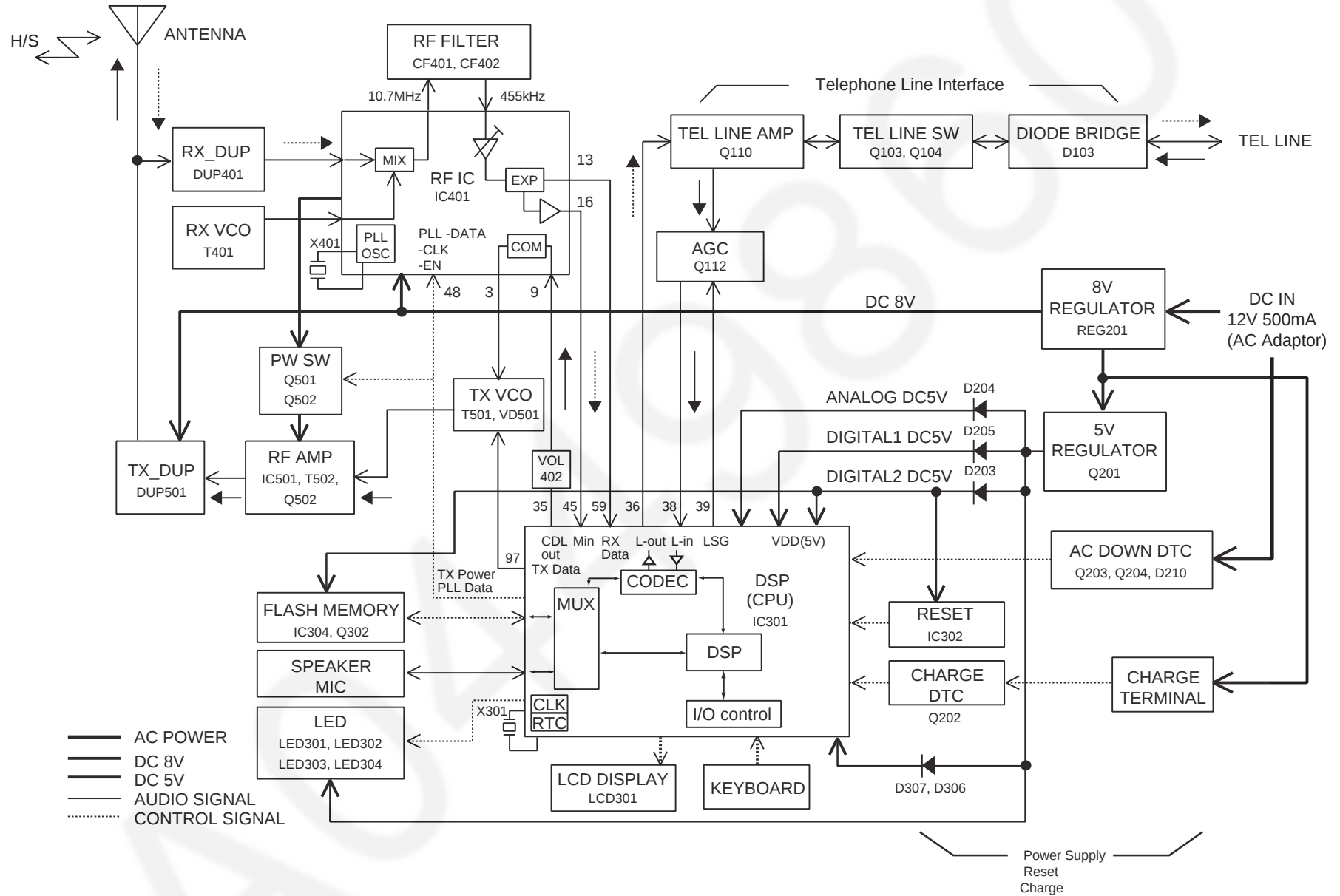
DATA Delimit



- For example (one of part of data)



14 BLOCK DIAGRAM (BASE UNIT)



15 CIRCUIT OPERATION

15.1. Outline

Base unit consists of the following ICs as shown in BLOCK DIAGRAM.

- CPU:IC301
 - Controlling the whole system
 - Caller ID analyzing circuit (FSK, DTMF)
 - Flash memory control for Digital TAM memory
 - Forming/analyzing all data signals (ACK, CMD signal etc.*)
 - All interfaces (ex: LED, KEY, SP, Mic, LCD, Detector Circuit (Charge/ Power Down))
- *Refer to **EXPLANATION OF CPU DATA COMMUNICATION** (P.44).

- RF IC:IC401
 - PLL Oscillator
 - Detection
 - Compress/ Expander
 - first/ second mixer
 - Amplifier for transmission and reception

- Flash Memory: IC304

Following information data is stored.

- Voice signal
 - ex: Pre-recorded Greeting message, Incoming message
- Telephone number, etc.
 - ex: Telephone Directory number, Caller ID data, ID code
- Settings
 - ex: message numbers, caller ID numbers, pulse tone dial

Additionally,

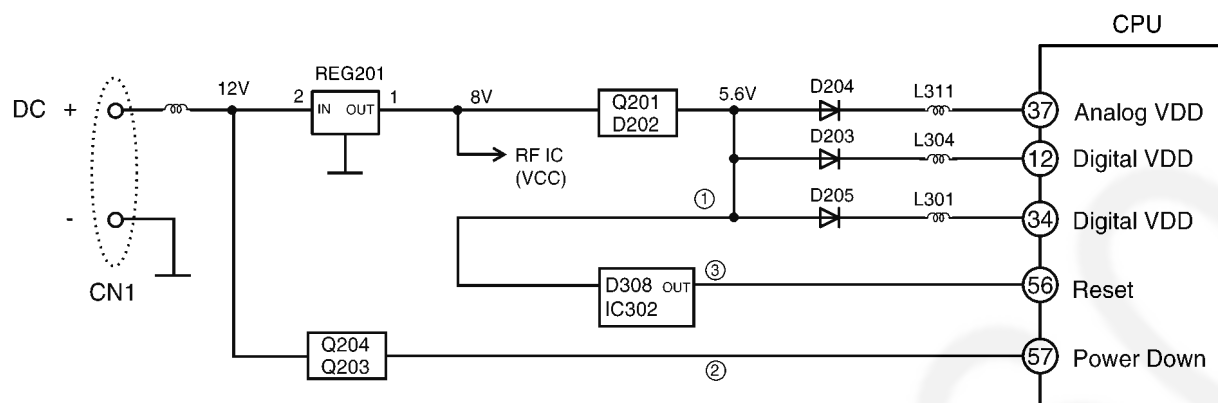
- Power Supply Circuit
- Reset Circuit
- Charge Circuit
- Telephone Line Interface Circuit

15.2. Power Supply Circuit

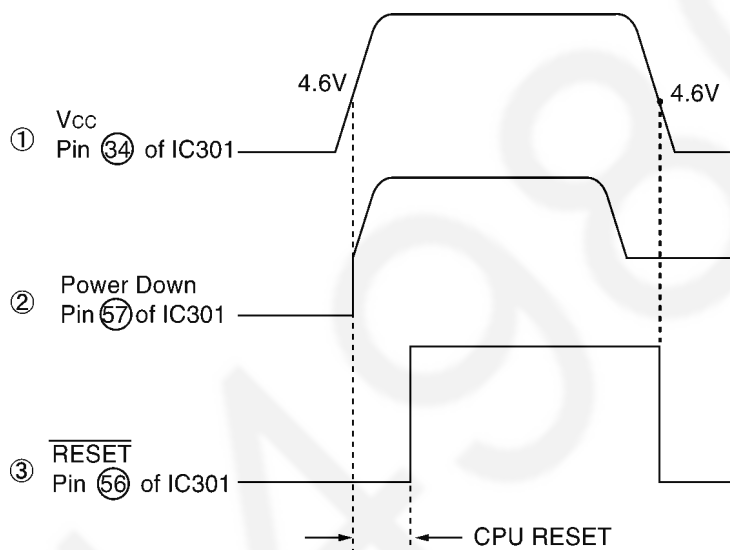
The power supply to the CPU (Digital, Analog) and RF IC from AC Adaptor (+12V) as shown in diagram in **Reset Circuit** (P.50).

15.3. Reset Circuit

After power supply from AC adaptor, the VDD (5.6V) is input to Reset IC for making reset signal. Refer to the below waveform.



<Fig. 101>



<Fig. 102>

15.4. Charge Circuit

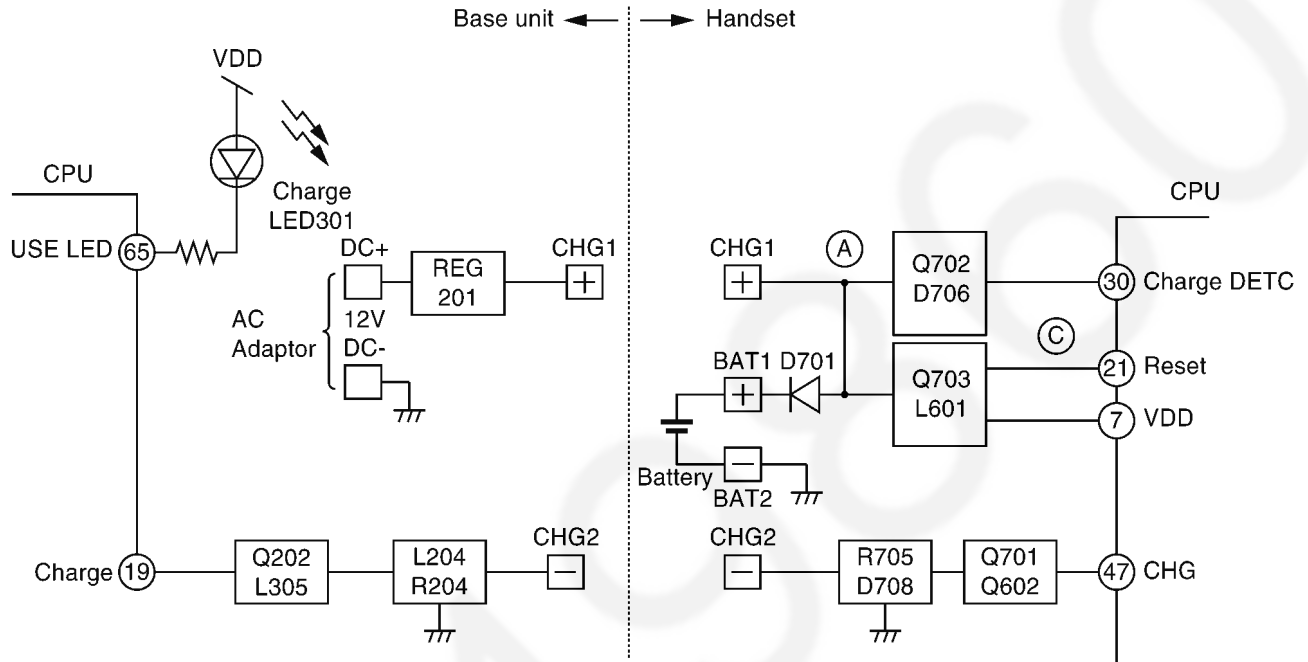
Circuit Operation:

When charging the handset on the base unit, the charge current is as follows;

DC+(12V) → REG201 → CHG (Base) → [CHG1 (Handset) → D701 → BAT1....Battery....BAT2 (GND) → R705 → D708 → CHG2 (Handset)] → CHG2 (Base) → L202 → R204 → DC-(GND),

In this way, the CPU on both unit detects the fact that the battery is charged.

The charge current is controlled by switching Q701. The battery is charged in normal mode for 10 hours and then in trickle mode.



<Fig. 103>

15.5. Telephone Line Interface

Function:

- Bell signal detection
- ON/OFF hook and pulse dial circuit
- Side tone circuit
- Auto-disconnect circuit/Parallel connection detection circuit

Bell signal detection and OFF HOOK circuit:

In the idle mode, Q103 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T) and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:

T → L101 → C118 → R133 → Q111 → DSP (Bell-in). [BELL] *See the below Figure.

When the CPU (DSP) detects a ring signal and press the TALK Key onto the handset. Q4 turns on, thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the loop current.

T → D103 → Q103 → C108 → R127 → C114 → R130 → D109 → D103 → L102 → R [OFF HOOK]

ON HOOK Circuit:

Q103 is open, Q103 connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

Pulse Dial Circuit:

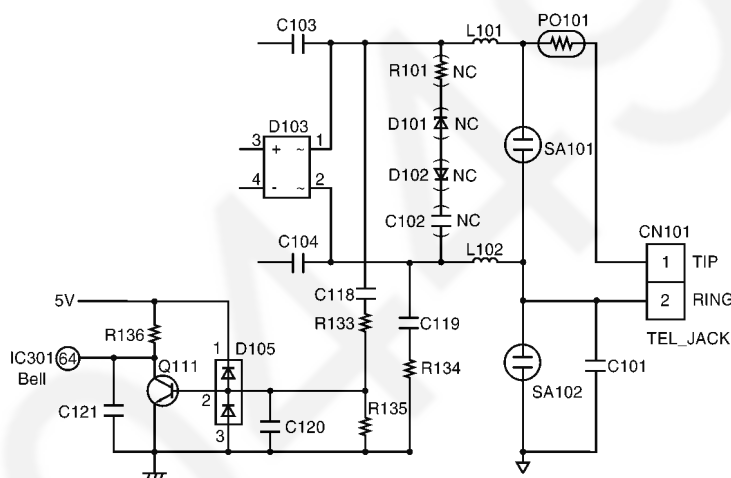
DSP (Relay) turns Q103 ON/OFF to make the pulse dialing via Q104.

Side Tone Circuit:

Basically this circuit prevents the TX signal from feeding back to RX signal.

As for this unit, TX signal feed back from Q110 is canceled by the cancellor circuit of DSP.

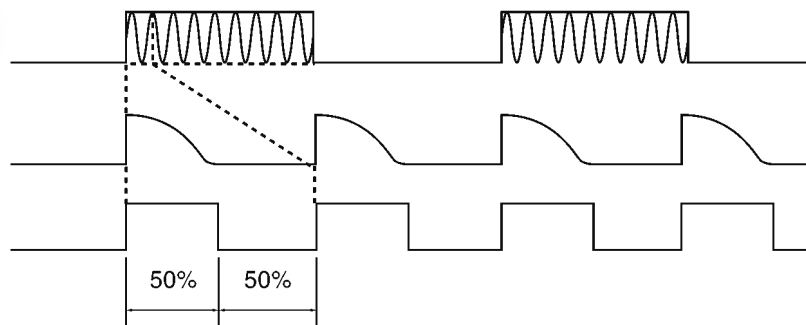
Circuit Diagram



Ring signal
• T-R

• Q111
Base

• Q111
Collector



Make/break ratio when dialing with the Handset : 40 %: 60 %

High/low ratio upon ring signal: 50%: 50%

Therefore, if the low/high ratio is greater than 45% at IC301- ⑥4 (CPU), it is judged as a ring signal.

<Fig. 104>

15.6. Transmitter/Receive Circuit

Base Unit and Handset are mainly consists of RF IC and CPU.

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

15.6.1. Transmitter Circuit

Circuit Operation:

The voice signal input from the TEL LINE interface goes to RF IC through CPU (CDL-OUT) to VOL402.

And the signal goes through the compressor and SPLATTER FILTER of RF IC, it is output to transmitter circuit.

The signal of the data sent to the handset is applied in the anode of the variable capacitor diode (VARICAP):(VD501).

