ORDER NO. KM40605055CE

Service Manual

Telephone Equipment

Caller ID Compatible

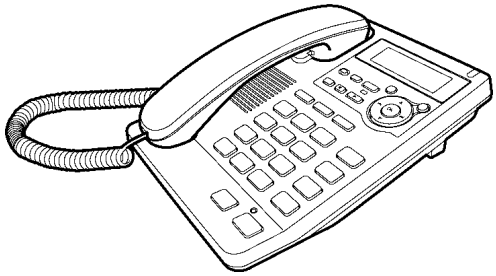
KX-TS620BXB
KX-TS620BXW

Telephone Answering System

Black Version

White 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 cirtical parts should be replaced with manufactuer'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 sllightly from the actual product.

Note for TABLE OF CONTENTS:
Because section 5, 6 and 7 of this manual is 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

PAGE

1 Safety Precaution

1.1. For Service Technicians

ICs and LSIs are vulnerable to static electricity.

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

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.

2 Warning

2.1. Battery Caution

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

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

Note:

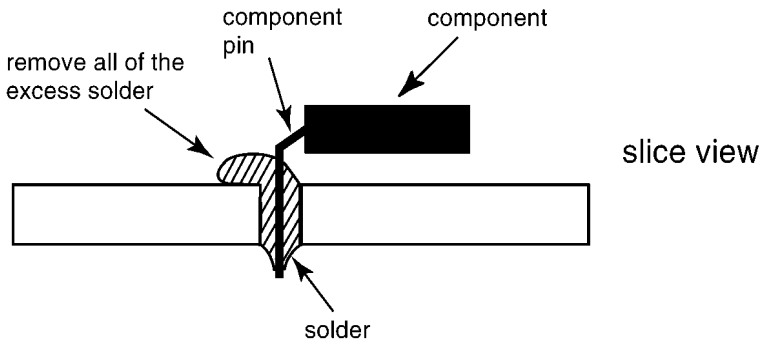
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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

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

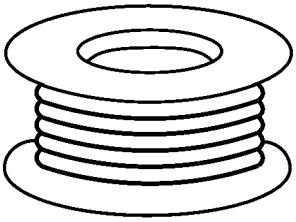
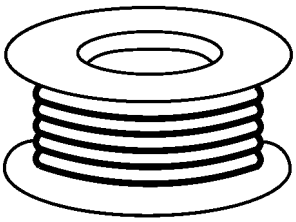
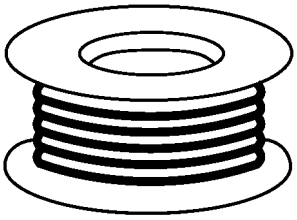
Caution

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



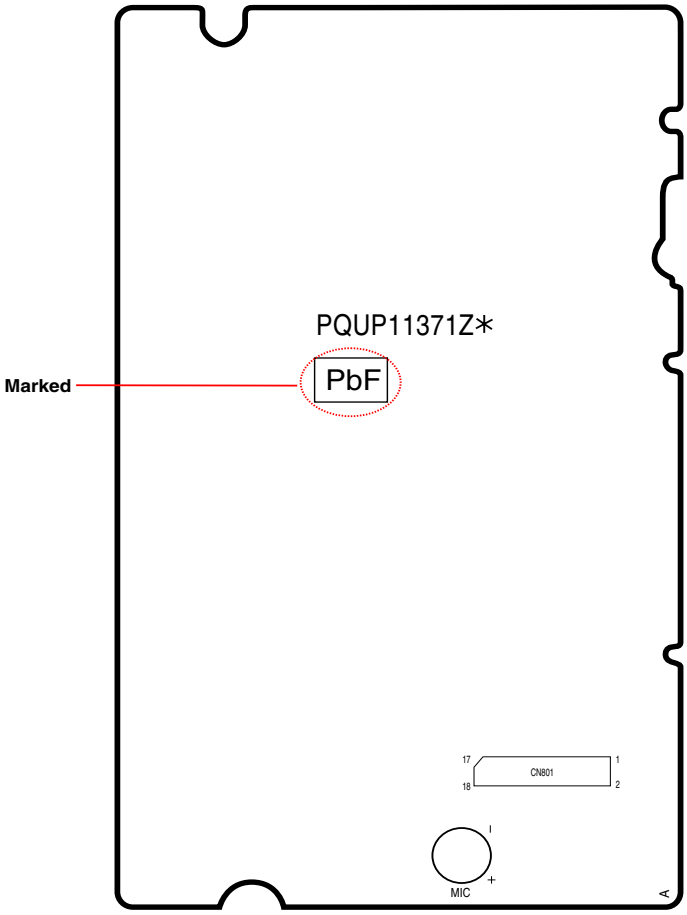
2.2.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the 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.

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

2.2.2. How to recognize that Pb Free solder is used

(Example: Operation P.C.B.)



(Component View)

Note:

The location of the "PbF" mark is subject to change without notice.

3 Specifications

Power Supply:	AC adaptor (AC 220 V — 240 V, 50/60 Hz) PQLV207BXZ
Power Consumption:	Standby: Approx. 2.4 W Maximum: Approx. 3.0 W
Dimensions (H x W x D):	Approx. 91 mm x 165 mm x 220 mm
Mass (Weight):	Approx. 670 g
Dialing Mode:	Tone (DTMF)/Pulse
Operating Environment:	5˚C – 40˚C
Ringer Equivalence No. (REN):	1.0 B

- Optional Headset: KX-TCA89BX
- Specifications are subject to change without notice.
- The illustrations used in this manual may differ slightly from the actual product.

