ORDER NO. KM41103334CE

Service Manual

Telephone Equipment

Model No. KX-TSC62SXB
KX-TSC62SXW

Caller ID Compatible

Integrated Telephone System

B: Black Version
W: White Version
(for India)

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.

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. About Lead Free Solder (Pbf: Pb free)

Note:

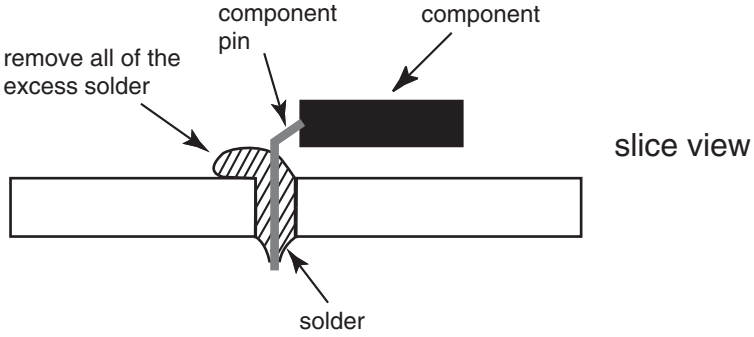
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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

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

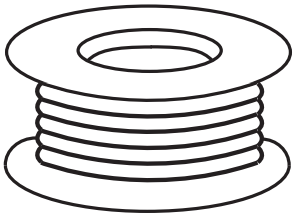
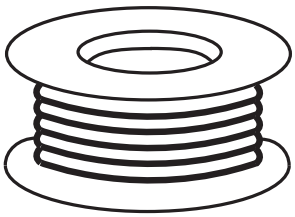
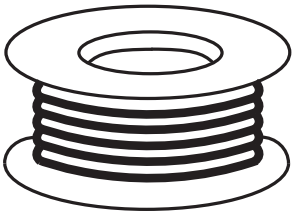
Caution

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



2.1.1. Suggested PbF Solder

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

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

2.2. Discarding of P. C. Board

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

3 Specifications

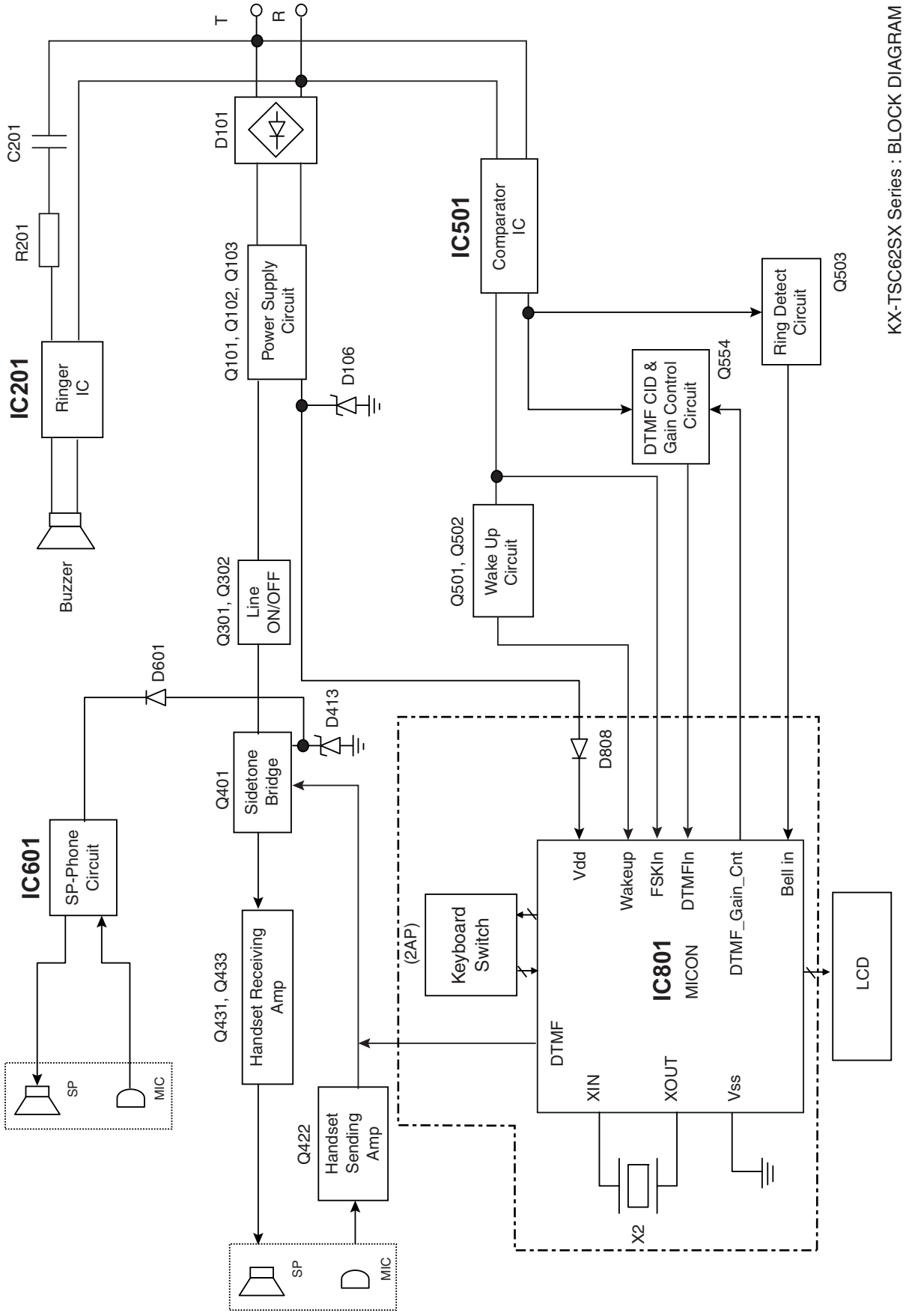
Power Source:	From telephone line
Memory Capacity:	30 Caller ID memory
Redial:	The unit redials the last 5 dialed numbers
Speaker Unit:	Unit: 5cm (2") PM Cone type 32Ω Handset: 3 cm ($1^{13}/_{16}$") PM dynamic type 150Ω
Microphone:	Electret condenser microphone
Input Jack:	Telephone Line
Dimensions (H x W x D):	Approx. 202.5 mm x 76.5 mm x 130 mm
Mass (weight):	Approx. 453 g
Operating Enviroment:	0 °C - 40 °C, 20 % - 80 % relative air humidity (dry)

Note:

- Design and specifications are subject to change without notice.

4 Technical Descriptions

4.1. Block Diagram



4.2. Circuit Operation

4.2.1. Bell Detector Circuit

When the bell signal is input from LINE to T/R (when the telephone rings), the signal is output at the buzzer via the following path :

T/R → C201 → R201 → IC201 (pin8) → IC201 (pin5) → R204 → SW201 → Buzzer

4.2.2. Telephone Line Interface

4.2.2.1. Circuit operation

- **On hook**

  Q301 is OFF, on-hook condition where DC loop is disconnected and voice signal flow is cut.
- **Off hook**

  During Off-Hook, pin 1-3 of SW301 and Q301 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(+) → Q301 → Q401 → R412 → D413 → D101(-) → L102 → R
- **Receiving signal flows:**

  LINE → Q301 → C402 → C431 → R431 → Q431 → C434 → C438 → R443 → Q433 → C440 → SP (handset)
- **Transmission signal flows:**

  MIC (handset) → C422 → R422 → R423 → C425 → Q422 → C429 → R429 → Q401 → Q301 → LINE
- **Pulse Dial**

  A pulse signal switches repeatedly between high and low logic is output from IC801 (pin 56), on and off the line loop, generating the pulse dial signal.

4.2.3. Speakerphone Circuit

4.2.3.1. 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.

4.2.3.2. 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.

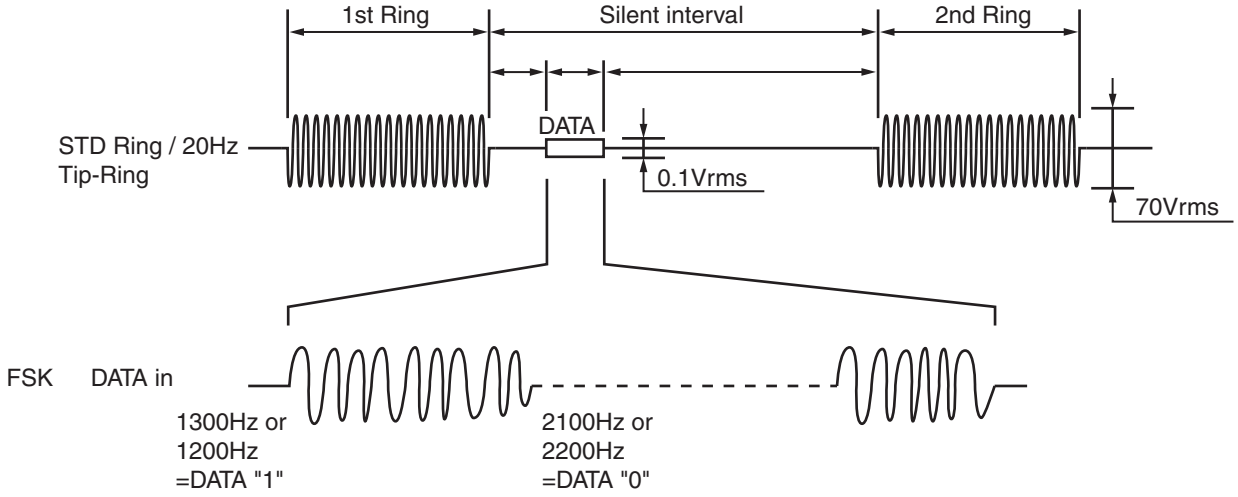
1. **Transmission signal path:**
   The input signal from the microphone is sent through the circuit via the following path: MIC → Pin 9 of IC601 → Pin 10 of IC601 → Pin 3 of IC601 → Pin 4 of IC601 → C602 → R601 → Q401 → Tel line.
2. **Reception signal path:**
   Signals receive from the telephone line are outputted at the speaker via the following path: Tel line → Q431 → C434 → 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.

4.2.4. Caller ID Detect Circuit

4.2.4.1. Function (FSK Signal)

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

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



4.2.4.2. Circuit Operation

Caller ID signal is sent through the circuit via the following path :
LINE → C501/C521 → C502/C522 → R501/R521 → Pin 2/3 of IC501 → Pin 1 of IC501 → R507 → C507 → Pin 6 of IC501 → Pin 60 of IC801

5 Location of Controls and Components

Refer to the Operating Instructions.

Note:

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

6 Installation Instructions

Refer to the Operating Instructions.

Note:

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

7 Operating Instructions

Refer to the Operating Instructions.