The capacitor of VARICAP is changing in accordance with the voice signal from telephone line interface or TX DATA signal from CPU. Therefore, the carrier frequency which is generated by IC501 and T501 will be changing, and Frequency modulated RF signal is generated and amplified by IC501,T502,Q502. It pass through the Duplexer DUP501 and radiated from Antenna.

Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

Signal Pass :

*Refer to **Signal Route** (P.56).

15.6.2. Receiver Circuit

Circuit Operation:

The signal of 49MHz band (49.670~49.99MHz) which is input from ANT is filtered at DUP401, then it is input to RF IC.

The signal input to RF IC is converted through Mixer inside of RF IC or RF filter (CF401, 402) or Expander.

In short 1st local frequency is mixed with the received RF signal. Then it passes through CF401, and 1st IF frequency of 10.695MHz is generated. Further,10.240MHz which is oscillated at X401 is mixed at inside of RF IC and filtered at CF402, and 2nd IF 455kHz is output.

The detected signal passes through the expander and Amplifier inside of RF IC to CPU (Min).

Signal Pass :

*Refer to **Signal Route** (P.56).

RX data (from Handset):

The data signal from handset (ex: Talk, ACK, COM) is also included in 49 MHz band same as the voice data. After second if filter, the data signal is made square shape by data limiting AMP of the RF IC. RX data is output to CPU (RX Data).

15.7. Telephone Answering Circuit

Function :

- ICM/OGM record/playback
- Pre-recording message playback

Circuit Operation :

For example, the record from microphone on Base Unit is saved at flash memory after the voice signal from microphone is input into CPU (HM in), and changing or compressing A/D inside of CPU.

When playback, the recorded data is taken out from Flash memory, and expanded inside of CPU. Additionally IC is changed to D/A and output to the speaker.

Signal Pass :

*Refer to **Signal Route** (P.56).

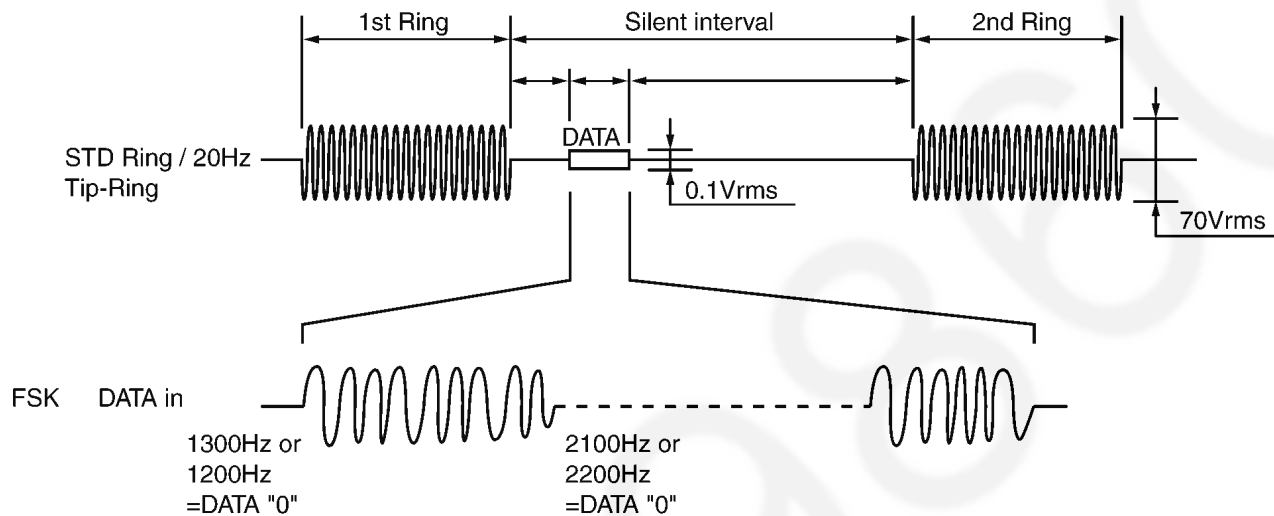
15.8. Calling Line Identification Circuit (Caller ID)

Function:

The caller ID is a chargeable ID which the user of a telephone circuit obtains by entering a contract with the telephone company to utilize a caller ID service. For this reason, the operation of this circuit assumes that a caller ID service contract has been entered for the circuit being used.

The Caller-ID data from exchange is supplied to the telephone using either method of FSK or DTMF. The method is chosen according to the exchange of telephone office. This unit is available to receive the data with both methods and displays the received data on LCD.

• FSK (Frequency Shift Keying) format



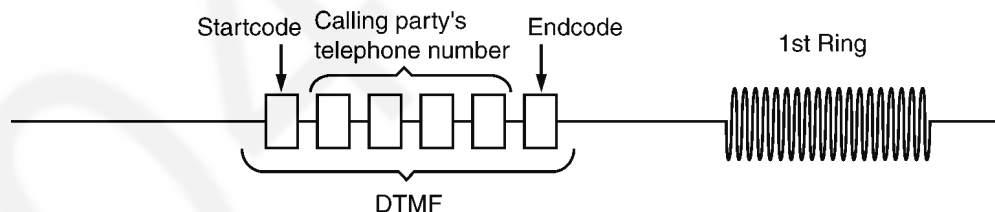
<Fig. 106>

• DTMF format:

It is the method to send the telephone number of calling party with DTMF to the telephone. DTMF is sent before the first bell signal.

The data is sent in turn; first the start code, secondly the telephone number of calling party, lastly end code.

The DTMF is chosen from A (1633Hz and 697Hz), B (1633Hz and 770Hz), C (1633Hz and 852Hz) and D (1633Hz and 941Hz) as the start code and end code according to the exchange.



<Fig. 107>

• Signal Pass :

Refer to **Signal Route** (P.56).

15.9. CPU Operation

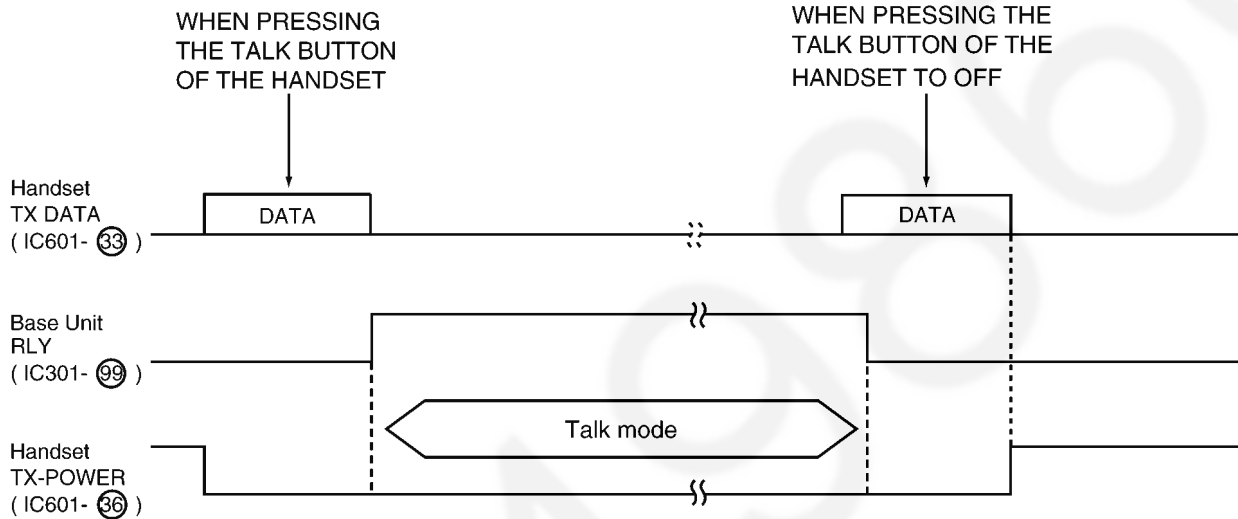
It goes into each operation mode because CPU controls the following ports.

Operation Mode

CPU Terminals IC301	25 TX_POWER	97 TX-DATA	99 RLY
Operation Mode			
STANDBY	H	L	L
TALK	L	L	H
Base Unit → Handset Ring	L	DATA	L
CHARGE	H	L	L

<Fig. 108>

Moreover, it becomes the following charts by pushing the "TALK" button of Handset.



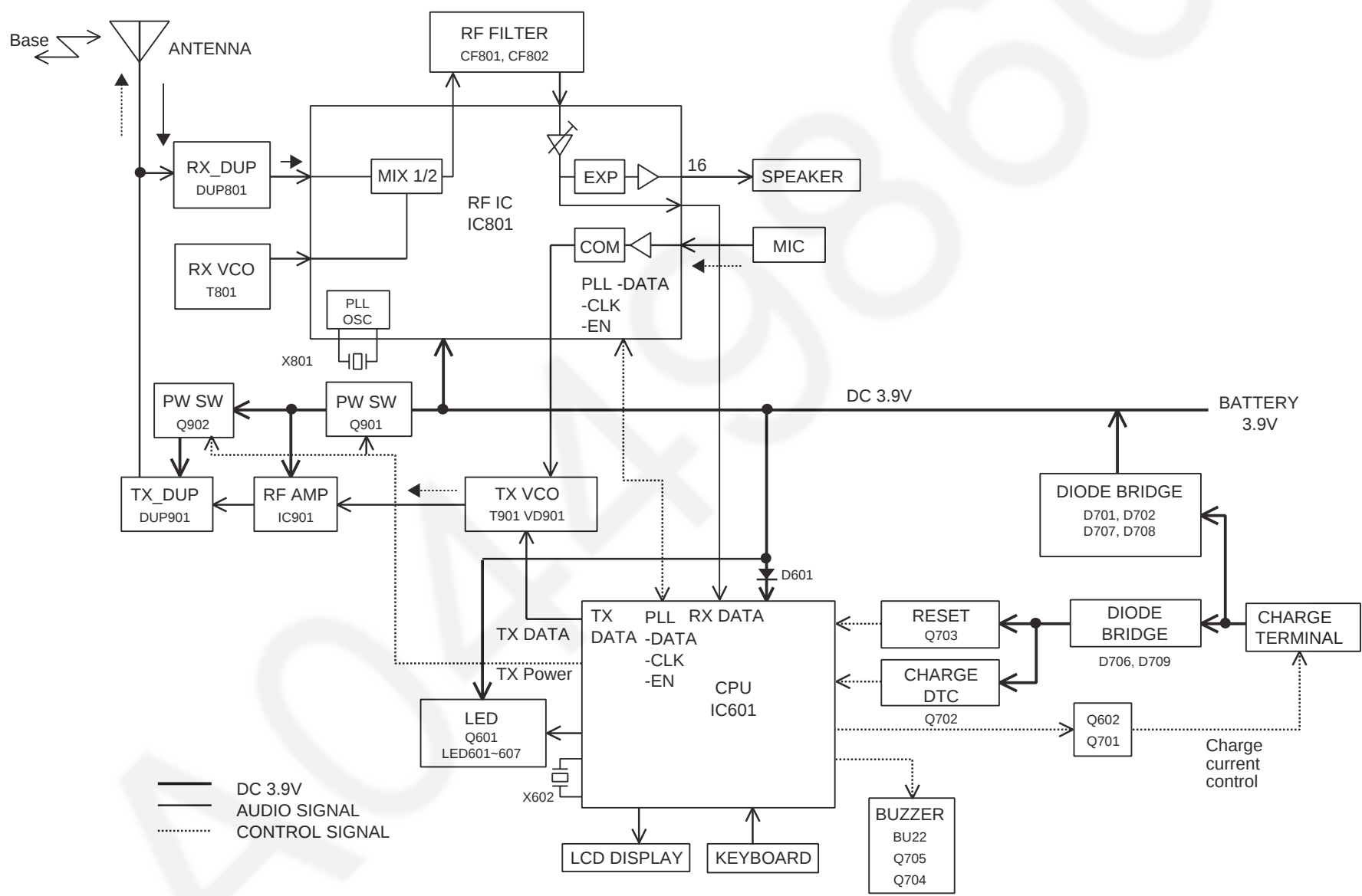
<Fig. 109>

15.10. Signal Route

Each signal route is as follows.

SIGNAL ROUTE	IN  ROUTE  OUT
DTMF TONE TEL OUT	(BASE UNIT) IC301 (36) - L309 - R137 - R132 - R131 - C117 - Q110 - C108 - Q103 - D103 - └ L101 - PO101 - TIP └ L102 ——— RING
SP-PHONE TX	(BASE UNIT) MIC - R307 - C313 - C312 - R309 - L316 - IC301 (47, 48) - IC301 (36) - L309 - R137 - R132 - R131 - C117 - Q110 - C108 - Q103 - D103 └ L101 - PO101 - TIP └ L102 ——— RING
SP-PHONE RX	(BASE UNIT) TIP - PO101 - L101 └ RING ——— L102 └ D103 - Q103 - C108 - R129 - C115 - C126 - R144 - C127 - R145 - IC301 (38, 39) - IC301 (32, 33) └ L306 - SPEAKER 1 └ L307 - SPEAKER 2
CDL TX (to Tel Line)	(HANDSET) MIC - C818 - VOL802 - C819 - R817 - IC801 (9-3) - R820 - C902 - R903 - VD901 - C905 - T901 - IC901 (6-3) - DUP901 (5-1) - C838 - JP801 - L801 - C841 - ANTENNA - to BASE UNIT (BASE UNIT) from HANDSET - ANTENNA - C452 - L401 - L403 - C453 - DUP401(1-6) - C443 - IC401 (41-39) - CF401 - IC401 (37-35) - CF402 - IC401 (33-26) - C407 - R407 - R406 - R404 - IC401 (25-21) - C412 - R410 - IC401 (17-16) - C416 - VOL401 - R412 - C415 - IC301 (45-36) - L309 - R137 - R132 - R131 - C117 - Q110 - C108 - Q103 - D103 └ L101 - PO101 - TIP └ L102 ——— RING
CDL RX (from Tel Line)	(BASE UNIT) TIP - PO101 - L101 └ RING ——— L102 └ D103 - Q103 - C108 - R129 - C115 - C126 - R144 - C127 - R145 - IC301 (38-35) - L308 - C417 - VOL402 - R416 - C419 - R417 - IC401 (9-3) - R420 - C503 - R503 - VD501 - C506 - T501 - IC501 (6-3) - T502 - C514 - Q502 - DUP501 (5-1) - C459 - L402 - L401 - C452 - ANTENNA - to HANDSET (HANDSET) from BASE UNIT - ANTENNA - C841 - L801 - JP802 - C845 - DUP801 (1-6) - C846 - IC801 (42-39) - R828 - CF801 - C849 - IC801 (37-35) - CF802 - R831 - IC801 (33-26) - C807 - R807 - R806 - R804 - IC801 (25-21) - C812 - R810 - R811 - IC801 (17-16, 15) - SPEAKER
GREETING REC	(BASE UNIT) MIC - R307 - C313 - C312 - R309 - L316 - IC301 (47) - IC304 (FLASH MEMORY)
ICM RECODING	(BASE UNIT) TIP - PO101 - L101 └ RING ——— L102 └ D103 - Q103 - C108 - R129 - C115 - C126 - R144 - C127 - R145 - IC301 (38) - IC304 (FLASH MEMORY)
GREETING AND ICM PLAY TO SPEAKER	(BASE UNIT) IC304 (FLASH MEMORY) - IC301 (32, 33) - SPEAKER
GREETING AND ICM PLAY TO TEL LINE	(BASE UNIT) IC304 (FLASH MEMORY) - IC301 (36) - L309 - R137 - R132 - R131 - C117 - Q110 - C108 - Q103 - D103 └ L101 - PO101 - TIP └ L102 ——— RING
DTMF AND TONE DETECTION	(BASE UNIT) TIP - PO101 - L101 └ RING ——— L102 └ D103 - Q103 - C108 - R129 - C115 - C126 - R144 - C127 - R145 - IC301 (38)
Call ID DETECTION	TIP - PO101 - L101 - R139 - C123 - L313 - IC301 (41)

16 BLOCK DIAGRAM (HANDSET)



17 CIRCUIT OPERATION (HANDSET)

17.1. Outline

Handset consist of the following ICs as shown in BLOCK DIAGRAM.

