ORDER NO. KM40809707CE

Service Manual

Telephone Equipment

Caller ID Compatible

Model No. KX-TS580MXB
KX-TS580MXW
KX-TS580MXR
KX-TS580MXC
KX-TS580MXJ

Integrated Telephone System
Black Version
White Version
Red Version
Blue Version
Ivory Version
(for Asia, Middle Near East and other areas)

Panasonic

⚠ WARNING

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

IMPORTANT SAFETY NOTICE

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

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

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

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

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

TABLE OF CONTENTS

1 Safety Precautions

1.1. For Service Technicians

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

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

2 Warning

2.1. Battery Caution

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

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

Note:

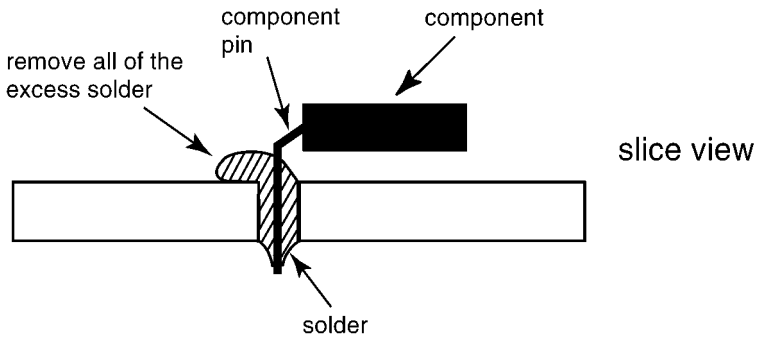
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

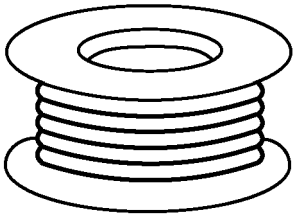
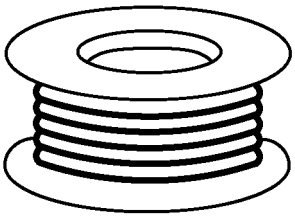
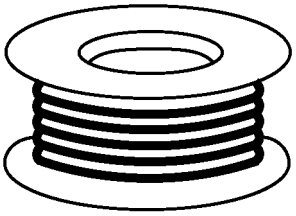
Caution

- PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).



2.2.1. Suggested PbF Solder

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

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

2.3. Discarding of P.C. Board

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

3 Specifications

Power Source:	From telephone line From 3AA (LR6, R6, UM-3) batteries*
Memory Capacity:	50 Caller ID memory, 50 Directory memory.
Redial:	The unit redials the last 20 dialed number
Speaker Unit:	Unit: 5.7cm (2.5") PM magnetic type 32 Ω Handset: 3 cm ($1\frac{13}{16}$") PM dynamic type 150 Ω
Microphone:	Electric condenser microphone
Input Jack:	Telephone Line, Data port
Dimensions (H x W x D):	Approx. 95 mm x 190 mm x 196 mm
Mass (weight):	Approx. 618g
Operating Enviroment:	5 °C - 40 °C, 20-80 % relative air humidity (dry)

Note:

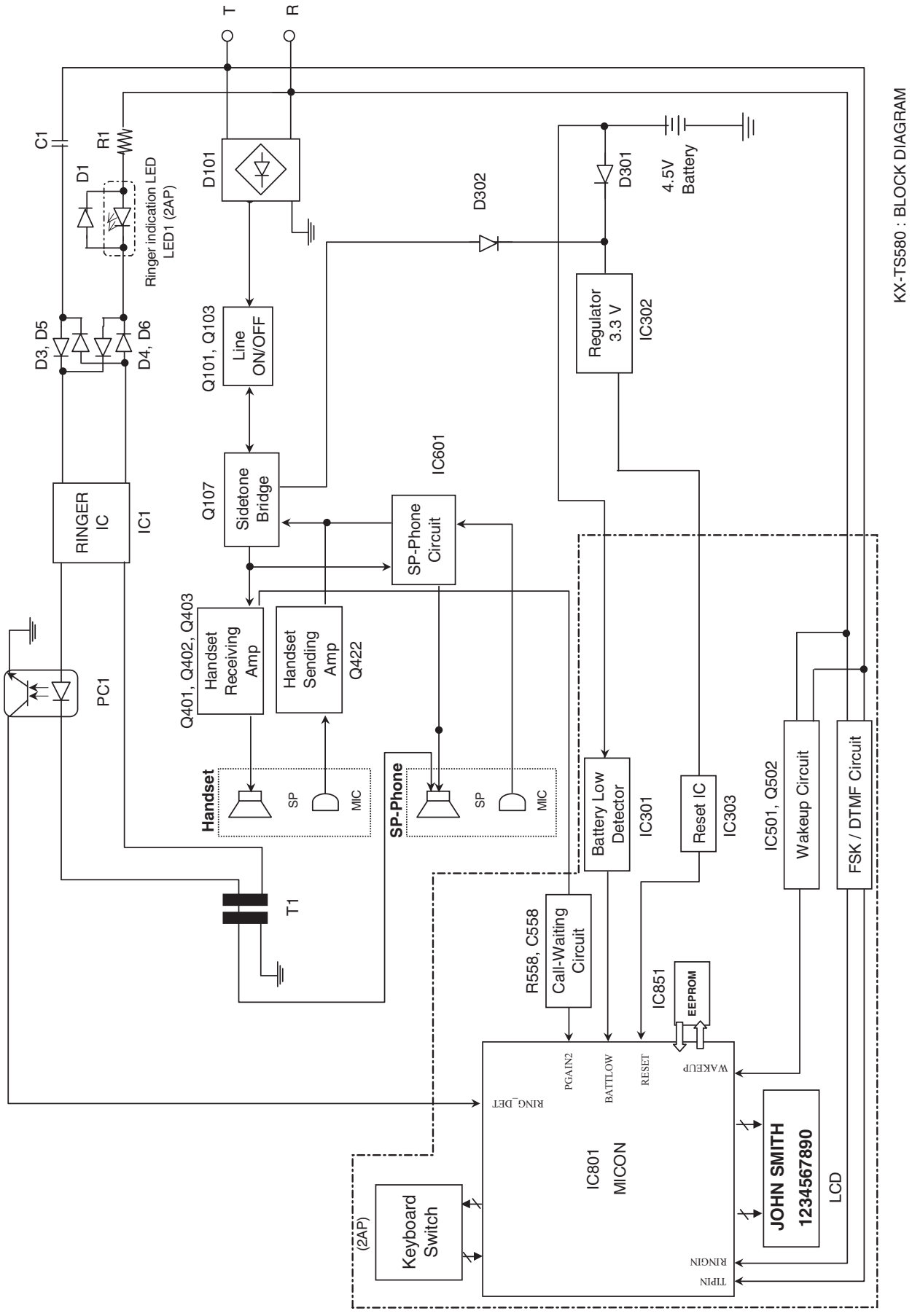
- Design and specification are subject to change without notice.
- Specifications are subject to change without notice.

Important:

*: Some functions may not work properly without batteries, Refer to the Operating Instructions for details.

4 Technical Descriptions

4.1. Block Diagram



4.2. Circuit Operation

4.2.1. Bell Detector Circuit

When the bell signal is input between T/R, the signal are outputted at the speaker via the following path:
T / R → R1 / C1 → D1 / LED1(2AP) → IC1 (pin1) → IC1 (pin8) → PC1 → C5 → SW1 → T1 → Speaker

4.2.2. Line Interface

In talk status, SW101 become ON and Q103 base changes to high level, causing Q103, Q101 to turn on and resulting in a line loop. The loop current flows from D101(+) → Q101 → Q107 → R119 → D103 in that order. A pulse signal that repeated switches between high and low logic is output from pin 73 of the CPU. This switches the line loop on and off, generating the dial pulse signal.

4.2.3. Telephone Line Interface

4.2.3.1. Circuit operation

- **On hook**

  Q101 is OFF, on-hook condition where DC loop is disconnected and voice signal flow is cut.
- **Off hook**

  Q101 is ON*, providing an off-hook condition (active DC current flow through the circuit) and the following is the signal flow:
  T → POS101 → L101 → D101(+) → Q101 → Q107 → R119 → D103 → D101(-) → L102 → R
  * Handset mode : SW101 ON after handset off-hook
  * SP-Phone mode : IC801 (pin 70) output high logic after pressing SP-Phone button.
- **The receiving signal flows:**

  LINE → Q101 → C109 → C401 → R401 → Q401 → Q402 → Q403 → SP (handset)
- **The transmission signal flows**

  MIC (handset) → Q422 → R433 → C432 → Q107 → Q101 → LINE

4.2.3.2. Tone Detect

This circuit is used to sense the status of the line (busy tone or dial tone) during Auto Redial.

4.2.3.2.1. Circuit operation

D101 → Q101 → C201 → R201 → R205 → Pin 5 of IC201 → Pin 1 of IC201 → D202 → R208 → Q201 → Pin 87 of IC801.
When the subscriber hangs-up, check the intermittent tone. If cycle tone is detected, the collector of Q201 goes to a low logic.

4.2.3.3. Speakerphone Circuit

4.2.3.3.1. Function

The circuit controls the automatic switching of the transmitted and received signals, to and from the telephone line, when the unit is used in the hands -free mode.

4.2.3.3.2. Circuit Operation

The speakerphone can only provide a one-way communication path.
In other words, it can either transmit an outgoing signal or receive an incoming signal at a given time, but cannot do both simultaneously. Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.
This switching circuit is contained in IC601 and consists of a Voice Detector, TX Attenuator, RX Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the TX(transmit) or the RX(receive) signal is louder, and then it processed the signals such that the louder signal is given precedence.
The Voice Detector provides a DC input to the Attenuator Control corresponding to the TX signal.
The Comparator receives a TX and a RX signal, and supplies a DC input to the Attenuator Control corresponding to the RX signal.
The Attenuator Control provides a control signal to the TX and the RX attenuator to switch the appropriate signals on and off. The Attenuator Control also detects the level of the volume control to automatically adjust for changing ambient conditions.

1. **Transmission signal path:**
   The input signal from the microphone is sent through the circuit via the following path:MIC → Pin 9 of IC601 → Pin 10 of IC601 → Pin 3 of IC601 → Pin 4 of IC601 → R601 → C602 → Q107 → Tel line.
2. **Reception signal path:**
   Signals receive from the telephone line are outputted at the speaker via the following path:Tel line → Q107 → C401 → Q401 → R600 → C603 → Pin 27 of IC601 → Pin 26 of IC601 → Pin 19 of IC601 → Pin 15 of IC601 → Speaker.
3. **Transmission/Reception switching**
   The comparison result between TX and RX outputs as a DC level of Pin 25 of IC601.TX level is high ..... Pin 25 = Pin 21 - 6mV RX level is high ..... Pin 25 = Pin 21 - 150mVComparator output is connected to the attenuator control inside of IC601.
4. **Voice detector**
   The output of the mic amp (Pin 10 of IC601) is supplied to Pin 13 of IC601 as a control signal for the voice detector.
5. **Attenuator control**
   The attenuator control detects the setting of the volume control through Pin 24 of IC601 to automatically adjust for changing ambient conditions.

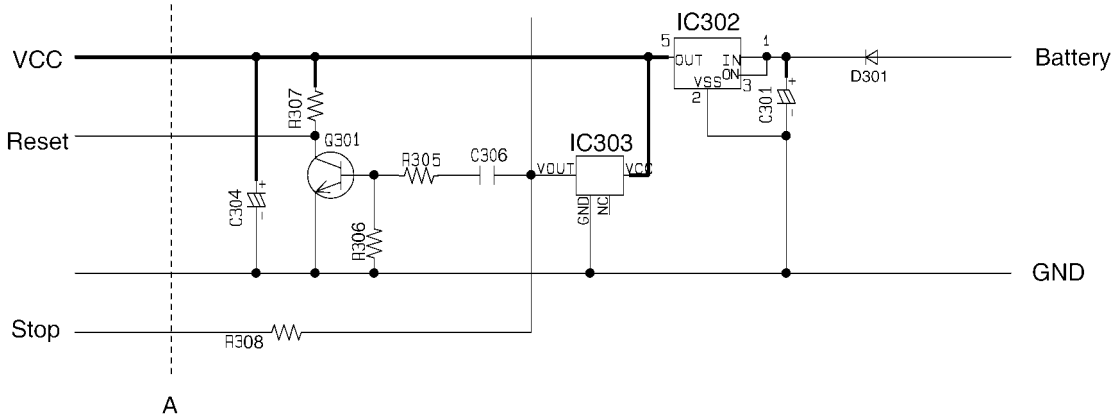
4.2.3.4. Initializing Circuit

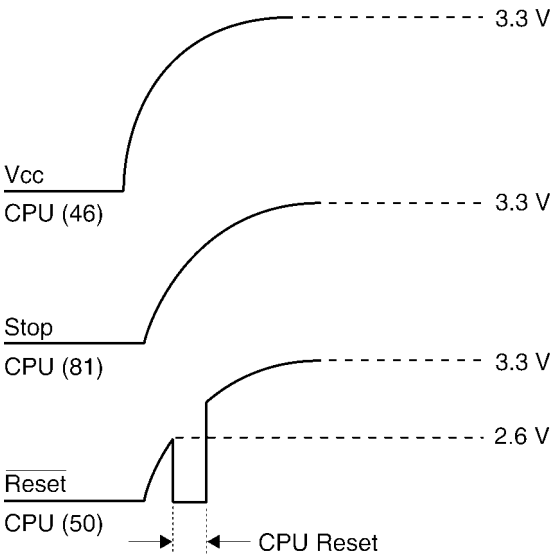
4.2.3.4.1. Function

This circuit is used to initialize the CPU when the batteries are installed.

4.2.3.4.2. Circuit operation

When the batteries are inserted into the unit, then the voltage is regulated by IC302 and power is supplied to the CPU. The unit starts operating soon after the voltage goes beyond point A in the voltage diagram.





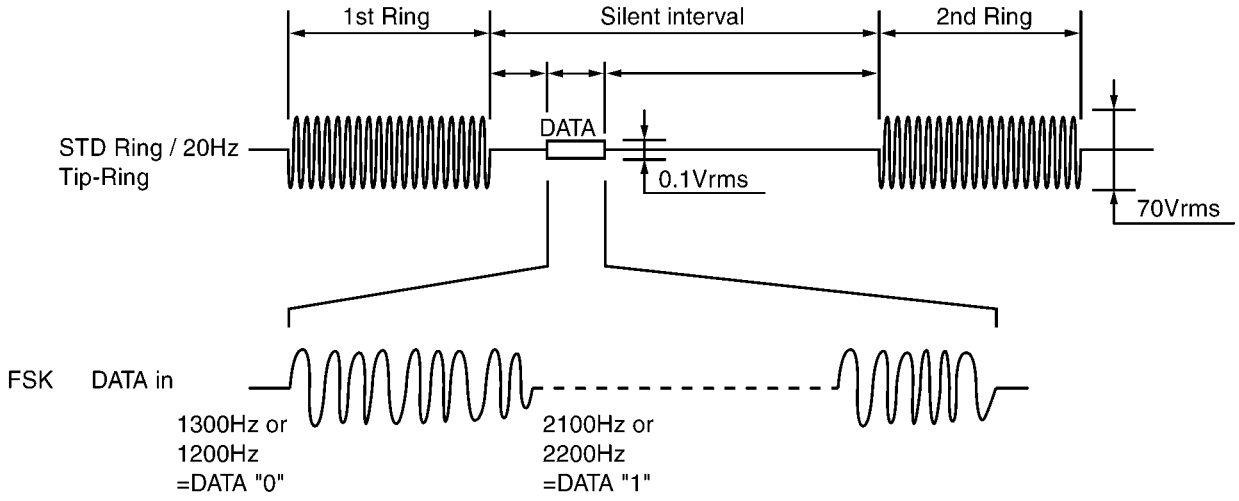
4.2.4. Caller ID Detect Circuit

4.2.4.1. Function (FSK signal)

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 the method of FSK and displayed on LCD of the unit.