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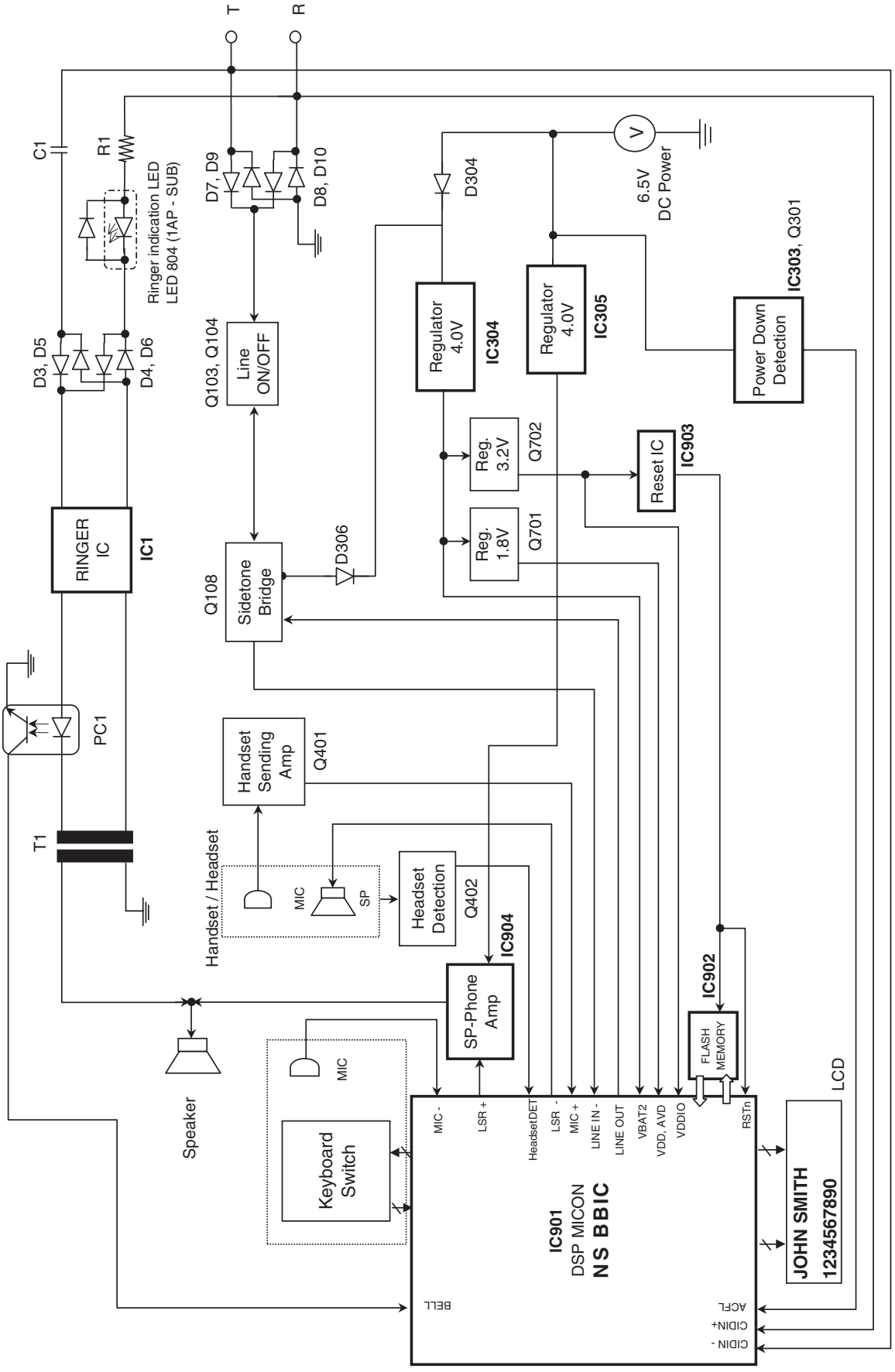
When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