- CPU: IC601
 - All data signals (forming/analyzing ACK or CMD signal*)
 - All interfaces (ex; LED, Key, Buzzer, Detector Circuit, Charge, Battery Low)
- RF IC:IC801
 - PLL Oscillator
 - Detector
 - Compress/Expander
 - first, second mixer
 - Amplifier for transmission and reception

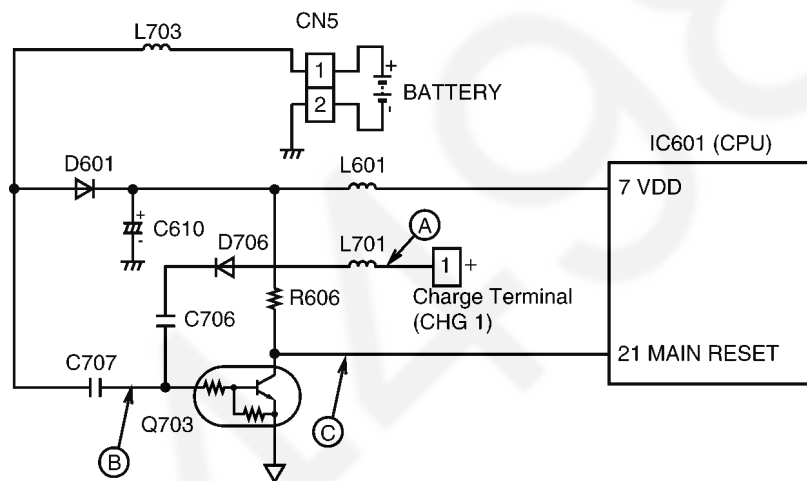
*Refer to **EXPLANATION OF CPU DATA COMMUNICATION** (P.44).

17.2. Reset Circuit/Charge Circuit

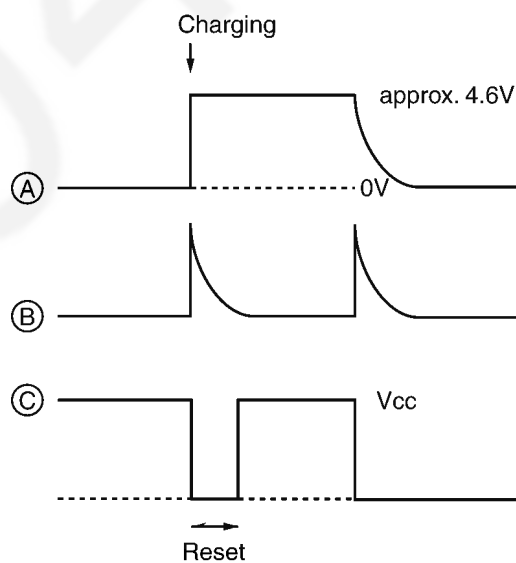
The power of handset is supplied by battery.

Whenever the battery is recharged, the impulse at CHG1 becomes Reset signal through Q703, and sent to CPU.

*Refer to **Charge Circuit** (P.51).



<Fig. 201>

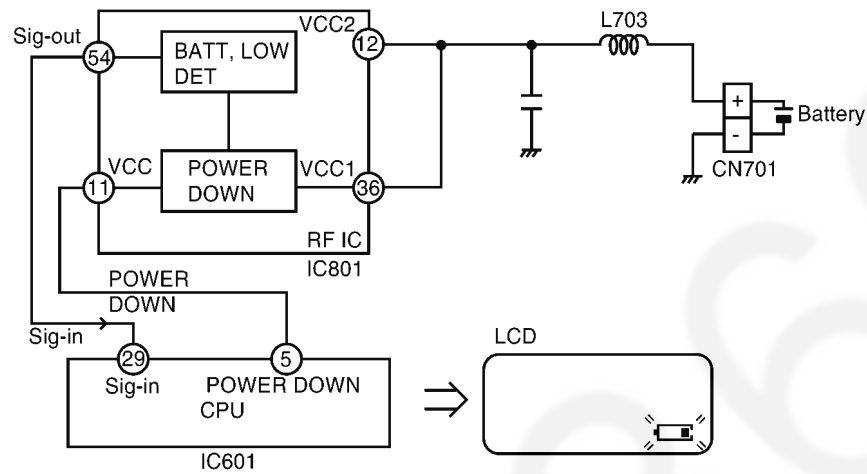


<Fig. 202>

17.3. Battery Low Detector Circuit

Circuit Operation:

When the battery voltage goes down less than 3.57 V, this level is detected by the inside of RF IC (SIG-IN). The CPU detects this level and "🔋: Recharge battery" starts flashing. The RF IC check the level of the battery, if this level is less than 3.3 V, the output of RF IC (P-DOWN) becomes low level, then CPU stops working to keep memory.



<Fig. 203>

18 CPU (DSP) DATA (BASE UNIT)

18.1. IC301

Pin	Description	I/O	High	Hi-z	Low
1	COM1	DO	-	-	-
2	SEG3	DO	-	-	-
3	SEG4	DO	-	-	-
4	SEG5	DO	-	-	-
5	SEG6	DO	-	-	-
6	SEG7	DO	-	-	-
7	SEG8	DO	-	-	-
8	SEG9	DO	-	-	-
9	SEG10	DO	-	-	-
10	SEG11	DO	-	-	-
11	SEG12	DO	-	-	-
12	POWER SUPPLY	-	-	-	-
13	GND	-	-	-	-
14	TX-POWER CONT	DO	Low_Pow	-	Hi_Pow
15	USE-CONT	DO	-	-	-
16	NC	DO	-	-	-
17	NC	DO	-	-	-
18	NC	DO	-	-	-
19	CHARGE	DO	No Charge	-	Charge
20	LINE-DC-TEC	DO	-	-	-
21	PLL_EN	DO	Latch	-	Normal
22	PLL_DATA	DO	Data	-	Normal
23	PLL_CLOCK	DO	Clock	-	Normal
24	SIG_OUT	DI	Weak	-	Strong
25	TX-POWER	DO	off	-	on
26	NC	DO	-	-	-
27	LEVEL_CONT	DO	-	-	-
28	GND	-	-	-	-
29	LINE1_DTC	DO	-	-	-
30	LINE2_DTC	DO	-	-	-
31	ANALOG GND	-	-	-	-
32	SP+ OUTPUT	AO	-	-	-
33	SP - OUTPUT	AO	-	-	-
34	SP AMP POWER SUPPLY	-	-	-	-
35	CDL-OUT	AO	-	-	-
36	L-OUT	AO	-	-	-
37	ANALOG POWER SUPPLY	-	-	-	-
38	LINE INPUT	AI	-	-	-
39	LINE INPUT AMP OUTPUT	AI	-	-	-
40	DC LEVEL DETECTION	AI	-	-	-
41	C-ID INPUT	AI	-	-	-
42	C-ID INPUT	AI	-	-	-
43	C-ID AMP OUTPUT	AO	-	-	-
44	CDL INPUT	AI	-	-	-
45	CDL INPUT AMP OUTPUT	AO	-	-	-
46	GND	-	-	-	-
47	MIC INPUT	AI	-	-	-
48	MIC INPUT	AI	-	-	-
49	1/2 VDD OUTPUT	-	-	-	-
50	GND	-	-	-	-

Pin	Description	I/O	High	Hi-z	Low
51	PLL POWER SUPPLY	-	-	-	-
52	RTC POWER SUPPLY	-	-	-	-
53	OSCILLATOR X-OUT	AO	-	-	-
54	OSCILLATOR X-IN	AI	-	-	-
55	GND	-	-	-	-
56	RESET	DI	Normal	-	Reset
57	PDN (Power Down)	DI	Normal	-	Pdn
58	GP_CE (FLASH)	DO	-	-	-
59	GP_RXDATA	DI	Data	-	Data
60	U-ART RX	DI	Data	-	Normal
61	GP_ALE (FLASH)	DO	-	-	-
62	GP_CLE (FLASH)	DO	-	-	-
63	GP_FLASH2	DO	-	-	-
64	GP_BELL	DI	None	-	Bell
65	GP_USELED	DO	-	off	on
66	GP_SPLED	DO	-	off	on
67	GP_CIDLED	DO	-	off	on
68	GP_STB0	DO	Active	Normal	-
69	GP_STB1	DO	Active	Normal	-
70	GP_STB2	DO	Active	Normal	-
71	GP_STB3	DO	Active	Normal	-
72	GP_STB4	DO	Active	Normal	-
73	GP_STB5	DO	Active	Normal	-
74	GND	-	-	-	-
75	VDD	-	-	-	-
76	CD_KEYIN0	DI	Key in	-	None
77	CD_KEYIN1	DI	Key in	-	None
78	CD_KEYIN2	DI	Key in	-	None
79	CD_KEYIN3	DI	Key in	-	None
80	CD_KEYIN4	DI	Key in	-	None
81	CD_KEYIN5	DI	Key in	-	None
82	CD_ANSWERLED	DO	on	-	off
83	CD_WP	DO	None	-	WP
84	CD_IO7	DO	Data	-	Data
85	CD_IO6	DO	Data	-	Data
86	CD_IO5	DO	Data	-	Data
87	CD_IO4	DO	Data	-	Data
88	CD_IO3	DO	Data	-	Data
89	CD_IO2	DO	Data	-	Data
90	CD_IO1	DO	Data	-	Data
91	CD_IO0	DO	Data	-	Data
92	GND	-	-	-	-
93	VDD	-	-	-	-
94	DRDN	DO	None	-	RE
95	DWRN	DO	None	-	WE
96	U-ART TX	DO	Data	-	Normal
97	TXDATA	DO	Active	-	Normal
98	LINE SZ	DO	on	-	off
99	RLY	DO	on	-	off
100	COM1	DO	-	-	-

19 CPU (DSP) DATA (HANDSET)

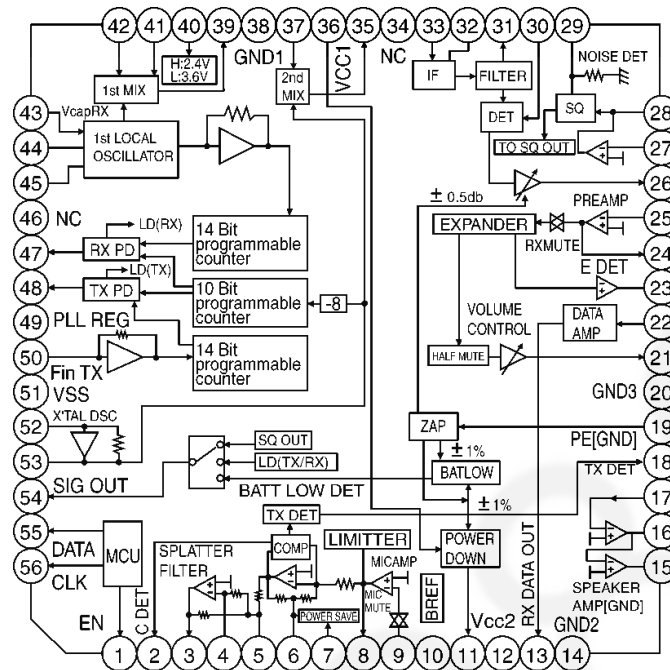
19.1. IC601

Pin	Description	I/O	High	Hi-z	Low
1	KEY_IN	D.I	None	-	Key in
2	TEST_PIN	D.I	Normal	-	Test
3	(NO USE)	D.I	-	-	(Fixed)
4	(NO USE)	D.I	-	-	(Fixed)
5	POW DOWN	D.I	Powered	-	Power Down
6	VREF+	-	-	-	-
7	VDD	-	-	-	-
8	Main clock	A.O	-	-	-
9	Main clock	A.I	-	-	-
10	VSS	-	-	-	-
11	Sub clock	A.I	-	-	-
12	Sub clock	A.O	-	-	-
13	MMOD	D.I	-	-	-
14	(NO Use)	D.O	-	-	(Fixed)
15	(NO Use)	D.I	-	-	(Fixed)
16	(NO USE)	D.O	-	-	(Fixed)
17	PLL DATA	D.O	Data Out	-	Normal
18	(NO USE)	D.O	-	-	(Fixed)
19	PLL CLK	D.O	Clock Out	-	Normal
20	BEEP	D.O	Normal	-	Beep Out
21	RESET	D.I	Normal	-	Reset
22	PLL EN	D.O	Latch	-	Normal
23	(NO USE)	D.O	-	-	(Fixed)
24	(NO USE)	D.O	-	-	(Fixed)
25	(NO USE)	D.O	-	-	(Fixed)
26	TX POW CTL	D.O	Down	-	Normal
27	RX DATA	D.I	DATA	-	DATA
28	Test Data In	D.I	DATA	-	DATA
29	SIG IN	D.I	Weak	-	Strong
30	CHARGE DET	D.I	Off Charge	-	On Charge
31	(NO USE)	D.I	-	-	(Fixed)
32	BACK LIGHT	D.I	ON	-	OFF

Pin	Description	I/O	High	Hi-z	Low
33	TX DATA	D.O	Active	-	Active
34	POWER SAVE	D.O	On	-	Off
35	BEEP CTL	D.O	Low	-	High
36	TX POWER	D.O	Off	-	On
37	DB4	D.O	Active	-	Active
38	DB5	D.O	Active	-	Active
39	DB6	D.O	Active	-	Active
40	DB7	D.O	Active	-	Active
41	LCD CBS	D.O	Data	-	Instruction
42	LCD E_RD	D.O	Read	-	Write
43	LCD W/R	D.O	Clock	-	Clock
44	LCD R/S	D.O	-	-	Select
45	LCD POWER	D.O	OFF	-	ON
46	LCD RES	D.O	Normal	-	Reset
47	CHARGE CTL	D.O/I	Trickle	-	Normal
48	OPT STB	D.O/I	-	Active	Active
49	OPT STB	D.O/I	-	Active	Active
50	OPT STB	D.O/I	-	Active	Active
51	OPT STB	D.O/I	-	Active	Active
52	KEY STB	D.I/O	-	Active	Active
53	KEY STB	D.I/O	-	Active	Active
54	KEY STB	D.I/O	-	Active	Active
55	KEY STB	D.I/O	-	Active	Active
56	KEY STB	D.I/O	-	Active	Active
57	Lighted LED	D.I/O	-	LED OFF	LED ON
58	Lighted LED	D.I/O	-	LED OFF	LED ON
59	Lighted LED	D.I/O	-	LED OFF	LED ON
60	Lighted LED	D.I/O	-	LED OFF	LED ON
61	VREF-	-	-	-	-
62	KEY_IN	D.I	None	-	Key in
63	KEY_IN	D.I	None	-	Key in
64	KEY_IN	D.I	None	-	Key in