• **FSK (Frequency Shift Keying) format**



4.2.4.2. Circuit operation

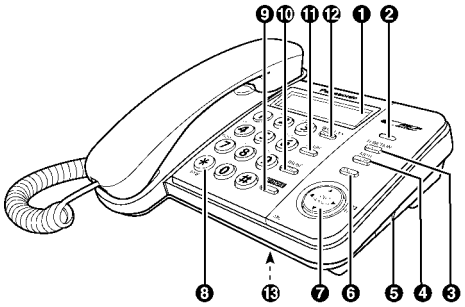
Caller ID

Caller ID signal is sent through the circuit via the following path:

LINE → C501/C502 → C551/C552 → R551/R552 → R553/R554 → IC801 (pin 92, 93)

5 Location of Controls and Components

5.1. Location of Controls



❶ Display
❷ Ringer indicator
❸ **【FUNCTION】**
【EXIT】
❹ **【MUTE】**
【CLEAR】
❺ RINGER selector
❻ **【ENTER】**
❼ Navigator key (**【▲】**, **【▼】**, **【◄】**, **【►】**)
【LOUD/SEARCH】 **【📖EDIT】**
❽ **【✳】** **【TONE】**
❾ **【SP-PHONE】** (Speakerphone)
❿ **【PAUSE】**
【REDIAL】
⓫ **【FLASH】**
⓬ **【♀DIAL LOCK】**
【HOLD】
⓭ **MIC** (Microphone)

5.2. Display

Display items

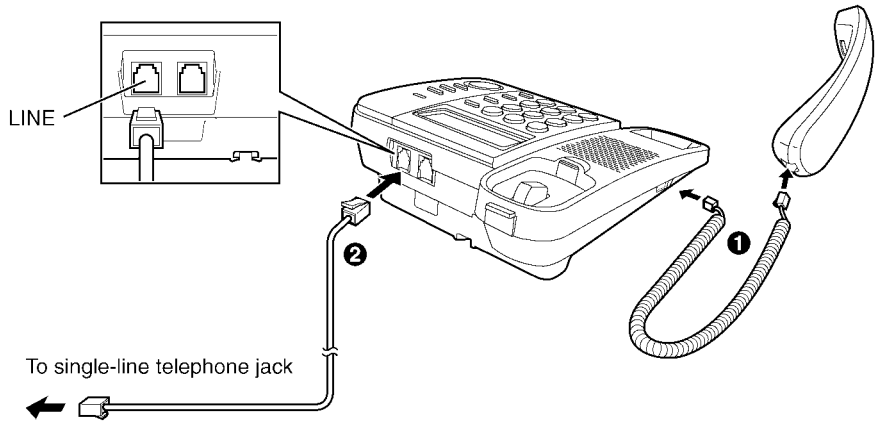
Item	Meaning
♀	The dial lock mode is set.
✓	You have checked this caller information, answered the call or called back the caller from the caller list.
CALL WAIT	The second call has been received while talking.
	The phone line is in SP-PHONE (speakerphone) call mode.
	The display flashes when the battery power is low. To replace the batteries, see "**Battery Installation and Replacement**".
P	**【PAUSE】** was pressed while dialing or storing phone numbers.
F	**【FLASH】** was pressed while storing phone numbers.

Cross Reference:
Battery Installation and Replacement (P.14)

6 Installation Instructions

6.1. Connections

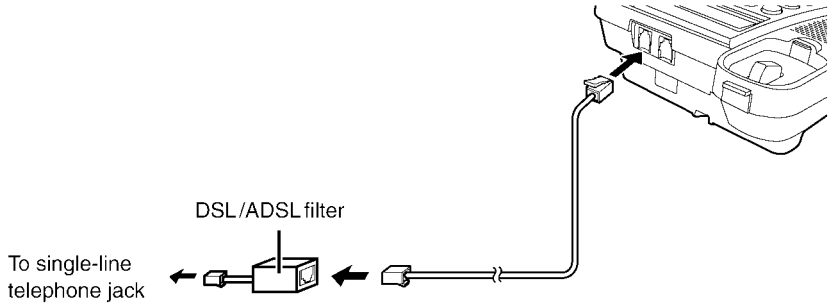
Connect the handset cord (❶) to the handset and the unit. Connect the telephone line cord until it clicks into the unit and telephone line jack (❷).
After line connection, lift the handset to check for a dial tone.



- Use only a Panasonic handset for KX-TS580MX.
- Use only the supplied telephone line cord. Using another telephone line cord may not allow the unit to work properly.

If you subscribe to a DSL/ADSL service

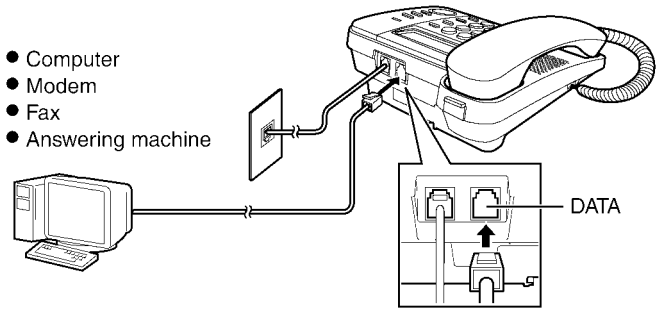
Please attach a DSL/ADSL filter (contact your DSL/ADSL provider) to the telephone line between the unit and the telephone line jack in the event of the following:
– noise is heard during conversations.
– caller identification features do not function properly.



6.2. Connecting a Communication Device

If you connect a communication device (computer, modem, fax, answering machine etc.) to the telephone line, you can connect it through this unit using the DATA jack.

After connecting the handset and telephone line cord, connect the communication device telephone line cord to the DATA jack.

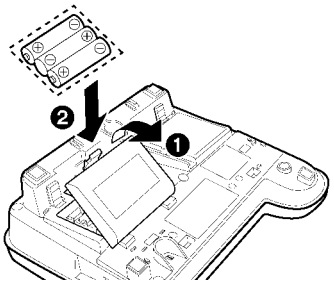


- Make sure the communication device is not in use before using this unit (making calls, storing phone numbers in memory etc.) or the communication device may not operate properly.

6.3. Battery

6.3.1. Battery Installation and Replacement

Installing the batteries



1 Press down in the direction of the arrow and open the cover (❶).

2 Install the batteries in the proper order as shown (❷), matching the correct polarity.

3 Close the battery cover.

- After battery installation, the unit will reset and "**SET CLOCK**" will always display until the time is set.

- Batteries are not included with the unit.
- Install three high quality "AA" size Alkaline (LR6) or Manganese (R6, UM-3) batteries. We recommend to use Panasonic batteries.

  Battery life is: – about six months when using Alkaline batteries.
  – about three months when using Manganese batteries.
- Battery life may depend on usage conditions and ambient temperature.
- Make sure batteries were inserted properly inphase to ensure the functionality of this unit.

Important:

The Unit may not work properly without batteries.

Replacing the batteries

If "▭" flashes, the battery power is low. Install new batteries as soon as possible. If batteries are not replaced even after the "▭" is displayed, the unit may not work properly.

- Store the desired items in the phonebook, because after the battery replacement, the information stored in the redial list will be cleared.

1 Disconnect the telephone line cord from the unit.

2 Press down in the direction of the arrow and open the cover.

3 Replace the batteries with new ones using correct polarity (+, –), and close the cover.

4 Connect the telephone line cord to the unit.

Battery precautions:

The batteries should be used correctly, otherwise the unit may be damaged by battery leakage.

– do not mix different types of batteries.
– do not charge, short-circuit, disassemble, heat or dispose of in fire.
– remove all the batteries when replacing.

Note:

– if you do not install the batteries or if the battery power is low, the display will become blank. Readjust the time after the battery replacement.
– replace all the batteries every six months if using Alkaline batteries, or misoperation may occur. (When you use Manganese batteries, replace all of them every three months.)
– do not use nickel-cadmium batteries.

7 Operating Instructions

7.1. Programmable Settings

You can customize the unit by probramming the following features.

Programming by scrolling therough the display menus

1 **【FUNCTION】**

2 **【▼】/【▲】**: Select the desired item in main menu → **【ENTER】**

3 **【▼】/【▲】**: Select the desired setting → **【ENTER】**

- This step may vary depending on the feature being programmed.
- To exit the operation, press **【EXIT】** or wait for 60 seconds.

Note:

- In the following table, < > indicates the default settings.
- The current item or setting is highlighted on the display.

Main menu	Setting
SAVE PHONEBOOK ?	–
SET CLOCK ?	–
CHANGE PASSWORD?	<1111>
CALL RESTRICT ?	–
SET FLASH TIME ?*1	900MS/700MS/600MS/400MS/ 300MS/250MS/200MS/160MS/ 110MS/100MS/90MS/80MS <600MS>
SET DIAL MODE ?	TONE/PULSE <TONE>
LCD CONTRAST ?*2	□□□□/□□□/□□/□ <□□>
TIME ADJUSTMENT?*3	ON/OFF <OFF>
SET HOLD MUSIC ?*4	ON/OFF <ON>
SET AREA CODE ?	–

*1 The flash time depends on your telephone exchange or host PBX. Contact your PBX supplier if necessary.

*2 "□" shows one level. To make the display clearer, set to high level.

*3 If the Caller ID time and date display service is available in your area, this feature allows the unit to automatically adjust the date and time setting when caller information is received. To use this feature, set the date and time first.

*4 You can set music play during the hold.

7.2. Dial Lock

This feature prohibits making outside calls.
The default setting is OFF.

Important:

- **When dial lock or call restriction is turned on, only phone number stored in the phonebook as emergency numbers (numbers stored with a # at the beginning of the name) can be dialed using the phonebook. We recommend storing emergency numbers in the phonebook before using this feature.**
- When dial lock is turned on, you cannot store, edit, or erase the emergency numbers begin with # in the phonebook.

To turn the dial lock on/off

1 **【♀DIAL LOCK】**
- "♀" flashes on the display.

2 Enter the unit password (default "1111") → **【ENTER】**

Note:

- If dial lock is turned on, the unit displays "♀".
- "DIAL LOCKED" will be displayed if the dialbuttons are pressed before/after:
  - lifting the handset.
  - pressing **【SP-PHONE】**.

For Service Hint:

If the current password is forgotten, key in " *7000 " then " ENTER " at the change password menu and you will be able to change the password. After you enter a new password, you will be able to cancel the dial lock.

7.3. Call Restriction

You can restrict the unit from dialing phone numbers beginning with specified digit(s) (1 digit or 2 digits). Phone numbers with the restricted leading digits cannot be dialed out, except the emergency numbers (#) stored in the phonebook.

- When call restriction is turned on, you cannot store, edit, or erase the emergency numbers begin with # in the phonebook.

Setting the call restriction

1 **【FUNCTION】**

2 **【▼】/【▲】**: "CALL RESTRICT ?" → **【ENTER】**
- If you have not changed the unit password (default: 1111), go to step 4.

3 Enter the unit password → **【ENTER】**

4 Enter the number(s) (1 digit or 2 digits) you want to restrict (**【0】** to **【9】**) → **【ENTER】** → **【EXIT】**

Erasing the restricted number

1 **【FUNCTION】**

2 **【▼】/【▲】**: "CALL RESTRICT ?" → **【ENTER】**
- If you have not changed the unit password (default: 1111), go to step 4.

3 Enter the unit password → **【ENTER】**

4 Press and hold **【CLEAR】** → **【ENTER】** → **【EXIT】**

7.4. Troubleshooting

Problem	Cause/solution
The unit does not work.	● Check the connections. ● Remove the batteries and reinstall them to reset the unit.
The unit does not ring.	● The ringer selector is set to OFF. Set to HIGH or LOW.
The display is blank.	● Install new batteries.
You cannot dial.	● Check the dial tone. If there is no dial tone, check the connections. ● The dialing mode may be set incorrectly. Change the settings. ● Dial lock is turned on. To turn it off, see "**Dial Lock**". ● The dialed number is restricted. To cancel, see "**Call Restriction**".
The other party suddenly cannot hear your voice during a conversation.	● **【MUTE】** may have been pressed during the conversation. To cancel, press **【MUTE】** again.
You cannot program items such as the dialing mode.	● Programming is not possible when: – the handset is off the cradle. – viewing caller information. – "" is displayed. ● Do not pause for over 60 seconds while programming.
Caller information is not displayed.	● You need to subscribe to Caller ID service. Consult your service provider/telephone company for details. ● Install or replace the batteries. ● If your unit is connected to any additional telephone equipment such as a caller identification box or cordless telephone line jack, plug the unit directly into the wall jack. ● If you use a DSL/ADSL service, we recommend connecting a DSL/ADSL filter between the unit and the telephone line jack. Contact your DSL/ADSL provider for details. ● Other telephone equipment may be interfering with your phone. Disconnect it and try again.
You cannot store a name and phone number in memory.	● Programming is not possible when the handset is off the cradle. ● Check that the batteries are installed in the unit and the battery power is not low. ● Do not pause for over 60 seconds while storing. ● Do not enter a phone number more than 32 digits long. ● When using the dial lock or call restriction feature, you cannot store emergency numbers **(#)**. ● If "**PHONEBOOK FULL**" is displayed, erase other stored items from the phonebook memory.

Problem	Cause/solution
While programming or searching, the unit starts to ring and stops the program/search.	● A call is being received. Answer the call and start again after hanging up.
The display exits the caller list.	● Do not pause for over 60 seconds while searching.
You cannot redial by pressing **【REDIAL】**.	● If the last number dialed was more than 32 digits long, the number will not be redialed correctly.
Information stored in the redial list is erased.	● If "▭" flashes, replace the batteries as soon as possible.Otherwise, information stored in the redial list will be erased. Store the desired item in the phonebook memory before the battery replacement.
Number of missed calls does not display during standby mode.	● You have entered the caller list before and there is no new missed call coming in after that. – If there are unviewed missed calls, number of missed calls will be displayed when you enter the caller list.

Liquid damage

Problem	Cause/solution
Liquid or other form of moisture has entered the unit.	● Disconnect the telephone line cord from the unit. Remove the batteries from the unit and leave to dry for at least 3 days. After the unit is completely dry, reconnect the telephone line cord. Insert the batteries.

Caution:

- To avoid permanent damage, do not use a microwave oven to speed up the drying process.

Cross Reference:

Call Restriction (P.16)

Dial Lock (P.16)

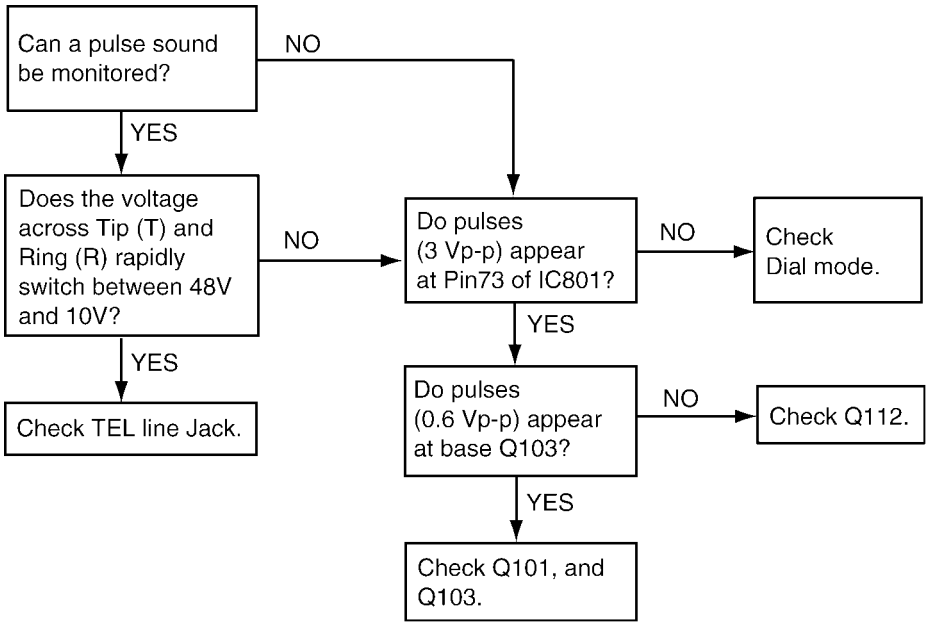
8 Troubleshooting Guide

Make sure batteries are installed for proper operation before troubleshooting.

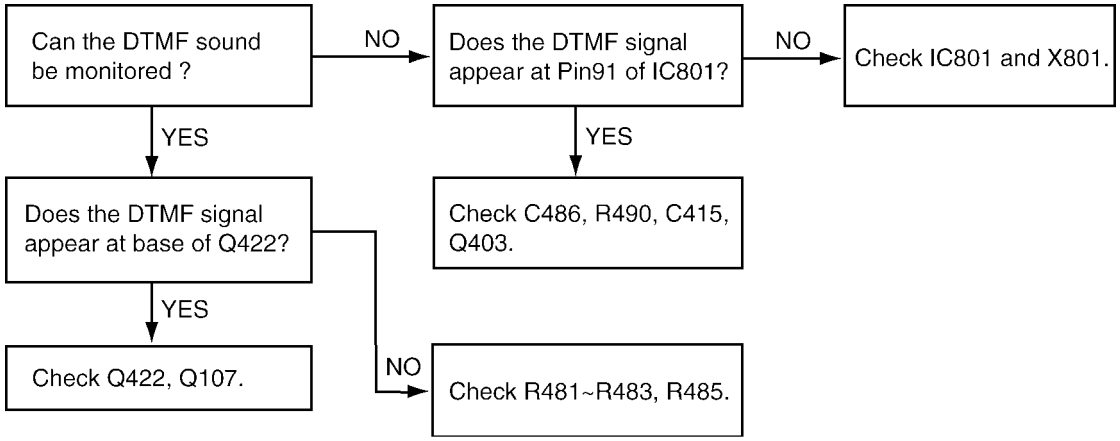
8.1. Service Hints

SYMPTOM	CURE
Dead.	Check IC801, X801.
Can't hear the voice from handset.	Check Q401, Q402, Q403.
No voice transmit.	Check Q422, Q107.
Can't tone dial.	Check IC801 (91), R481~R483, R485
Can't pulse dial.	Check Q101, Q103, Q112.
No rings.	Check D3, D4, D5, D6, IC1, Q1
Can't speak with the handset.	Check Handset jack.
Can't change the volume for Handset or Speakerphone.	Check IC801, Q405~Q407, R407~R409, IC601, C412~C414, R619~R621.
No volume handset or speakerphone.	Check IC801, Q107, Q401.
Caller ID Function doesn't work.	Check C551, C552, R551, R552, D551~D554, IC801.
Caller ID Function doesn't work. (DTMF)	Check around IC501, Q501, Q502.
Can't auto redial.	Check IC201, Q201.
Can't hold.	Check Q110.
Can't speak with the speakerphone.	Check IC601.