4 Technical Descriptions

4.1. Block Diagram (Base Unit)



KX-TS620 BLOCK DIAGRAM

4.2. Circuit Operation (Base Unit)

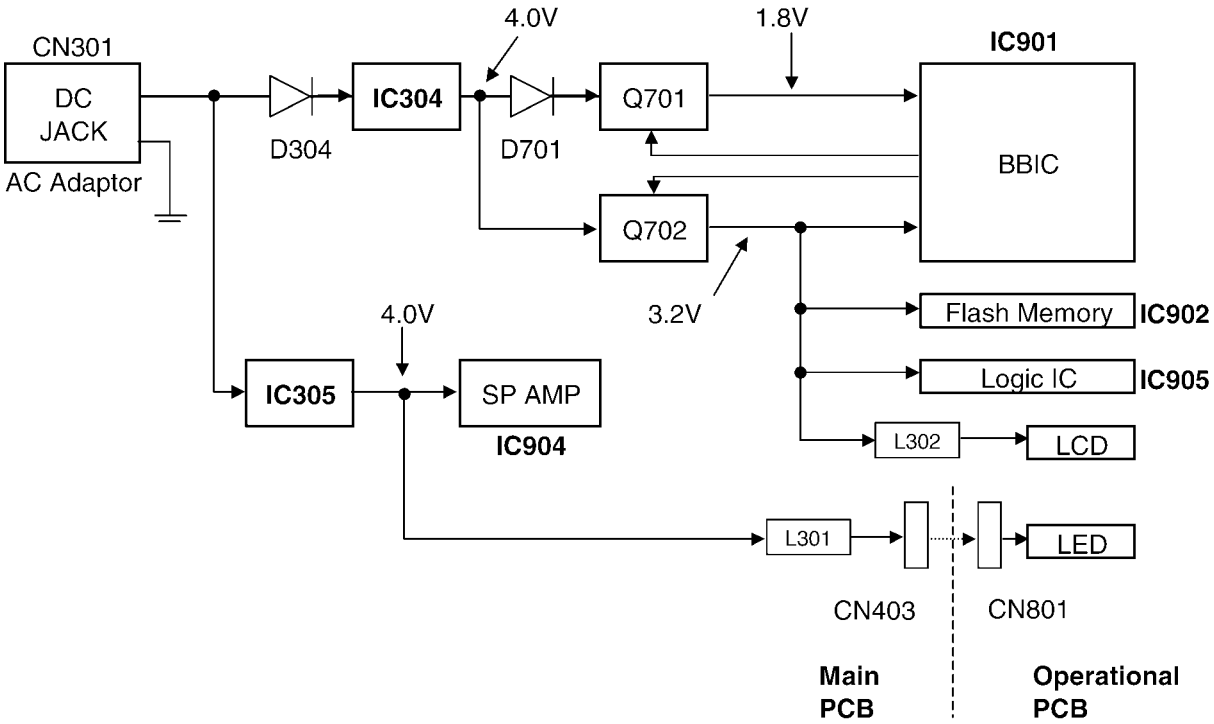
4.2.1. Outline

The unit consists of the following ICs as shown in the **Block Diagram (Base Unit)** (P.7).

- **BBIC (Base Band IC): IC901**
  - Handling all the audio, signal and data processing needed
  - ADPCM codec filter for speech encoding and speech decoding (DSP section)
  - Echo-cancellation and Echo-suppression (DSP section)
  - Any tones (tone, sidetone, ringing tone, etc.) generation (DSP section)
  - DTMF receiver (DSP section)
  - ADC, DAC, timer and power control circuitry
  - All interfaces (eg: LCD, LED, Analog Front End, etc.)
- **FLASH MEMORY: IC902**
  - Voice Prompt (TAM) Download Area
  - Program D/L Area
- **RINGER IC: IC1**
  - Bell signal generator (for bell detection purpose)
  - Refer to **Ringer IC** (P.10)
- **SP AMP: IC904**
  - Low voltage audio power amplifier
- **Additionally,**
  - Power Supply Circuit (+4.0V, +4.0V, +3.2V, +1.8V output)
  - Telephone Line Interface Circuit
  - Bell Detection Circuit
  - SP-Phone Circuit
  - Handset Circuit
  - TAM Circuit

4.2.2. Power Supply Circuit

The power is supplied to the BBIC, Flash ROM, SP AMP, Logic IC, LCD, LED from AC adaptor (6.5V) as below:



- BBIC (IC901): CN301 -> D304 -> IC304 -> Q702 -> IC901
- Flash Memory (IC902): CN301 -> D304 -> IC304 -> Q702 -> IC902
- Logic IC (IC905): CN301 -> D304 -> IC304 -> Q702 -> IC905
- SP AMP (IC904): CN301 -> IC305 -> IC904
- LCD (LCD): CN301 -> D304 -> IC304 -> Q702 -> L302 -> LCD
- LED (LED801, LED802): CN301 -> IC305 -> L301 -> CN403 -> CN801 -> LED

4.2.3. Telephone Line Interface

Function:

- Bell Signal Detection
- Caller ID Detection
- ON/OFF hook Circuit
- Audio Circuit

4.2.3.1. Bell Detection Circuit

When the bell signal is input from LINE to T/R (when the telephone rings), BBIC detects bell signal via following path:
T -> D3 -> IC1(1) -> IC1(8) -> C4 -> R6 -> PC1(1) -> PC1(4) -> IC901(63)
R -> R1 -> LED804 -> D4 -> IC1(1) -> IC1(8) -> C4 -> R6 -> PC1(1) -> PC1(4) -> IC901(63)
After bell signal detected at IC901(63), the bell ringing signal is output at the speaker via the following path:

IC901(110) -> C930 -> R925 -> IC904(4) → IC904(8) -> C925 -> SP(+)
IC904(4) → IC904(5) -> SP(-)

4.2.3.2. Caller ID Detection Circuit

Normally, FSK caller ID data is followed after the 1st bell signal.
When the bell signal is detected by BBIC, Caller ID signal is sent through the circuit via following path:
T -> C501 -> R503 -> R905 -> IC901(107)
R -> C502 -> R504 -> R908 -> IC901(112)

4.2.3.3. On/Off Hook Circuit

In standby mode, SW101 is open and Q104 is OFF. Consequently Q103 is open and cut the DC loop current and voice signal. This is an **on-hook condition**.

When handset is picked up or SP-Phone key is pressed, Q104 turns on and then Q103 turns on, thus providing an **off-hook condition**. A DC loop is made and current flows through the circuit via following path:
T -> D7 -> Q103 -> Q108 -> R124 -> D106 -> D10 -> R

Pulse signal is generated by repeated switches between high (3.2V) and low (0V) logic output from IC901(79), switching the line loop on and off.

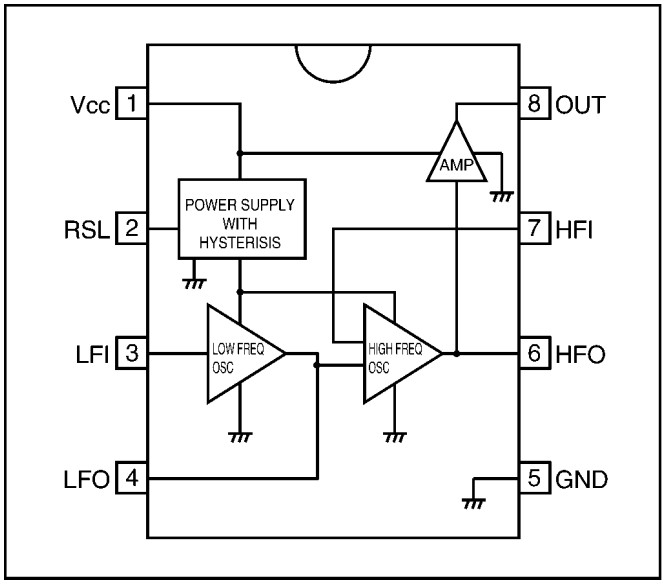
4.2.3.4. Handset Circuit

* Refer to **Signal Route** (P.12).