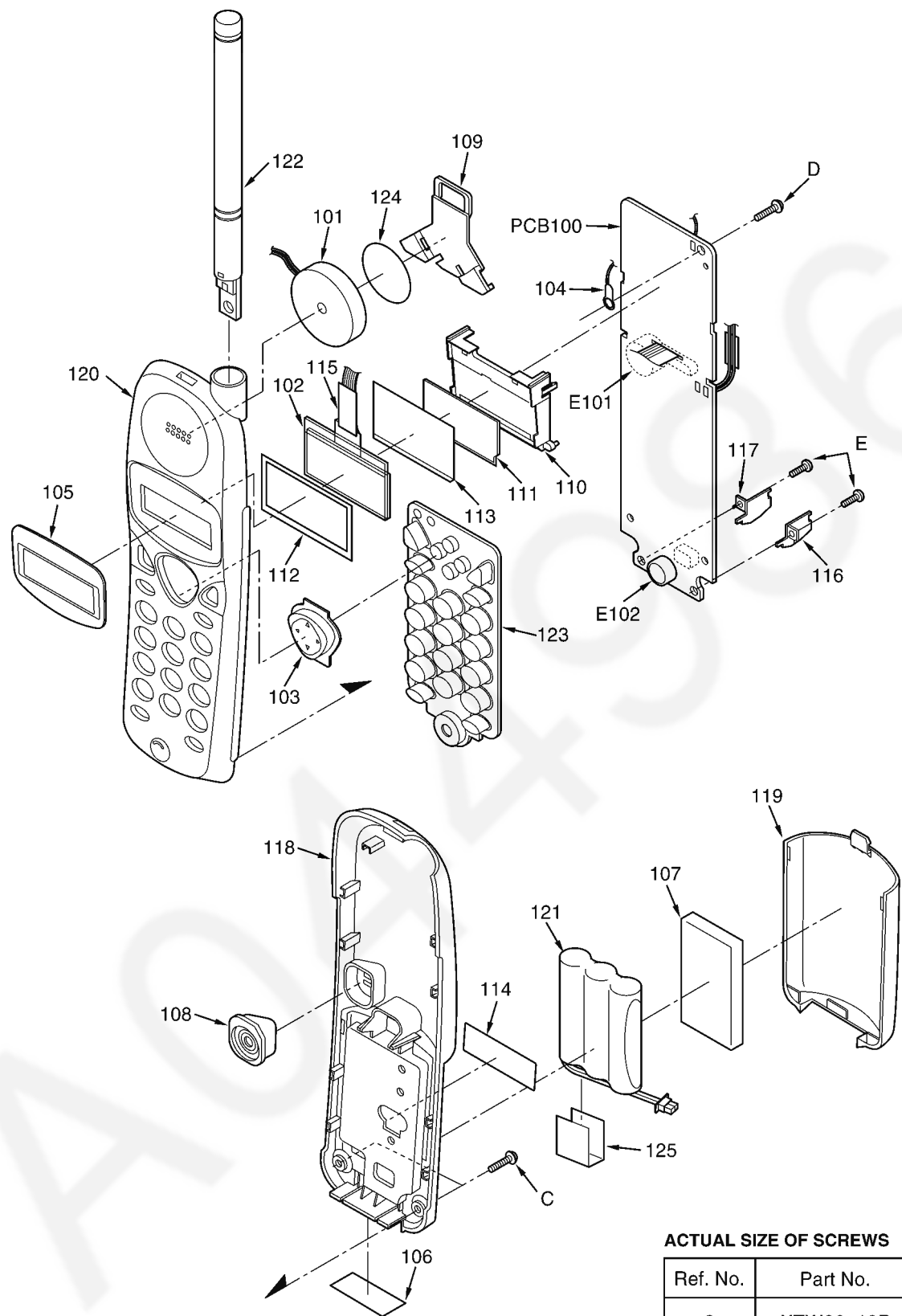
20 EXPLANATION OF IC TERMINALS

20.1. Handset: IC801

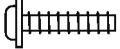
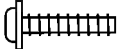
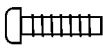


Pin. No.	Description	Pin. No.	Description
1	EN	29	N-DET
2	C-DET	30	QUAD
3	SF-OUT	31	PH-OUT
4	SF-P	32	IF-PASS
5	COMP-OUT	33	IF-IN
6	COMP-REF	34	IF-VREF
7	PD IN	35	2MIX-OUT
8	MIC-OUT	36	VCC 1
9	MIC-IN	37	2MIX-IN
10	BREF	38	GND 1
11	PD OUT	39	1MIX-OUT
12	VCC 2	40	PDSW
13	DATA-AMP-OUT	41	RF-IN2
14	GND 2	42	RF-IN1
15	SP-OUT2	43	VA-CONT
16	SP-OUT1	44	1st-Lo1
17	SP-IN	45	1st-Lo2
18	TX-DET	46	NC
19	PE	47	RX-PD
20	GND 3	48	TX-PD
21	VOL OUT	49	PLL-REG
22	DATA-AMP-IN	50	F IN TX
23	E-DET	51	VSS
24	Pre-AMP-OUT	52	2Lo-IN
25	Pre-AMP-IN	53	2Lo-OUT
26	DET-OUT	54	Sig-Out
27	N FIL-IN	55	DATA
28	N FIL-OUT	56	CLK

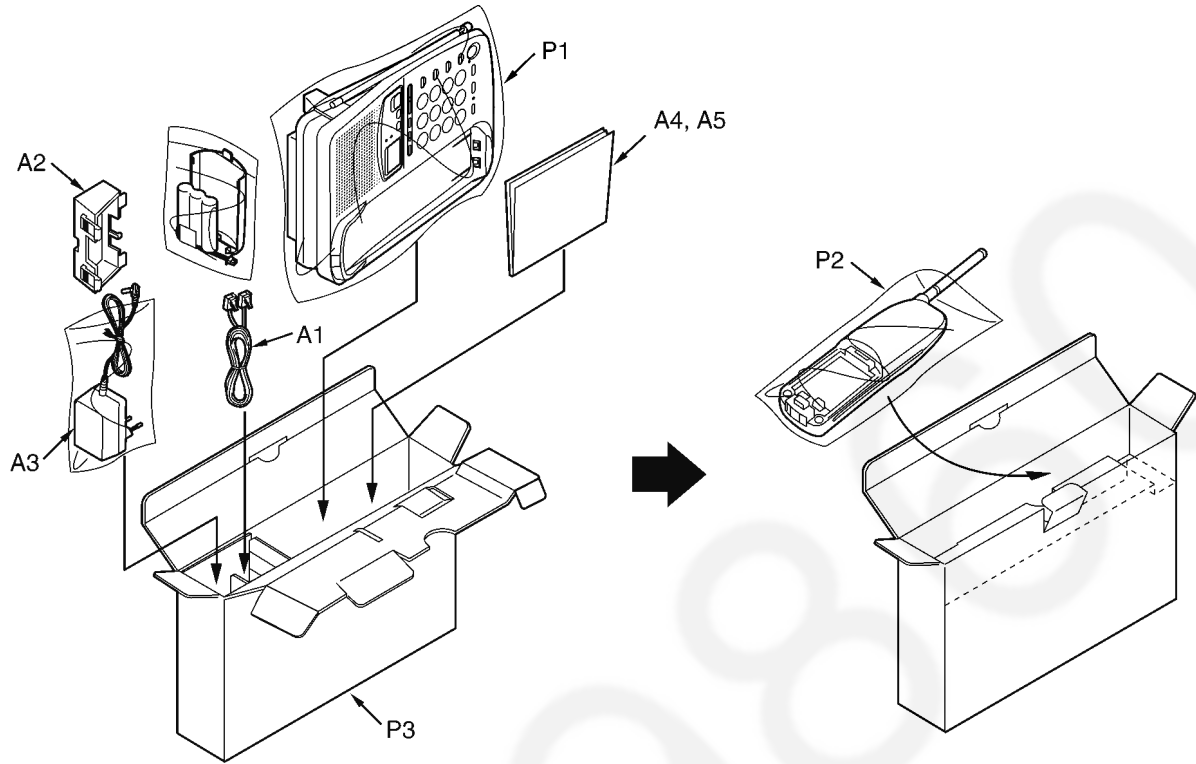
22 CABINET AND ELECTRICAL PARTS LOCATION
(HANDSET)



ACTUAL SIZE OF SCREWS

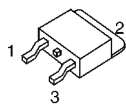
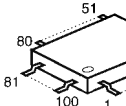
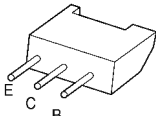
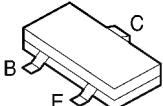
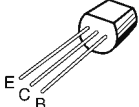
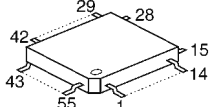
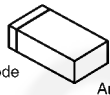
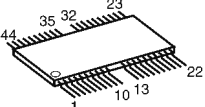
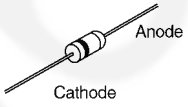
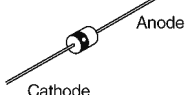
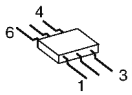
Ref. No.	Part No.	Screw
C	XTW26+12P	
D	XTW26+12P	
F	XTW26+10J	

23 ACCESSORIES AND PACKING MATERIALS

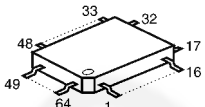
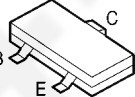
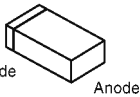
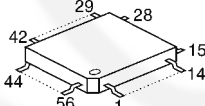
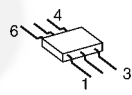
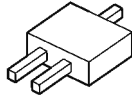


24 TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

24.1. Base Unit

 PQVIBA78M08F	 C2HBBH000035	 2SD1994A	 UN5113, 2SD1819A,2SD601A PQVTMSC2295C PQVT143XK146, PQVTD123T146	
 2SC2120 2SA1972 PQVT2N6517CA	 AN6266FA	 PQVDS1ZB60F1	 MA111, MA8180, MA8062 MA8051, MA728 PQVDHVC375	
 PQWIC1232JXH	 MA153	 C0EBJ0000105	 PQVDEL1921SR PQVDSML310MT	 MA4180,MA4033 MA4300,MA4062
 PQVDS5688G	 PQVITK14620M			

24.2. Handset

 MN101C30AKE	 UN5113,2SB1218A PQVTDTC143E PQVT143XK146 PQVTD123T146		 MA2S111 PQVDHRU0203A MA2SV01001KU	 PQVDSML310MT
 AN6265FA	 PQVITK14620M	 2SD1664Q		

25 REPLACEMENT PARTS LIST

This replacement parts list is KX-TC1232JXB only.

1. RTL (Retention Time Limited)

Note:

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly 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 indicates service standard parts and may differ from production parts.

4. 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 F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

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

Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCBC : Ceramic
EQQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
EQCMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V	
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V	
2E:250V	2:200V	1V:35V	1C :16V	1J :63V	
2H:500V		0J:6.3V	1E,25:25V	2A :100V	

25.1. Base Unit

25.1.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	L5DCBCB00005	LIQUID CRYSTAL DISPLAY	
2	PQAS57P03Y	SPEAKER	
3	PQGP10188Z1	LCD PANEL	S
4	PQGT14663Z	NAME LABEL	
5	PQHR10871Z	LCD HOLDER	
6	PQHS10327Z	LCD TAPE	
7	PQKE10131Z3	HOOK LEVER	S
8	PQKE10134Z1	HOOK KNOB	S

Ref. No.	Part No.	Part Name & Description	Remarks
9	PQKM10501Z1	UPPER CABINET	S
10	PQQT22258Y	TAM LABEL	
11	PQSA10092Y	ANTENNA	
12	PQSX10183Z	RUBBER SWITCH, 20KEY	
13	PQSX10184Z	RUBBER SWITCH, TAM KEY	
14	PQUS10285Z	HOOK SPRING	
15	PQWE10025Z	CHARGE TERMINAL	
16	PQYF10201Z1	LOWER CABINET	S

25.1.2. MAIN P.C.BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWPC1232JXH	MAIN P.C.BOARD ASS'Y (RTL) (ICS)	
IC301	C2HBBH000035	IC	
IC302	C0EBJ0000105	IC	
IC304	PQWIC1232JXH	IC	
IC401	AN6266FA	IC	
IC501	PQVITK14620M	IC	S
REG201	PQVIBA78M08F	IC	S
		(TRANSISTORS)	
Q103	2SA1972	TRANSISTOR(SI)	S
Q104	PQVT2N6517CA	TRANSISTOR(SI)	S
Q110	2SC2120	TRANSISTOR(SI)	
Q111	2SD1819A	TRANSISTOR(SI)	S
Q112	2SD1819A	TRANSISTOR(SI)	S
Q201	2SD1994A	TRANSISTOR(SI)	
Q202	2SD1819A	TRANSISTOR(SI)	S
Q203	2SD601A	TRANSISTOR(SI)	
Q204	UN5113	TRANSISTOR(SI)	S
Q301	2SD1819A	TRANSISTOR(SI)	S
Q302	PQVT143XK146	TRANSISTOR(SI)	S
Q501	PQVTD123T146	TRANSISTOR(SI)	S
Q502	PQVTMSC2295C	TRANSISTOR(SI)	S
Q503	PQVTD123T146	TRANSISTOR(SI)	S
		(DIODES)	
D103	PQVDS1ZB60F1	DIODE(SI)	
D104	MA4180	DIODE(SI)	
D105	MA153	DIODE(SI)	
D106	MA153	DIODE(SI)	
D109	MA4033	DIODE(SI)	
D201	MA4300	DIODE(SI)	
D202	MA4062	DIODE(SI)	
D203	PQVDS5688G	DIODE(SI)	S
D204	MA111	DIODE(SI)	
D205	PQVDS5688G	DIODE(SI)	S
D206	MA8180	DIODE(SI)	
D207	MA8180	DIODE(SI)	
D210	MA4062	DIODE(SI)	
D301	MA8051	DIODE(SI)	
D302	MA8051	DIODE(SI)	
D303	MA111	DIODE(SI)	
D304	MA111	DIODE(SI)	
D305	MA8062	DIODE(SI)	
D306	MA111	DIODE(SI)	
D308	MA728	DIODE(SI)	
D401	MA111	DIODE(SI)	
VD501	PQVDHVC375	DIODE(SI)	S
		(LEDS)	
LED301	PQVDSML310MT	LED	S
LED302	PQVDEL1921SR	LED	
LED303	PQVDEL1921SR	LED	
LED304	PQVDEL1921SR	LED	
		(COILS)	
L101	PQLQXF330K	COIL	S
L102	PQLQXF330K	COIL	S
L201	PQLQXF100K	COIL	S
L202	PQLQXF100K	COIL	S
L203	PQLQZM100K	COIL	S
L204	PQLQZM100K	COIL	S
L301	PQLQR2KA213	COIL	S
L304	PQLQR2KA213	COIL	S