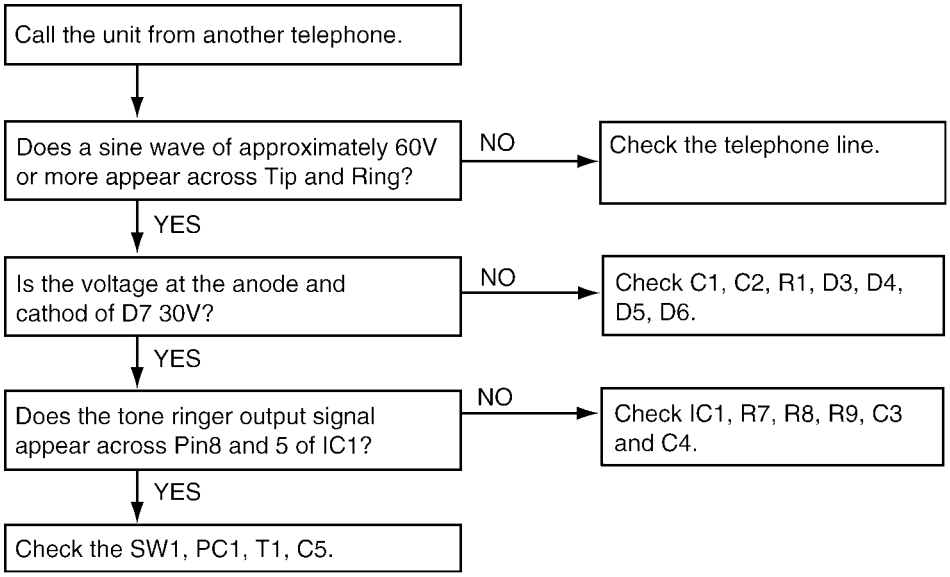
8.2. Pulse Dialing Problems



8.3. Tone Dialing Problems (handset)



8.4. No Ringing Sound When Ring Signal is Input

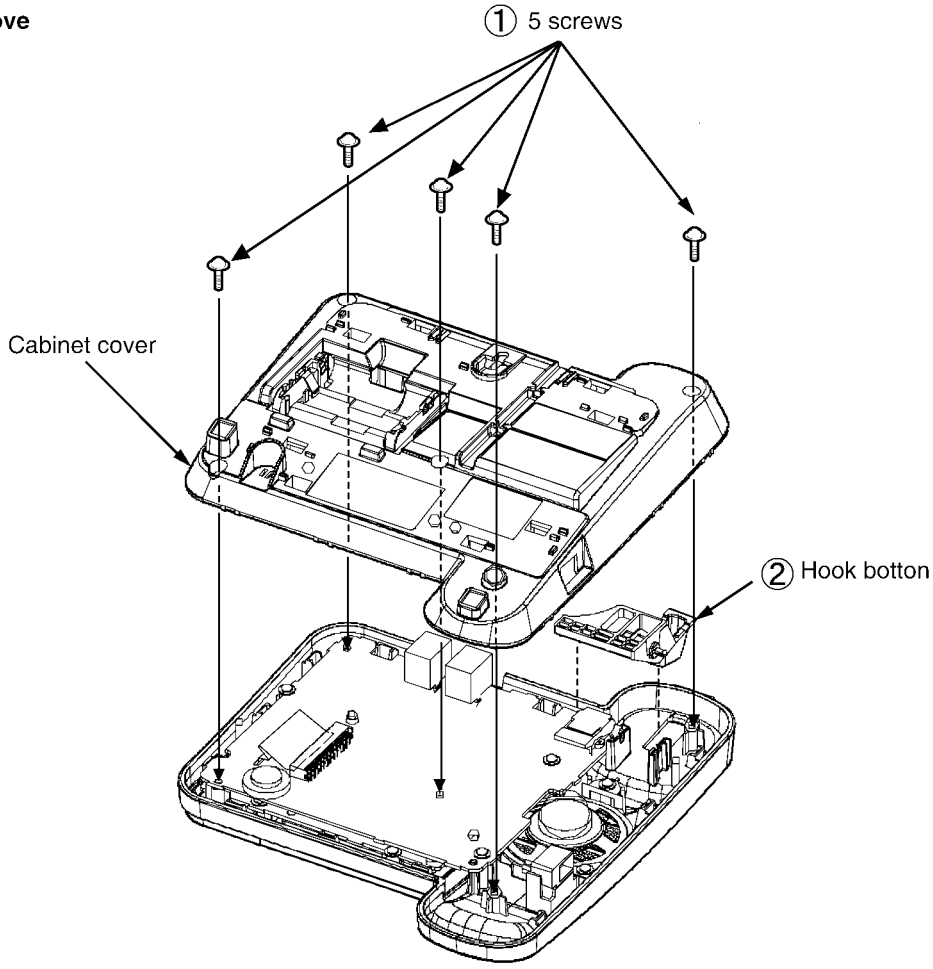


9 Disassembly and Assembly Instructions

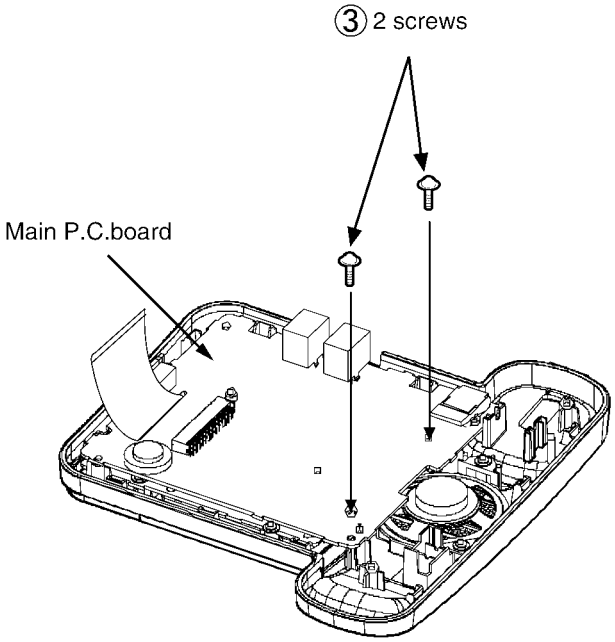
9.1. Disassembly Instructions

① **Remove the 5 screws to remove the cabinet cover.**

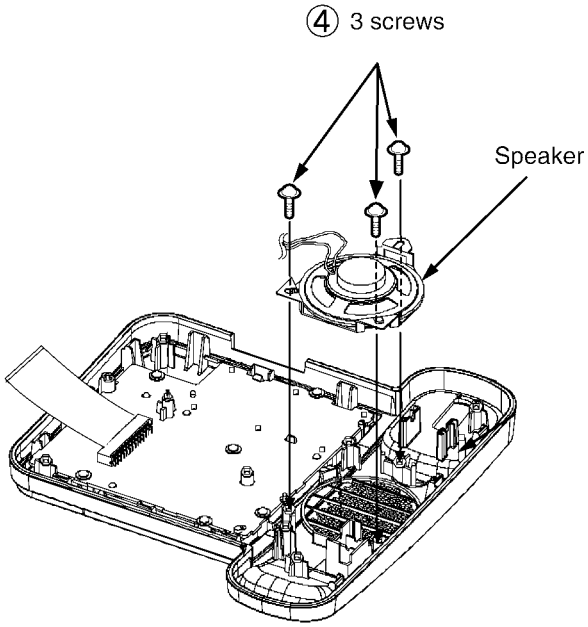
② **Remove the hook botton.**



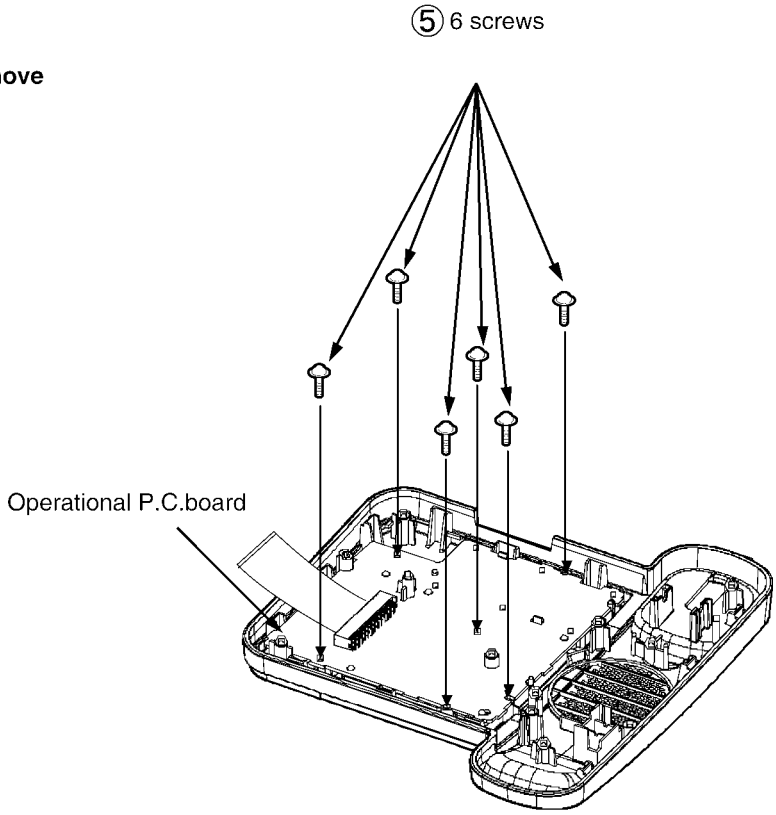
③ **Remove the 2 screw to remove the main P.C. board.**



④ **Remove the 3 screws to remove the speaker.**



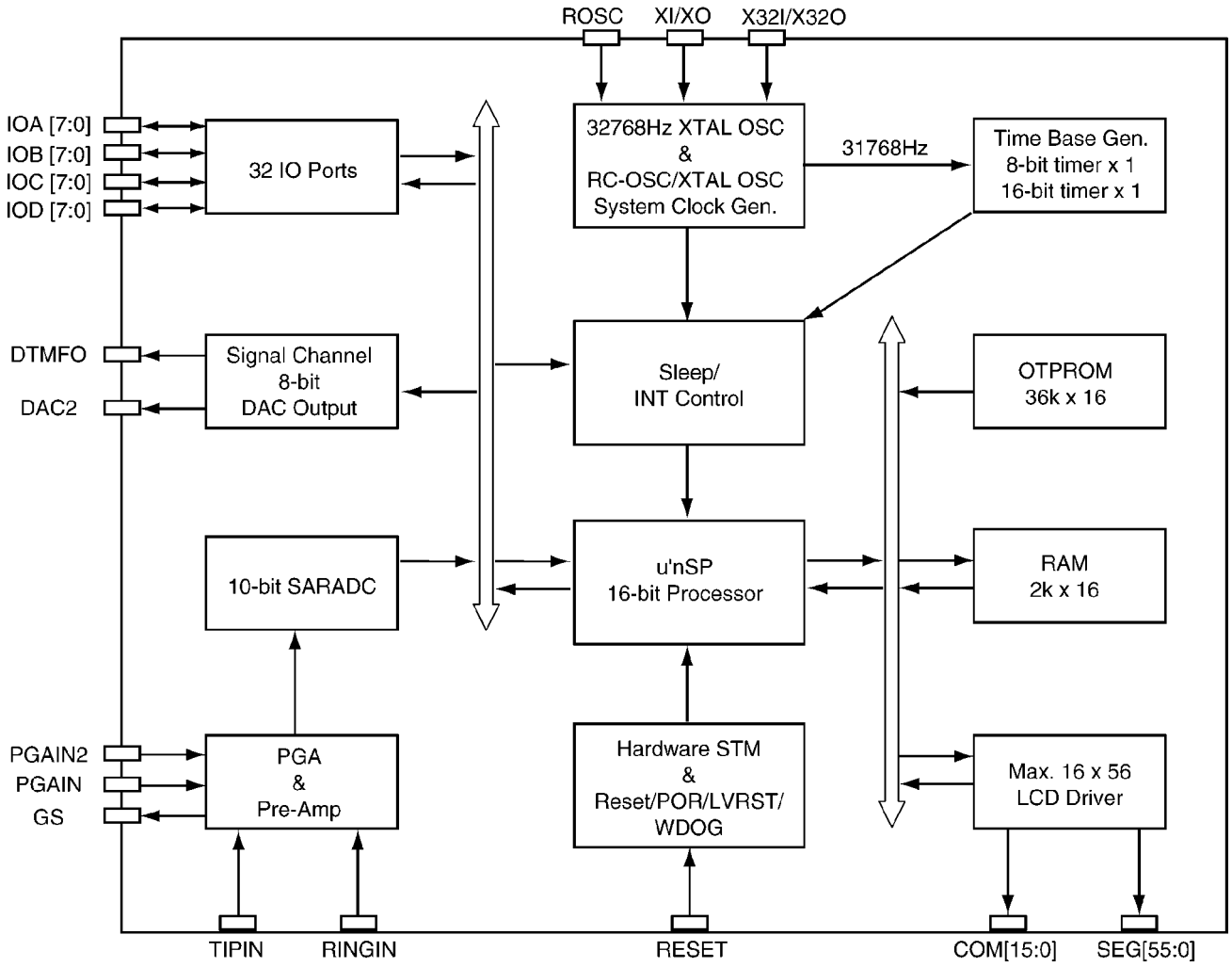
⑤ **Remove the 6 screw to remove the operational P.C. board.**



10 Miscellaneous

10.1. IC Block diagram

10.1.1. IC801



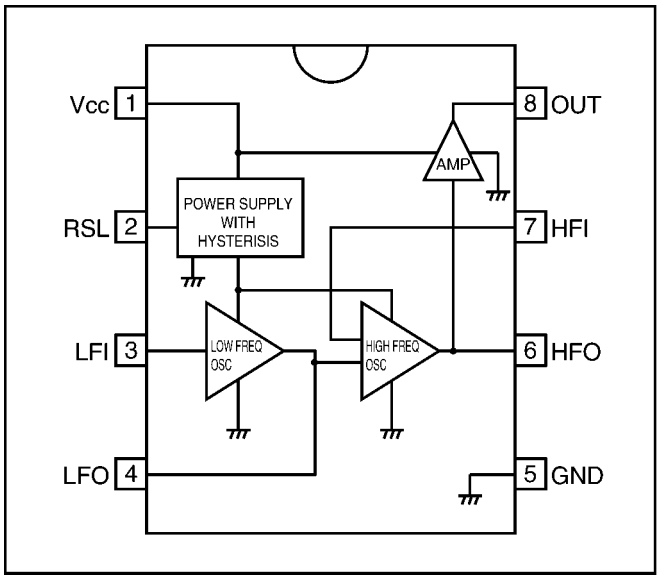
10.1.2. CPU DATA (IC801)