4.2.3.5. Speakerphone Circuit

* Refer to **Signal Route** (P.12).

4.3. Ringer IC

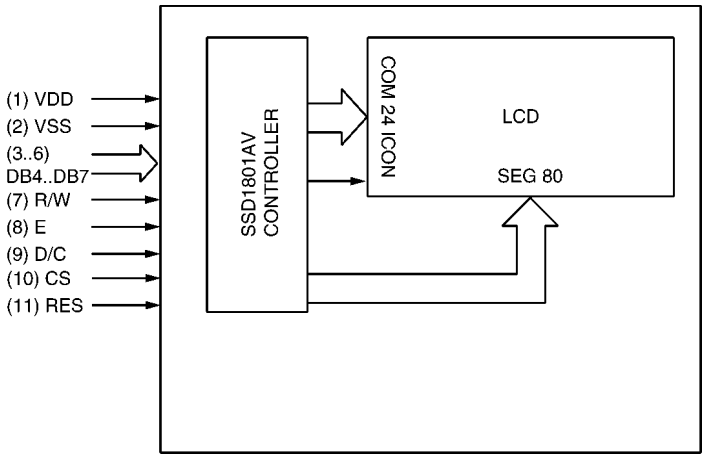


Pin descriptions

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.

4.4. Module Block Diagram

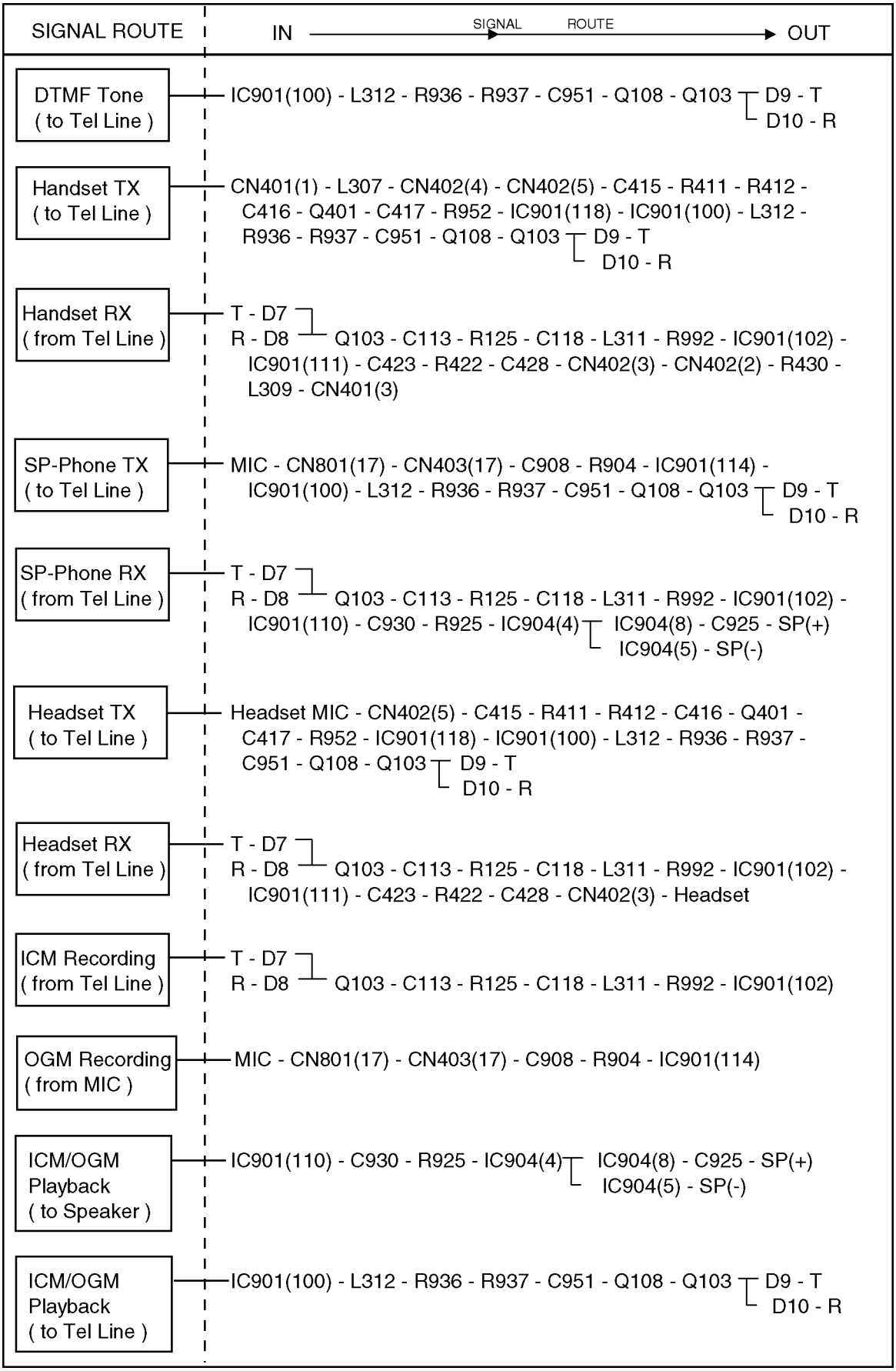
4.4.1. LCD Module Block



4.4.2. Connector Pin Assignment

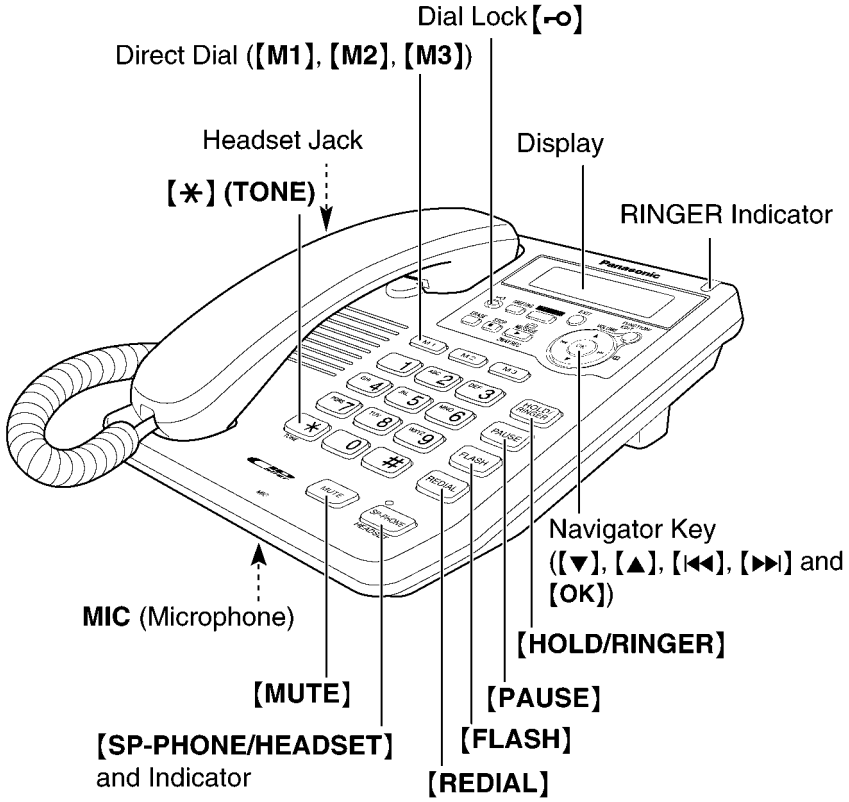
Pin no.	Signal	Function	Enable
1	VDD	+3V Power Supply	—
2	VSS	0V Power Supply	—
3	DB4	Data Bus Line	H/L
4	DB5	Data Bus Line	H/L
5	DB6	Data Bus Line	H/L
6	DB7	Data Bus Line	H/L
7	R/W	Read / Write	H/L
8	E	Enable Signal	H
9	D/C	Data / Command Control	H/L
10	CS	Chip Signal	L
11	RES	Reset Signal Input	L

4.5. Signal Route



5 Location of Controls and Components