Ref. No.	Part No.	Part Name & Description	Remarks
L306	PQLQR1RS102	COIL	S
L307	PQLQR1RS102	COIL	S
L308	PQLQR1RS102	COIL	S
L309	PQLQR1RS102	COIL	S
L311	PQLQR2KA213	COIL	S
L312	PQLQR1RS102	COIL	S
L313	PQLQR1RS102	COIL	S
L314	PQLQR1RS102	COIL	S
L316	PQLQR1RS102	COIL	S
L321	PQLQR1RS102	COIL	S
L322	PQLQR1RS102	COIL	S
L325	PQLQR1RS102	COIL	S
L326	PQLQR1RS102	COIL	S
L401	PQLQZK1R2K	COIL	S
L403	PQLQZKR22K	COIL	S
T401	PQL04B002	COIL	
T501	PQL04B001	COIL	
T502	PQLA7A9	COIL	S
		(CERAMIC FILTERS)	
CF401	PQVFCFS107MT	CERAMIC FILTER	S
CF402	PQVFCFH455F1	CERAMIC FILTER	S
		(CRYSTAL OSCILLATORS)	
X301	PQVCK4096N9Z	CRYSTAL OSCILLATOR	S
X401	H0D102500025	CRYSTAL OSCILLATOR	
		(DUPLEXES)	
DUP401	ELB6A004	DUPLEX	
DUP501	ELB6F026	DUPLEX	
		(RESISTOR ARRAYS)	
RA301	EXRV8V221JV	RESISTOR ARRAY	
RA303	EXRV8V104JV	RESISTOR ARRAY	
LA2	EXRV8V000	RESISTOR ARRAY	
LA3	EXRV8V000	RESISTOR ARRAY	
LA4	EXRV8V000	RESISTOR ARRAY	
LA8	EXRV8V000	RESISTOR ARRAY	
LA9	EXRV8V000	RESISTOR ARRAY	
LA10	EXRV8V000	RESISTOR ARRAY	
		(SURGE ABSORBERS)	
SA101	PQVDDSS301L	SURGE ABSORBER	S
SA102	PQVDDSS301L	SURGE ABSORBER	S
		(OTHERS)	
CN1	PQJJ2H003Z	JACK SOCKET	S
E1	PQJM122Z	MICROPHONE	
E2	PQM610023Z	CUSHION RUBBER, MIC	
VOL401	EVN5ESX50B24	VARIABLE RESISTOR	
VOL402	EVN5ESX50B24	VARIABLE RESISTOR	
		(RESISTORS)	
R106	PQ4R10XJ104	100k	S
R107	PQ4R10XJ472	4.7k	S
R108	ERJ3GEYJ104	100k	
R109	ERJ3GEYJ472	4.7k	
R119	PQ4R10XJ123	12k	S
R120	PQ4R10XJ393	39k	S
R121	PQ4R10XJ000	0	S
R122	PQ4R10XJ102	1k	S
R124	PQ4R10XJ223	22k	S
R126	ERDS1TJ330	33	S
R127	ERJ3GEYJ821	820	
R129	ERJ3GEY0R00	0	
R130	ERJ3GEYJ820	82	
R131	ERJ3GEYJ222	2.2k	
R132	ERJ3GEYJ103	10k	
R133	PQ4R10XJ104	100k	S
R134	PQ4R10XJ104	100k	S
R135	PQ4R10XJ472	4.7k	S
R136	ERJ3GEYJ473	47k	
R137	ERJ3GEYJ333	33k	
R138	PQ4R10XJ104	100k	S
R139	PQ4R10XJ104	100k	S
R140	ERJ3GEYJ332	3.3k	
R141	ERJ3GEYJ223	22k	
R142	ERJ3GEYJ471	470	
R143	ERJ3GEYJ105	1M	
R144	ERJ3GEYJ332	3.3k	

Ref. No.	Part No.	Part Name & Description	Remarks
R145	ERJ3GEYJ222	2.2k	
R201	ERDS2TJ271	270	
R202	ERJ3GEYJ334	330k	
R203	ERJ3GEYJ104	100k	
R204	ERDS2TJ390	39	
R205	ERJ3GEYJ103	10k	
R206	ERJ3GEYJ182	1.8k	
R207	ERJ3GEYJ563	56k	
R209	ERJ3GEYJ104	100k	
R301	ERJ3GEYJ224	220k	
R303	ERJ3GEYJ683	68k	
R304	ERJ3GEYJ102	1k	
R305	ERJ3GEYJ332	3.3k	
R306	ERJ3GEYJ102	1k	
R307	ERJ3GEY0R00	0	
R308	ERJ3GEYJ391	390	
R309	ERJ3GEYJ392	3.9k	
R310	ERJ3GEYJ564	560k	
R311	ERJ3GEYJ473	47k	
R312	ERJ3GEYJ474	470k	
R313	ERJ3GEYJ103	10k	
R315	ERJ3GEYJ105	1M	
R316	ERJ3GEY0R00	0	
R321	ERJ3GEYJ102	1k	
R322	ERJ3GEYJ681	680	
R323	ERJ3GEYJ681	680	
R324	ERJ3GEYJ681	680	
R325	ERJ3GEYJ122	1.2k	
R326	ERJ3GEYJ221	220	
R327	ERJ3GEYJ221	220	
R334	ERJ3GEYJ104	100k	
R335	ERJ3GEYJ104	100k	
R338	ERJ3GEYJ104	100k	
R339	ERJ3GEYJ472	4.7k	
R340	ERJ3GEYJ472	4.7k	
R341	ERJ3GEYJ472	4.7k	
R342	ERJ3GEYJ104	100k	
R343	ERJ3GEY0R00	0	
R344	ERJ3GEY0R00	0	
R345	ERJ3GEYJ473	47k	
R401	ERJ3GEYJ394	390k	
R402	ERJ3GEYJ392	3.9k	
R403	ERJ3GEYJ223	22k	
R404	ERJ3GEY0R00	0	
R405	ERJ3GEYJ333	33k	
R406	ERJ3GEYJ103	10k	
R407	ERJ3GEYJ103	10k	
R408	ERJ3GEY0R00	0	
R409	ERJ3GEYJ153	15k	
R410	ERJ3GEYJ223	22k	
R411	ERJ3GEYJ223	22k	
R412	ERJ3GEYJ223	22k	
R413	ERJ3GEYJ223	22k	
R414	ERJ3GEYJ222	2.2k	
R416	ERJ3GEY0R00	0	
R417	ERJ3GEYJ682	6.8k	
R418	ERJ3GEY0R00	0	
R419	ERJ3GEYJ103	10k	
R420	ERJ3GEYJ103	10k	
R421	ERJ3GEYJ222	2.2k	
R422	ERJ3GEYJ682	6.8k	
R423	ERJ3GEY0R00	0	
R424	ERJ3GEYJ103	10k	
R425	ERJ3GEYJ103	10k	
R427	ERJ3GEY0R00	0	
R428	ERJ3GEYJ331	330	
R429	ERJ3GEY0R00	0	
R432	ERJ3GEYJ680	68	
R501	ERJ3GEYJ274	270k	
R502	ERJ3GEYJ823	82k	
R503	ERJ3GEYJ473	47k	
R504	ERJ3GEYJ223	22k	
R505	ERJ3GEYJ104	100k	

Ref. No.	Part No.	Part Name & Description	Remarks
R506	ERJ3GEYJ102	1k	
R507	ERJ3GEYJ101	100	
R508	ERJ3GEYJ101	100	
R509	ERJ3GEYJ222	2.2k	
R511	ERJ3GEYJ153	15k	
R512	ERJ3GEYJ100	10	
R515	ERJ3GEYJ103	10k	
R516	ERJ3GEYJ124	120k	
R517	ERJ3GEYJ100	10	
C453	ERJ3GEY0R00	0	
C459	ERJ3GEY0R00	0	
D108	PQ4R10XJ000	0	S
D309	PQ4R10XJ000	0	S
L305	ERJ3GEY0R00	0	
		(CAPACITORS)	
C101	ECKD2H681KB	680P	S
C103	ECKD2H681KB	680P	S
C104	ECKD2H681KB	680P	S
C107	PQCUV1H472KB	0.0047	
C109	PQCUV1H103KB	0.01	
C111	ECEA1HU100	10	S
C112	ECUV1H101JCV	100P	
C113	ECUV1H103KBV	0.01	
C114	ECEA1HU100	10	S
C115	ECUV1C563KBV	0.056	
C116	ECUV1H102KBV	0.001	
C117	ECUV1C104KBV	0.1	
C118	PQCUV1H154KR	0.15	
C119	PQCUV1H154KR	0.15	
C120	PQCUV1C474KB	0.47	
C121	ECUV1E333KBV	0.033	
C122	PQCUV1H681JC	680P	S
C123	PQCUV1H681JC	680P	S
C125	ECUV1A105ZFV	1	
C126	ECUV1A105ZFV	1	
C127	ECUV1A105ZFV	1	
C134	ECEA1HU100	10	S
C137	ECUV1C153KBV	0.15	
C201	PQCUV1H102J	0.001	S
C202	PQCUV1C105ZF	1	
C204	PQCUV1C105ZF	1	
C205	ECEA1CSW100B	10	
C206	ECEA1EU101	100	S
C207	ECEA1AU221	220	S
C211	ECUV1A105ZFV	1	
C212	ECUV1A105ZFV	1	
C213	ECUV1H103KBV	0.01	
C301	ECEA0JU102	1000	
C302	ECUV1E104ZFV	0.1	
C305	ECEA1AU101	100	S
C306	ECUV1E104ZFV	0.1	
C307	ECUV1H151JCV	150P	
C308	ECUV1H681JCV	680P	S
C309	ECUV1H331JCV	330P	
C310	ECEA0JSW101B	100	
C311	ECUV1H271JCV	270P	
C312	ECUV1C104KBV	0.1	
C313	ECUV1C104KBV	0.1	
C314	ECUV1H103KBV	0.01	
C315	ECUV1A105ZFV	1	
C316	ECUV1A105ZFV	1	
C317	ECEA1AU101	100	S
C318	ECUV1E104ZFV	0.1	
C319	ECUV1E104ZFV	0.1	
C320	ECUV1H100DCV	10P	
C321	ECUV1H100DCV	10P	
C322	ECUV1E104ZFV	0.1	
C323	ECUV1H102KBV	0.001	
C324	ECUV1E104ZFV	0.1	
C325	ECUV1E104ZFV	0.1	
C326	ECUV1E104ZFV	0.1	
C328	ECUV1E104ZFV	0.1	
C329	ECUV1E104ZFV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C330	ECUV1H101JCV	100P	
C331	ECUV1H101JCV	100P	
C332	ECUV1H101JCV	100P	
C333	ECUV1H101JCV	100P	
C334	ECUV1H101JCV	100P	
C335	ECUV1H101JCV	100P	
C336	ECUV1H101JCV	100P	
C337	ECUV1H101JCV	100P	
C338	ECUV1H101JCV	100P	
C339	ECUV1H101JCV	100P	
C340	ECUV1H101JCV	100P	
C341	ECUV1H101JCV	100P	
C342	ECUV1E104ZFV	0.1	
C343	PQCUV1C224KB	0.22	
C401	ECUV1H121JCV	120P	
C402	ECUV1H121JCV	120P	
C403	ECUV1C104KBV	0.1	
C404	ECUV1H332KBV	0.0033	
C406	ECUV1H472KBV	0.0047	
C407	ECUV1C104KBV	0.1	
C408	ECUV1C104KBV	0.1	
C409	ECUV1C473KBV	0.047	
C410	ECUV1C104KBV	0.1	
C411	ECUV1C683KBV	0.068	
C412	ECUV1A224KBV	0.22	
C413	ECUV1H472KBV	0.0047	
C414	ECUV1H681JCV	680P	S
C415	ECUV1C104KBV	0.1	
C416	ECUV1A224KBV	0.22	
C417	ECUV1C104KBV	0.1	
C419	ECUV1C683KBV	0.068	
C420	ECEA1EU470	47	S
C421	ECUV1E104ZFV	0.1	
C422	ECUV1E104ZFV	0.1	
C423	ECUV1H222KBV	0.0022	
C425	ECUV1C104KBV	0.1	
C426	ECUV1H332KBV	0.0033	
C427	ECUV1H680JCV	68P	
C429	ECUV1C104KBV	0.1	
C430	ECUV1H430GCV	43P	
C431	ECUV1H270GCV	27P	
C432	ECUV1H103KBV	0.01	
C433	ECEA1CSW100B	10	
C435	ECEA1HSW4R7B	4.7	
C437	PQCUV1C224KB	0.22	
C439	ECUV1H180JCV	18P	
C440	ECUV1H103KBV	0.01	
C441	ECUV1H103KBV	0.01	
C442	ECUV1E104ZFV	0.1	
C443	ECUV1C104KBV	0.1	
C445	ECUV1C104KBV	0.1	
C446	ECUV1E104ZFV	0.1	
C447	ECUV1E104ZFV	0.1	
C448	ECUV1E104ZFV	0.1	
C449	ECUV1H680JCV	68P	
C450	ECUV1C104KBV	0.1	
C451	ECEA1CSW100B	10	
C452	ECKERS102MB	0.001	
C454	ECUV1H103KBV	0.01	
C455	ECUV1H103KBV	0.01	
C502	ECUV1C104KBV	0.1	
C503	ECUV1C104KBV	0.1	
C504	ECUV1E104ZFV	0.1	
C505	ECUV1H681JCV	680P	
C506	ECUV1H150JCV	15P	
C507	ECUV1H330JCV	33P	
C508	ECUV1H103KBV	0.01	
C509	ECUV1H220JCV	22P	
C511	ECUV1H103KBV	0.01	
C513	ECUV1H103KBV	0.01	
C514	ECUV1H103KBV	0.01	
C516	ECUV1H103KBV	0.01	
C517	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C518	ECUV1H103KBV	0.01	
C519	ECUV1H103KBV	0.01	
C520	ECUV1H103KBV	0.01	
C522	ECUV1E104ZV	0.1	

25.2. Handset

25.2.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
101	L0AD02A00012	SPEAKER	
102	L5DCBDC00004	LIQUID CRYSTAL DISPLAY	
103	PQBC10346Z1	NAVIGATOR BUTTON	S
104	PQFJ4Z	EARTH TERMINAL	
105	PQGP10189Z1	LCD PANEL	S
106	PQGT14669Z	NAME LABEL	
107	PQHE10119Z	CUSHION URETHANE FORM	
108	PQHG10632Y	RINGER RUBBER	
109	PQHR10872Z	RECEIVER HOLDER	
110	PQHR10873Z	LCD HOLDER	
111	PQHR10889Z	LCD PLATE	
112	PQHS10470Z	CUSHION LCD	
113	PQHX10891Z	LCD COVER SHEET	
114	PQHX11034Z	SHEET PET	
115	PQHX11082Z	SHEET PET	
116	PQJT10178Z	CHARGE TERMINAL (L)	
117	PQJT10179Z	CHARGE TERMINAL (R)	
118	PQKF10528W1	REAR CABINET	S
119	PQKK10122W1	BATTERY COVER	S
120	PQKM10502M1	FRONT CABINET	
121	PQP102SVC	BATTERY	
122	PQSA10122X	ANTENNA	
123	PQSX10185Z	RUBBER SWITCH	
124	PQHS10513Z	SPACER	
125	PQHX11086Z	PET SHEET	

25.2.2. MAIN P.C.BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWPC1232JXR	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICS)	
IC601	MN101C30AKE	IC	
IC801	AN6265FA	IC	
IC901	PQVITK14620M	IC	S
		(TRANSISTORS)	
Q601	PQVTDTC143E	TRANSISTOR(SI)	S
Q602	2SB1218A	TRANSISTOR(SI)	
Q701	2SD1664Q	TRANSISTOR(SI)	S
Q702	PQVT143XK146	TRANSISTOR(SI)	S
Q703	PQVT143XK146	TRANSISTOR(SI)	S
Q704	PQVTD123T146	TRANSISTOR(SI)	S
Q705	PQVTD123T146	TRANSISTOR(SI)	S
Q706	UN5113	TRANSISTOR(SI)	S
Q901	PQVTD123T146	TRANSISTOR(SI)	S
Q902	PQVTD123T146	TRANSISTOR(SI)	S
		(DIODES)	
D601	PQVDHRU0203A	DIODE(SI)	S
D602	MA2S111	DIODE(SI)	
D701	MA2S111	DIODE(SI)	
D702	MA2S111	DIODE(SI)	
D706	MA2S111	DIODE(SI)	
D707	MA2S111	DIODE(SI)	
D708	MA2S111	DIODE(SI)	
D709	MA2S111	DIODE(SI)	
DH	MA2S111	DIODE(SI)	
DJ	MA2S111	DIODE(SI)	
VD901	MA2SV01001KU	DIODE(SI)	
		(LEDs)	
LED601	PQVDSML310MT	LED	S