Note:

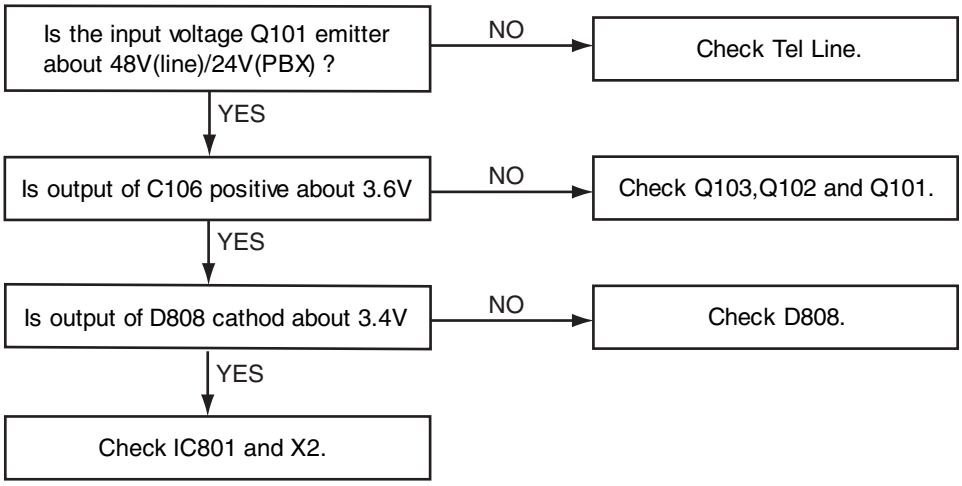
You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

8 Troubleshooting Guide

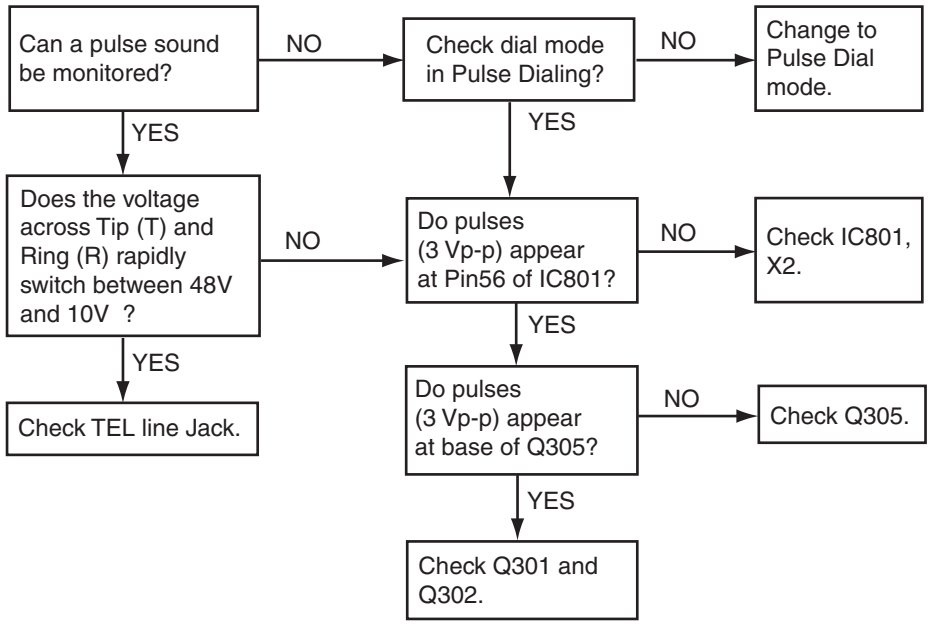
8.1. Service Hints

SYMPTOM	CURE
Dead.	Check IC801, X2.
Can't hear the voice from handset.	Check Q401, Q431, Q433 and handset jack.
No voice transmit.	Check Q422, Q401 and handset jack.
Can't tone dial.	Check IC801 (58), C481~C484, R481~R483.
Can't pulse dial.	Check Q301, Q302, Q305.
No rings.	Check IC201.
Can't change the volume for Speakerphone.	Check IC801, R621, R619.
Caller ID Function doesn't work.	Check C501, C521, C502, C522, R501, R521, R507, C507 and IC501.
Caller ID Function doesn't work. (DTMF)	Check around IC501, Q501, Q502 and Q554.
Can't speak with the speakerphone.	Check IC601.

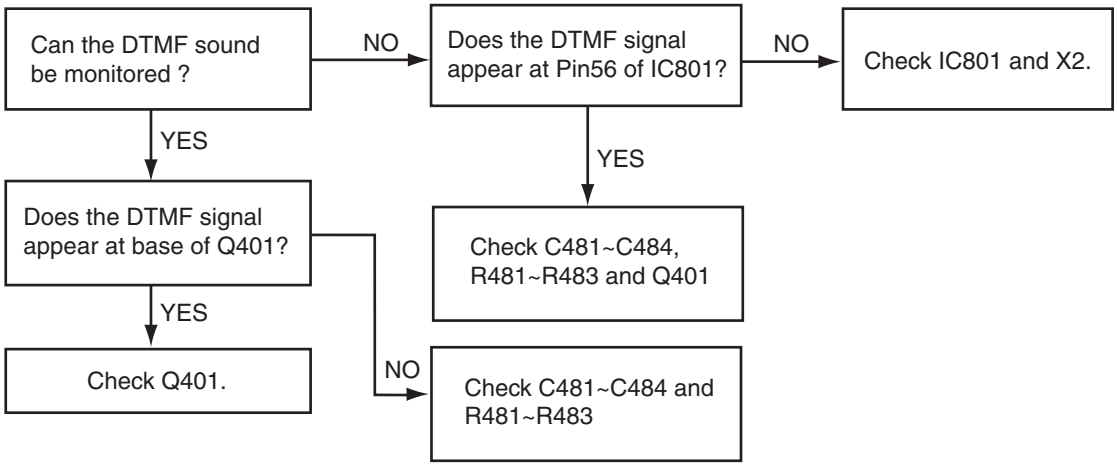
8.2. Set Dead



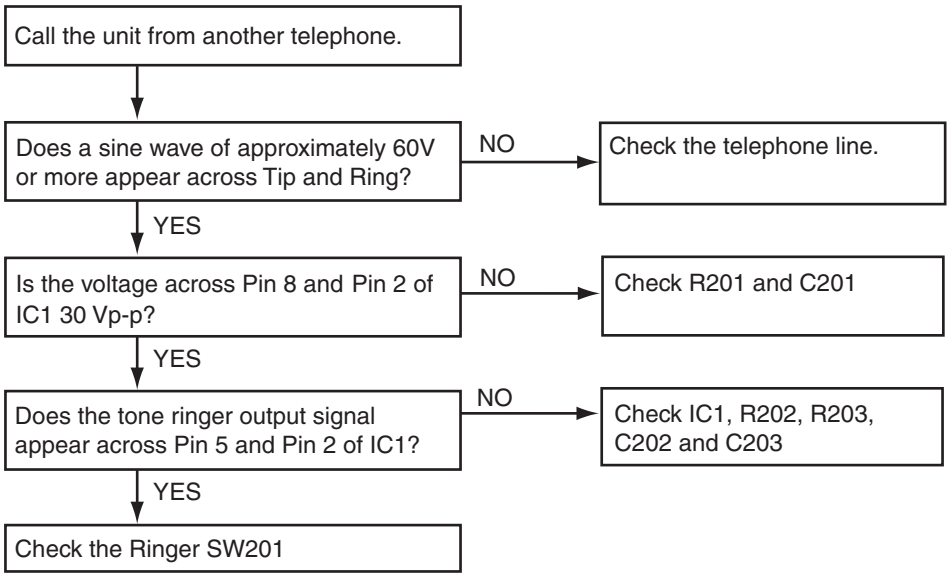
8.3. Pulse Dialing Problems



8.4. Tone Dialing Problems



8.5. No Ringing Sound When Ring Signal is Input

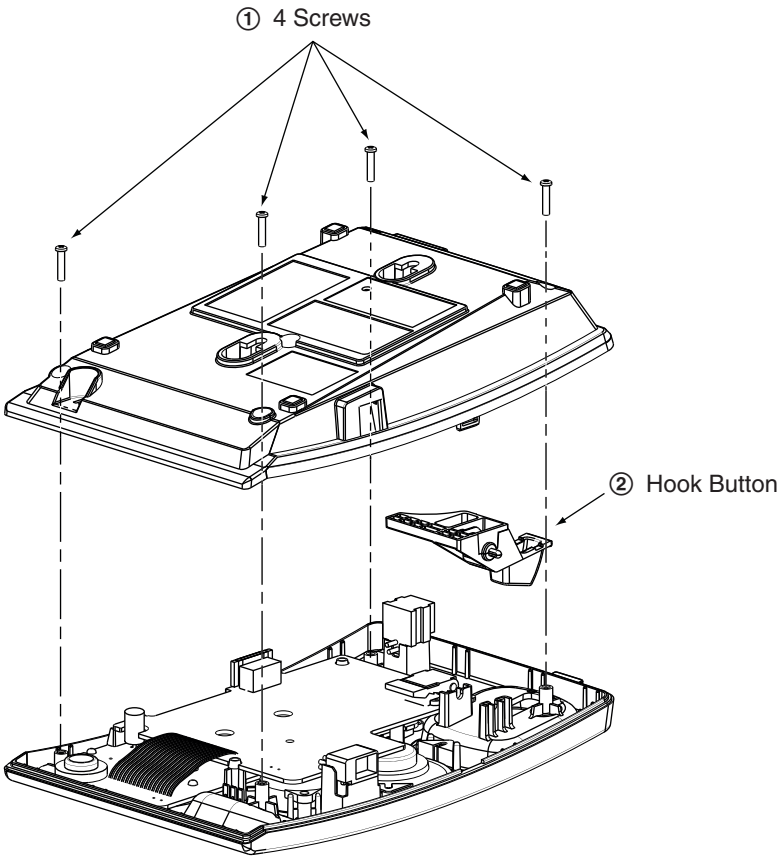


9 Disassembly and Assembly Instructions

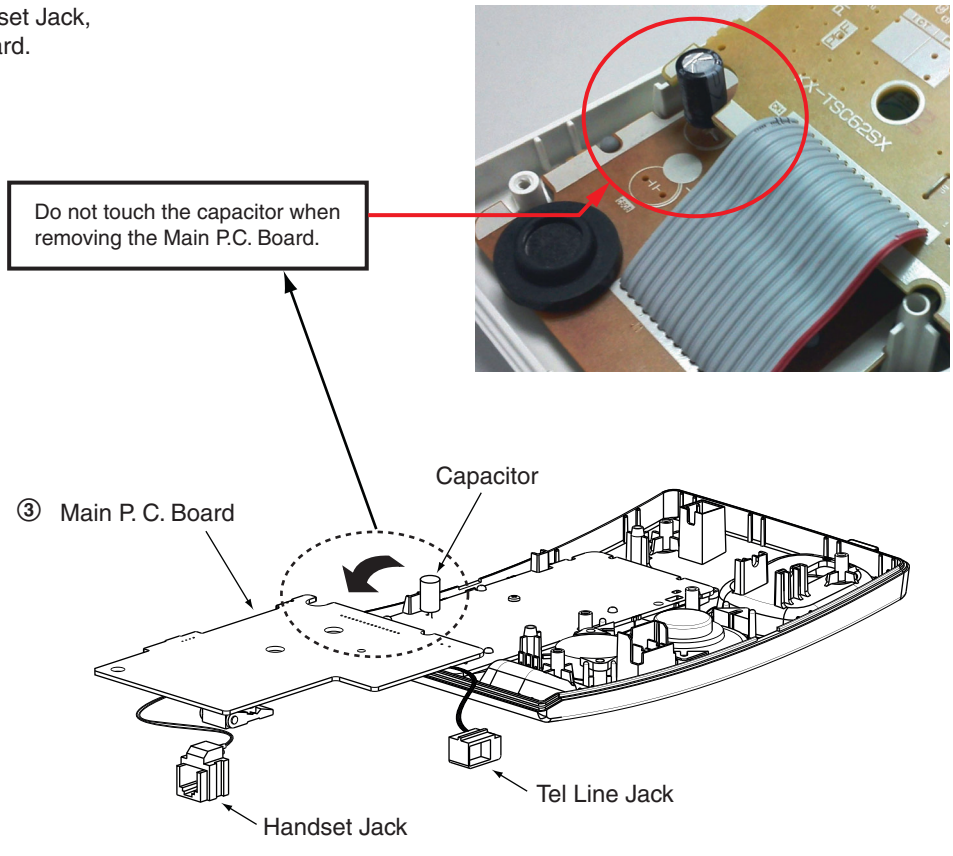
9.1. Disassembly Instructions

① Remove 4 Screws to remove the Cabinet Cover.