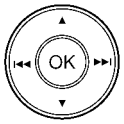
5.1. Controls



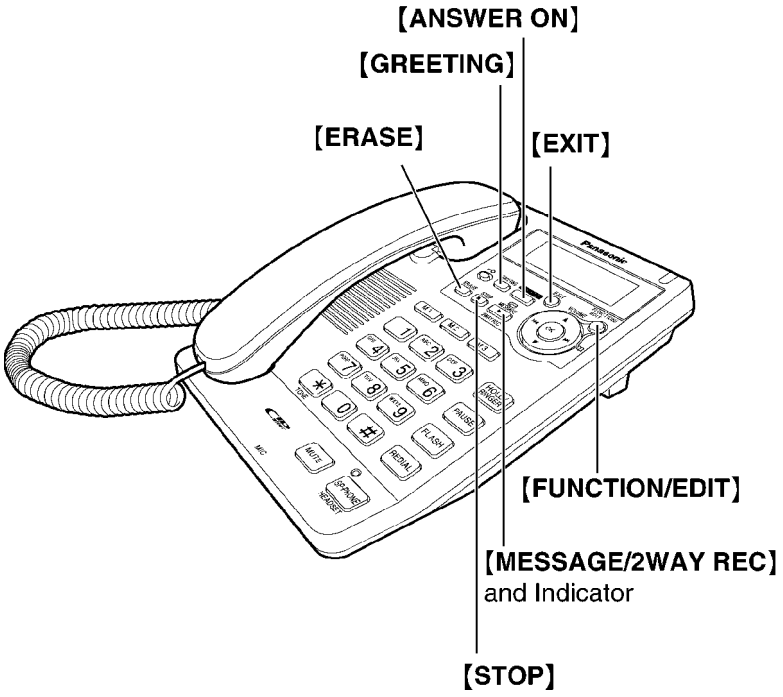
How to use the Navigator key and 【OK】 button

This key has five active areas that are indicated by arrows and 【OK】.

- Pressing the 【▲】 and 【▼】 arrows allows you to enter the Caller List and scroll through the function menu, the Caller List and the Phonebook list.
- Pressing the 【⏮】 and 【⏭】 arrows allows you to:
  - enter the Phonebook list.
  - move the cursor when entering items.
  - to repeat and skip a message during playback.
- The 【OK】 button is used to select or confirm your menu choices.



Throughout these Operating Instructions, the navigator key is indicated by the arrows 【▼】, 【▲】, 【⏮】, 【⏭】 and 【OK】.