Ref. No.	Part No.	Part Name & Description	Remarks
LED602	PQVDSML310MT	LED	S
LED603	PQVDSML310MT	LED	S
LED604	PQVDSML310MT	LED	S
LED605	PQVDSML310MT	LED	S
LED606	PQVDSML310MT	LED	S
LED607	PQVDSML310MT	LED	S
		(CERAMIC FILTERS)	
CF801	PQVFCFS107MT	CERAMIC FILTER	S
CF802	PQVFLTM455FW	CERAMIC FILTER	
		(COILS)	
L601	PQLQR3ER68K	COIL	S
L701	PQLQR1RS102	COIL	S
L702	PQLQR1RS102	COIL	S
L703	PQLQZM1R0K	COIL	S
L704	PQLQR3ER68K	COIL	S
L801	PQLQZK1R5K	COIL	S
T801	PQL04B003	COIL	
T901	PQL04B004	COIL	
		(CONNECTORS)	
CN701	PQJP2D13Z	CONNECTOR	S
CN702	K1MN22A00007	CONNECTOR SOCKET	
		(CRYSTAL OSCILLATORS)	
X601	PQVCL3276N9Z	CRYSTAL OSCILLATOR	S
X602	PQVCJ3991N9Z	CRYSTAL OSCILLATOR	
X801	H0D102500025	CRYSTAL OSCILLATOR	
		(DUPLEXES)	
DUP801	ELB6A002	DUPLEX	
DUP901	ELB6A001	DUPLEX	
		(RESISTOR ARRAYS)	
RA1	EXRV8V151JV	RESISTOR ARRAY	
RA2	EXRV8V331JV	RESISTOR ARRAY	
RA3	EXRV8V222JV	RESISTOR ARRAY	
RA4	EXRV8V222JV	RESISTOR ARRAY	
RA5	EXRV8V222JV	RESISTOR ARRAY	
		(OTHERS)	
E101	PQEFBDB1116F	BUZZER	
E102	PQJM122Z	MICROPHONE	
VOL802	EVN5ESX50B53	VARIABLE RESISTOR	
		(RESISTORS)	
R602	ERJ3GEYJ103	10k	
R603	ERJ3GEYJ222	2.2k	
R606	ERJ3GEYJ473	47k	
R701	ERJ3GEYJ103	10k	
R702	ERJ3GEYJ104	100k	
R703	PQ4R10XJ4R7	4.7	S
R705	PQ4R10XJ560	56	S
R708	ERJ3GEYJ4R7	4.7	
R709	ERJ3GEYJ151	150	
R710	PQ4R10XJ120	12	S
R711	ERJ3GEYJ125	1.2M	
R712	ERJ3GEYJ684	680k	
R713	ERJ3GEYJ104	100k	
R715	ERJ3GEYJ824	820k	
R801	ERJ3GEYJ394	390k	
R802	ERJ3GEYJ563	56k	
R804	ERJ3GEYJ333	33k	
R805	ERJ3GEYJ823	82k	
R807	ERJ3GEYJ563	56k	
R808	ERJ3GEY0R00	0	
R809	ERJ3GEYJ153	15k	
R810	ERJ3GEYJ222	2.2k	
R811	ERJ3GEYJ123	12k	
R812	ERJ3GEYJ153	15k	
R813	ERJ3GEYJ334	330k	
R814	ERJ3GEYJ222	2.2k	
R815	ERJ3GEYJ221	220	
R816	ERJ3GEYJ222	2.2k	
R817	ERJ3GEYJ103	10k	
R818	ERJ3GEY0R00	0	
R819	ERJ3GEYJ274	270k	
R820	ERJ3GEYJ223	22k	
R821	ERJ3GEYJ472	4.7k	
R822	ERJ3GEYJ333	33k	

Ref. No.	Part No.	Part Name & Description	Remarks
R823	ERJ3GEYJ822	8.2k	
R824	ERJ3GEYJ102	1k	
R825	ERJ3GEYJ103	10k	
R827	ERJ3GEYJ220	22	
R828	ERJ3GEY0R00	0	
R830	ERJ3GEYJ331	330	
R831	ERJ3GEYJ751	750	
R832	ERJ3GEYJ152	1.5k	
R901	ERJ3GEYJ104	100k	
R902	ERJ3GEYJ684	680k	
R903	ERJ3GEYJ184	180k	
R904	ERJ3GEYJ473	47k	
R905	ERJ3GEYJ473	47k	
R906	ERJ3GEYJ222	2.2k	
R907	ERJ3GEYJ101	100	
R908	ERJ3GEYJ221	220	
R910	ERJ3GEYJ220	22	
R911	ERJ3GEYJ220	22	
R912	ERJ3GEYJ2R2	2.2	
C807	ERJ3GEY0R00	0	
C838	ERJ3GEY0R00	0	
C845	ERJ3GEY0R00	0	
C901	ERJ3GEYJ823	82k	
JP801	ERJ3GEY0R00	0	
JP802	ERJ3GEY0R00	0	
JP804	ERJ3GEY0R00	0	
JP807	ERJ3GEY0R00	0	
		(CAPACITORS)	
C601	ECUV1A105ZFV	1	
C602	ECUV1C104KBV	0.1	
C603	ECUV1E104ZFV	0.1	
C605	ECUV1H330JCV	33P	
C606	ECUV1H330JCV	33P	
C607	ECUV1H330JCV	33P	
C608	ECUV1H330JCV	33P	
C609	ECUV1E104ZFV	0.1	
C610	ECEA0JSW221B	220	
C701	ECUV1E104ZFV	0.1	
C702	ECUV1E104ZFV	0.1	
C703	ECUV1E104ZFV	0.1	
C706	ECUV1A105ZFV	1	
C707	ECUV1A105ZFV	1	
C708	ECST0JY106	10	
C709	ECUV1H103KBV	0.01	
C710	ECUV1E104ZFV	0.1	
C711	ECUV1A474KBV	0.47	
C712	ECUV1A474KBV	0.47	
C713	ECUV1A474KBV	0.47	
C714	ECUV1C104KBV	0.1	
C715	ECUV1C104KBV	0.1	
C716	ECUV1C104KBV	0.1	
C717	ECUV1C104KBV	0.1	
C718	ECUV1C104KBV	0.1	
C801	ECUV1H121JCV	120P	
C802	ECUV1H121JCV	120P	
C803	ECUV1C104KBV	0.1	
C804	ECUV1H821JCV	820P	
C806	ECUV1H472KBV	0.0047	
C808	ECUV1C473KBV	0.047	
C809	ECUV1C104KBV	0.1	
C810	ECUV1C104KBV	0.1	
C811	ECUV1H103KBV	0.01	
C812	ECUV1C104KBV	0.1	
C813	ECUV1E104ZFV	0.1	
C814	ECUV1H103KBV	0.01	
C815	ECUV1E104ZFV	0.1	
C816	ECUV1H103KBV	0.01	
C817	ECST0JY106	10	
C818	ECUV1C473KBV	0.047	
C819	ECUV1H153KBV	0.015	
C820	ECST0JY106	10	
C822	ECUV1H101JCV	100P	
C823	ECUV1C104KBV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C824	ECUV1H152KBV	0.0015	
C825	ECUV1H151JCV	150P	
C827	ECUV1C104KBV	0.1	
C828	ECUV1H390GCV	39P	
C829	ECUV1H270GCV	27P	
C830	ECUV1E104ZFV	0.1	
C832	PQCUV1C224KB	0.22	
C833	ECUV1H103KBV	0.01	
C834	PQCUV1C224KB	0.22	
C836	ECUV1H220JCV	22P	
C837	ECUV1H103KBV	0.01	
C841	ECKERS102MB	0.001	△
C842	ECST0JY106	10	
C843	ECUV1H103KBV	0.01	
C844	ECUV1E104ZFV	0.1	
C846	ECUV1H103KBV	0.01	
C848	ECUV1E104ZFV	0.1	
C849	ECUV1H103KBV	0.01	
C850	ECUV1E104ZFV	0.1	
C851	ECUV1E104ZFV	0.1	
C852	ECUV1E104ZFV	0.1	
C853	ECUV1H680JCV	68P	
C854	ECUV1C104KBV	0.1	
C855	ECST0JY106	10	
C902	ECUV1C104KBV	0.1	
C903	ECUV1E223KBV	0.022	
C904	ECUV1H123KBV	0.012	
C905	ECUV1H270JCV	27P	
C906	ECUV1H270JCV	27P	
C907	ECUV1H103KBV	0.01	
C908	ECUV1H220JCV	22P	
C909	ECUV1H103KBV	0.01	
C910	ECUV1H103KBV	0.01	
C912	ECUV1H103KBV	0.01	
C913	ECUV1E104ZFV	0.1	
C915	ECUV1H103KBV	0.01	
R806	ECUV1C473KBV	0.047	

25.3. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10075Z	TEL CORD	
A2	PQKL10035Z1	WALL MOUNT ADAPTOR	S
A3	PQLV14BXZ	AC ADAPTOR	△
A4	PQQW12472Z	QUICK GUIDE (for Arabic)	
A5	PQQX13112Z	INSTRUCTION BOOK (for English)	
P1	XZB21X35A03	POLY BAG (for Base Unit)	
P2	XZB10X35A02	POLY BAG (for Handset)	
P3	PQPK13458Z	CARTON BOX	

26 FOR SCHEMATIC DIAGRAM

26.1. Base Unit (SCHEMATIC DIAGRAM (BASE UNIT))

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 $\triangle$ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

26.2. Handset (SCHEMATIC DIAGRAM (HANDSET))

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.

27 VOLTAGE CHECK

27.1. Base unit

	STBY	TALK	SP	CHG
IC301-1	2.4	2.4	2.4	2.4
IC301-2	2.4	2.4	2.4	2.4
IC301-3	2.4	2.4	2.4	2.4
IC301-4	2.4	2.4	2.4	2.4
IC301-5	2.4	2.4	2.4	2.4
IC301-6	2.4	2.4	2.4	2.4
IC301-7	2.4	2.4	2.4	2.4
IC301-8	2.4	2.4	2.4	2.4
IC301-9	2.4	2.4	2.4	2.4
IC301-10	2.4	2.4	2.4	2.4
IC301-11	2.4	2.4	2.4	2.4
IC301-12	4.7	4.7	4.7	4.7
IC301-13	0	0	0	0
IC301-14	4.7	0	0	4.7
IC301-15	4.7	0	0	4.7
IC301-16	0	0	0	0
IC301-17	0	0	0	0
IC301-18	0	0	0	0
IC301-19	4.7	4.7	4.7	0
IC301-20	0.5	0.8	0.8	0.5
IC301-21	0	0	0	0
IC301-22	4.7	4.7	4.7	4.7
IC301-23	0	0	0	0
IC301-24	4.7	0	0	4.7
IC301-25	4.7	0	0	4.7
IC301-26	0	0	0	0
IC301-27	0	4.5	4.5	0
IC301-28	0	0	0	0
IC301-29	4.7	0	0	4.7
IC301-30	4.7	0	0	4.7
IC301-31	0	0	0	0
IC301-32	2.3	2.3	2.2	2.3
IC301-33	2.3	2.3	2.2	2.3
IC301-34	4.9	4.9	4.9	4.9
IC301-35	2.3	2.3	2.3	2.3
IC301-36	2.3	2.3	2.3	2.3
IC301-37	4.8	4.8	4.8	4.8
IC301-38	2.3	2.3	2.3	2.3
IC301-39	2.3	2.3	2.3	2.3
IC301-40	0	2.7	2.7	0
IC301-41	2.3	2.3	2.3	2.3
IC301-42	2.1	2.1	2.1	2.1
IC301-43	2.3	2.3	2.3	2.3
IC301-44	2.3	2.3	2.3	2.3
IC301-45	2.3	2.3	2.3	2.3
IC301-46	0	0	0	0
IC301-47	2.3	2.3	2.3	2.3
IC301-48	2.3	2.3	2.3	2.3
IC301-49	2.3	2.2	2.3	2.3
IC301-50	0	0	0	0
IC301-51	4.9	4.9	4.9	4.9
IC301-52	4.9	4.9	4.9	4.9
IC301-53	0.4	0.4	0.4	0.4
IC301-54	0.7	0.7	0.7	0.7
IC301-55	0	0	0	0
IC301-56	4.9	4.9	4.9	4.9
IC301-57	1.8	1.8	1.8	1.8
IC301-58	4.7	4.7	4.7	4.7
IC301-59	2.1	0.9	0.9	2.1
IC301-60	4.7	4.7	4.7	4.7
IC301-61	0	0	0	0
IC301-62	0	0	0	0

	STBY	TALK	SP	CHG
IC301-63	4.7	4.7	4.7	4.7
IC301-64	4.7	4.7	4.7	4.7
IC301-65	4.7	0.1	0.1	0.1
IC301-66	4.7	4.7	0.2	4.7
IC301-67	4.7	4.7	4.7	4.7
IC301-68	1.3	1.3	1.3	1.3
IC301-69	1.3	1.3	1.3	1.3
IC301-70	1.3	1.3	1.3	1.3
IC301-71	1.3	1.3	1.3	1.3
IC301-72	1.3	1.3	1.3	1.3
IC301-73	1.3	1.3	1.3	1.3
IC301-74	0	0	0	0
IC301-75	4.7	4.7	4.7	4.7
IC301-76	0	0	0	0
IC301-77	0	0	0	0
IC301-78	0	0	0	0
IC301-79	0	0	0	0
IC301-80	0	0	0	0
IC301-81	0	0	0	0
IC301-82	4.6	4.6	4.6	4.6
IC301-83	4.7	4.7	4.7	4.7
IC301-84	0	0	0	0
IC301-85	0	0	0	0
IC301-86	0	0	0	0
IC301-87	0	0	0	0
IC301-88	0	0	0	0
IC301-89	0	0	0	0
IC301-90	0	0	0	0
IC301-91	0	0	0	0
IC301-92	0	0	0	0
IC301-93	4.7	4.7	4.7	4.7
IC301-94	4.7	4.7	4.7	4.7
IC301-95	4.7	4.7	4.7	4.7
IC301-96	4.7	4.7	4.7	4.7
IC301-97	0	0	0	0
IC301-98	0	0	0	0
IC301-99	0	4.7	4.7	0
IC301-100	2.4	2.4	2.4	2.4
IC302-1	0	0	0	0
IC302-2	4.9	4.9	4.9	4.9
IC302-3	4.2	4.2	4.2	4.2
IC302-4	4.9	4.9	4.9	4.9
IC303-1	-	-	-	-
IC303-2	-	-	-	-
IC303-3	-	-	-	-
IC303-4	-	-	-	-
IC303-5	-	-	-	-
IC303-6	-	-	-	-
IC303-7	-	-	-	-
IC303-8	-	-	-	-
IC304-1	0	0	0	0
IC304-2	0	0	0	0
IC304-3	0	0	0	0
IC304-4	4.7	4.7	4.7	4.7
IC304-5	4.7	4.7	4.7	4.7
IC304-6	0	0	0	0
IC304-7	0	0	0	0
IC304-8	0	0	0	0
IC304-9	0	0	0	0
IC304-10	0	0	0	0
IC304-11	-	-	-	-
IC304-12	-	-	-	-
IC304-13	0	0	0	0
IC304-14	0	0	0	0
IC304-15	0	0	0	0