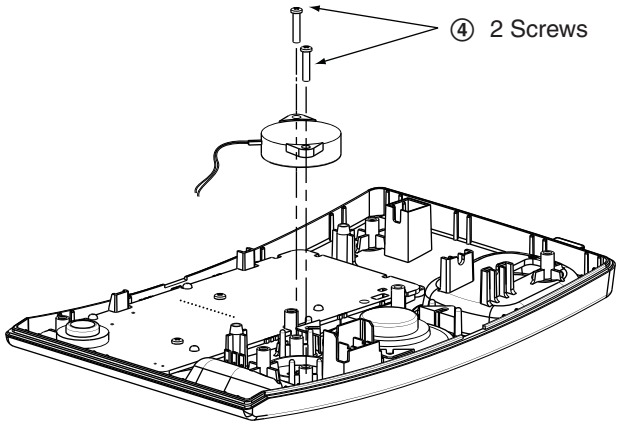
② Remove the Hook Button.



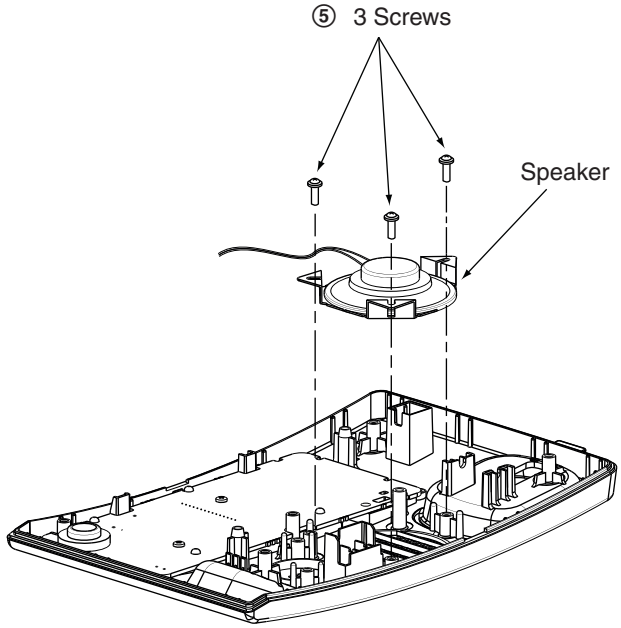
③ Unhook the Tel Line and Handset Jack, then remove the Main P.C. Board.



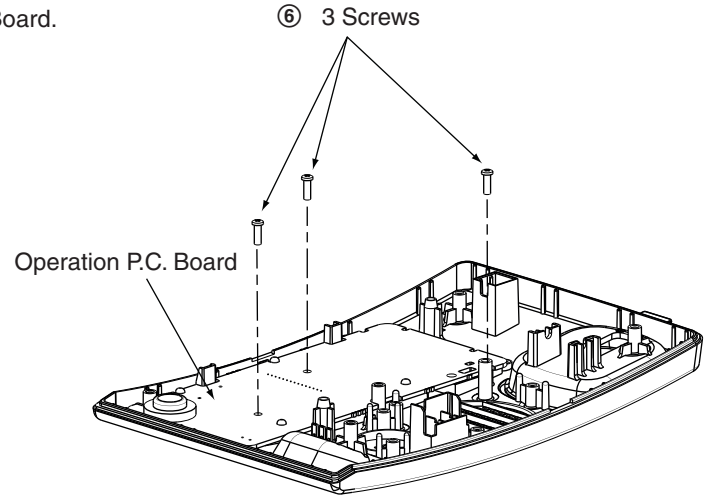
④ Remove the 2 screws to remove the Buzzer.



⑤ Remove the 3 screws to remove the Speaker.



⑥ Remove the 3 screws to remove the Operational P.C. Board.



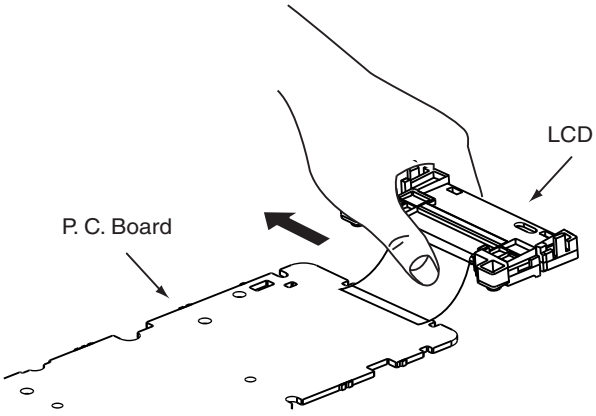
9.2. Assembly Instruction

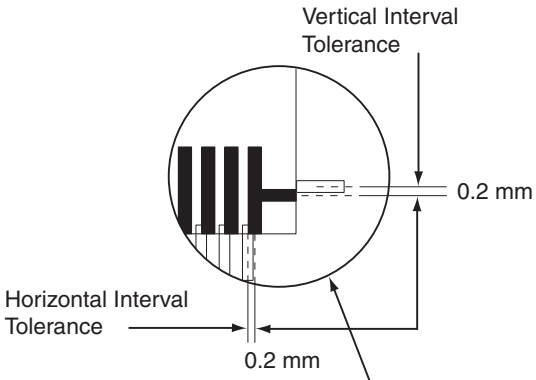
9.2.1. How to Replace the Base Unit LCD

Note:

- Make sure to cut the length of the rubber of the soldering iron to become 23mm to 25mm.
- Preheat the soldering iron for 10 minutes for the Rubber of Soldering Iron to reached around 180~200°C.
- The illustrations are simplified in this page. They may differ from the actual product.

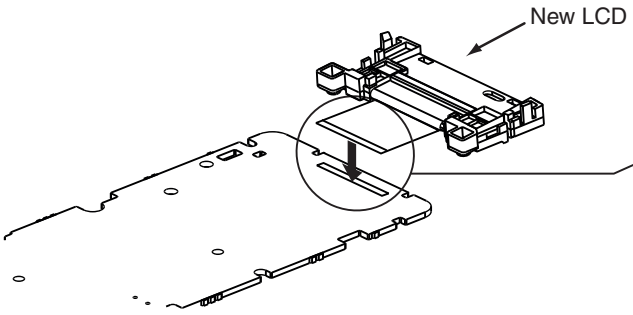
① Peel off the HSC (Heat Seal Connector) from the P.C. board, in the direction of the arrow. Use some IPA alcohol to gently remove glue stain on the P.C. board.



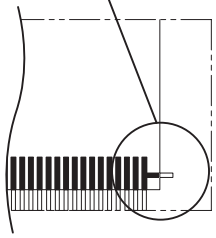


If interval tolerance between center lines is less than 0.2 mm, it is o.k.

② Fit the heatseal of the new LCD.

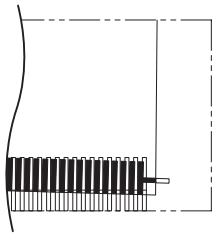


OK



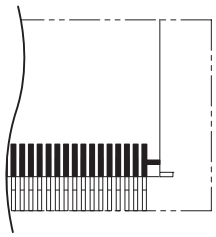
NG

(Inclined)



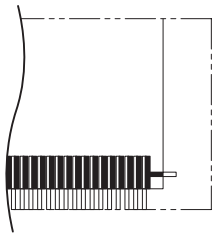
NG

(Vertical interval tolerance is more than 0.2 mm.)

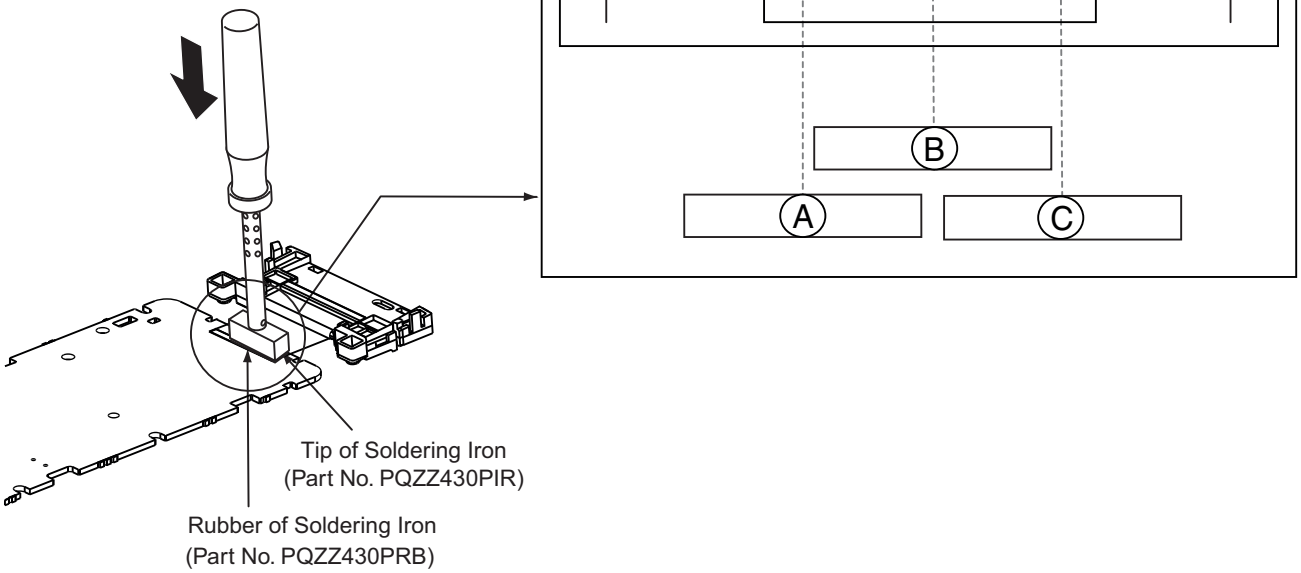


NG

(Horizontal interval tolerance is more than 0.2 mm.)



③ Heatweld with the tip of the soldering iron for 10 seconds each position (in case of 60W soldering iron) with 10kg pressure applied 3 times on position (A)~(C), as shown below.