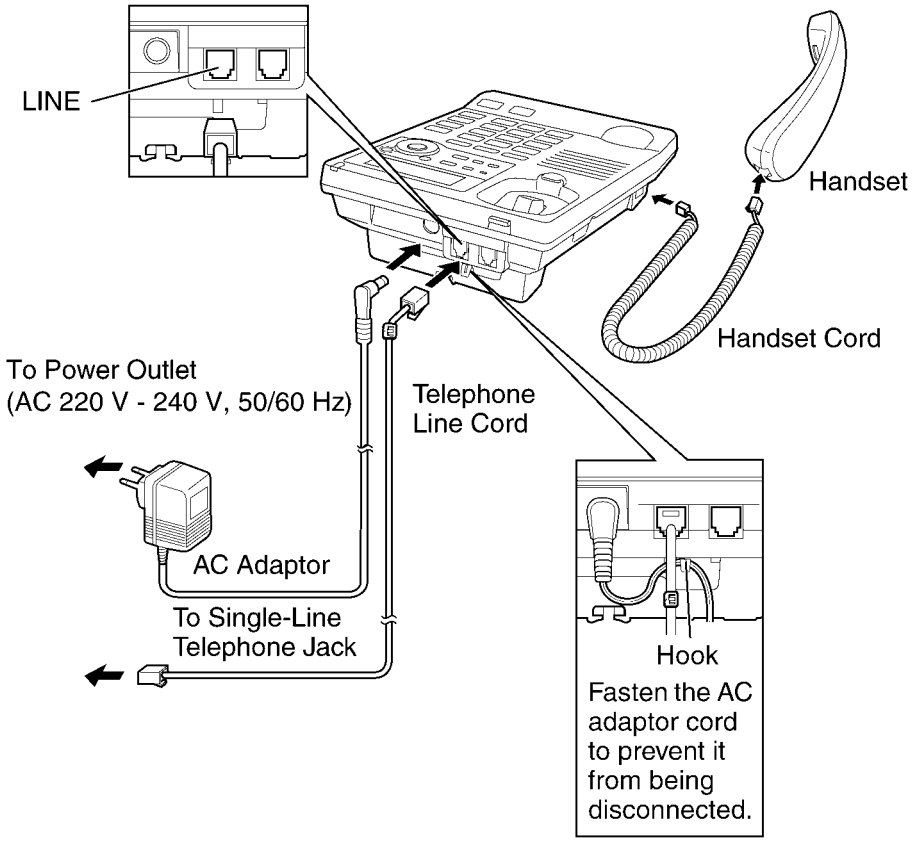

【ANSWER ON】
【GREETING】
【ERASE】
【EXIT】
【FUNCTION/EDIT】
【MESSAGE/2WAY REC】
and Indicator
【STOP】

6 Installation Instructions

6.1. Connections

6.1.1. Connecting the Handset/AC Adaptor/Telephone Line Cord

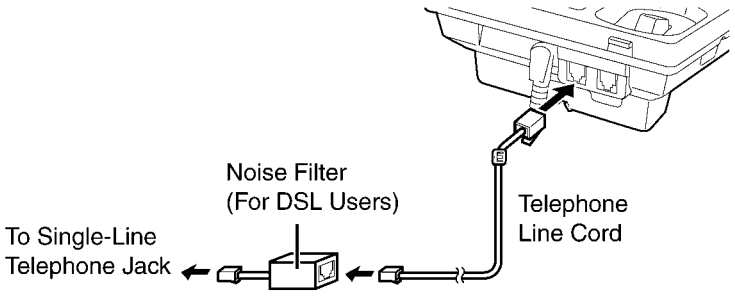
After line connection, lift the handset to check for a dial tone.



- USE ONLY WITH Panasonic AC ADAPTOR PQLV207BXZ.
- Use only a Panasonic Handset for the KX-TS620BXW or KX-TS620BXB.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)
- If your unit is connected to a PBX which does not support Caller ID services, you cannot access those services.

If you subscribe to a DSL service:

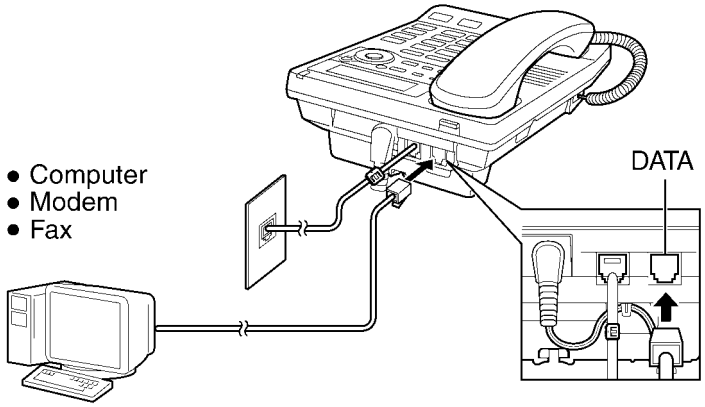
- Please attach a noise filter (contact your DSL provider) to the telephone line between the unit and the telephone line jack in the event of the following:
  — Noise is heard during conversations.
  — Caller ID feature does not function properly.



6.1.2. Connecting a Communication Device

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

After connecting the handset, AC adaptor 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.

7 Operation Instructions

7.1. Dial Lock

The Dial Lock feature allows you to prevent others from making calls. To use this, set the feature to ON. Your phone default setting is OFF.

Before using the Dial Lock or Call Restriction feature, we recommend storing emergency numbers in the memory of Direct Dial buttons and Phonebook as emergency numbers (#). Even if the dialing buttons are locked, the numbers stored in these buttons can be dialed.

7.1.1. To Set the Dial Lock

1 Press **【⊸】**.
- "⊸" flashes on the display.

2 Enter the password.

```
Enter password
:****
          [OK]=Save
```

3 Press **【OK】** (`Save` key).
- A long beep sounds and "⊸" displays.
- If the wrong password was entered, 3 beeps will sound. Enter the correct password. (*1)

If the dial buttons are pressed before/after lifting the handset or pressing **【SP-PHONE/HEADSET】**, "`DIAL LOCKED`" will be displayed.