	STBY	TALK	SP	CHG
IC304-16	0	0	0	0
IC304-17	0	0	0	0
IC304-18	0	0	0	0
IC304-19	0	0	0	0
IC304-20	0	0	0	0
IC304-21	0	0	0	0
IC304-22	0	0	0	0
IC304-23	4.7	4.7	4.7	4.7
IC304-24	0	0	0	0
IC304-25	0	0	0	0
IC304-26	0	0	0	0
IC304-27	0	0	0	0
IC304-28	0	0	0	0
IC304-29	0	0	0	0
IC304-30	0	0	0	0
IC304-31	0	0	0	0
IC304-32	0	0	0	0
IC304-33	-	-	-	-
IC304-34	-	-	-	-
IC304-35	0	0	0	0
IC304-36	0	0	0	0
IC304-37	0	0	0	0
IC304-38	0	0	0	0
IC304-39	0	0	0	0
IC304-40	0	0	0	0
IC304-41	0.4	0.4	0.4	0.4
IC304-42	4.7	4.7	4.7	4.7
IC304-43	4.7	4.7	4.7	4.7
IC304-44	4.7	4.7	4.7	4.7
IC401-1	0	0	0	0
IC401-2	0.6	0.6	0.6	0.6
IC401-3	2.9	2.9	2.9	2.9
IC401-4	2.9	2.9	2.9	2.9
IC401-5	2.9	2.9	2.9	2.9
IC401-6	2.9	2.9	2.9	2.9
IC401-7	8.1	8.1	8.1	8.1
IC401-8	2.9	2.9	2.9	2.9
IC401-9	2.9	2.9	2.9	2.9
IC401-10	2	0.1	0.1	2
IC401-11	0	0	0	0
IC401-12	8.1	8.1	8.1	8.1
IC401-13	2	1	1	2
IC401-14	0	0	0	0
IC401-15	0.3	0.3	0.3	0.3
IC401-16	3.4	3.4	3.4	3.4
IC401-17	3.4	3.4	3.4	3.4
IC401-18	0	0	0	0
IC401-19	0	0	0	0
IC401-20	0	0	0	0
IC401-21	3	3	3	3
IC401-22	3.6	3.6	3.6	3.6
IC401-23	0	0.5	0.5	0
IC401-24	3	3	3	3
IC401-25	3	3	3	3
IC401-26	3	3	3	3
IC401-27	2.9	2.9	2.9	2.9
IC401-28	2.9	2.9	2.9	2.9
IC401-29	4.6	4.6	4.6	4.6
IC401-30	0	0	0	0
IC401-31	2.7	2.7	2.7	2.7
IC401-32	4.6	4.6	4.6	4.6
IC401-33	4.6	4.6	4.6	4.6
IC401-34	5.3	5.3	5.3	5.3
IC401-35	3.9	3.9	3.9	3.9
IC401-36	8.1	8.1	8.1	8.1
IC401-37	1	1	1	1
IC401-38	0	0	0	0

	STBY	TALK	SP	CHG
IC401-39	3.8	3.8	3.8	3.8
IC401-40	0	0	0	0
IC401-41	1.2	1.2	1.2	1.2
IC401-42	1.2	1.2	1.2	1.2
IC401-43	1.3	1.2	1.2	1.3
IC401-44	0.7	0.6	0.6	0.7
IC401-45	0.7	0.6	0.6	0.7
IC401-46	0	0	0	0
IC401-47	1.3	1.2	1.2	1.3
IC401-48	2.7	1.2	1.2	2.7
IC401-49	2.6	2.6	2.6	2.6
IC401-50	2.6	1.4	1.4	2.6
IC401-51	0	0	0	0
IC401-52	1.4	1.4	1.4	1.4
IC401-53	1.3	1.3	1.3	1.3
IC401-54	4.7	0.1	0.1	4.7
IC401-55	4.7	4.7	4.7	4.7
IC401-56	0	0	0	0
IC501-1	0.6	4.6	4.6	0.6
IC501-2	0	0.8	0.8	0
IC501-3	0.6	4.6	4.6	0.6
IC501-4	0.4	3.2	3.2	0.4
IC501-5	0	0	0	0
IC501-6	0.6	4.6	4.6	0.6
Q101-1	-	-	-	-
Q101-2	-	-	-	-
Q101-3	-	-	-	-
Q102-1	-	-	-	-
Q102-2	-	-	-	-
Q102-3	-	-	-	-
Q103-1	47.3	11.9	11.9	47.3
Q103-2	0	11.3	11.3	0
Q103-3	46.7	11.2	11.2	46.7
Q104-1	0	0	0	0
Q104-2	46.7	0	0	46.7
Q104-3	0	0.7	0.7	0
Q105-1	-	-	-	-
Q105-2	-	-	-	-
Q105-3	-	-	-	-
Q106-1	-	-	-	-
Q106-2	-	-	-	-
Q106-3	-	-	-	-
Q107-1	-	-	-	-
Q107-2	-	-	-	-
Q107-3	-	-	-	-
Q108-1	-	-	-	-
Q108-2	-	-	-	-
Q108-3	-	-	-	-
Q109-1	-	-	-	-
Q109-2	-	-	-	-
Q109-3	-	-	-	-
Q110-1	0.2	6	6	0.2
Q110-2	0	11.3	11.3	0
Q110-3	0	6.6	6.6	0
Q111-1	0	0	0	0
Q111-2	0	0	0	0
Q111-3	4.7	4.7	4.7	4.7
Q112-1	0	0	0	0
Q112-2	0	0	0	0
Q112-3	0	0	0	0
Q113-1	-	-	-	-
Q113-2	-	-	-	-
Q113-3	-	-	-	-
Q114-1	-	-	-	-
Q114-2	-	-	-	-
Q114-3	-	-	-	-

27.2. Handset

	STBY	TALK	SP	CHG
Q201-1	5.5	5.5	5.5	5.5
Q201-2	8.1	8.1	8.1	8.1
Q201-3	6.2	6.2	6.2	6.2
Q202-1	0	0	0	0
Q202-2	0	0	0	0.6
Q202-3	4.7	4.7	4.7	0
Q203-1	0	0	0	0
Q203-2	0.6	0.6	0.6	0.6
Q203-3	0	0	0	0
Q204-1	4.8	4.8	4.8	4.8
Q204-2	0	0	0	0
Q204-3	1.8	1.8	1.8	1.8
Q301-1	0	0	0	0
Q301-2	0	0.8	0.8	0
Q301-3	0	0	0	0
Q302-1	4.7	4.7	4.7	4.7
Q302-2	4.9	4.9	4.9	4.9
Q302-3	4.7	4.7	4.7	4.7
Q303-1	-	-	-	-
Q303-2	-	-	-	-
Q303-3	-	-	-	-
Q501-1	5.1	4.6	4.6	5.1
Q501-2	4.7	0	0	4.7
Q501-3	0.6	4.6	4.6	0.6
Q502-1	0	0.2	0.2	0
Q502-2	0.6	0.8	0.8	0.6
Q502-3	8.1	7.4	7.4	8.1
Q503-1	0.6	4.6	4.6	0.6
Q503-2	4.7	3.3	3.3	4.7
Q503-3	0.6	4.6	4.6	0.6
DUP401-1	0	-0.4	-0.4	0
DUP401-2	0	0	0	0
DUP401-3	7.7	7.7	7.7	7.7
DUP401-4	0	0	0	0
DUP401-5	0	0	0	0
DUP401-6	0	0	0	0
DUP501-1	0	-0.4	-0.4	0
DUP501-2	0	0	0	0
DUP501-3	-	-	-	-
DUP501-4	-	-	-	-
DUP501-5	8.1	7.4	7.4	8.1
DUP501-6	8.1	7.9	7.9	8.1
D103- +	47.3	11.9	11.9	47.3
D104- -	0	0	0	0
D105- 3	0	-0.7	-0.7	0
D106- 4	47.7	12.7	12.7	47.7
D203-A	5.5	5.5	5.5	5.5
D203-K	4.7	4.7	4.7	4.7
D204-A	5.5	5.5	5.5	5.5
D204-K	4.8	4.8	4.8	4.8
D205-A	5.5	5.5	5.5	5.5
D205-K	4.9	4.8	4.8	4.9
REG201-1	11.7	11.4	11.4	11.7
REG201-2	8.1	8.1	8.1	8.1
REG201-3	0	0	0	0
DC12V	11.7	11.5	11.5	11.7
RING	47.7	12.7	12.7	47.7
TIP	0	-0.8	-0.8	0
CH3	8.1	8.1	8.1	8
CH4	0	0	0	1.9

	STBY	TALK	CHG
IC601-1	3.6	3.6	3.6
IC601-2	3.6	3.6	3.6
IC601-3	0	0	0
IC601-4	0	0	0
IC601-5	3.6	3.6	3.6
IC601-6	3.6	3.6	3.7
IC601-7	3.6	3.6	3.6
IC601-8	1.7	1.7	1.7
IC601-9	1.7	1.7	1.7
IC601-10	0	0	0
IC601-11	1.4	1.4	1.4
IC601-12	1.7	1.7	1.7
IC601-13	0	0	0
IC601-14	0	0	0
IC601-15	3.6	3.6	3.6
IC601-16	0	0	0
IC601-17	0.1	0	0.1
IC601-18	0	0	0
IC601-19	0.1	0	0.1
IC601-20	3.6	3.6	3.6
IC601-21	3.6	3.6	3.6
IC601-22	0	0	0
IC601-23	0	0	0
IC601-24	0	0	0
IC601-25	0	0	0
IC601-26	0	0.2	0
IC601-27	2.6	1.8	2.6
IC601-28	3.6	3.6	3.6
IC601-29	0.6	3.6	0.6
IC601-30	3.6	3.6	3.6
IC601-31	0	0	0
IC601-32	0	0	0
IC601-33	0	0	0
IC601-34	3	2.9	3
IC601-35	3.6	3.6	3.6
IC601-36	3.6	0.2	3.6
IC601-37	0	0	0
IC601-38	0	0	0
IC601-39	0	0	0
IC601-40	0	0	0
IC601-41	3.6	3.6	3.6
IC601-42	0	0	0
IC601-43	3.6	3.6	3.6
IC601-44	0	0	0
IC601-45	0	0	0
IC601-46	3.6	3.6	3.6
IC601-47	3.6	3.6	0.04
IC601-48	3.6	3.6	3.6
IC601-49	3.6	3.6	3.6
IC601-50	3.6	3.6	3.6
IC601-51	3.6	3.6	3.6
IC601-52	0	0	0
IC601-53	0	0	0
IC601-54	0	0	0
IC601-55	0	0	0
IC601-56	0	0	0
IC601-57	2.4	2.4	2.4
IC601-58	2.4	2.4	2.4
IC601-59	2.4	2.4	2.4
IC601-60	2.4	2.4	2.4
IC601-61	0	0	0
IC601-62	3.6	3.6	3.6
IC601-63	3.6	3.6	3.6
IC601-64	3.6	3.6	3.6
IC801-1	0	0	0

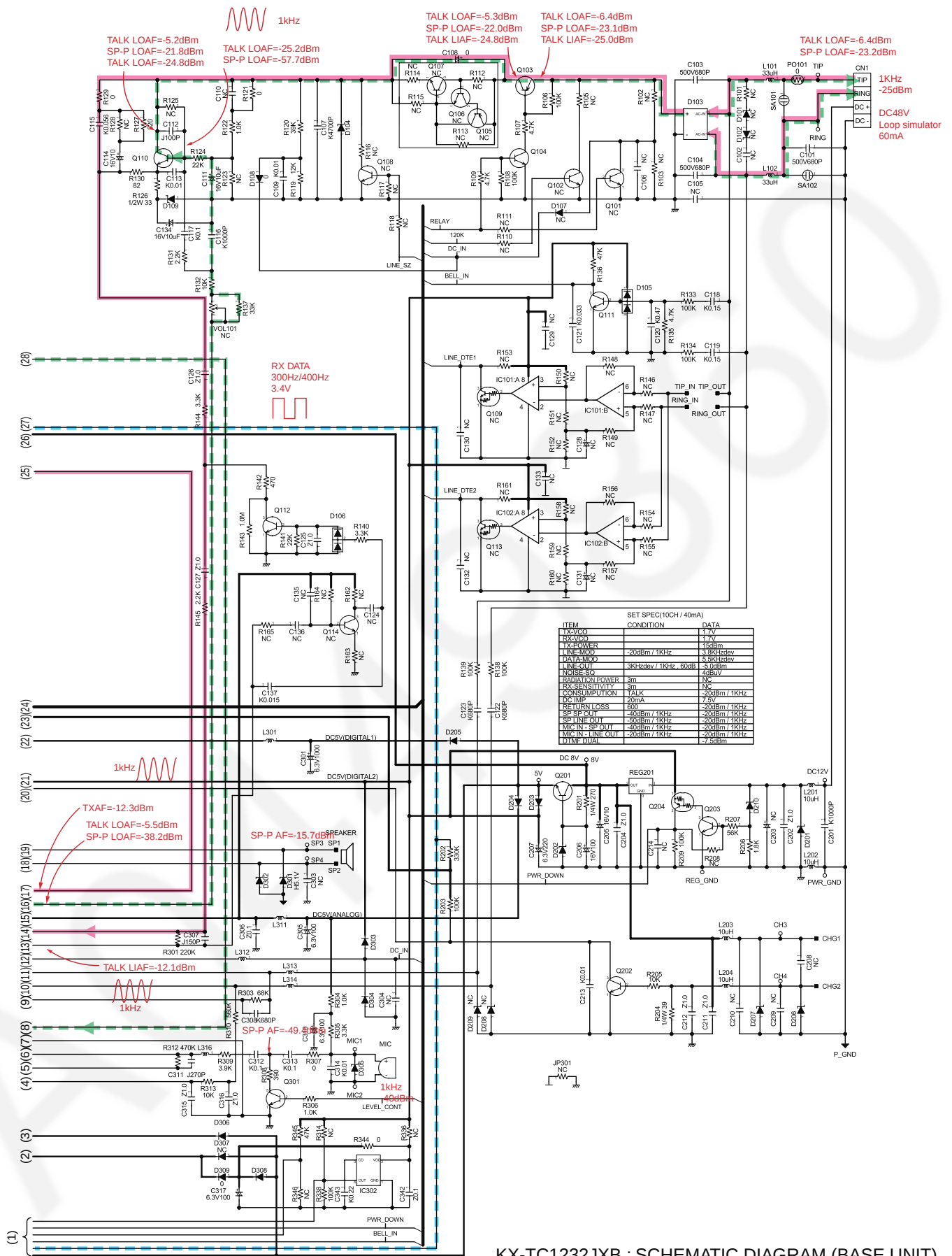
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IC801-2	0.1	0.6	0.1
IC801-3	0	1.8	0
IC801-4	0	2	0
IC801-5	0	2.1	0
IC801-6	0	2.1	0
IC801-7	3	2.9	3
IC801-8	0	2.1	0
IC801-9	0	2	0
IC801-10	2.1	2.1	2.1
IC801-11	3.6	3.6	3.6
IC801-12	3.9	3.9	3.9
IC801-13	1.9	2	1.9
IC801-14	0	0	0
IC801-15	0.1	1.7	0.1
IC801-16	0.1	1.7	0.1
IC801-17	0	1.7	0
IC801-18	0	0.1	0
IC801-19	0	0	0
IC801-20	0	0	0
IC801-21	0	2.1	0
IC801-22	2.6	2.6	2.6
IC801-23	0	0.8	0
IC801-24	0	2	0
IC801-25	0	2	0
IC801-26	2.3	2.6	2.3
IC801-27	2.1	1.9	2.1
IC801-28	2.1	1.9	2.1
IC801-29	1.3	0.4	1.3
IC801-30	0	0	0
IC801-31	1.9	1.6	1.9
IC801-32	3.2	3.2	3.2
IC801-33	3.2	3.2	3.2
IC801-34	3.2	3.2	3.2
IC801-35	2.4	2.4	2.4
IC801-36	3.9	3.9	3.9
IC801-37	1	1	1
IC801-38	0	0	0
IC801-39	2.4	2.4	2.4
IC801-40	0	0	0
IC801-41	1.2	1.2	1.2
IC801-42	1.2	1.2	1.2
IC801-43	1.1	1.1	1.1
IC801-44	0.7	0.5	0.7
IC801-45	0.7	0.5	0.7
IC801-46	0	0	0
IC801-47	1.1	1.1	1.1
IC801-48	0	1.5	0
IC801-49	2.1	2.1	2.1
IC801-50	2.1	1.1	2.1
IC801-51	0	0	0
IC801-52	1.1	1.1	1.1
IC801-53	1	1	1
IC801-54	3.6	3.6	3.6
IC801-55	0.1	0	0.1
IC801-56	0.1	0	0.1
IC901-1	0.1	3.7	0.1
IC901-2	0	0.8	0
IC901-3	0.1	3.8	0.1
IC901-4	0.1	2.4	0.1
IC901-5	0	0	0
IC901-6	0.1	3.7	0.1
Q601-1	0	0	0
Q601-2	0	0	0
Q601-3	2.5	2.5	2.5
Q602-1	3.9	3.9	3.9
Q602-2	3.6	3.6	3.3