Pin No.	Description	I/O	Connection	Normal	Standby	Stop	Reset
1	NC	-	-	-	-	-	-
2	NC	-	-	-	-	-	-
3	NC	-	-	-	-	-	-
4	SEG4	D.O	SEG4/ KeyStrobe4	CMOS	L	CMOS	CMOS
5	SEG5	D.O	SEG5/ KeyStrobe5	CMOS	L	CMOS	CMOS
6	SEG6	D.O	SEG6/Option Strobe	CMOS	L	CMOS	CMOS
7	SEG7	D.O	SEG7	CMOS	CMOS	CMOS	CMOS
8	SEG8	D.O	SEG8	CMOS	CMOS	CMOS	CMOS
9	SEG9	D.O	SEG9	CMOS	CMOS	CMOS	CMOS
10	SEG10	D.O	SEG10	CMOS	CMOS	CMOS	CMOS
11	SEG11	D.O	SEG11	CMOS	CMOS	CMOS	CMOS
12	SEG12	D.O	SEG12	CMOS	CMOS	CMOS	CMOS
13	SEG13	D.O	SEG13	CMOS	CMOS	CMOS	CMOS
14	SEG14	D.O	SEG14	CMOS	CMOS	CMOS	CMOS
15	SEG15	D.O	SEG15	CMOS	CMOS	CMOS	CMOS
16	SEG16	D.O	SEG16	CMOS	CMOS	CMOS	CMOS
17	SEG17	D.O	SEG17	CMOS	CMOS	CMOS	CMOS
18	SEG18	D.O	SEG18	CMOS	CMOS	CMOS	CMOS
19	SEG19	D.O	SEG19	CMOS	CMOS	CMOS	CMOS
20	SEG20	D.O	SEG20	CMOS	CMOS	CMOS	CMOS
21	SEG21_ESCK	D.O	SEG21	CMOS	CMOS	CMOS	CMOS
22	SEG22_ESDA	D.O	SEG22	CMOS	CMOS	CMOS	CMOS
23	SEG23	D.O	SEG23	CMOS	CMOS	CMOS	CMOS
24	SEG24	D.O	SEG24	CMOS	CMOS	CMOS	CMOS
25	SEG25	D.O	SEG25	CMOS	CMOS	CMOS	CMOS
26	SEG26	D.O	SEG26	CMOS	CMOS	CMOS	CMOS
27	SEG27	D.O	SEG27	CMOS	CMOS	CMOS	CMOS
28	SEG28	D.O	SEG28	CMOS	CMOS	CMOS	CMOS
29	SEG29	D.O	SEG29	CMOS	CMOS	CMOS	CMOS
30	NC	-	-	-	-	-	-
31	NC	-	-	-	-	-	-
32	NC	-	-	-	-	-	-
33	NC	-	-	-	-	-	-
34	NC	-	-	-	-	-	-
35	NC	-	-	-	-	-	-
36	SEG30	D.O	SEG30	CMOS	CMOS	CMOS	CMOS
37	SEG31	D.O	SEG31	CMOS	CMOS	CMOS	CMOS
38	SEG32	D.O	SEG32	CMOS	CMOS	CMOS	CMOS
39	SEG33	D.O	SEG33	CMOS	CMOS	CMOS	CMOS
40	SEG34	D.O	SEG34	CMOS	CMOS	CMOS	CMOS
41	SEG35	D.O	SEG35	CMOS	CMOS	CMOS	CMOS
42	SEG36	D.O	SEG36	CMOS	CMOS	CMOS	CMOS
43	IOD7_SEG37	D.O	SEG37	CMOS	CMOS	CMOS	CMOS
44	IOD6_SEG38	D.O	SEG38	CMOS	CMOS	CMOS	CMOS
45	IOD5_SEG39	D.O	SEG39	CMOS	CMOS	CMOS	CMOS
46	LVDD	I	LVDD	H	-	-	-
47	VDD	I	VDD	H	-	-	-
48	EXTCLK_XI	I	NC	I	-	-	-
49	ROSC_XO	I	ROSC_XO	I	-	-	-
50	RESET	I	RESET	I	-	-	-
51	X32I	I	32k	I	-	-	-
52	X32O	O	32k	O	-	-	-
53	VSS	I	GND	-	-	-	-
54	RX_MUTE	D.O	RX_MUTE	CMOS	L	L	L
55	TX-MUTE	D.O	TX_MUTE	CMOS	L	L	L
56	UART(RXfromPC)	D.I	UART(RX from PC)/R_CLIP Gain control(For RU/UA/CA)	I	I	-	I
57	HOLDMUSIC	D.O	Hold Music/ DRING	CMOS	L	L	L
58	IOD0	D.O	ACK_MUTE	L	L	L	L

Pin No.	Description	I/O	Connection	Normal	Standby	Stop	Reset
59	IOC7_BATTDET	D.I	BATT_Low	I	-	I	I
60	IOC6_E12V	D.O	BACK_UP	CMOS	H	L	H
61	IOC5_RDIN	D.I	Ring_DET	I	I	-	I
62	NC	-	-	-	-	-	-
63	NC	-	-	-	-	-	-
64	NC	-	-	-	-	-	-
65	NC	-	-	-	-	-	-
66	NC	-	-	-	-	-	-
67	NC	-	-	-	-	-	-
68	IOC4_RDRC	D.O	SP_CS	CMOS	L	L	L
69	IOC3_SEG44	D.O	Pmute /L_SEIZ	CMOS	L	L	L
70	IOC2_SEG45	D.O	RELAY	L	L	L	L
71	IOC1_SEG46	D.I	BATT_OUT	I	I	-	I
72	IOC0_SEG47	D.I	Wake_UP	I	I	-	I
73	IOB7	D.O	PULSE	NMOS	L	L	L
74	IOB6	D.O	NC	-	-	-	-
75	IOB5_SEG48	D.O	EEPROM_CS	CMOS	H	H	L
76	IOB4_SEG49	D.I/O	EEPROM_DATA	I/O		L	L
77	IOB3_SEG50	D.O	EEPROM_CLOCK	CMOS	L	L	L
78	IOB2_SEG51	D.O	Volume3	CMOS	L	L	L
79	IOB1_SEG52	D.O	Volume2	CMOS	L	L	L
80	IOB0_SEG53	D.O	Volume1	CMOS	L	L	L
81	IOA7_SEG54	D.I	STOP	I	I	-	I
82	IOA6_SEG55	D.I	HOOK SW	I	I	-	I
83	IOA5	D.I	KeyIN4	I	I	-	PUP
84	IOA4	D.I	KeyIN3	I	I	-	PUP
85	IOA3	D.I	KeyIN2	I	I	-	PUP
86	IOA2	D.I	KeyIN1	I	I	-	PUP
87	IOA1_ADIN4	D.I	TONE_DET	I	I	-	I
88	IOA0_ADIN3	D.I	EX HOOK/ INUSE	I	-	I	I
89	DAC2	A.O	BEEP	A.O	L	L	L
90	AVSS	I	Analog GND	-	-	-	-
91	DTMFO	A.O	DTMF	A.O	L	L	L
92	TIPIN	A.I	Tip_IN	I	I	I	I
93	RINGIN	A.I	Ring_IN	I	I	I	I
94	NC	-	-	-	-	-	-
95	NC	-	-	-	-	-	-
96	NC	-	-	-	-	-	-
97	NC	-	-	-	-	-	-
98	NC	-	-	-	-	-	-
99	NC	-	-	-	-	-	-
100	GS	A.O	GS	-	-	-	-
101	PGAIN	A.I	PGAIN	-	-	-	-
102	PGAIN2	A.I	PGAIN2	-	-	-	-
103	VR2	A.O	VR2	-	-	-	-
104	AVDD	A.O	Analog Vdd	H	-	-	-
105	LVDD	I	LVDD	H	-	-	-
106	COM0	D.O	COM0	CMOS	CMOS	CMOS	CMOS
107	COM1	D.O	COM1	CMOS	CMOS	CMOS	CMOS
108	COM2	D.O	COM2	CMOS	CMOS	CMOS	CMOS
109	COM3	D.O	COM3	CMOS	CMOS	CMOS	CMOS
110	COM4	D.O	COM4	CMOS	CMOS	CMOS	CMOS
111	COM5	D.O	COM5	CMOS	CMOS	CMOS	CMOS
112	COM6	D.O	COM6	CMOS	CMOS	CMOS	CMOS
113	COM7	D.O	COM7	CMOS	CMOS	CMOS	CMOS
114	COM8	D.O	COM8	CMOS	CMOS	CMOS	CMOS
115	COM9	D.O	COM9	CMOS	CMOS	CMOS	CMOS
116	COM10	D.O	COM10	CMOS	CMOS	CMOS	CMOS
117	COM11	D.O	COM11	CMOS	CMOS	CMOS	CMOS
118	COM12	D.O	COM12	CMOS	CMOS	CMOS	CMOS
119	COM13	D.O	COM13	CMOS	CMOS	CMOS	CMOS
120	COM14	D.O	COM14	CMOS	CMOS	CMOS	CMOS
121	COM15	D.O	COM15	CMOS	CMOS	CMOS	CMOS
122	SEG0/STB0	D.O	SEG0/ KeyStrobe0	CMOS	CMOS	CMOS	CMOS

Pin No.	Description	I/O	Connection	Normal	Standby	Stop	Reset
123	SEG1/STB1	D.O	SEG1/ KeyStrobe1	CMOS	CMOS	CMOS	CMOS
124	SEG2/STB2	D.O	SEG2/ KeyStrobe2	CMOS	CMOS	CMOS	CMOS
125	SEG3/STB3	D.O	SEG3/ KeyStrobe3	CMOS	CMOS	CMOS	CMOS
126	NC	-	-	-	-	-	-
127	NC	-	-	-	-	-	-
128	NC	-	-	-	-	-	-

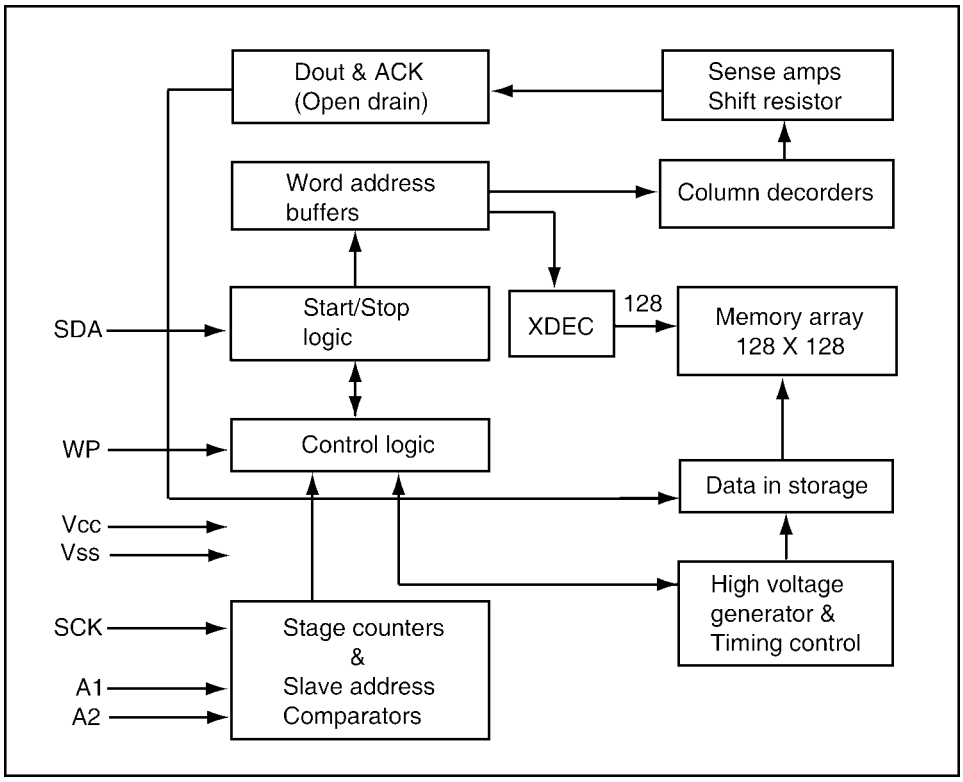
10.1.3. RINGER IC (IC1)



Pin descriptions

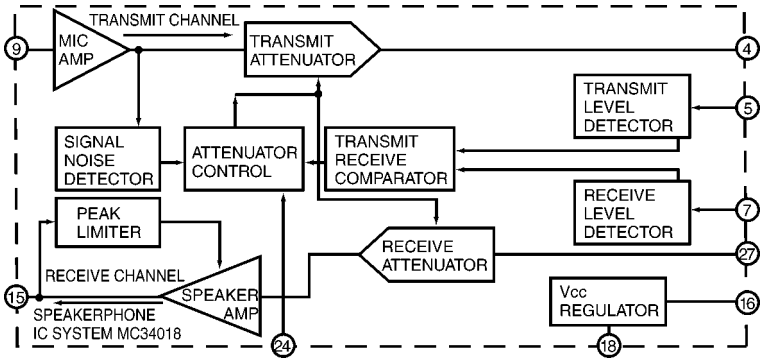
Pin No.	Pin name	Name	Function
1	Vcc	Power supply pin	This is the power supply pin for the IC. It is connected to the (⊕) pin of the diode bridge.
2	RSL	RSL pin	This is used to change the operation initiation current when connected to the GND pin.
3	LFI	Low-frequency time constant connector pin	This is connected to the time constant that determines the oscillation frequency on the warble.
4	LFO		
5	GND	GND pin	This pin has the lowest potential on the IC. It is connected to the (⊖) pin of the diode bridge.
6	HFO	High-frequency time constant connector pin	This is connected to the time constant that determines the oscillation frequency on the tone side (the audible frequency side).
7	HFI		
8	OUT	Output pin	This is used to connect a piezoelectric buzzer, or to connect a dynamic speaker through a transformer.

10.1.4. EEPROM (IC851)



1. SCK
   SCK terminal is input terminal of Serial Clock to control transmit and receipt between Master and Slave.
2. SDA
   SDA terminal is input terminal, to forward the address and the mutual data between Master Device and Slave Device the mutual.
   This terminal needs the pull-up resistance external because output circuit of SDA uses Open Drain.
3. A0, A1, A2
   A0, A1, and A2 terminal is not used.
4. WP
   WP terminal controls writing action. It is possible to do only reading action when high level input and it is possible to do reading and writing action when low level input.

10.1.5. Speakerphone IC Data (IC601)



Pin NO.	Name	Description
1	RR	A resistor to ground provides a reference current for the transmit and receive attenuators.
2	RTX	A resistor to ground determines the nominal gain of the transmit attenuator. The transmit channel gain is inversely proportional to the RTX resistance.
3	TXI	Input to the transmit attenuator. Input resistance is nominally 5.0 kohms.
4	TXO	Output to the transmit attenuator. The TXO output signal drives the input of the transmit level detector, as well as the external circuit which drives the telephone line.
5	TLI	Input of the transmit level detector. An external resistor ac coupled to the TLI pin sets the detection level. Decreasing this resistor increases the sensitivity to transmit channel signals.
6	TLO	Output of the transmit level detector. An external resistor and capacitor set the time the comparator will hold the system in the transmit mode after speech ceases.
7	RLI	Input of the receive level detector. An external resistor ac coupled to the RLI pin sets the detection level. Decreasing this resistor increases the sensitivity to receive channel signals.
8	RLO	Output of the receive level detector. An external resistor and capacitor set the time the comparator will hold the system in the receive mode after the receive signal ceases.
9	MCI	Microphone amplifier input. Input impedance is nominally 10 kohms and the dc bias voltage is approximately equal to VB.
10	MCO	Microphone amplifier output. The mic amp gain is internally set at 34 dB (50 V/V).
11	CP1	A parallel resistor and capacitor connected between this pin and Vcc holds a voltage corresponding to the background noise level. The transmit detector compares the CP1 voltage with the speech signal from CP2.
12	CP2	A capacitor at this pin peak detects the speech signals for comparison with the background noise level held at CP1.
13	XDI	Input to the transmit detector system. The microphone amplifier output is ac coupled to the XDI pin through an external resistor.
14	SKG	High current ground pin for the speaker amp output stage. The SKG voltage should be within 10 mV of the ground voltage at pin 22.
15	SKO	Speaker amplifier output. The SKO pin will source and sink up to 100 mA when ac coupled to the speaker. The speaker amp gain is internally set at 34 dB (50 V/V).
16	V+	Input dc supply voltage. V+ can be powered from Tip and Ring if an ac decoupling inductor is used to prevent loading ac line signals. The required V+ voltage is 6.0 to 11 V (7.5 V nominal) at 7.0 mA.
17	AGC	A capacitor from this pin to VB stabilizes the speaker amp gain control loop, and additionally controls the attack and decay time of this circuit. The gain control loop limits the speaker amp input to prevent clipping at SKO. The internal resistance at the AGC pin is nominally 110 kohms.
18	CS	Digital chip select input. When at a Logic "0" (<0.7 V) the Vcc regulator is enabled. When at a Logic "1" (>1.6 V), the chip is in the standby mode drawing 0.5 mA. An open CS pin is a Logic "0". Input impedance is nominally 140 kohms. The input voltage should not exceed 11 V.
19	SKI	Input to the speaker amplifier. Input impedance is nominally 20 kohms.
20	Vcc	A 5.4 V regulated output which powers all circuit expect the speaker amplifier output stage. Vcc can be used to power external circuitry such as a microprocessor (3.0 mA max). A filter capacitor is required. The MC 34018 can be powered by a separate regulated supply by connecting V+ and Vcc to a voltage between 4.5 V and 6.5 V while maintaining CS at a Logic "1".
21	VB	An output voltage equal to approximately Vcc/2 which serves as an analogue ground for the speakerphone system. Up to 1.5 mA of external load current may be sourced from VB. Output impedance is 250 ohms. A filter capacitor is required.
22	Gnd	Ground pin for the IC (except the speaker amplifier).
23	XDC	Transmit detector output. A resistor and capacitor at this pin hold the system in the transmit mode during pauses between words or phrases. When the XDC pin voltage decays to ground, the attenuators switch from the transmit mode to the idle mode. The internal resistor at XDC is nominally 2.6 kohms.
24	VLC	Volume control input. Connecting this pin to the slider of a variable resistor provides receive mode volume control. The VLC pin voltage should be less than or equal to VB.
25	ACF	Attenuator control filter. A capacitor connected to this pin reduces noise transients as the attenuator control switches levels of attenuation.
26	RXO	Output of the receive attenuator. Normally this pin is ac coupled to the input of the speaker amplifier.
27	RXI	Input of the receive attenuator. Input resistance is nominally 5.0 kohms.
28	RRX	A resistor to ground determines the nominal gain of the receive attenuator. The receive channel gain is directly proportional to the RRX resistance.