You can use the following features while the dialing buttons are locked.
- Dialing a number you programmed into the memory of Direct Dial buttons and emergency numbers (#).
- Selecting the ringer volume.
- Adjusting the handset, speakerphone and headset volume.
- Putting a call on hold.
- Muting the conversation.
- Answering the second call by pressing **【FLASH】**.
- Programming (except storing/editing the Direct Dial memory and emergency numbers (#))
- Finding an item in the following lists
  - — Caller list
  - — Redial list
  - — Phonebook
- Automatic answering operation.

7.1.2. To Cancel the Dial Lock

Follow above steps 1 through 3. In step 3, "⊸" will disappear.

For Service Hint:

(*1): If the current password is forgotten, enter "726276642" 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.

7.2. Troubleshooting

Problem	Cause and Remedy
The unit does not work.	• Check the settings. • Unplug the AC adaptor to reset. Plug in, and try again.
The unit does not ring.	• The ringer volume is set to OFF and "🔕" is displayed. Select the ringer volume to HIGH, MID or LOW by pressing **[HOLD/RINGER]**.
You cannot dial.	• Check that the dialing mode selection is correct. • Dial lock mode is set. To cancel the mode, see **To Cancel the Dial Lock.** • The dialed number is restricted.
The other party suddenly cannot hear your voice during a conversation.	• **[MUTE]** may have been pressed during the conversation. If " ⊠ " is displayed, press **[MUTE]**.
You cannot program items such as the dialing mode.	• Programming is not possible when the handset is off the cradle, the SP-PHONE/HEADSET indicator lights,or when viewing caller information. • Do not pause for over 60 seconds while programming.
You cannot store a name and phone number in memory.	• Programming is not possible when the handset is off the cradle or the SP-PHONE/HEADSET indicator lights. • Check the AC adaptor is connected to the unit. • 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 a phone number inthe Direct Dial memory (**[M1]**, **[M2]** or **[M3]**) and emergency numbers (#). • If " `Phonebook full`" is displayed, erase other stored items from the Phonebook memory.
While programming or searching, the unit starts to ring and stops the program/search.	• To answer the call, lift the handset or press **[SP-PHONE/HEADSET]**. Start again from the beginning after hanging up.

Problem	Cause and Remedy
The unit does not display the caller's phone number.	• You need to subscribe to a Caller ID service. • Check the AC adaptor is connected to the unit. • If you receive a call with the Caller ID information while viewing the Caller List, the redial list, the Phonebook list or the Direct Dial Memory, while programming or while playing back the message, the caller's information may not be displayed. • Other telephone equipment may be interfering with your phone. Disconnect it and try again. • Other electrical appliances connected to the same outlet may be interfering with the Caller ID information. • Telephone line noise may be interfering with the CallerID information. Consult your telephone company.
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.