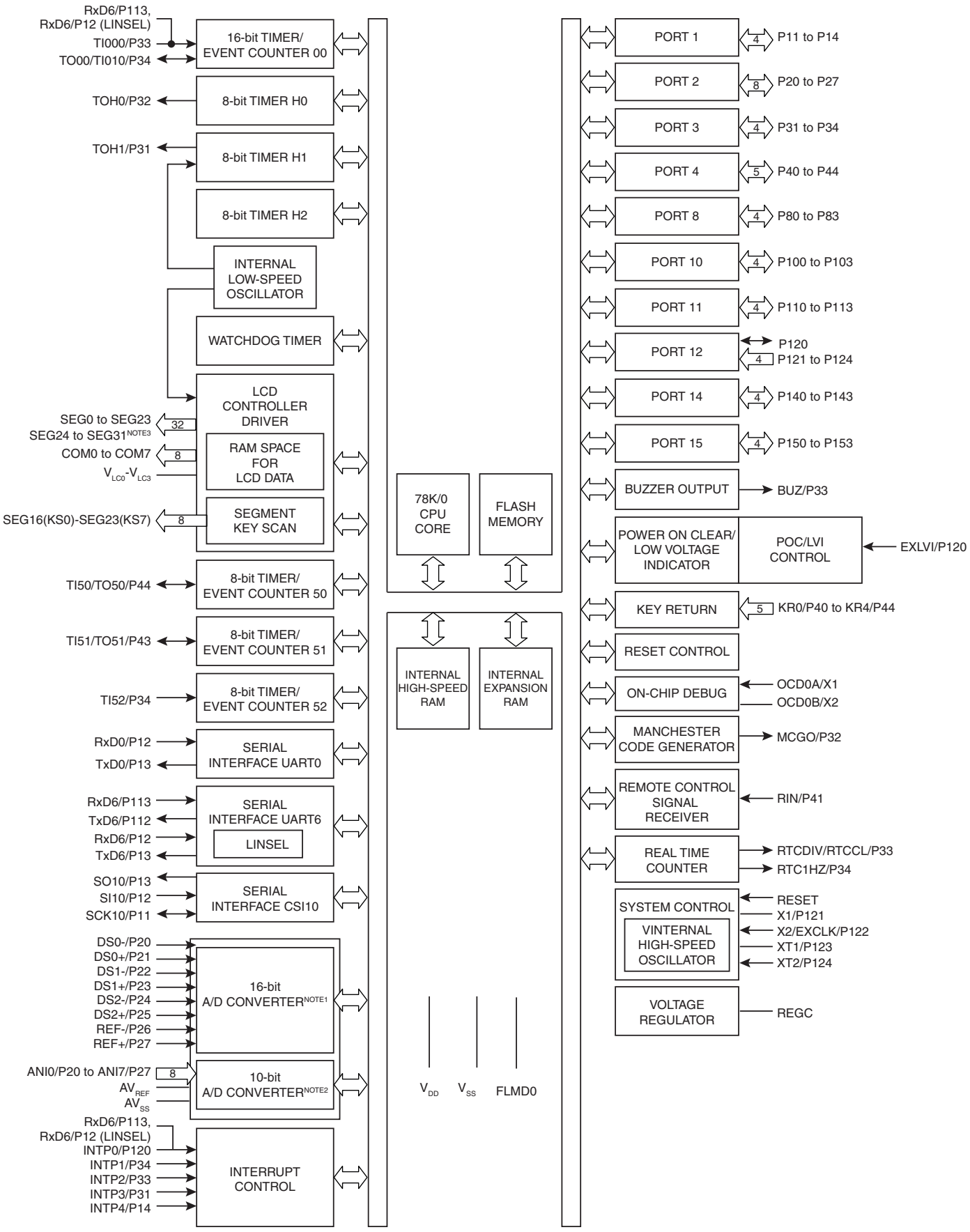


Note :
Make sure copper part of solder jig is not touch the new LCD which will cause burn.

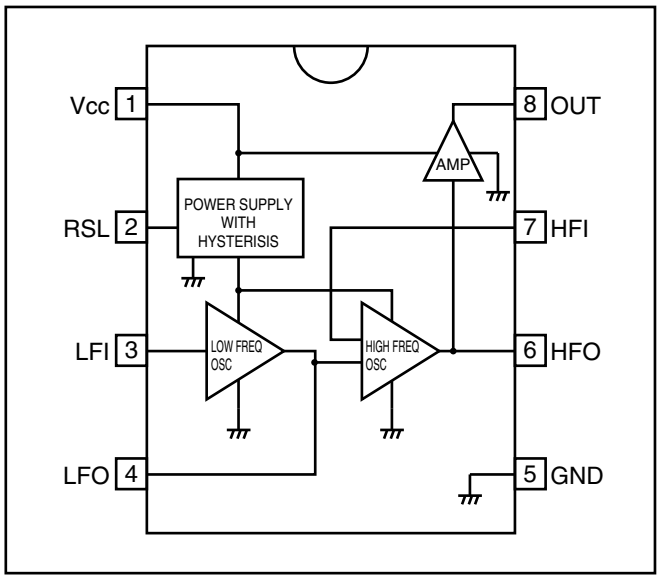
10 Miscellaneous

10.1. IC Block diagram

10.1.1. IC801



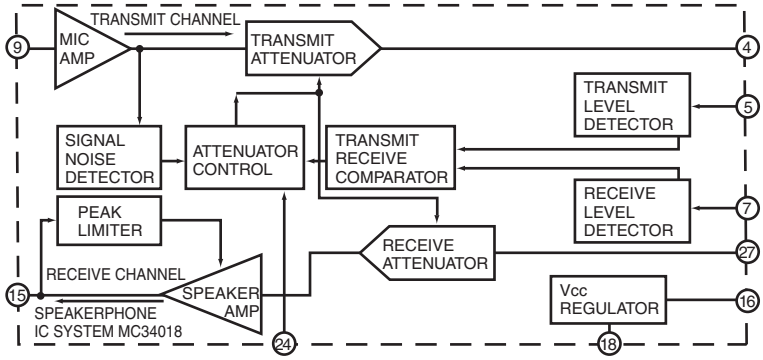
10.1.2. RINGER IC (IC201)



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.

10.1.3. 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)

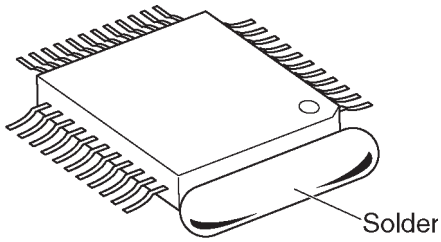
  Note: See **About Lead Free Solder (Pbf: Pb free)** (P.4).

10.2.2. How to Remove the IC

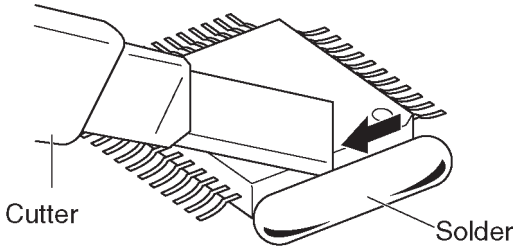
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

   Note:

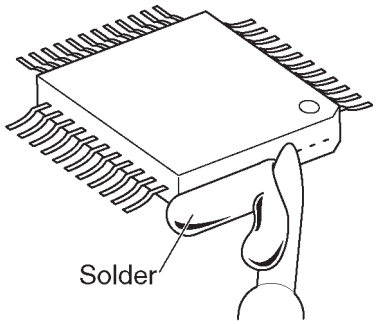
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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



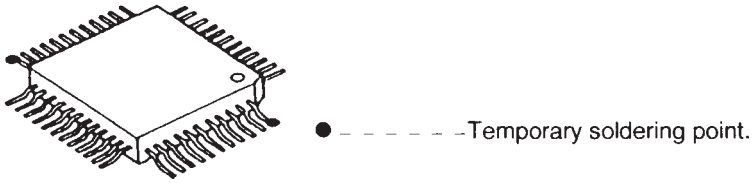
3. While the solder melts, remove it together with the IC pins.



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.

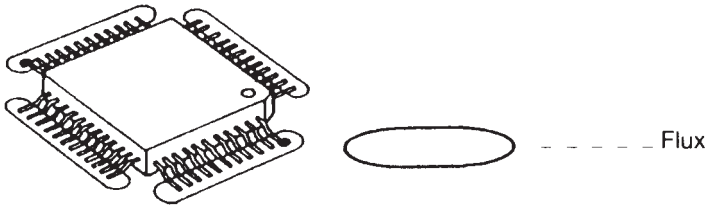
10.2.3. How to Install the IC

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

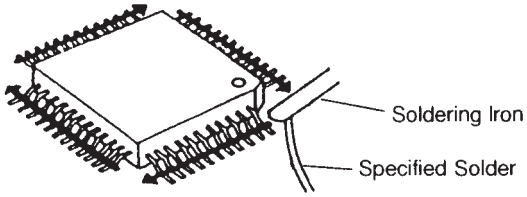


*Check the accuracy of the IC setting with the corresponding soldering foil.

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

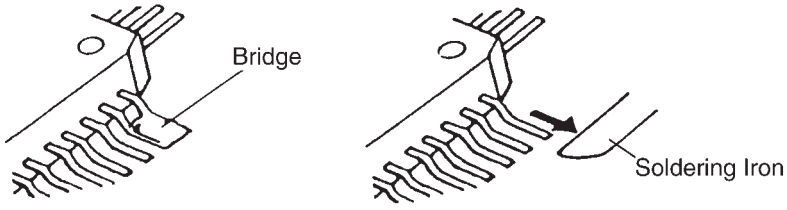


3. Solder the pins, sliding the soldering iron in the direction of the arrow.

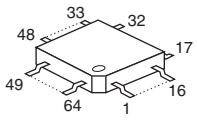


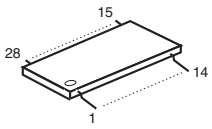
10.2.4. How to Remove a Solder Bridge

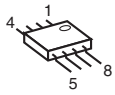
1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.

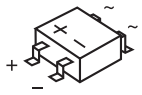


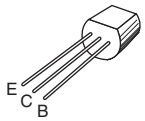
10.3. Terminal Guide of the ICs, Transistors and Diodes

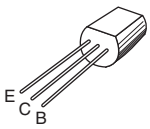
<table>
<tr>
<td> 

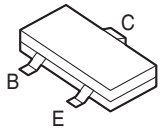
PNWITSC62SXH</td>
<td> 

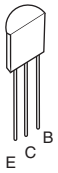
C1CB00001673</td>
<td> 

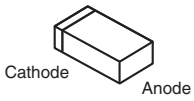
C1CB00002903,
PQVINJU7014R</td>
<td> 

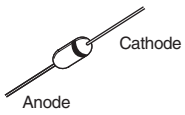
B0EDER000009</td>
</tr>
<tr>
<td> 

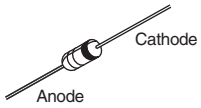
B1ACGP000007</td>
<td> 

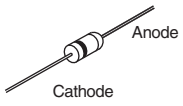
B1AAKD000013,
PQVT2N6517CA</td>
<td colspan="2"> 

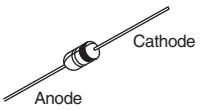
UNR5213J0L, B1ABDF000026, B1GBJCJJ0003,
2SD1819KSL,2SB1218KSL,B1ABDM000001</td>
</tr>
<tr>
<td> 