	STBY	TALK	CHG
Q602-3	0	0	3.9
Q701-1	0	0	0.4
Q701-2	0	0	-0.2
Q701-3	0	0	-0.3
Q702-1	0	0	0
Q702-2	0	0	4.2
Q702-3	3.6	3.6	0
Q703-1	0	0	0
Q703-2	0	0	0
Q703-3	3.6	3.6	3.6
Q704-1	3.9	3.9	3.9
Q704-2	3.6	3.6	3.6
Q704-3	0	0	0
Q705-1	0	0	0
Q705-2	3.6	3.6	3.6
Q705-3	0	0	0
Q706-1	3.6	3.6	3.6
Q706-2	0	0	0
Q706-3	3.6	3.6	3.6
Q901-1	3.9	3.9	3.9
Q901-2	3.6	0.2	3.6
Q901-3	0.1	3.8	0.1
Q902-1	0.1	3.8	0.1
Q902-2	0	0.2	0
Q902-3	0.1	3.8	0.1
DUP801-1	0	0	0
DUP801-2	0	0	0
DUP801-3	2.9	2.9	2.9
DUP801-4	0	0	0
DUP801-5	0	0	0
DUP801-6	0	0	0
DUP901-1	0	0	0
DUP901-2	0	0	0
DUP901-3	0.1	0.1	0.1
DUP901-4	0	0	0
DUP901-5	0.1	0.1	0.1
DUP901-6	0.1	0.1	0.1
BAT1	-	-	3.9
BAT2	-	-	0
CHG3	-	-	-1.1
CHG4	-	-	4.8

27.3. MEMO

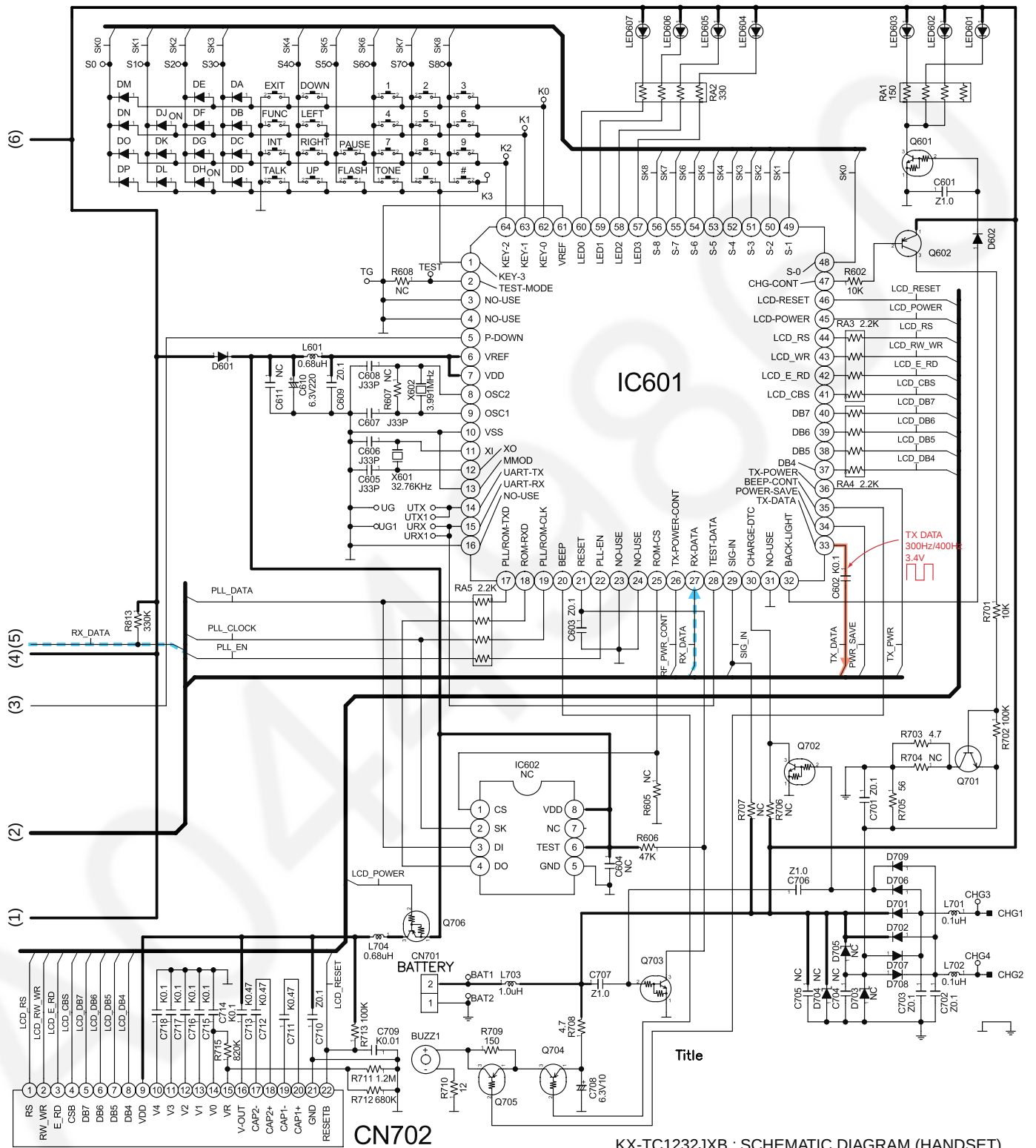
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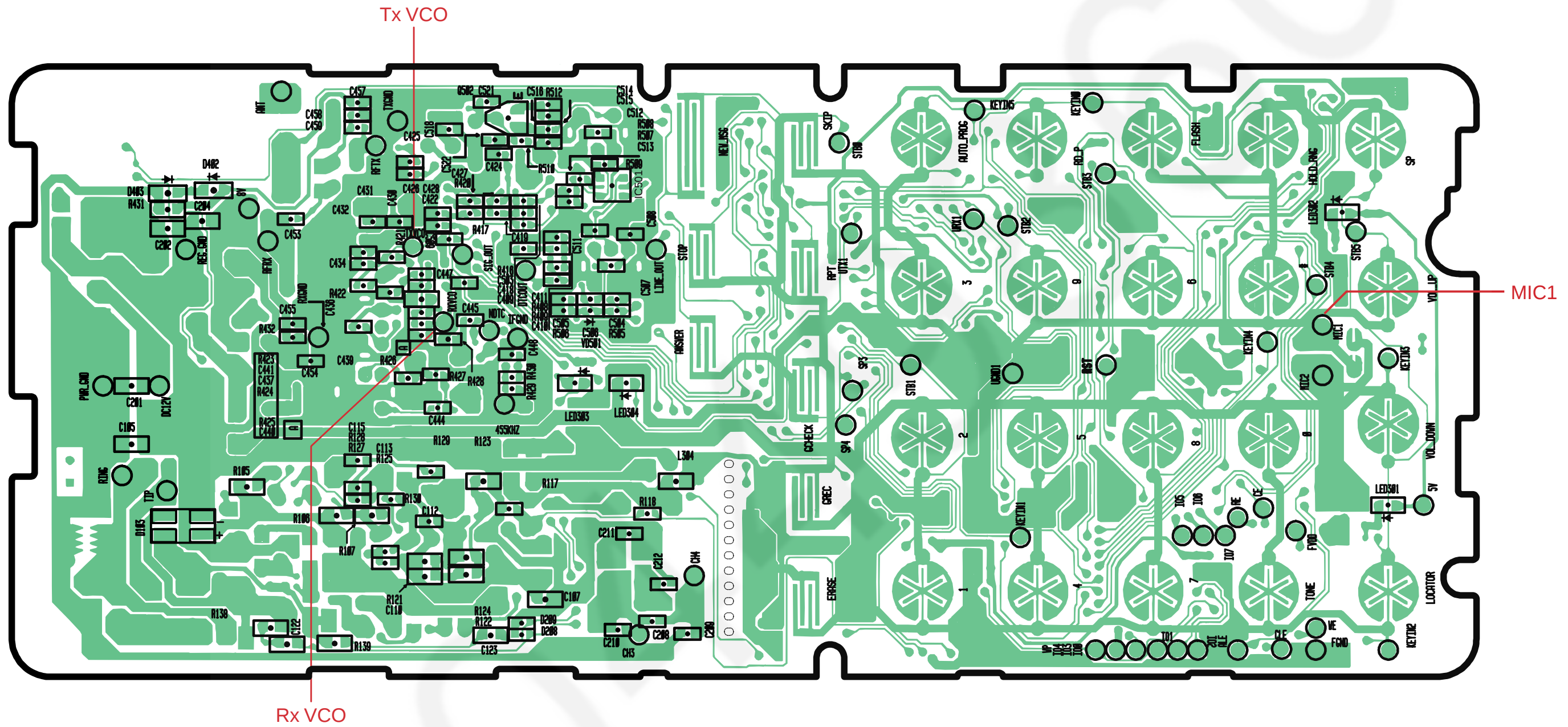


KX-TC1232JXB : SCHEMATIC DIAGRAM (BASE UNIT)



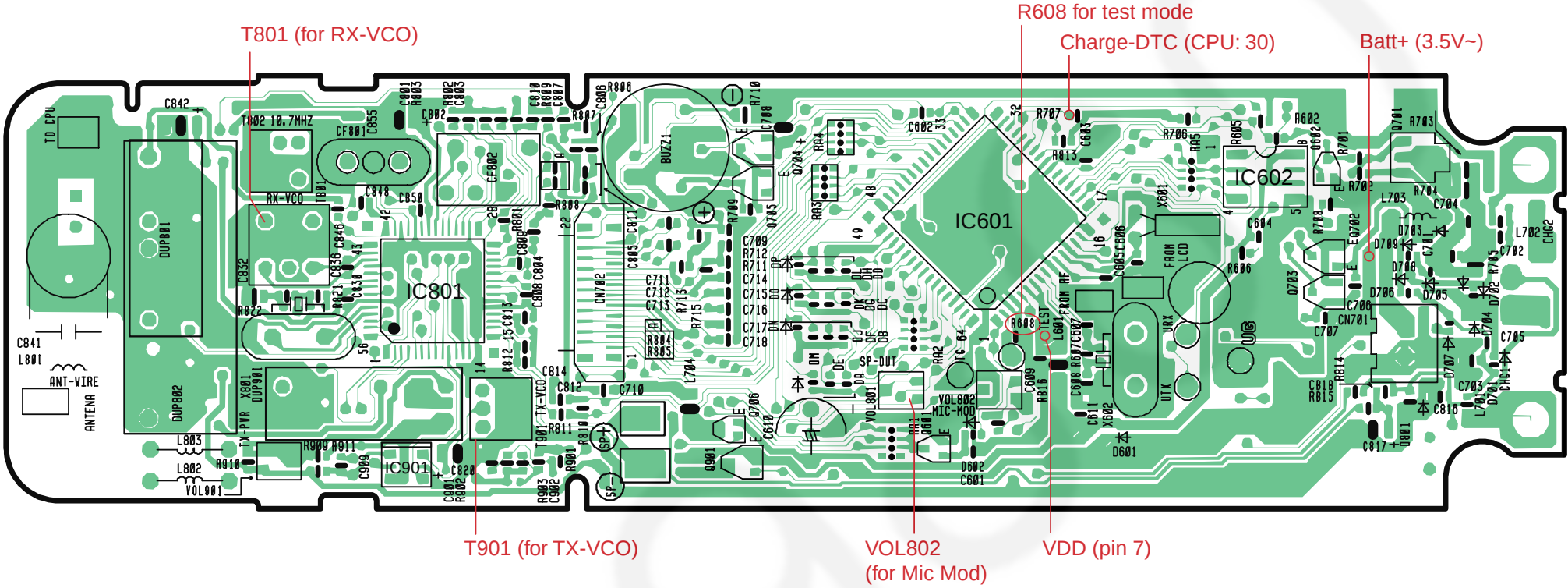


KX-TC1232JXB : SCHEMATIC DIAGRAM (HANDSET)

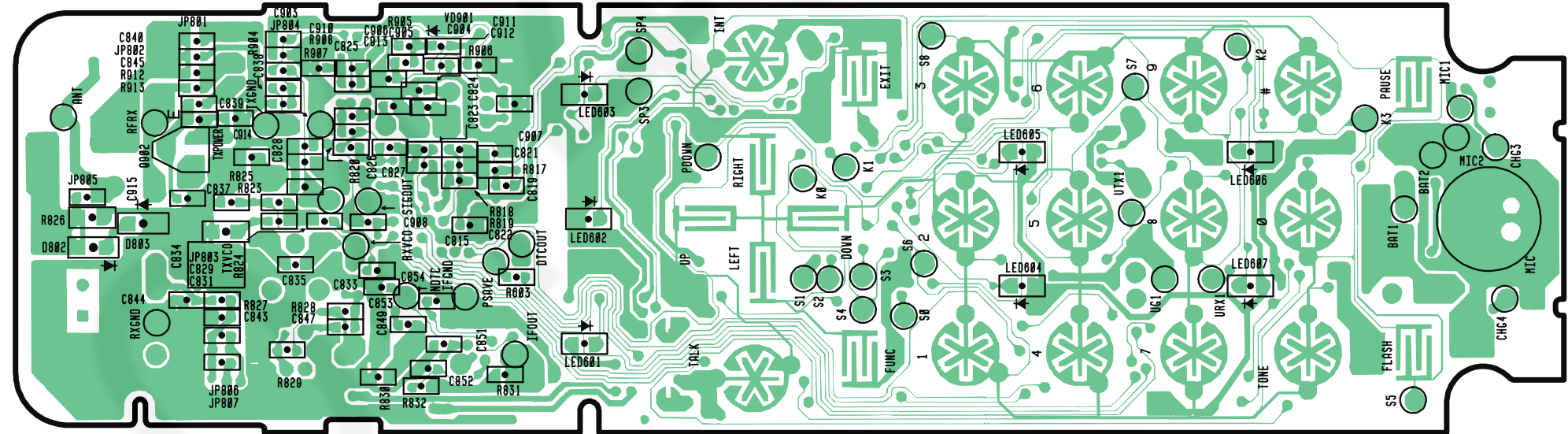


31 CIRCUIT BOARD (HANDSET)

31.1. Component View



31.2. Flow Solder Side View



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