10.2. How to Replace the Flat Package IC

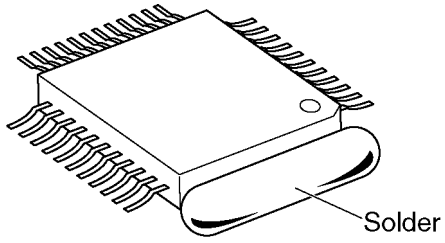
Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

10.2.1. Preperation

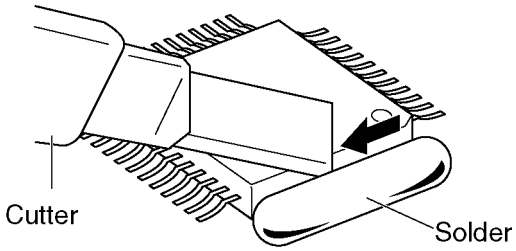
- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700°F ± 20°F (370°C ± 10°C)
  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux
  Recommended Flux: Specific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

10.2.2. How to Remove the IC

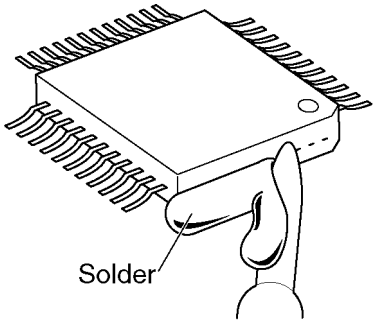
1. Put plenty of solder on the IC pins so that the pins can be completely covered.
   Note:
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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



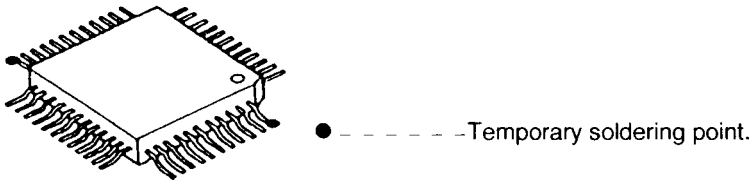
3. While the solder melts, remove it together with the IC pins.



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

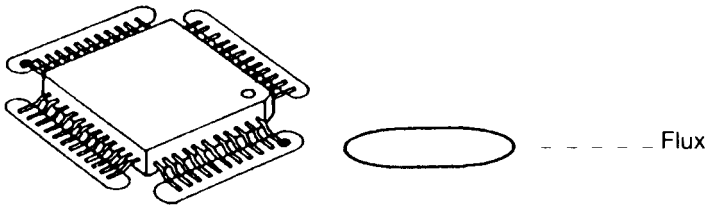
10.2.3. How to Install the IC

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

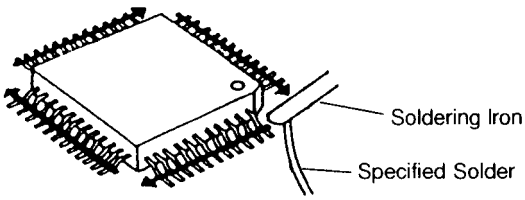


*Check the accuracy of the IC setting with the corresponding soldering foil.

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

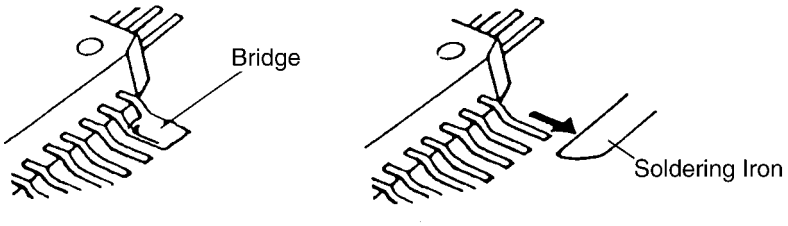


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



10.2.4. How to Remove a Solder Bridge

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



10.3. Terminal Guide of the ICs, Transistors and Diodes

<table>
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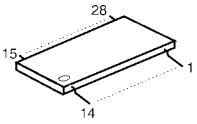
<td> 

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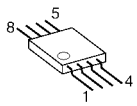
<td> 

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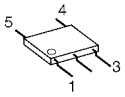
<td> 

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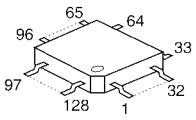
<td> 

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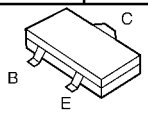
<td colspan="2"> 

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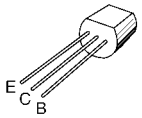
<td> 

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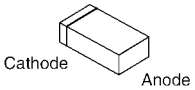
<td> 

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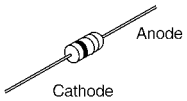
<td> 

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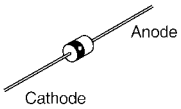
<td> 

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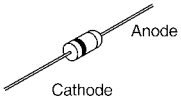
<td> 

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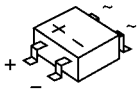
<td> 

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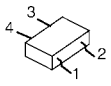
<td> 

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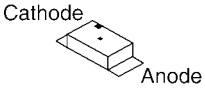
<td> 

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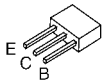
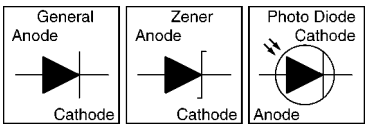
<td> 

B1CEGF000004</td>
</tr>
</table>

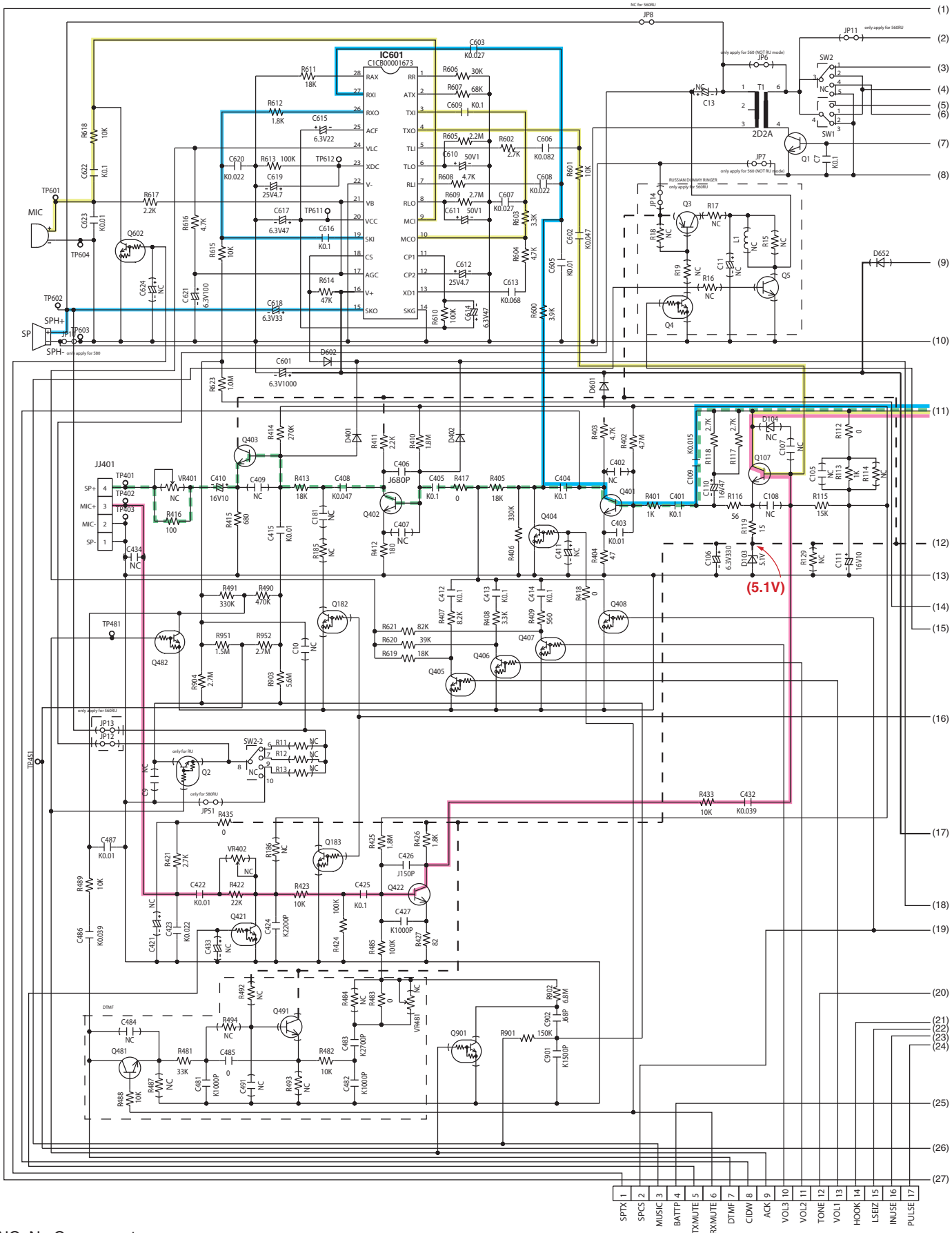
11 Schematic Diagram

11.1. For Schematic Diagram

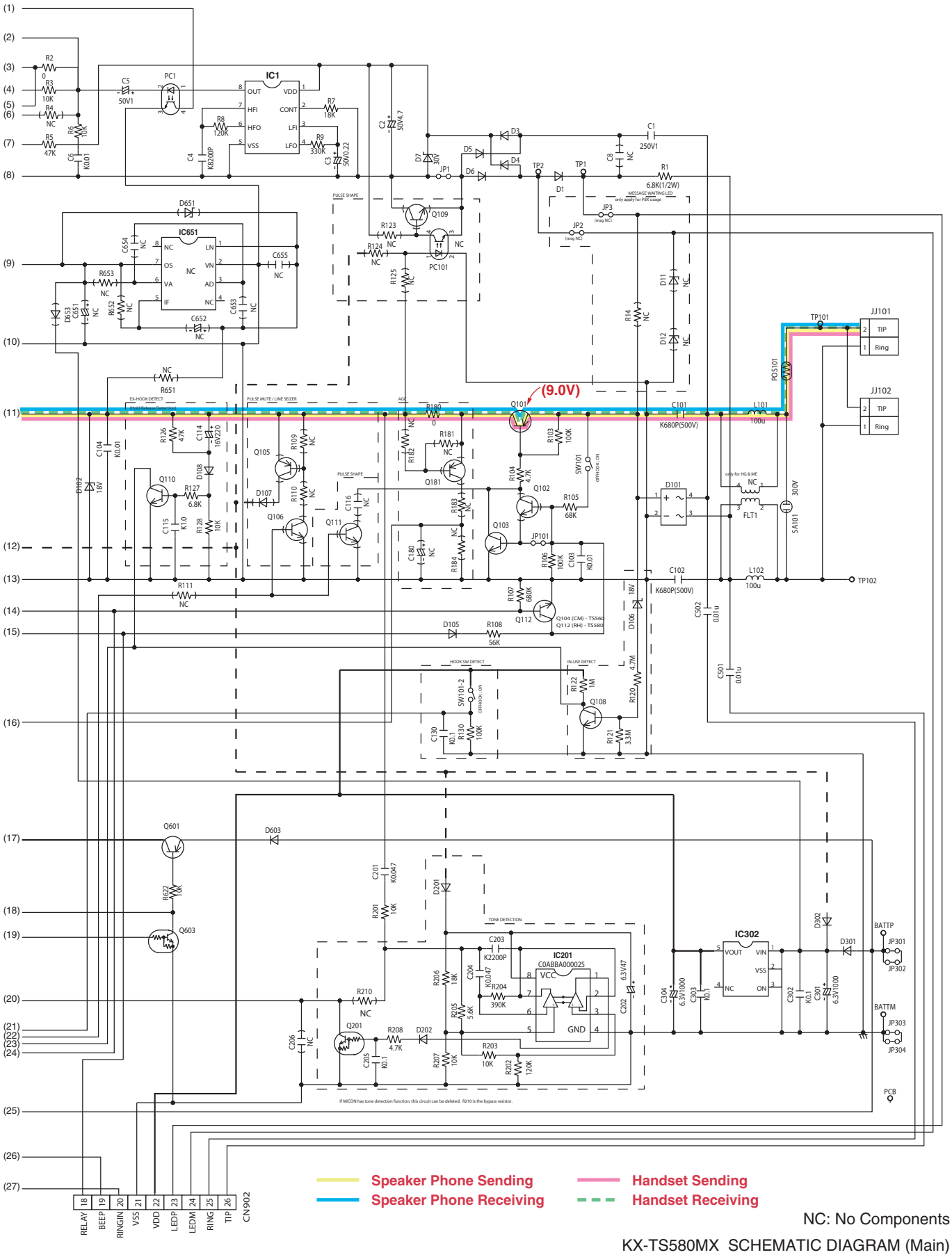
1. SW101: Hook switch.
2. SW1: Ringer selector.
3. DC voltage measurements are taken with electronic voltmeter from negative voltage line.
4. (Add 40 mA to telephone line from the loop simulator.)
5. Off-hook condition
6. No Mack: Handset Mode
7. This schematic diagram may be modified at any time with the development of new technology.
8. **The shades area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.**
9. **When servicing, it is essential that only manufacture's specified parts be used for the critical components in the shaded areas of the schematic.**



11.2. Schematic Diagram (Main)



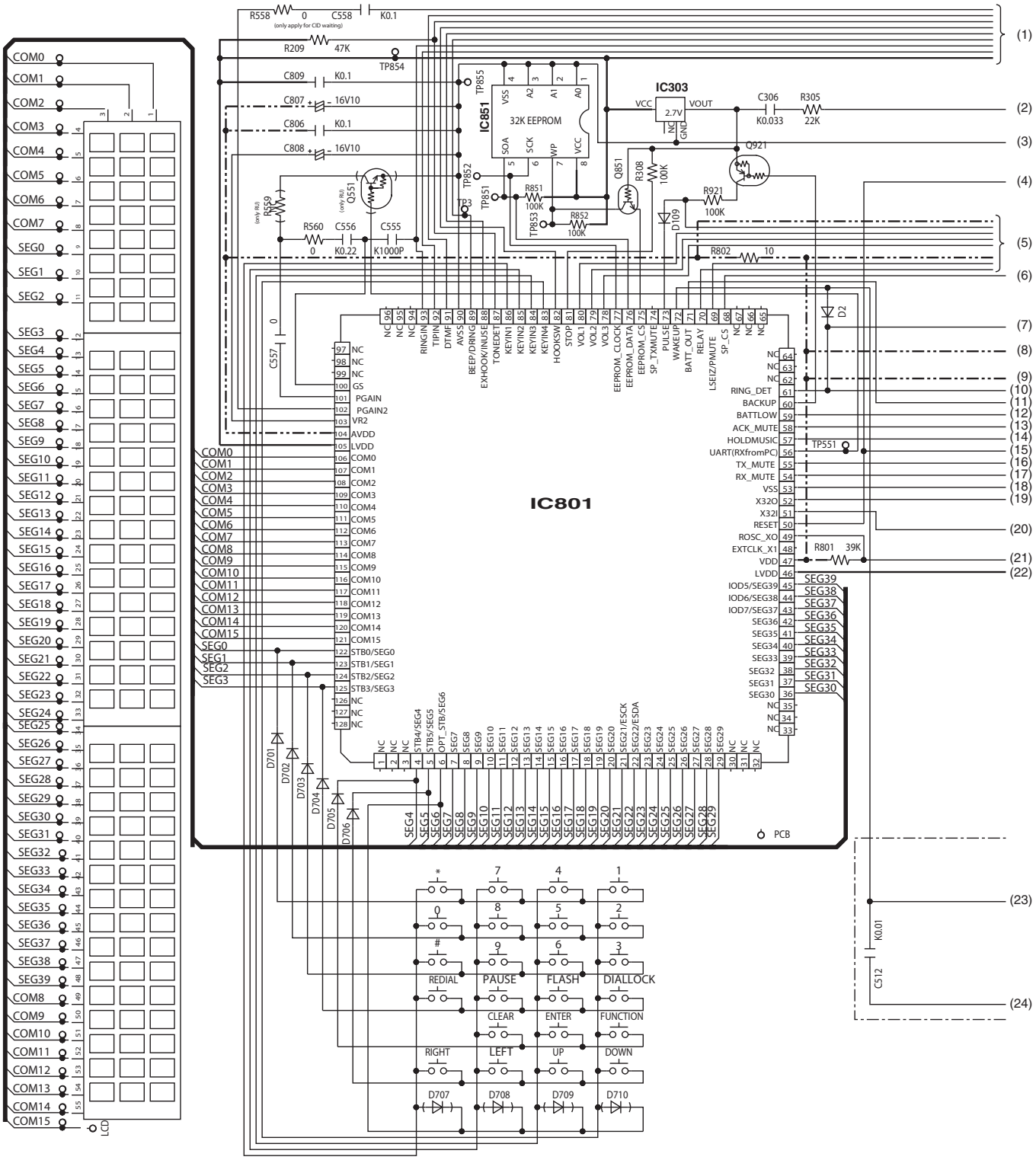
NC: No Components



NC: No Components

KX-TS580MX SCHEMATIC DIAGRAM (Main)