B1BCAP000026</td>
<td> 

MA111,
DB2J31400L</td>
<td> 

PQVDMZJ5R1C</td>
<td> 

MA4056</td>
</tr>
<tr>
<td> 

MA4180</td>
<td> 

1SS133</td>
<td colspan="2"></td>
</tr>
</table>

11 Schematic Diagram

11.1. For Schematic Diagram

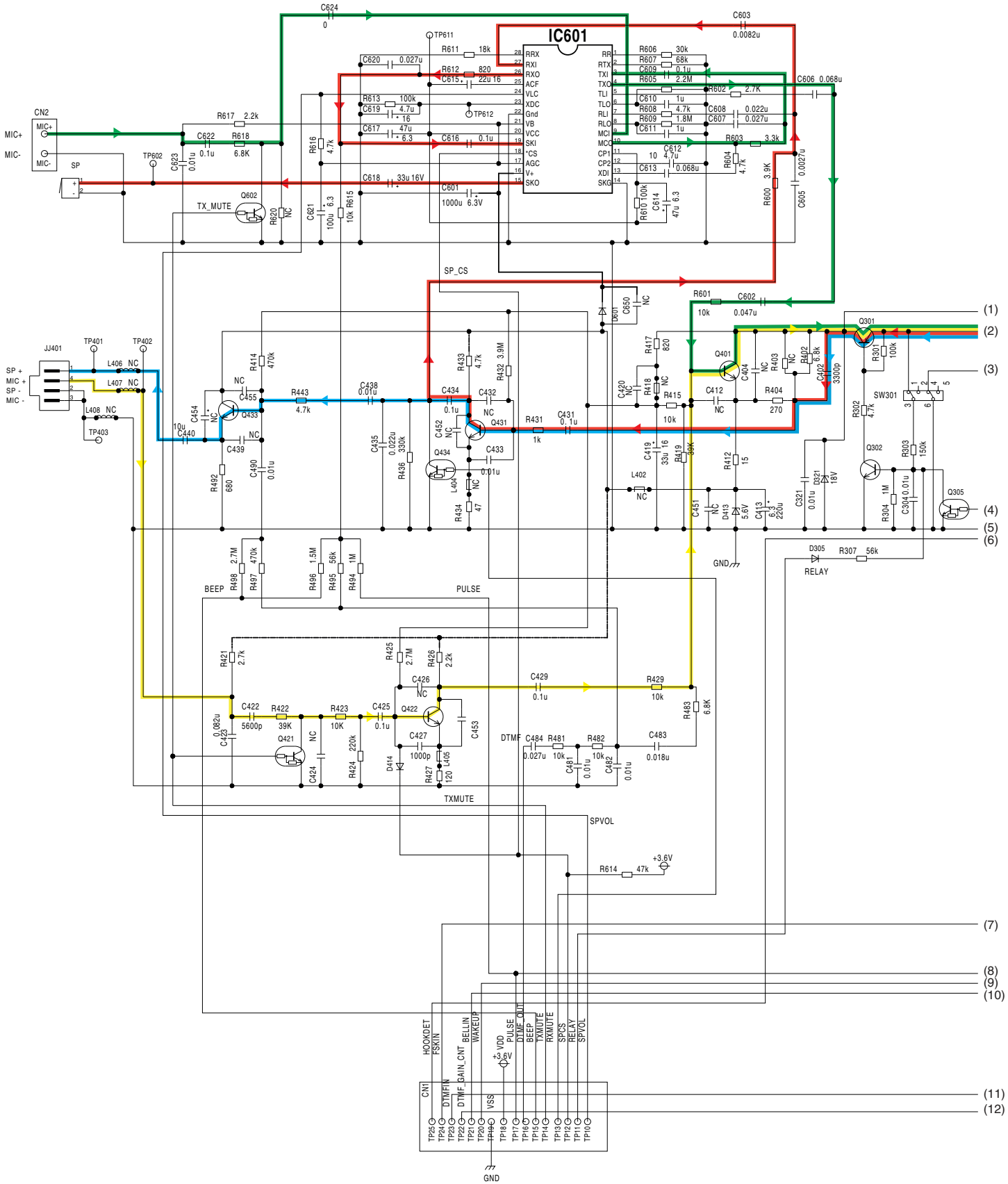
1. DC voltage measurements are takens with electronic voltmeter from negative terminal.

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

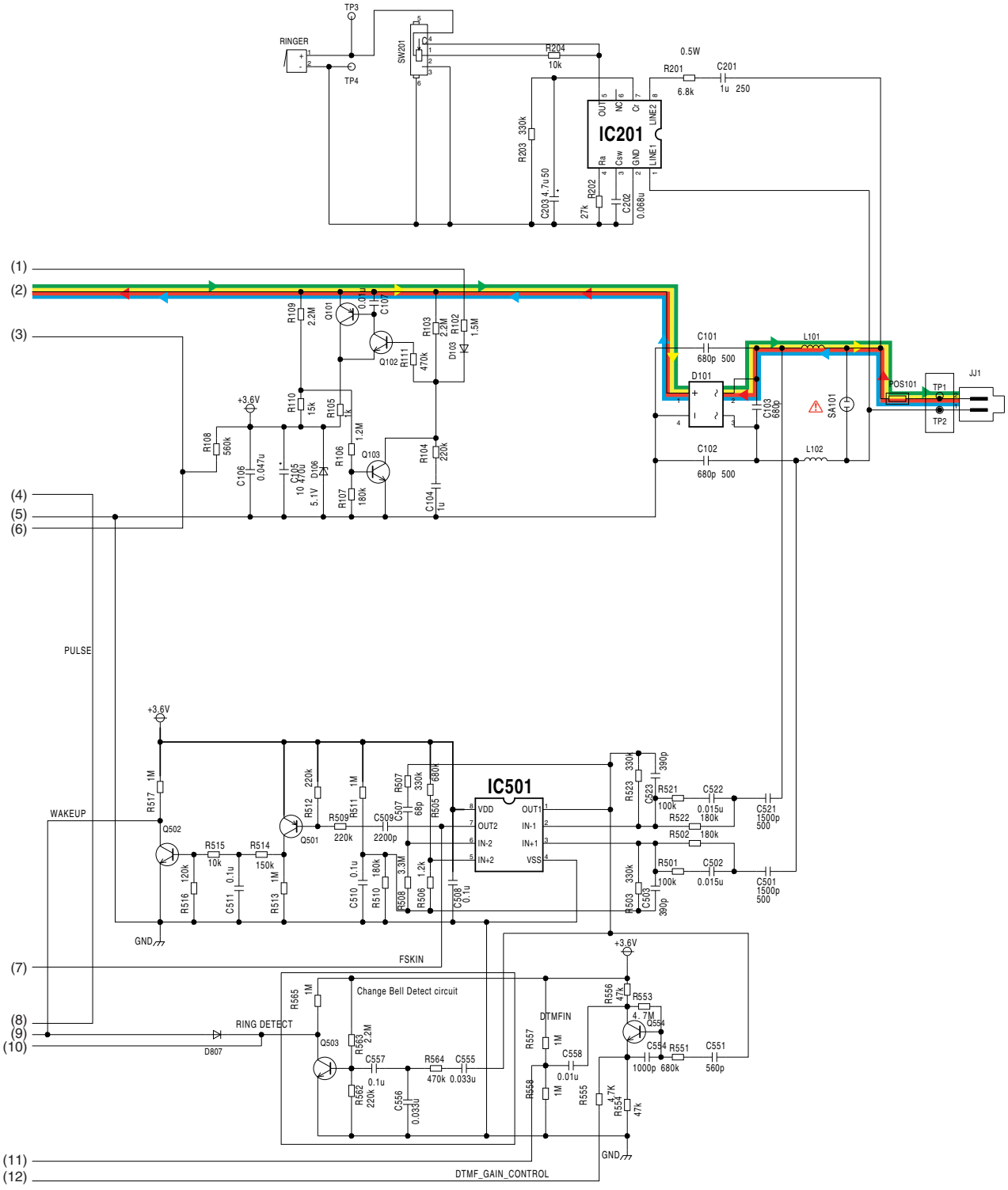
2. This schematic diagram may be modified at any time with the development of new technology.

Memo

11.2. Schematic Diagram (Main)



NC: No Components

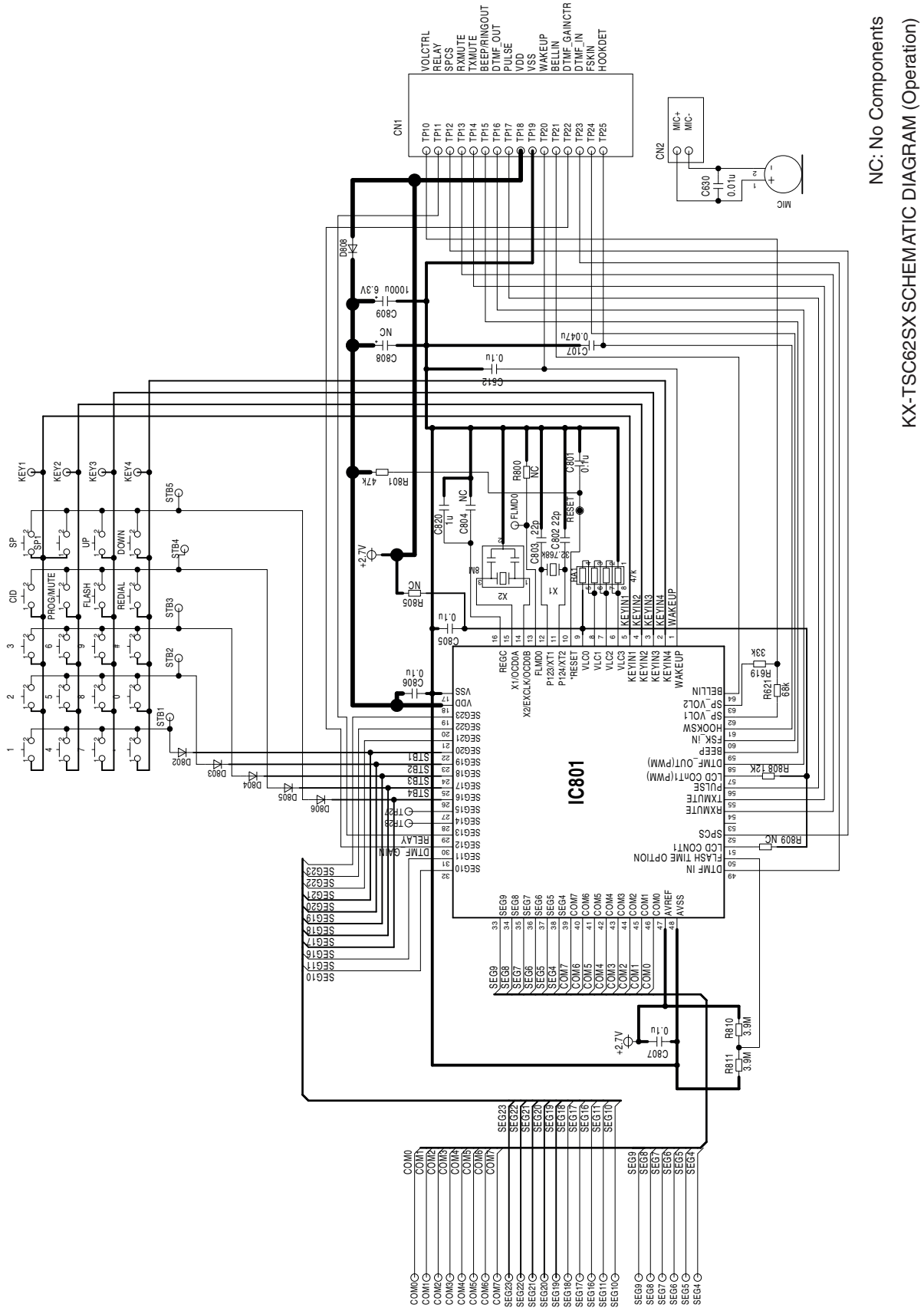


Handset Sending
Handset Receiving
Speaker Phone Sending
Speaker Phone Receiving

NC: No Components

KX-TSC62SX SCHEMATIC DIAGRAM (Main)