11.3. Schematic Diagram (Operation)



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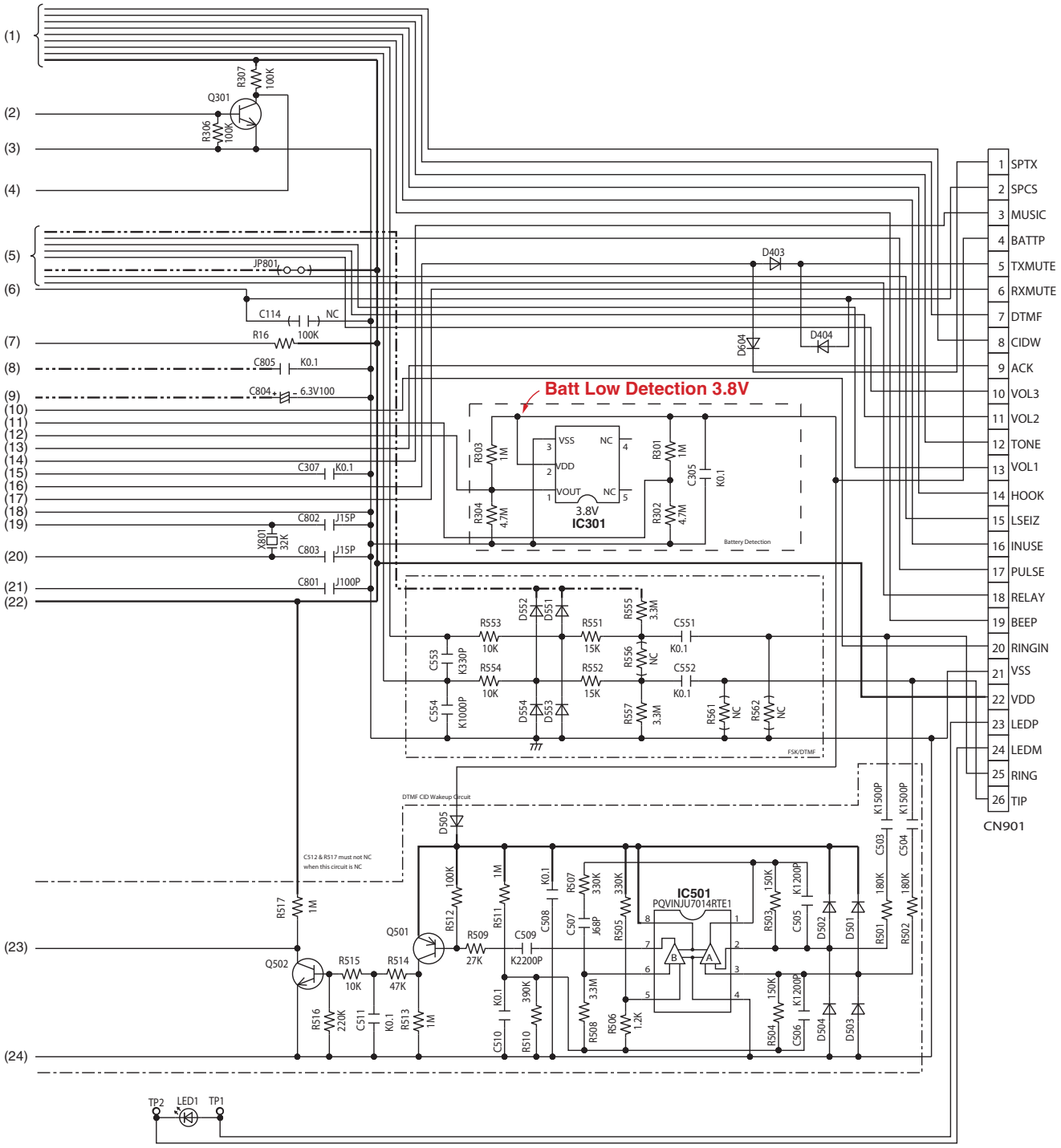


NC: No Components

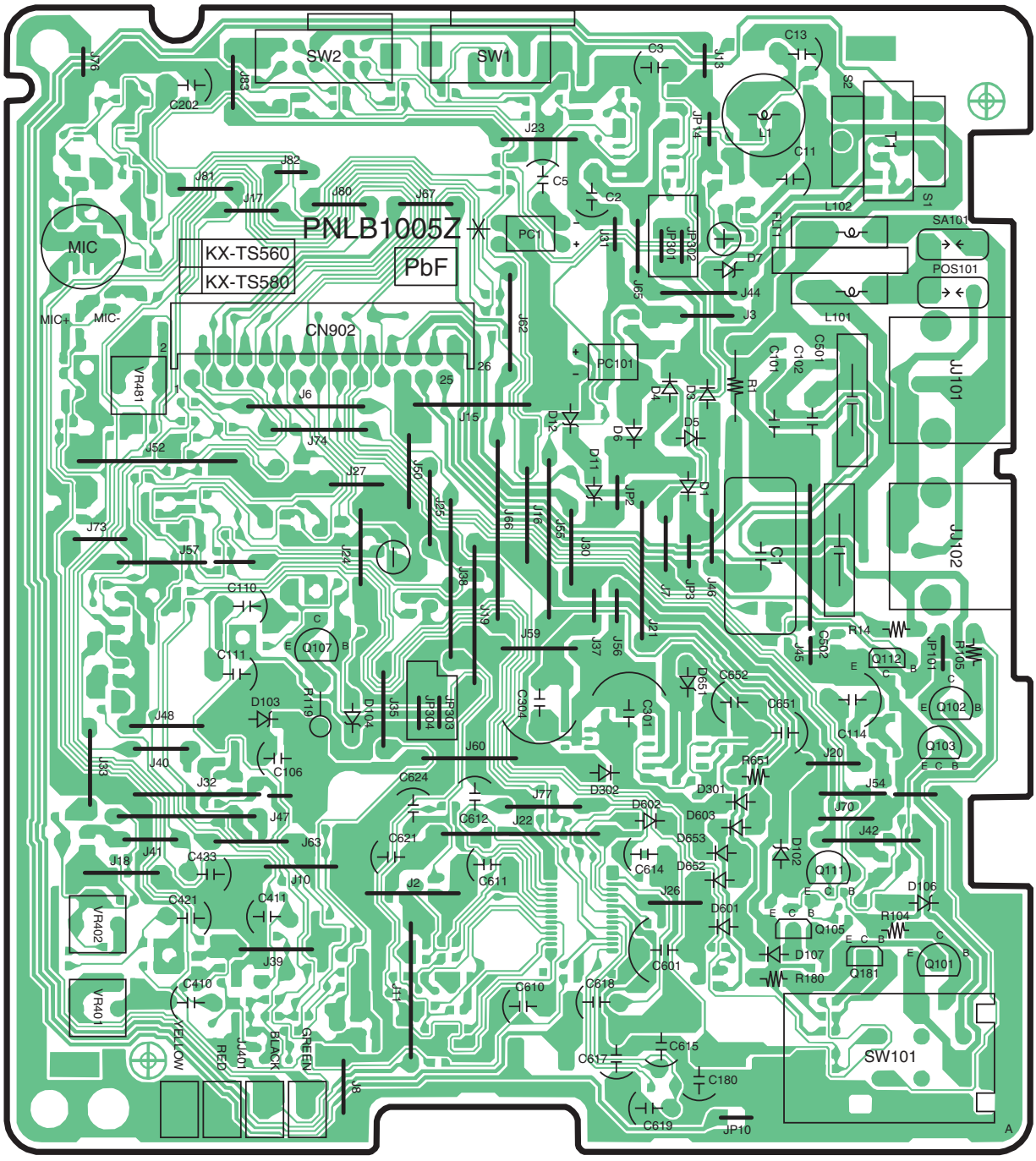
KX-TS580 SCHEMATIC DIAGRAM (Operation)

Memo

12 Printed Circuit Board

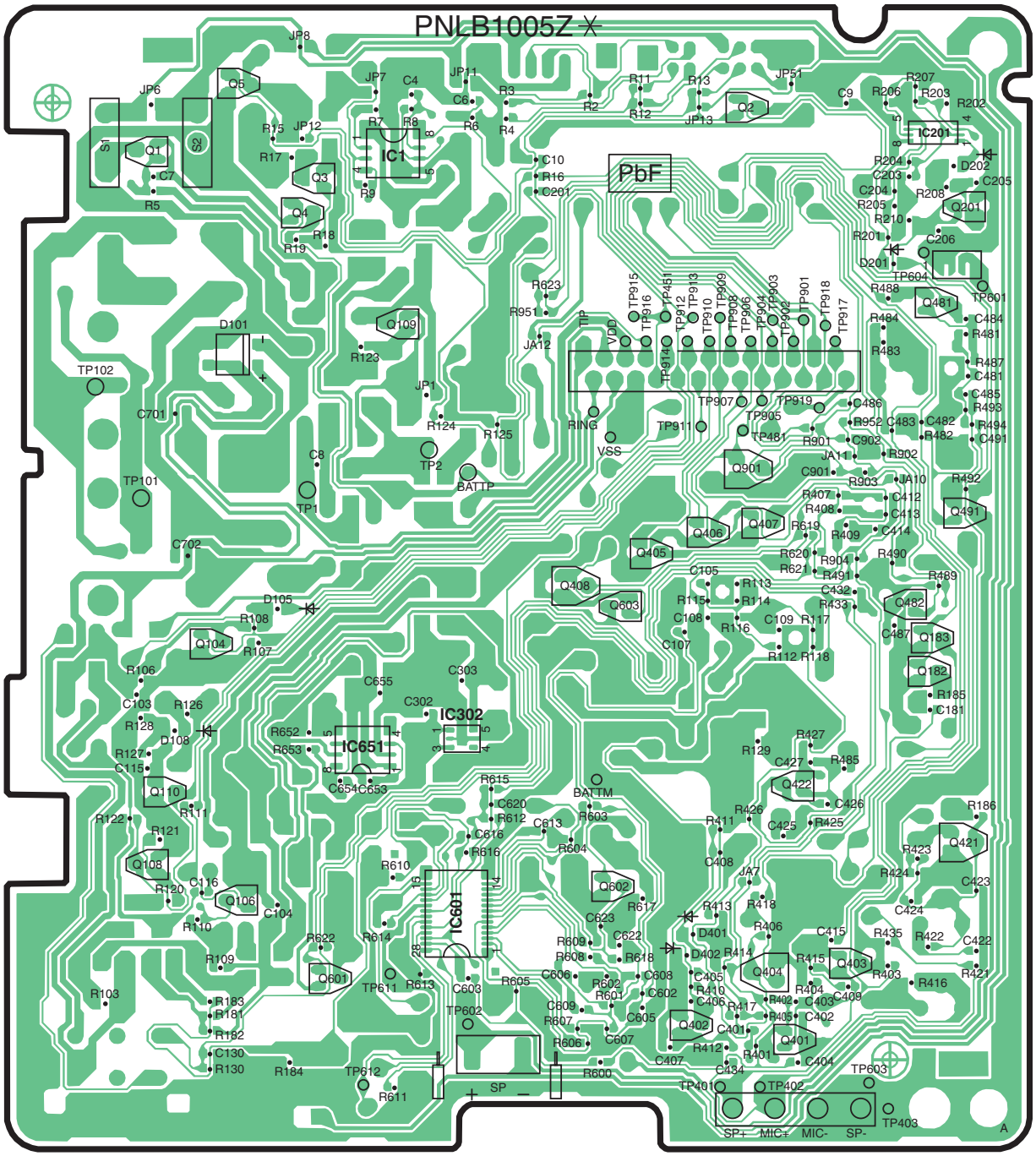
12.1. Circuit Board (Main)

12.1.1. Component View



KX-TS580 CIRCUIT BOARD (Main (Component View))

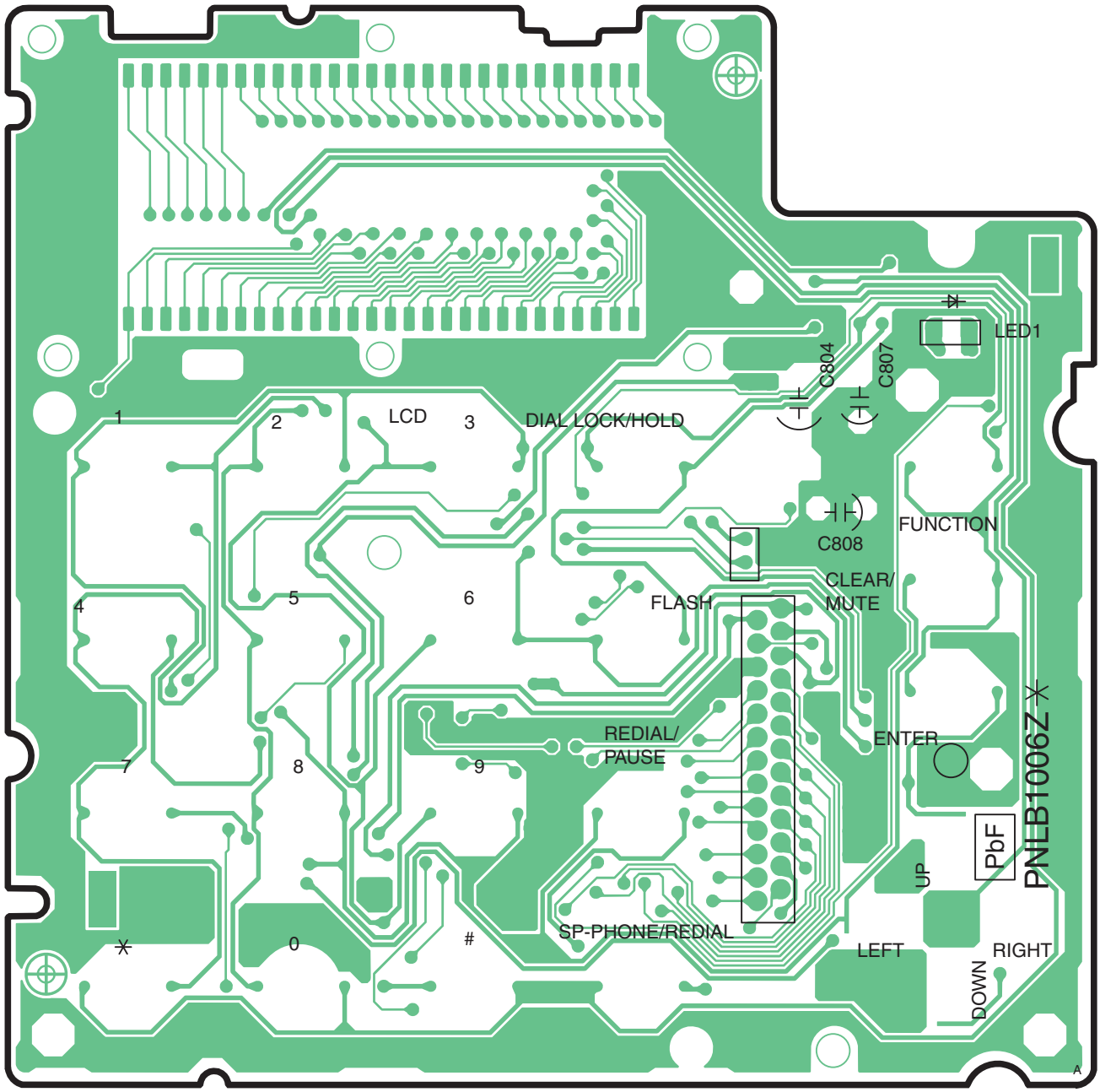
12.1.2. Bottom View



KX-TS580 CIRCUIT BOARD (Main (Bottom View))

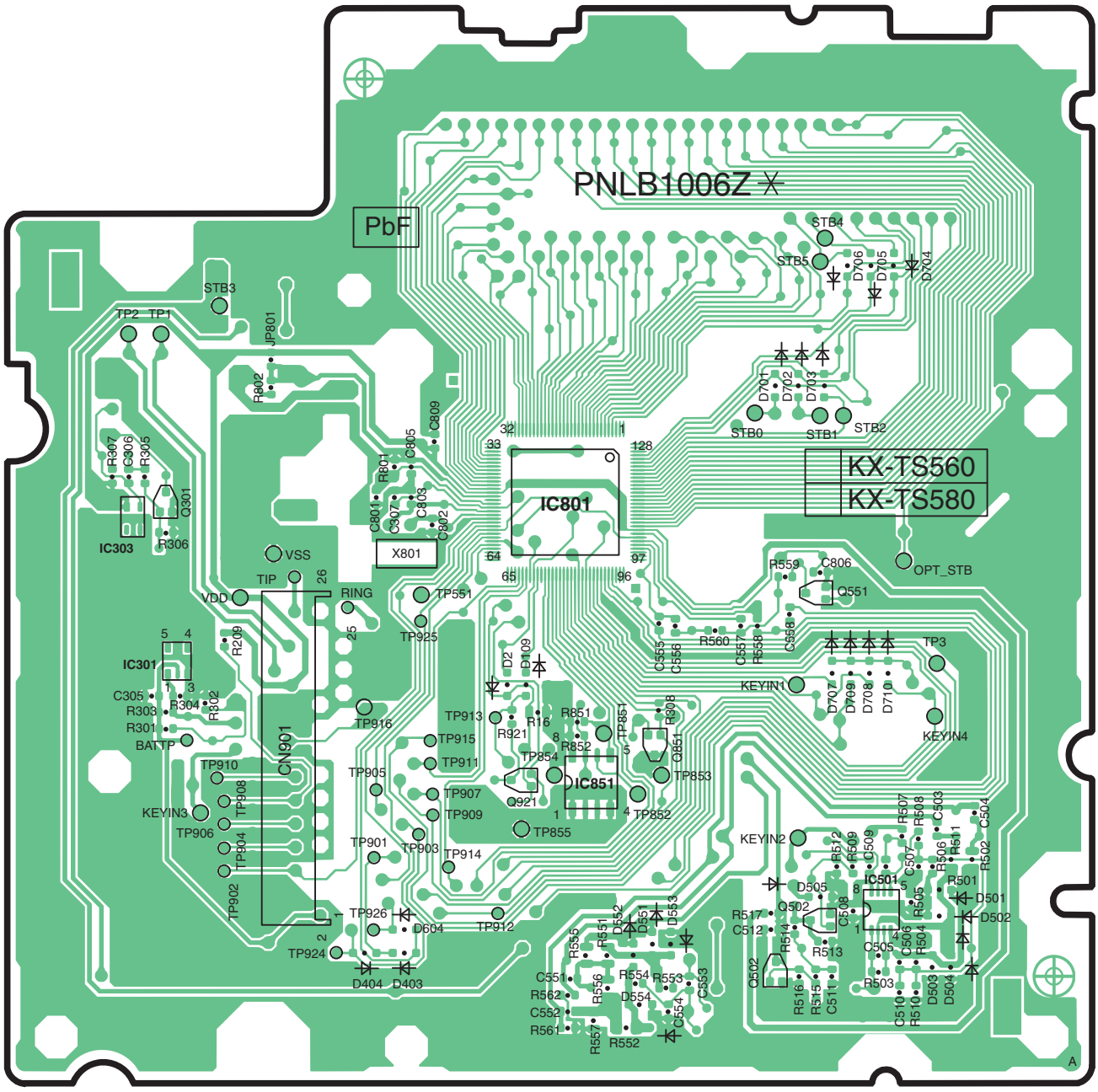
12.2. Circuit Board (Operation)

12.2.1. Component View



KX-TS580 CIRCUIT BOARD (Operation (Component View))

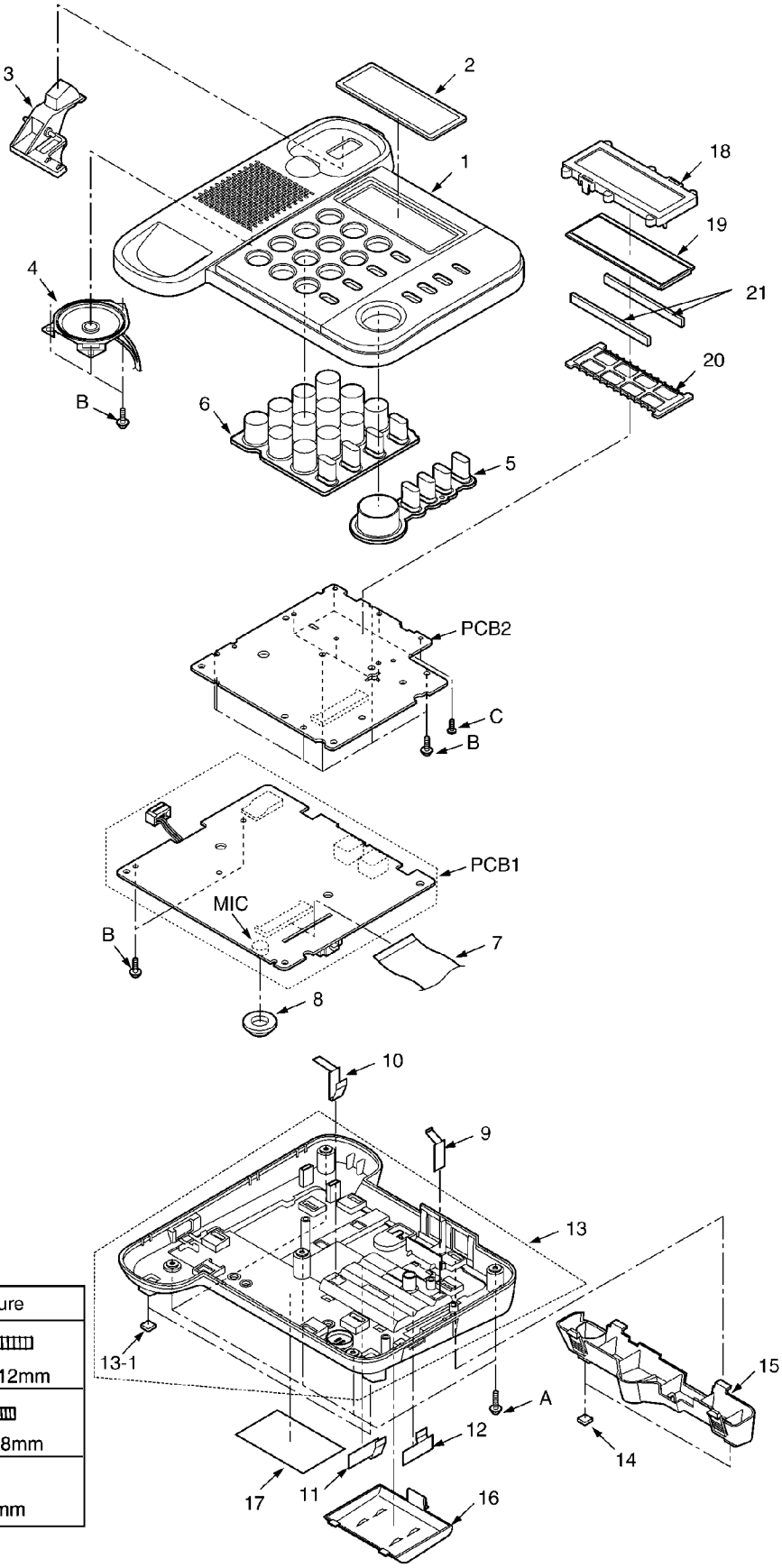
12.2.2. Bottom View



KX-TS580 CIRCUIT BOARD (Operation (Bottom View))

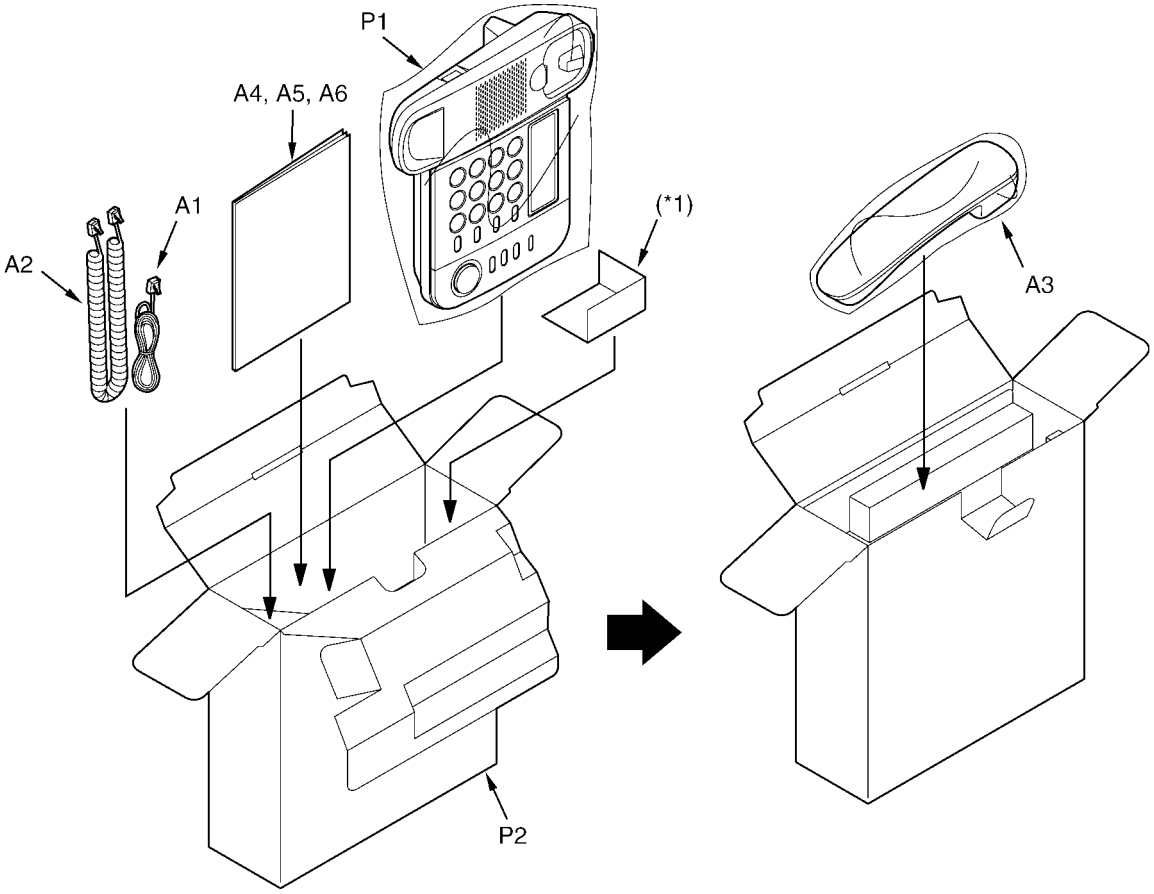
13 Exploded View and Replacement Parts List

13.1. Cabinet and Electrical Parts



Ref.No.	Figure
A	ϕ2.6 × 12mm
B	ϕ2.6 × 8mm
C	ϕ2 × 6mm

13.2. Accessories and Packing Materials



Note:
(*1) This pad is a piece of Ref No. P2 (GIFT BOX).

13.3. Replacement Part List

1. RTL (Retention Time Limited)

   Note:

   The “RTL” marking indicates that its Retention Time is Limited. When production is discontinued, this item will continue to be available only for a specific period of time. This period of time depends on the type of item, and the local laws governing parts and product retention. At the end of this period, the item will no longer be available.

2. Important safety notice

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

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

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

5. RESISTORS & CAPACITORS

   Unless otherwise specified;

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

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

   *Type & Wattage of Resistor

Type

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

Wattage

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

*Type & Voltage Of Capacitor

Type

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

Voltage

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

13.3.1. Base Unit

13.3.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNKM1037Z2	CABINET BODY (for KX-TS580MXB)	PS-HB
	1	PNKM1037Z1	CABINET BODY (for KX-TS580MXW)	PS-HB
	1	PNKM1037Z7	CABINET BODY (for KX-TS580MXR)	PS-HB
	1	PNKM1037Z3	CABINET BODY (for KX-TS580MXC)	PS-HB
	1	PNKM1037Z6	CABINET BODY (for KX-TS580MXJ)	PS-HB
	2	PNGP1019Z2	PANEL, LCD (for KX-TS580MXB, KX-TS580MXR, KX-TS580MXC)	
	2	PNGP1019Z1	PANEL, LCD (for KX-TS580MXW, KX-TS580MXJ)	
	3	PNBH1003Z2	BUTTON, HOOK (for KX-TS580MXB)	ABS-HB
	3	PNBH1003Z1	BUTTON, HOOK (for KX-TS580MXW)	ABS-HB
	3	PNBH1003Z7	BUTTON, HOOK (for KX-TS580MXR)	ABS-HB
	3	PNBH1003Z3	BUTTON, HOOK (for KX-TS580MXC)	ABS-HB
	3	PNBH1003Z6	BUTTON, HOOK (for KX-TS580MXJ)	ABS-HB
	4	PQAS57P03Z	SPEAKER	
	5	PNJK1017Y	KEYBOARD SWITCH, 4 KEY (for KX-TS580MXB, KX-TS580MXR, KX-TS580MXC)	
	5	PNJK1017Z	KEYBOARD SWITCH, 4 KEY (for KX-TS580MXW, KX-TS580MXJ)	
	6	PNJK1018Y	KEYBOARD SWITCH, 16 KEY (for KX-TS580MXB, KX-TS580MXR, KX-TS580MXC)	
	6	PNJK1018Z	KEYBOARD SWITCH, 16 KEY (for KX-TS580MXW, KX-TS580MXJ)	
	7	PNJE1011Z	LEAD WIRE, FFC	
	8	PQMG10025W	RUBBER PARTS, MIC	
	9	PNJC1001Z	BATTERY TERMINAL, BATTERY CONTACT(+)	
	10	PNJC1002Z	BATTERY TERMINAL, BATTERY CONTACT(-)	
	11	PQJC313Y	BATTERY TERMINAL, BATTERY CONTACT(+)(-)	
	12	PQJC314Y	BATTERY TERMINAL, BATTERY CONTACT(-)(+)	
	13	PNKF1028Z2	CABINET COVER (for KX-TS580MXB)	PS-HB
	13	PNKF1028Z1	CABINET COVER (for KX-TS580MXW)	PS-HB
	13	PNYF1009Z7	CABINET COVER (for KX-TS580MXR)	PS-HB
	13	PNYF1009Z3	CABINET COVER (for KX-TS580MXC)	PS-HB
	13	PNYF1009Z6	CABINET COVER (for KX-TS580MXJ)	PS-HB
	13-1	PQHA10018Y	RUBBER PARTS, FOOT CUSHION	
	14	PNHA1002Y	RUBBER PARTS, FOOT CUSHION	
	15	PNKL1004Z2	STAND, WALLMOUNT (for KX-TS580MXB)	PS-HB
	15	PNKL1004Z1	STAND, WALLMOUNT (for KX-TS580MXW)	PS-HB
	15	PNKL1004Z7	STAND, WALLMOUNT (for KX-TS580MXR)	PS-HB
	15	PNKL1004Z3	STAND, WALLMOUNT (for KX-TS580MXC)	PS-HB
	15	PNKL1004Z6	STAND, WALLMOUNT (for KX-TS580MXJ)	PS-HB
	16	PQKK10105X2	LID, BATTERY (for KX-TS580MXB)	ABS-HB
	16	PQKK10105X1	LID, BATTERY (for KX-TS580MXW)	ABS-HB
	16	PQKK10105XA	LID, BATTERY (for KX-TS580MXR)	ABS-HB
	16	PQKK10105X8	LID, BATTERY (for KX-TS580MXC)	ABS-HB
	16	PQKK10105X9	LID, BATTERY (for KX-TS580MXJ)	ABS-HB
	17	PNGT1228Z	NAME PLATE (for KX-TS580MXB)	
	17	PNGT1227Z	NAME PLATE (for KX-TS580MXW)	
	17	PNGT1308Y	NAME PLATE (for KX-TS580MXR)	
	17	PNGT1244Y	NAME PLATE (for KX-TS580MXC)	
	17	PNGT1245Y	NAME PLATE (for KX-TS580MXJ)	
	18	PNHR1036Z	GUIDE, LCD	ABS-HB
	19	L5ACAYY00026	LIQUID CRYSTAL DISPLAY	
	20	PQHR10937Z	SPACER, LCD	PS-HB

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	21	PQJE10110Z	CONNECTOR, ZEBRA	