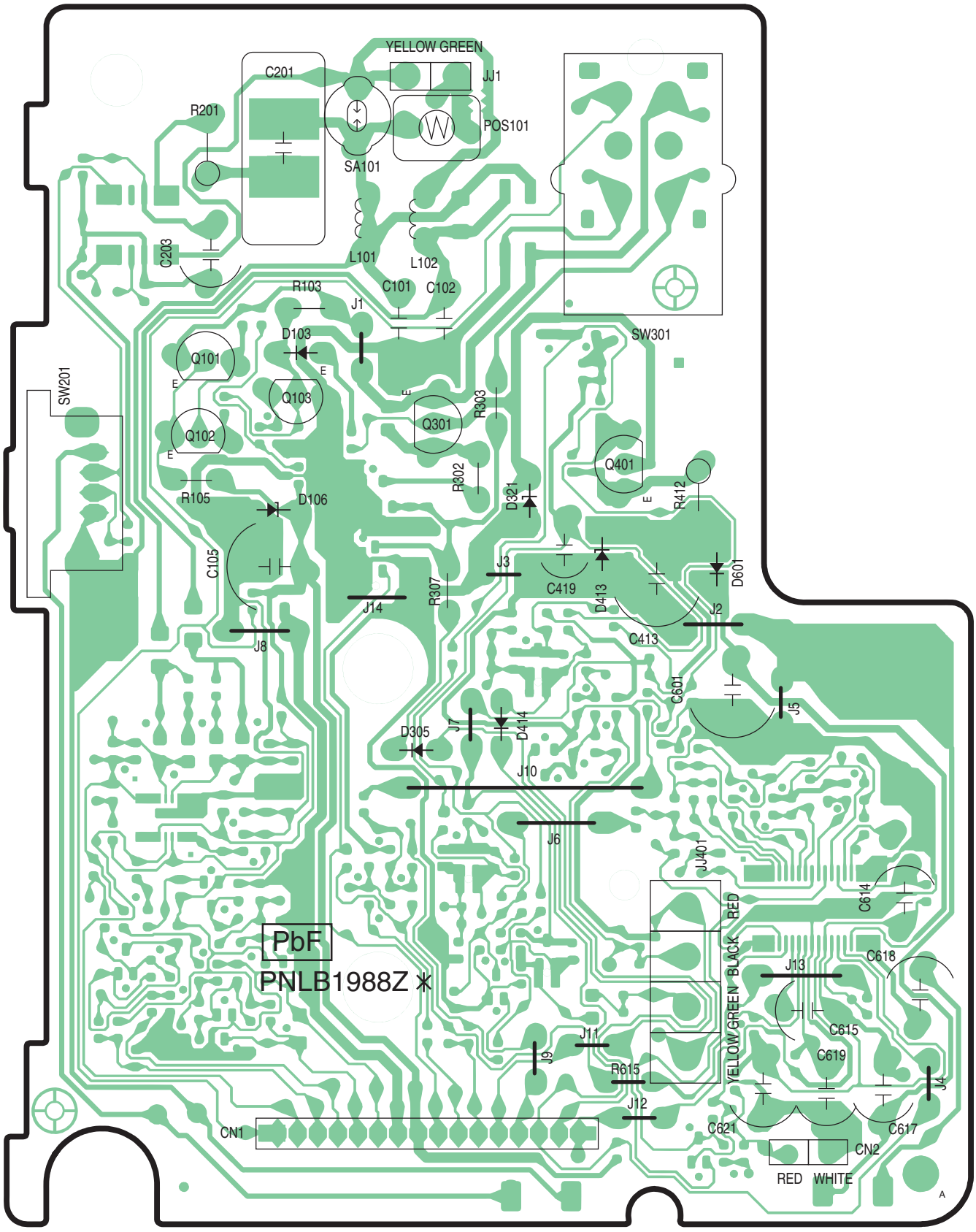
11.3. Schematic Diagram (Operation)



12 Printed Circuit Board

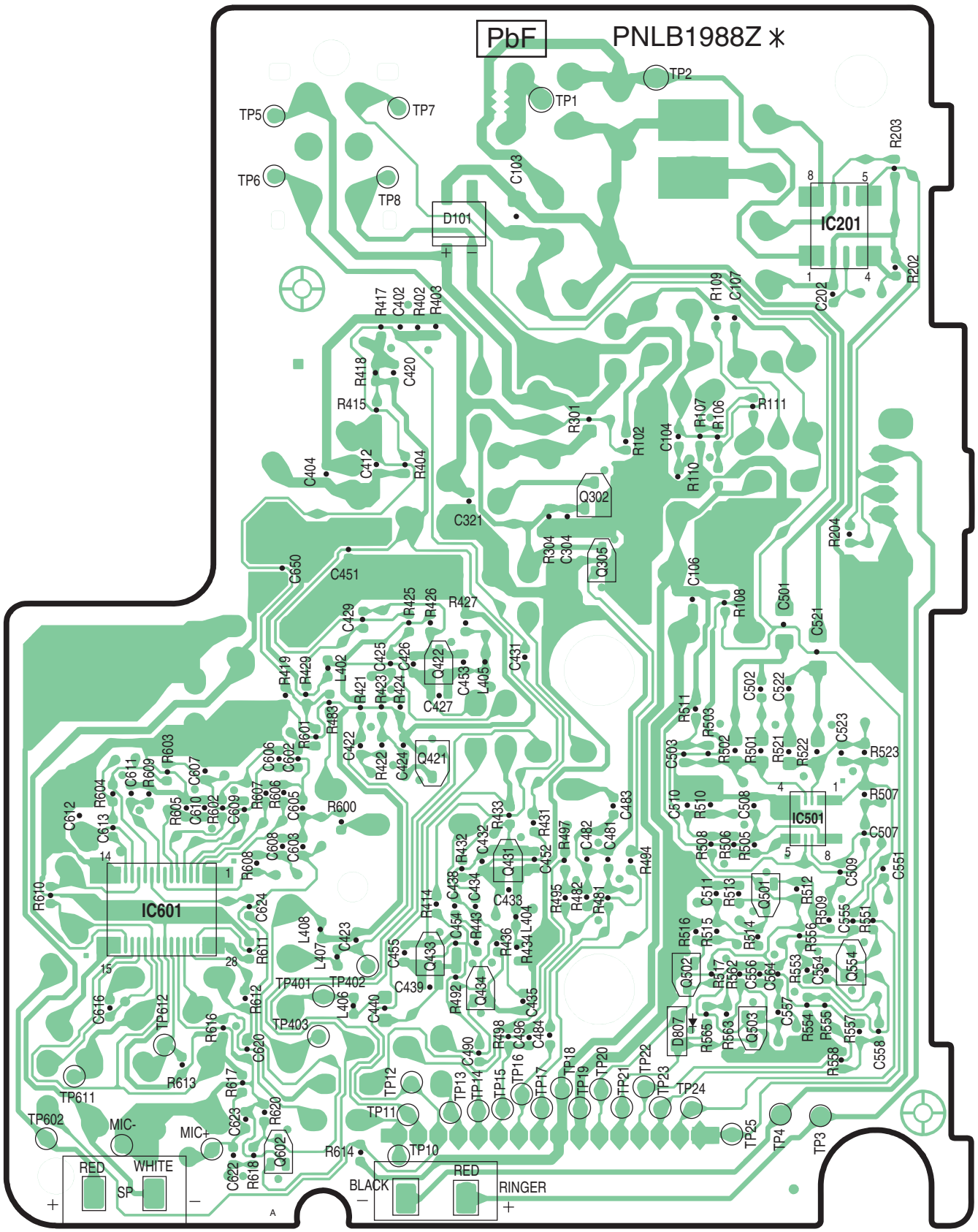
12.1. Circuit Board (Main)

12.1.1. Component View



KX-TSC62SX CIRCUIT BOARD (Main (Component View))

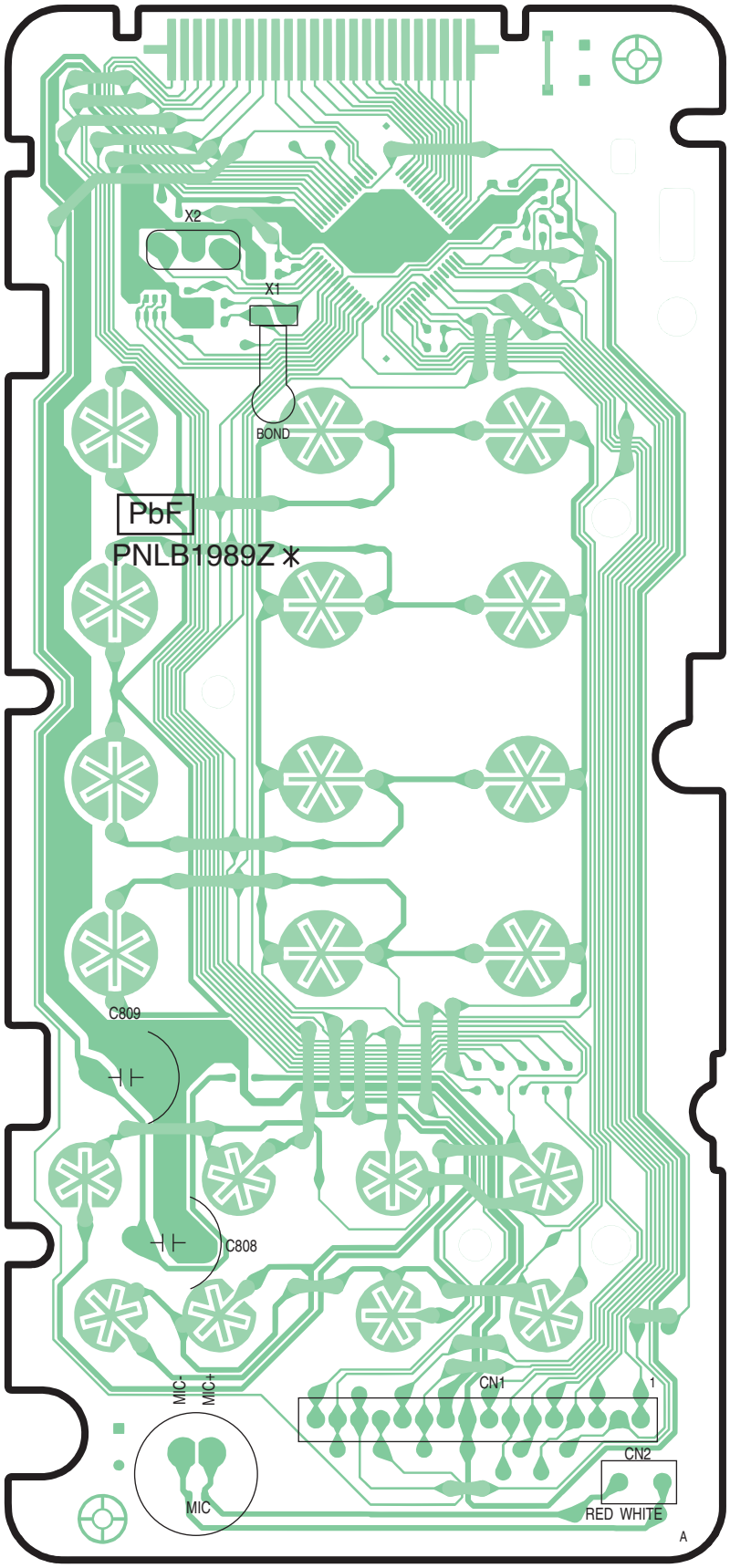
12.1.2. Bottom View



KX-TSC62SX CIRCUIT BOARD (Main (Bottom View))

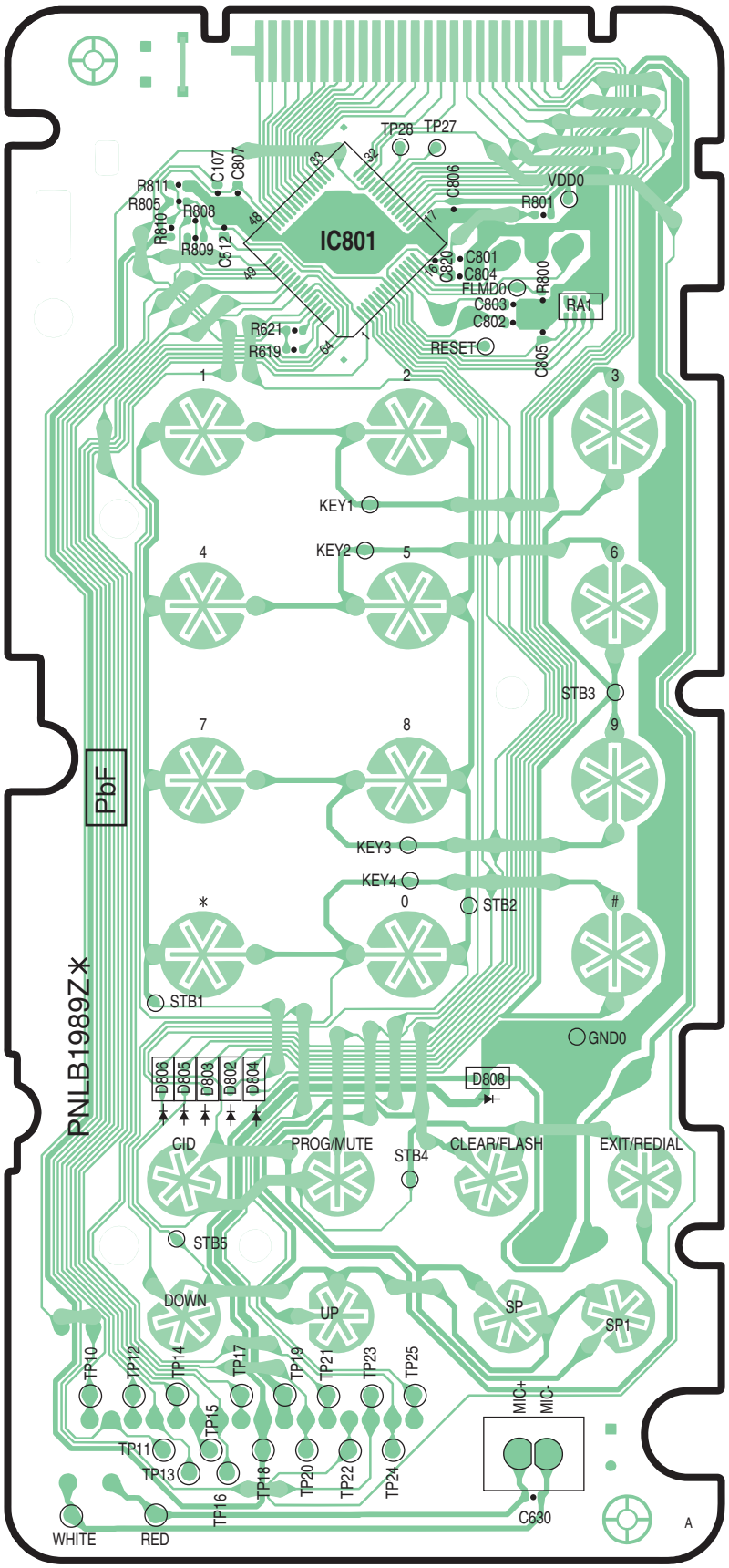
12.2. Circuit Board (Operation)

12.2.1. Component View



KX-TSC62SX CIRCUIT BOARD (Operation (Component View))

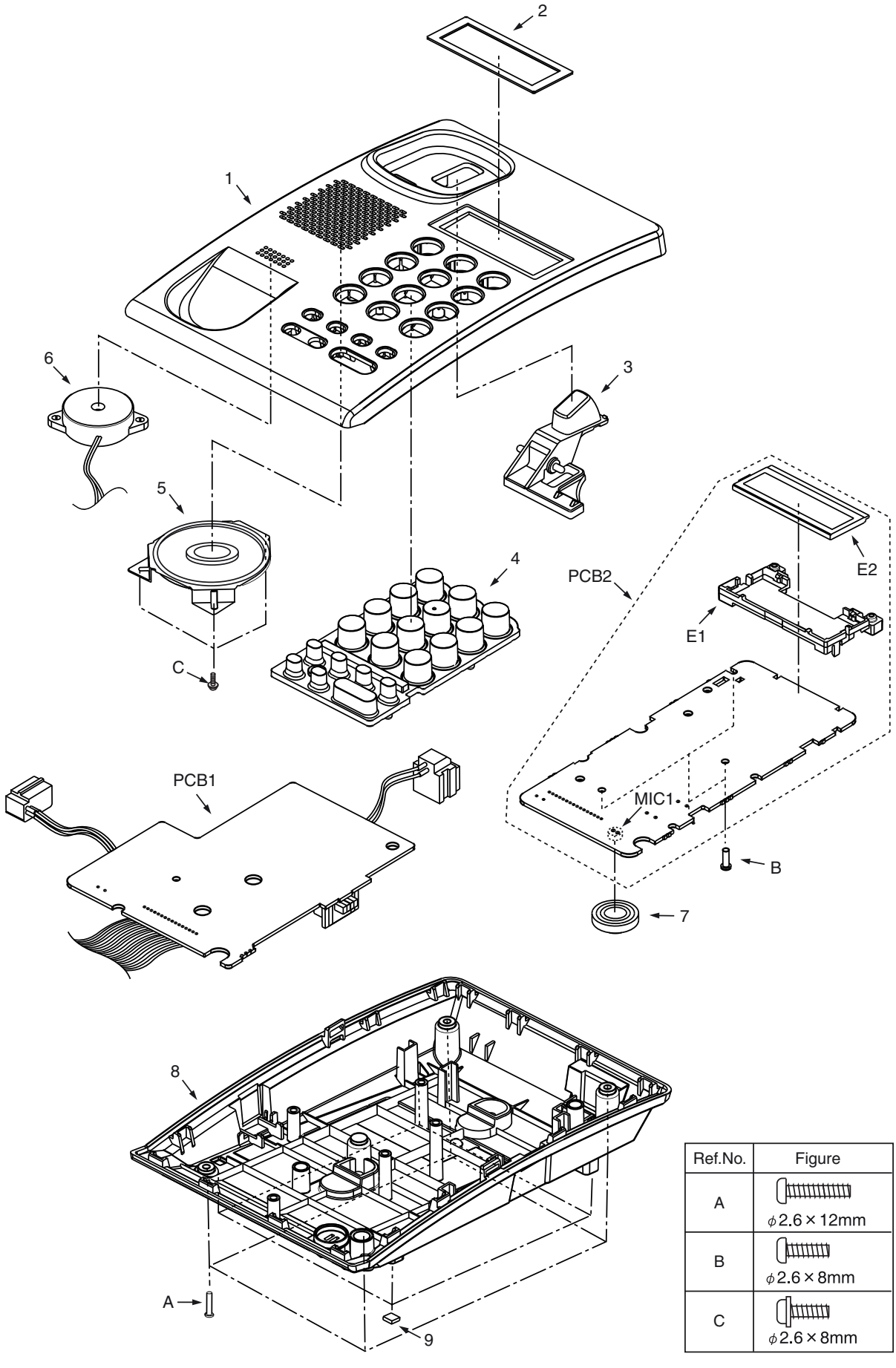
12.2.2. Bottom View



KX-TSC62SX CIRCUIT BOARD (Operation (Bottom View))

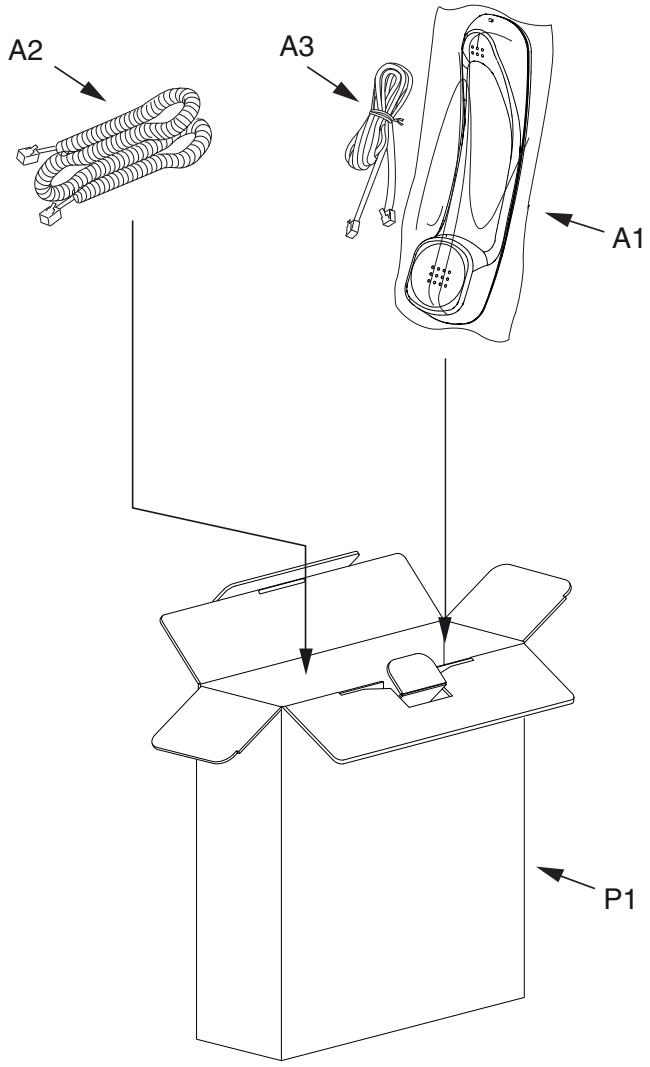
13 Exploded View and Replacement Parts List

13.1. Cabinet and Electrical Parts



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

13.2. Accessories



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	PNKM1228Z2	CABINET BODY (for KX-TSC62SXB)	PS-HB
	1	PNKM1228Z1	CABINET BODY (for KX-TSC62SXW)	PS-HB
	2	PNGP1189Z2	PANEL, LCD (for KX-TSC62SXB)	PC CLEAR
	2	PNGP1189Z1	PANEL, LCD (for KX-TSC62SXW)	PC CLEAR
	3	PNBH1003Z2	PUSH BUTTON, HOOK (for KX-TSC62SXB)	ABS-HB
	3	PNBH1003Z1	PUSH BUTTON, HOOK (for KX-TSC62SXW)	ABS-HB
	4	PNJK1134Y	KEYBOARD SWITCH, RUBBER KEY (for KX-TSC62SXB)	
	4	PNJK1134Z	KEYBOARD SWITCH, RUBBER KEY (for KX-TSC62SXW)	
	5	L0AA05A00096	SPEAKER	
	6	L0DDFD000002	BUZZER	
	7	PQMG10025W	RUBBER PARTS, MIC	
	8	PNKF1167Z2	CABINET COVER (for KX-TSC62SXB)	PS-HB
	8	PNKF1167Z1	CABINET COVER (for KX-TSC62SXW)	PS-HB
	9	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	