13.3.1.2. Main P.C.Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWP1S580MXH	MAIN P.C. BOARD ASS'Y (RTL)	
			(ICs)	
	IC1	C1CB00002315	IC	
	IC201	C0ABBA000025	IC	
	IC302	C0CBABE00023	IC	
	IC601	C1CB00001673	IC	
			(TRANSISTORS)	
	Q1	2SD1819KSL	TRANSISTOR(SI)	
	Q101	B1BCAP000026	TRANSISTOR(SI)	
	Q103	PQVT2N6517CA	TRANSISTOR(SI)	S
	Q107	B1AAJC000010	TRANSISTOR(SI)	
	Q108	2SD1819KSL	TRANSISTOR(SI)	
	Q110	2SD1819KSL	TRANSISTOR(SI)	
	Q112	B1CEGF000004	TRANSISTOR(SI)	
	Q201	UNR5213J0L	TRANSISTOR(SI)	
	Q401	B1ABDF000026	TRANSISTOR(SI)	
	Q402	B1ABDF000026	TRANSISTOR(SI)	
	Q403	B1ABDF000026	TRANSISTOR(SI)	
	Q404	B1GBJCFJ0003	TRANSISTOR(SI)	
	Q405	UNR5213J0L	TRANSISTOR(SI)	
	Q406	UNR5213J0L	TRANSISTOR(SI)	
	Q407	UNR5213J0L	TRANSISTOR(SI)	
	Q408	B1GBJCFJ0003	TRANSISTOR(SI)	
	Q421	B1GBJCJJ0003	TRANSISTOR(SI)	
	Q422	B1ABDF000026	TRANSISTOR(SI)	
	Q481	2SD1819KSL	TRANSISTOR(SI)	
	Q482	UNR5213J0L	TRANSISTOR(SI)	
	Q601	2SB1218KSL	TRANSISTOR(SI)	
	Q602	UNR5213J0L	TRANSISTOR(SI)	
	Q603	UNR5213J0L	TRANSISTOR(SI)	
			(DIODES)	
	D1	B0AACK000011	DIODE(SI)	
	D3	B0AACK000011	DIODE(SI)	
	D4	B0AACK000011	DIODE(SI)	
	D5	B0AACK000011	DIODE(SI)	
	D6	B0AACK000011	DIODE(SI)	
	D7	MA4300	DIODE(SI)	S
	D101	B0EDER000009	DIODE(SI)	
	D102	MA4180	DIODE(SI)	S
	D103	MA4051	DIODE(SI)	S
	D105	MA111	DIODE(SI)	S
	D106	MA4180	DIODE(SI)	S
	D108	MA111	DIODE(SI)	S
	D201	MA111	DIODE(SI)	S
	D202	MA111	DIODE(SI)	S
	D301	MA723	DIODE(SI)	S
	D302	MA700A	DIODE(SI)	S
	D401	MA111	DIODE(SI)	S
	D402	MA111	DIODE(SI)	S
	D601	B0AACK000011	DIODE(SI)	
	D602	B0AACK000011	DIODE(SI)	
	D603	MA700A	DIODE(SI)	S
			(CONNECTOR)	
	CN902	K1MN26BA0053	CONNECTOR	
			(JACKS)	
	JJ101	K2LB1YYB0002	JACK/SOCKET, MODULAR	
	JJ102	K2LB1YYB0002	JACK/SOCKET, MODULAR	
	JJ401	PQJJ1T030Z	JACK/SOCKET	
			(SWITCHES)	
	SW1	K0D113B00082	SLIDE, SWITCH	
	SW101	PQSH2B105Z	PUSH SWITCH, HOOK	S
			(TRANSFORMER)	
	T1	G4AYA0000027	TRANSFORMER	
			(VARISTOR)	
	SA101	J0LF00000026	VARISTOR (SURGE ABSORBER)	S
			(PHOTO ELECTRIC TRANS-DUCER)	
	PC1	0N3181	PHOTO ELECTRIC TRANS-DUCER	S
			(RESISTORS)	
	R1	D0AF682JA112	6.8k	
	R2	ERJ3GEY0R00	0	
	R3	ERJ3GEYJ103	10k	
	R5	ERJ3GEYJ473	47k	
	R6	ERJ3GEYJ103	10k	
	R7	ERJ3GEYJ183	18k	
	R8	ERJ3GEYJ124	120k	
	R9	ERJ3GEYJ334	330k	
	R103	PQ4R10XJ104	100k	S
	R104	ERDS2TJ472	4.7k	
	R105	ERDS2TJ683	68k	
	R106	ERJ3GEYJ104	100k	
	R107	ERJ3GEYJ684	680k	
	R108	ERJ3GEYJ563	56k	
	R112	ERJ3GEY0R00	0	
	R113	ERJ3GEYJ102	1k	
	R115	ERJ3GEYJ153	15k	
	R116	ERJ3GEYJ560	56	
	R117	ERJ3GEYJ272	2.7k	
	R118	ERJ3GEYJ272	2.7k	
	R119	ERDS1TJ150	15	S
	R120	PQ4R10XJ475	4.7M	S
	R121	PQ4R10XJ335	3.3M	S
	R122	ERJ3GEYJ105	1M	
	R126	ERJ3GEYJ473	47k	
	R127	ERJ3GEYJ682	6.8k	
	R128	ERJ3GEYJ103	10k	
	R130	ERJ3GEYJ104	100k	
	R201	ERJ3GEYJ103	10k	
	R202	ERJ3GEYJ124	120k	
	R203	ERJ3GEYJ103	10k	
	R204	ERJ3GEYJ394	390k	
	R205	ERJ3GEYJ562	5.6k	
	R206	ERJ3GEYJ183	18k	
	R207	ERJ3GEYJ103	10k	
	R208	ERJ3GEYJ472	4.7k	
	R401	ERJ3GEYJ102	1k	
	R402	ERJ3GEYJ475	4.7M	
	R403	ERJ3GEYJ472	4.7k	
	R404	ERJ3GEYJ470	47	
	R405	ERJ3GEYJ183	18k	
	R406	ERJ3GEYJ334	330k	
	R407	ERJ3GEYJ822	8.2k	
	R408	ERJ3GEYJ332	3.3k	
	R409	ERJ3GEYJ561	560	
	R410	ERJ3GEYJ185	1.8M	
	R411	ERJ3GEYJ222	2.2k	
	R412	ERJ3GEYJ181	180	
	R413	ERJ3GEYJ183	18k	
	R414	ERJ3GEYJ274	270k	
	R415	ERJ3GEYJ681	680	
	R416	ERJ3GEYJ101	100	
	R417	ERJ3GEY0R00	0	
	R418	ERJ3GEY0R00	0	
	R421	ERJ3GEYJ272	2.7k	
	R422	ERJ3GEYJ223	22k	
	R423	ERJ3GEYJ103	10k	
	R424	ERJ3GEYJ104	100k	
	R425	ERJ3GEYJ185	1.8M	
	R426	ERJ3GEYJ182	1.8k	
	R427	ERJ3GEYJ820	82	
	R433	ERJ3GEYJ103	10k	
	R435	ERJ3GEY0R00	0	
	R481	ERJ3GEYJ333	33k	
	R482	ERJ3GEYJ103	10k	
	R483	ERJ3GEY0R00	0	
	R485	ERJ3GEYJ104	100k	
	R488	ERJ3GEYJ103	10k	
	R489	ERJ3GEYJ103	10k	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R490	ERJ3GEYJ474	470k	
	R491	ERJ3GEYJ334	330k	
	R600	ERJ3GEYJ392	3.9k	
	R601	ERJ3GEYJ103	10k	
	R602	ERJ3GEYJ272	2.7k	
	R603	ERJ3GEYJ332	3.3k	
	R604	ERJ3GEYJ472	4.7k	
	R605	ERJ3GEYJ225	2.2M	
	R606	ERJ3GEYJ303	30k	
	R607	ERJ3GEYJ683	68k	
	R608	ERJ3GEYJ472	4.7k	
	R609	ERJ3GEYJ275	2.7M	
	R610	ERJ3GEYJ104	100k	
	R611	ERJ3GEYJ183	18k	
	R612	ERJ3GEYJ182	1.8k	
	R613	ERJ3GEYJ104	100k	
	R614	ERJ3GEYJ473	47k	
	R615	ERJ3GEYJ103	10k	
	R616	ERJ3GEYJ472	4.7k	
	R617	ERJ3GEYJ222	2.2k	
	R618	ERJ3GEYJ103	10k	
	R619	ERJ3GEYJ183	18k	
	R620	ERJ3GEYJ393	39k	
	R621	ERJ3GEYJ823	82k	
	R622	ERJ3GEYJ103	10k	
	R623	ERJ3GEYJ105	1M	
	R901	ERJ3GEYJ154	150k	
	R902	ERJ3GEYJ685	6.8M	
	R903	ERJ3GEYJ565	5.6M	
	R904	ERJ3GEYJ275	2.7M	
	R951	ERJ3GEYJ155	1.5M	
	R952	ERJ3GEYJ275	2.7M	
	JA10	ERJ3GEY0R00	0	
	JA11	ERJ3GEY0R00	0	
	JA12	ERJ3GEY0R00	0	
	JA7	ERJ3GEY0R00	0	
	JP1	ERJ6GEY0R00	0	
	JP8	ERJ6GEY0R00	0	
			(CAPACITORS)	
	C1	F0C2E1050005	250	
	C2	ECEA1HKS4R7	4.7	S
	C3	ECEA1HKSR22	0.22	S
	C4	ECUV1H822KBV	0.0082	
	C5	ECEA1HKS010	1	
	C6	ECUV1H103KBV	0.01	S
	C7	ECUV1C104KBV	0.1	
	C101	F1B2H681A070	680p	
	C102	F1B2H681A070	680p	
	C103	ECUV1H103KBV	0.01	
	C104	ECUV1H103KBV	0.01	
	C106	ECEA1AU331	330	
	C109	ECUV1H153KBV	0.015	
	C110	ECEA1CKA470	47	
	C111	ECEA1CKS100	10	
	C114	F2A1C2210033	220	
	C115	ECUV0J105KBV	1	
	C130	ECUV1C104KBV	0.1	
	C201	ECUV1C473KBV	0.047	
	C202	F2A0J4700011	47	
	C203	ECUV1H222KBV	0.0022	
	C204	ECUV1C473KBV	0.047	
	C205	ECUV1C104KBV	0.1	
	C301	F2A1A1020047	1000	
	C302	ECUV1C104KBV	0.1	
	C303	ECUV1C104KBV	0.1	
	C304	F2A1A1020047	1000	
	C401	ECUV1C104KBV	0.1	
	C403	ECUV1H103KBV	0.01	
	C404	ECUV1C104KBV	0.1	
	C405	ECUV1C104KBV	0.1	
	C406	ECUV1H681JCV	680p	
	C408	ECUV1C473KBV	0.047	
	C410	ECEA1CKS100	10	
	C412	ECUV1C104KBV	0.1	
	C413	ECUV1C104KBV	0.1	
	C414	ECUV1C104KBV	0.1	
	C415	ECUV1H103KBV	0.01	
	C422	ECUV1H103KBV	0.01	
	C423	ECUV1H223KBV	0.022	
	C424	ECUV1H222KBV	0.0022	
	C425	ECUV1C104KBV	0.1	
	C426	ECUV1H151JCV	150p	
	C427	ECUV1H102KBV	0.001	
	C432	ECUV1C393KBV	0.039	
	C481	ECUV1H102KBV	0.001	
	C482	ECUV1H102KBV	0.001	
	C483	ECUV1H272KBV	0.0027	
	C485	ERJ3GEY0R00	0	
	C486	ECUV1C393KBV	0.039	
	C487	ECUV1H103KBV	0.01	
	C501	F1B2H103A059	0.01	
	C502	F1B2H103A059	0.01	
	C601	ECA0JM102	0.001	S
	C602	ECUV1C473KBV	0.047	
	C603	ECUV1C273KBV	0.027	
	C605	ECUV1H103KBV	0.01	
	C606	ECUV1C823KBV	0.082	
	C607	ECUV1C273KBV	0.027	
	C608	ECUV1E223KBV	0.022	
	C609	ECUV1C104KBV	0.1	
	C610	ECEA1HKA010	1	
	C611	ECEA1HKA010	1	
	C612	ECEA1HKS4R7	4.7	S
	C613	ECUV1C683KBV	0.068	
	C614	F2A0J4700011	47	
	C615	F2A0J2200014	22	
	C616	ECUV1C104KBV	0.1	
	C617	F2A0J4700011	47	
	C618	ECEA1AKS330	33	S
	C619	ECEA1HKS4R7	4.7	S
	C620	ECUV1H223KBV	0.022	
	C621	ECEA0JKS101	100	S
	C622	ECUV1C104KBV	0.1	
	C623	ECUV1H103KBV	0.01	
	C901	ECUV1H152KBV	0.0015	
	C902	ECUV1H680JCV	68p	
			(OTHERS)	
	MIC	PQJM122Z	MICROPHONE	

13.3.1.3. Operational P. C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PNWP2S580MXH	OPERATIONAL P.C.BOARD ASS'Y (RTL)	
			(ICs)	
	IC301	PQVIPS3238NT	IC	S
	IC303	PQVIPS3327UT	IC	
	IC501	PQVINJU7014R	IC	
	IC801	C2CBYY000674	IC	
	IC851	PNWITS580MXH	IC	
			(TRANSISTORS)	
	Q301	2SD1819KSL	TRANSISTOR(SI)	
	Q501	2SB1218KSL	TRANSISTOR(SI)	
	Q502	2SD1819KSL	TRANSISTOR(SI)	
	Q851	PQVTDTC144TU	TRANSISTOR(SI)	S
	Q921	UNR5113J0L	TRANSISTOR(SI)	
			(DIODES)	
	D2	MA111	DIODE(SI)	S
	D109	MA111	DIODE(SI)	S
	D403	MA111	DIODE(SI)	S
	D404	MA111	DIODE(SI)	S
	D501	MA111	DIODE(SI)	S
	D502	MA111	DIODE(SI)	S
	D503	MA111	DIODE(SI)	S
	D504	MA111	DIODE(SI)	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	D505	MA111	DIODE(SI)	S
	D551	MA111	DIODE(SI)	S
	D552	MA111	DIODE(SI)	S
	D553	MA111	DIODE(SI)	S
	D554	MA111	DIODE(SI)	S
	D604	MA111	DIODE(SI)	S
	D701	MA111	DIODE(SI)	S
	D702	MA111	DIODE(SI)	S
	D703	MA111	DIODE(SI)	S
	D704	MA111	DIODE(SI)	S
	D705	MA111	DIODE(SI)	S
	D706	MA111	DIODE(SI)	S
	LED1	PSVD1SRCT	DIODE(SI)	S
			(CONNECTOR)	
	CN901	K1MN26BA0053	CONNECTOR	
			(RESISTORS)	
	R16	PQ4R10XJ104	100k	S
	R209	ERJ3GEYJ473	47k	
	R301	ERJ3GEYJ105	1M	
	R302	ERJ3GEYJ475	4.7M	
	R303	ERJ3GEYJ105	1M	
	R304	ERJ3GEYJ475	4.7M	
	R305	ERJ3GEYJ223	22k	
	R306	ERJ3GEYJ104	100k	
	R307	ERJ3GEYJ104	100k	
	R308	ERJ3GEYJ104	100k	
	R501	PQ4R10XJ184	180k	S
	R502	PQ4R10XJ184	180k	S
	R503	ERJ3GEYJ154	150k	
	R504	ERJ3GEYJ154	150k	
	R505	ERJ3GEYJ334	330k	
	R506	ERJ3GEYJ122	1.2k	
	R507	ERJ3GEYJ334	330k	
	R508	ERJ3GEYJ335	3.3M	
	R509	ERJ3GEYJ273	27k	
	R510	ERJ3GEYJ394	390k	
	R511	ERJ3GEYJ105	1M	
	R512	ERJ3GEYJ104	100k	
	R513	ERJ3GEYJ105	1M	
	R514	ERJ3GEYJ473	47k	
	R515	ERJ3GEYJ103	10k	
	R516	ERJ3GEYJ224	220k	
	R517	ERJ3GEYJ105	1M	
	R551	PQ4R10XJ153	15k	S
	R552	PQ4R10XJ153	15k	S
	R553	ERJ3GEYJ103	10k	
	R554	ERJ3GEYJ103	10k	
	R555	PQ4R10XJ335	3.3M	S
	R557	PQ4R10XJ335	3.3M	S
	R558	ERJ3GEY0R00	0	
	R560	ERJ3GEY0R00	0	
	R801	ERJ3GEYJ393	39k	
	R802	ERJ3GEYJ100	10	
	R851	ERJ3GEYJ104	100k	
	R852	ERJ3GEYJ104	100k	
	R921	ERJ3GEYJ104	100k	
			(CAPACITORS)	
	C305	ECUV1C104KBV	0.1	
	C306	ECUV1C333KBV	0.033	
	C307	ECUV1C104KBV	0.1	
	C503	ECUV1H152KBV	0.0015	
	C504	ECUV1H152KBV	0.0015	
	C505	ECUV1H122KBV	0.0012	
	C506	ECUV1H122KBV	0.0012	
	C507	ECUV1H680JCV	68p	
	C508	ECUV1C104KBV	0.1	
	C509	ECUV1H222KBV	0.0022	
	C510	ECUV1C104KBV	0.1	
	C511	ECUV1C104KBV	0.1	
	C512	ECUV1H103KBV	0.01	
	C551	ECUV1C104KBV	0.1	
	C552	ECUV1C104KBV	0.1	
	C553	ECUV1H331JCV	330p	S
	C554	ECUV1H102KBV	0.001	
	C555	ECUV1H102KBV	0.001	
	C556	ECUV1C224KBV	0.22	
	C557	ERJ3GEY0R00	0	
	C558	ECUV1C104KBV	0.1	
	C801	ECUV1H101JCV	100p	
	C802	ECUV1H150JCV	15p	
	C803	ECUV1H150JCV	15p	
	C804	ECEA0JKS101	100	S
	C805	ECUV1C104KBV	0.1	
	C806	ECUV1C104KBV	0.1	
	C807	ECEA1CKA100	10	
	C808	ECEA1CKA100	10	
	C809	ECUV1C104KBV	0.1	
			(CRYSTAL OSCILLATOR)	
	X801	H0A327200132	CRYSTALOSCILLATOR	

13.3.2. Accessories and Packing Materials

Note:

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

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A1	PQJA10075Z	CORD, TELEPHONE	
	A2	PQJA212V	CORD, HANDSET (for KX-TS580MXB, KX-TS580MXR, KX-TS580MXC)	
	A2	PQJA212M	CORD, HANDSET (for KX-TS580MXW, KX-TS580MXJ)	
	A3	PQJXE0401Z	HANDLE/HANDSET (for KX-TS580MXB)	
	A3	PQJXE0411Z	HANDLE/HANDSET (for KX-TS580MXW)	
	A3	PQJXE0418Z	HANDLE/HANDSET (for KX-TS580MXR)	
	A3	PQJXE0439Z	HANDLE/HANDSET (for KX-TS580MXC)	
	A3	PQJXE0436Z	HANDLE/HANDSET (for KX-TS580MXJ)	
	A4	PNQX1080Z	INSTRUCTION BOOK (*1)	
	A5	PNQW1064Z	INSTRUCTION BOOK (for Arabia/Persian) (*1)	
	A6	PNQW1261Z	INSTRUCTION BOOK (for Chinese/Thai) (*1)	
	P1	PQPH10076Y	PROTECTION COVER	
	P2	PNPK1206Z	GIFT BOX	

13.3.3. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	PQHV2612PJ65	TAPPING SCREW	S
	B	XTW26+8PFJ7	TAPPING SCREW	
	C	XTN2+6GFJ	TAPPING SCREW	

C.Y.K
KXTS580MXB
KXTS580MXW
KXTS580MXR
KXTS580MXC
KXTS580MXJ