13.3.1.2. Main P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWP1TSC62SX	MAIN P.C. BOARD ASS'Y (RTL)	
			(IC)	
	IC201	C1CB00002903	IC	
	IC501	PQVINJU7014R	IC	
	IC601	C1CB00001673	IC	
			(TRANSISTORS)	
	Q101	B1ACGP000007	TRANSISTOR(SI)	
	Q102	PQVT2N6517CA	TRANSISTOR(SI)	S
	Q103	PQVT2N6517CA	TRANSISTOR(SI)	S
	Q301	B1BCAP000026	TRANSISTOR(SI)	
	Q302	B1ABDM000001	TRANSISTOR(SI)	
	Q305	UNR5213J0L	TRANSISTOR(SI)	
	Q401	B1AAKD000013	TRANSISTOR(SI)	
	Q421	B1GBJCJJ0003	TRANSISTOR(SI)	
	Q422	B1ABDF000026	TRANSISTOR(SI)	S
	Q431	B1ABDF000026	TRANSISTOR(SI)	S
	Q433	2SD1819KSL	TRANSISTOR(SI)	
	Q434	UNR5213J0L	TRANSISTOR(SI)	
	Q501	2SB1218KSL	TRANSISTOR(SI)	
	Q502	2SD1819KSL	TRANSISTOR(SI)	
	Q503	2SD1819KSL	TRANSISTOR(SI)	
	Q554	B1ABDF000026	TRANSISTOR(SI)	S
	Q602	UNR5213J0L	TRANSISTOR(SI)	
			(DIODES)	
	D101	B0EDER000009	DIODE(SI)	
	D103	1SS133	DIODE(SI)	S
	D106	PQVDMZJ5R1C	DIODE(SI)	S
	D305	1SS133	DIODE(SI)	S
	D321	MA4180	DIODE(SI)	S
	D413	MA4056	DIODE(SI)	S
	D414	1SS133	DIODE(SI)	S
	D601	1SS133	DIODE(SI)	S
	D807	MA111	DIODE(SI)	S
			(JACKS)	
	JJ1	PQJJ1T039P	JACK, TEL LINE	
	JJ401	PQJJ1T036V	JACK, HANDSET	
			(SWITCHES)	
	SW201	K0D113B00082	SLIDE SWITCH	
	SW301	PQSH2B105Z	PUSH SWITCH	S
			(VARISTOR)	
⚠	SA101	J0LF00000026	VARISTOR	
			(RESISTORS)	
	R102	ERJ3GEYJ155	1.5M	S
	R103	ERDS2TJ225	2.2M	
	R104	ERJ3GEYJ224	220k	S
	R105	ERDS2TJ102	1k	
	R106	ERJ3GEYJ125	1.2M	S
	R107	ERJ3GEYJ184	180k	S
	R108	ERJ3GEYJ564	560k	S
	R109	ERJ3GEYJ225	2.2M	S
	R110	ERJ3GEYJ153	15k	S
	R111	ERJ3GEYJ474	470k	S
	R201	ERDS1VJ682	6.8k	
	R202	ERJ3GEYJ273	27k	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R203	ERJ3GEYJ334	330k	S
	R204	ERJ3GEYJ103	10k	S
	R301	PQ4R10XJ104	100k	S
	R302	ERDS2TJ472	4.7k	
	R303	ERDS2TJ154	150k	
	R304	ERJ3GEYJ105	1M	S
	R307	ERDS2TJ563	56k	
	R402	ERJ3GEYJ682	6.8k	S
	R404	ERJ3GEYJ271	270	S
	R412	ERDS1TJ150	15	S
	R414	ERJ3GEYJ474	470k	S
	R415	ERJ3GEYJ103	10k	S
	R417	ERJ3GEYJ821	820	S
	R419	ERJ3GEYJ393	39k	S
	R421	ERJ3GEYJ272	2.7k	S
	R422	ERJ3GEYJ393	39k	S
	R423	ERJ3GEYJ103	10k	S
	R424	ERJ3GEYJ224	220k	S
	R425	ERJ3GEYJ275	2.7M	S
	R426	ERJ3GEYJ222	2.2k	S
	R427	ERJ3GEYJ121	120	S
	R429	ERJ3GEYJ103	10k	S
	R431	ERJ3GEYJ102	1k	S
	R432	ERJ3GEYJ395	3.9M	S
	R433	ERJ3GEYJ472	4.7k	S
	R434	ERJ3GEYJ470	47	S
	R436	ERJ3GEYJ334	330k	S
	R443	ERJ3GEYJ472	4.7k	S
	R481	ERJ3GEYJ103	10k	S
	R482	ERJ3GEYJ103	10k	S
	R483	ERJ3GEYJ682	6.8k	S
	R492	ERJ3GEYJ681	680	S
	R494	ERJ3GEYJ105	1M	S
	R495	ERJ3GEYJ563	56k	S
	R496	ERJ3GEYJ155	1.5M	S
	R497	ERJ3GEYJ474	470k	S
	R498	ERJ3GEYJ275	2.7M	S
	R501	PQ4R10XJ104	100k	S
	R502	PQ4R10XJ184	180k	S
	R503	ERJ3GEYJ334	330k	S
	R505	ERJ3GEYJ684	680k	S
	R506	ERJ3GEYJ122	1.2k	S
	R507	ERJ3GEYJ334	330k	S
	R508	ERJ3GEYJ335	3.3M	S
	R509	ERJ3GEYJ224	220k	S
	R510	ERJ3GEYJ184	180k	S
	R511	ERJ3GEYJ105	1M	S
	R512	ERJ3GEYJ224	220k	S
	R513	ERJ3GEYJ105	1M	S
	R514	ERJ3GEYJ154	150k	S
	R515	ERJ3GEYJ103	10k	S
	R516	ERJ3GEYJ124	120k	S
	R517	ERJ3GEYJ105	1M	S
	R521	PQ4R10XJ104	100k	S
	R522	PQ4R10XJ184	180k	S
	R523	ERJ3GEYJ334	330k	S
	R551	ERJ3GEYJ684	680k	S
	R553	ERJ3GEYJ475	4.7M	S
	R554	ERJ3GEYJ473	47k	S
	R555	ERJ3GEYJ472	4.7k	S
	R556	ERJ3GEYJ473	47k	S
	R557	ERJ3GEYJ105	1M	S
	R558	ERJ3GEYJ105	1M	S
	R562	ERJ3GEYJ224	220k	S
	R563	ERJ3GEYJ225	2.2M	S
	R564	ERJ3GEYJ474	470k	S
	R565	ERJ3GEYJ105	1M	S
	R600	ERJ3GEYJ392	3.9k	S
	R601	ERJ3GEYJ103	10k	S
	R602	ERJ3GEYJ272	2.7k	S
	R603	ERJ3GEYJ332	3.3k	S
	R604	ERJ3GEYJ472	4.7k	S
	R605	ERJ3GEYJ225	2.2M	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R606	ERJ3GEYJ303	30k	S
	R607	ERJ3GEYJ683	68k	S
	R608	ERJ3GEYJ472	4.7k	S
	R609	ERJ3GEYJ185	1.8M	S
	R610	ERJ3GEYJ104	100k	S
	R611	ERJ3GEYJ183	18k	S
	R612	ERJ3GEYJ821	820	S
	R613	ERJ3GEYJ104	100k	S
	R614	ERJ3GEYJ473	47k	S
	R615	ERDS2TJ103	10k	
	R616	ERJ3GEYJ472	4.7k	S
	R617	ERJ3GEYJ222	2.2k	S
	R618	ERJ3GEYJ682	6.8k	S
			(CAPACITORS)	
	C101	F1B2H681A070	680p	
	C102	F1B2H681A070	680p	
	C104	ECUV1C105KBV	1	
	C105	ECA1AHG471	470p	S
	C106	ECUV1C473KBV	0.047	
	C107	ECUV1H103KBV	0.01	
	C201	F0C2E1050005	1	
	C202	ECUV1C683KBV	0.068	
	C203	F2A1H4R70014	4.7	
	C304	ECUV1H103KBV	0.01	
	C321	ECUV1H103KBV	0.01	
	C402	ECUV1H332KBV	0.0033	
	C413	ECEA1CKA221	220	
	C419	ECEA1EKS330	33	S
	C422	ECUV1H562KBV	0.0056	
	C423	ECUV1C823KBV	0.082	
	C425	ECUV1C104KBV	0.1	
	C427	ECUV1H102KBV	0.001	
	C429	ECUV1C104KBV	0.1	
	C431	ECUV1C104KBV	0.1	
	C433	ECUV1H103KBV	0.01	
	C434	ECUV1C104KBV	0.1	
	C435	ECUV1C223KBV	0.022	
	C438	ECUV1H103KBV	0.01	
	C440	PQCUV0J106KB	10	S
	C481	ECUV1H103KBV	0.01	
	C482	ECUV1H103KBV	0.01	
	C483	ECUV1H183KBV	0.018	
	C484	ECUV1C273KBV	0.027	
	C490	ECUV1H103KBV	0.01	
	C501	F1K2H152A008	1500p	
	C502	ECUV1H153KBV	0.015	
	C503	ECUV1H391JCV	390p	
	C507	ECUV1H680JCV	68p	
	C508	ECUV1C104KBV	0.1	
	C509	ECUV1H222KBV	0.0022	
	C510	ECUV1C104KBV	0.1	
	C511	ECUV1C104KBV	0.1	
	C521	F1K2H152A008	1500p	
	C522	ECUV1H153KBV	0.015	
	C523	ECUV1H391JCV	390p	
	C551	ECUV1H561JCV	560p	
	C554	ECUV1H102KBV	0.001	
	C555	ECUV1C333KBV	0.033	
	C556	ECUV1C333KBV	0.033	
	C557	ECUV1C104KBV	0.1	
	C558	ECUV1H103KBV	0.01	
	C601	ECA0JM102	0.001	S
	C602	ECUV1C473KBV	0.047	
	C603	ECUV1H822KBV	0.0082	
	C605	ECUV1H272KBV	0.0027	
	C606	ECUV1C683KBV	0.068	
	C607	ECUV1C273KBV	0.027	
	C608	ECUV1C223KBV	0.022	
	C609	ECUV1C104KBV	0.1	
	C610	ECUV0J105KBV	1	
	C611	ECUV0J105KBV	1	
	C612	F1K1A4750003	4.7	
	C613	ECUV1C683KBV	0.068	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C614	ECEA0JKA470	47	
	C615	ECEA0JKS220	22	S
	C616	ECUV1C104KBV	0.1	
	C617	ECEA0JKS470	47	S
	C618	ECEA1AKS330	33	S
	C619	ECEA1CKS4R7	4.7	S
	C620	ECUV1C273KBV	0.027	
	C621	ECEA0JKS101	100	S
	C622	ECUV1C104KBV	0.1	
	C623	ECUV1H103KBV	0.01	
	C624	ERJ3GEY0R00	0	S

13.3.1.3. Operational P.C. Board Parts

Note:

(*1) When replacing the Base Unit LCD, See **How to Replace the Base Unit LCD** (P.17).

(*2) Supplied IC is Flat Package Type.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PNWP2TSC62SX	OPERATION P.C. BOARD ASS'Y (RTL)	
			(IC)	
	IC801	PNWITSC62SXH	IC (*2)	
			(DIODES)	
	D808	DB2J31400L	DIODE(SI)	
	D802	MA111	DIODE(SI)	S
	D803	MA111	DIODE(SI)	S
	D804	MA111	DIODE(SI)	S
	D805	MA111	DIODE(SI)	S
	D806	MA111	DIODE(SI)	S
			(RESISTOR ARRAY)	
	RA1	EXB38V473JV	RESISTOR ARRAY	
			(RESISTORS)	
	R619	ERJ3GEYJ333	33k	S
	R621	ERJ3GEYJ683	68k	S
	R801	ERJ3GEYJ473	47k	S
	R808	ERJ3GEYJ123	12k	S
	R810	ERJ3GEYJ395	3.9M	S
	R811	ERJ3GEYJ395	3.9M	S
			(CAPACITORS)	
	C107	ECUV1C473KBV	0.047	
	C512	ECUV1C104KBV	0.1	
	C801	ECUV1C104KBV	0.1	
	C802	ECUV1H220JCV	22p	
	C803	ECUV1H220JCV	22p	
	C805	ECUV1C104KBV	0.1	
	C806	ECUV1C104KBV	0.1	
	C807	ECUV1C104KBV	0.1	
	C809	ECA0JM102	0.001	S
	C820	ECUV0J105KBV	1	
			(OTHERS)	
	E1	PNHR1510Z	GUIDE, LCD	
	E2	L5AYAYY00093	LIQUID CRYSTAL DISPLAY (*1)	
	MIC1	L0CBAY000016	MICROPHONE	
	X1	H0A327200147	CRYSTAL OSCILLATOR	
	X2	H2B8004A0008	CERAMIC FILTER	

13.3.2. Accessories

Note:

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

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A1	PQJXE0801Z	HANDLE/HANDSET (for KX-TSC62SXB)	
	A1	PQJXE0811Z	HANDLE/HANDSET (for KX-TSC62SXW)	
	A2	PQJA212V	CORD, HANDSET (for KX-TSC62SXB)	
	A2	PQJA212M	CORD, HANDSET (for KX-TSC62SXW)	
	A3	PQJA10075Z	CORD, TELEPHONE	
	P1	PNPK3378001Z	GIFT BOX	

13.3.3. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	XTB26+12GFJ	TAPPING SCREW	
	B	XTB26+8GFJ	TAPPING SCREW	
	C	XTW26+8PFJ7	TAPPING SCREW	

13.3.4. Fixtures and Tools

Note:

(*1) When replacing the Base Unit LCD, See **How to Replace the Base Unit LCD** (P.17).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PQZZ430PIR	TIP OF SOLDERING IRON (*1)	
		PQZZ430PRB	RUBBER OF SOLDERING IRON (*1)	

MIN/N
KXTSC62SXB
KXTSC62SXW