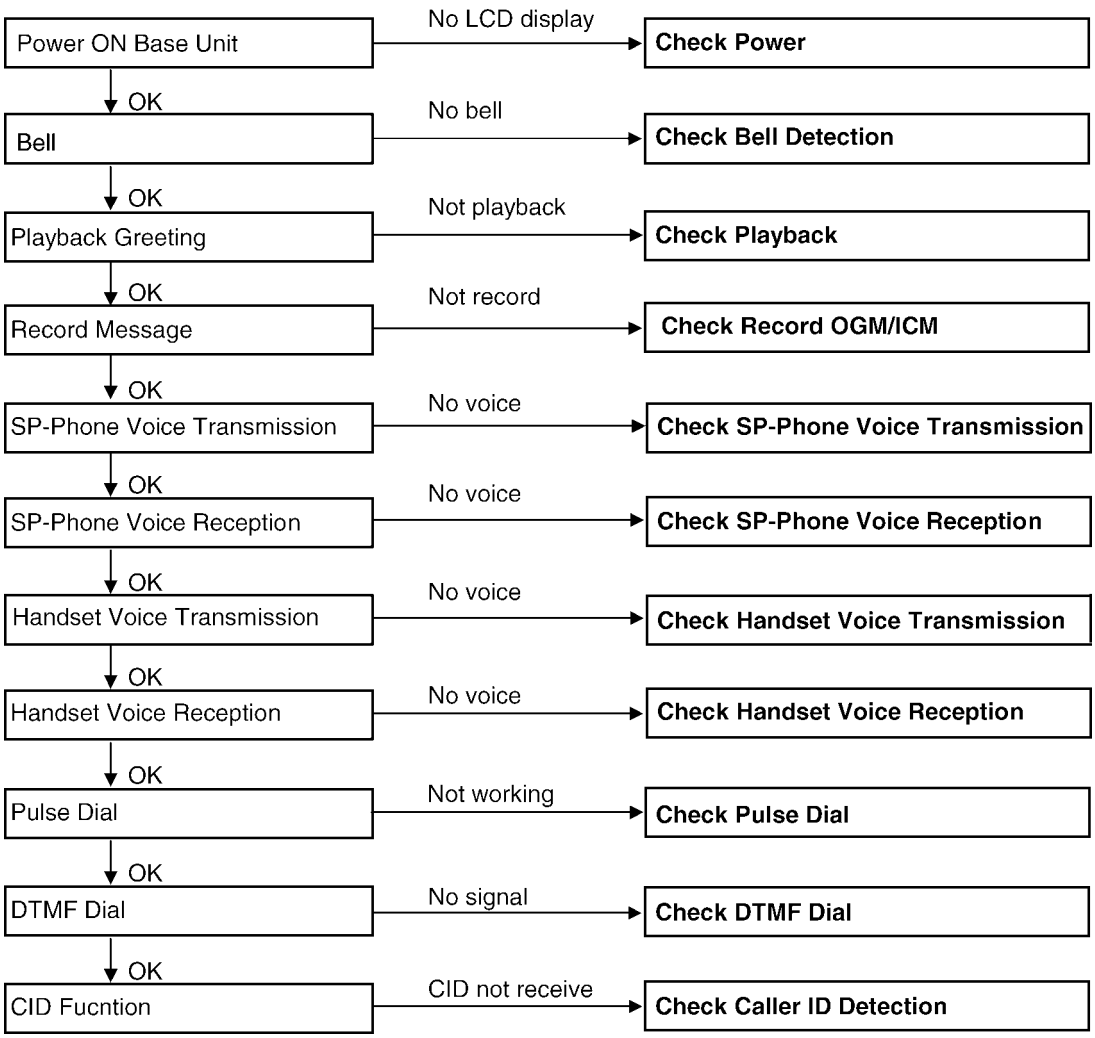
Answering System

Problem	Cause and Remedy
The answering system is on, but incoming messages are not recorded.	• The recording time is set to "Greeting only". Select "1minute", "2 minutes" or "3 minutes". • Memory is full. Erase some, or all, of the messages.
The MESSAGE indicator flashes rapidly, "**Message full**" is displayed, and no new messages are recorded.	• Memory is full. Erase some, or all, of the messages.
You cannot operate the answering system from a touch tone phone.	• Make sure you enter the correct remote code. • The answering system may not respond if the tones are too short to activate the unit. Press each button firmly. • The answering system is off. Turn it on.
You cannot operate the answering system.	• Someone is operating the answering system. • The unit is recording a message. To answer the call, lift the handset or press **[SP-PHONE/HEADSET]**.
Caller ID information is not displayed during message playback.	• The caller information will not be displayed if the Caller List is renewed and the caller information is erased.

8 Troubleshooting Guide

8.1. Troubleshooting Guide

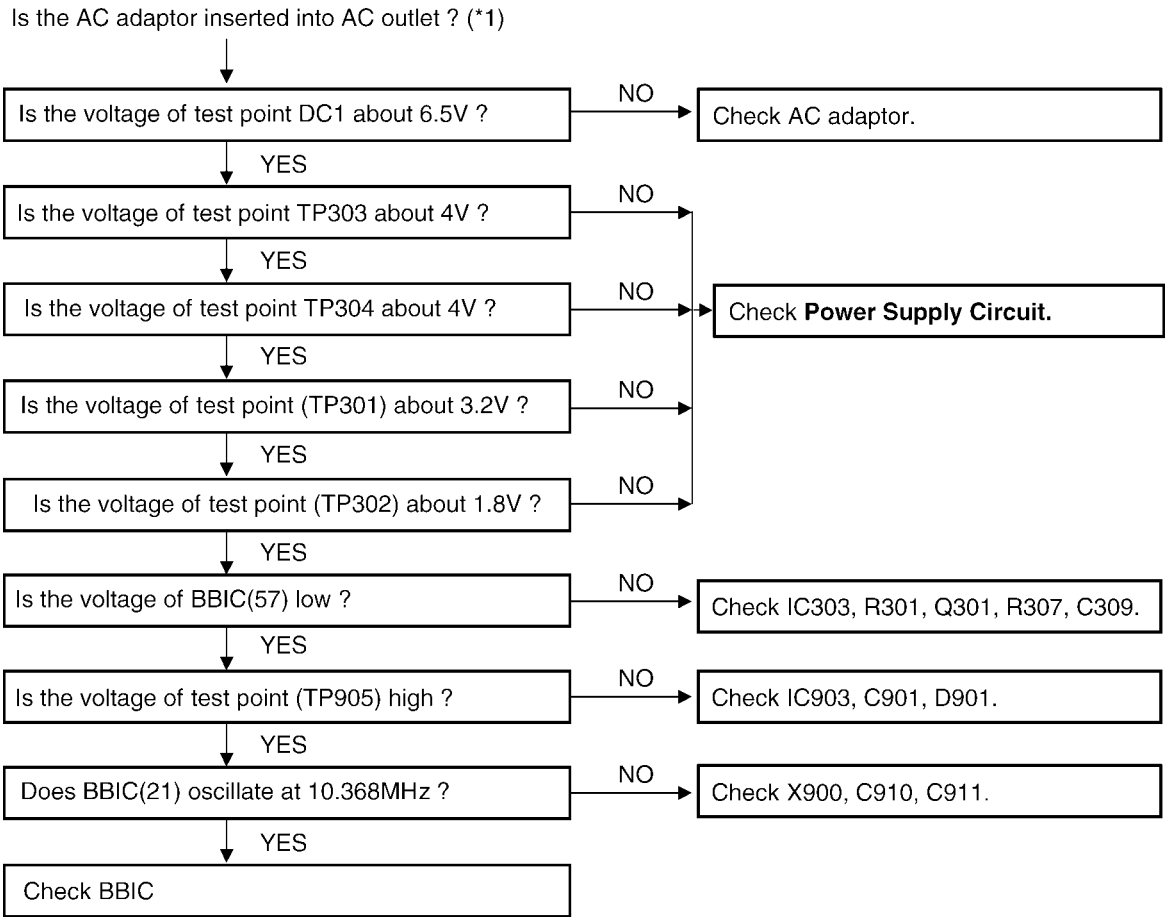
Flow Chart



Cross Reference:

Check Power (P.21)
Check Bell Detection (P.21)
Check Playback (P.22)
Check Record OGM/IGM (P.22)
Check SP-phone Voice Transmission (P.23)
Check SP-phone Voice Reception (P.23)
Check Handset Voice Transmission (P.24)
Check Handset Voice Reception (P.24)
Check Pulse Dial (P.25)
Check DTMF Dial (P.25)
Check Caller ID Detection (P.26)

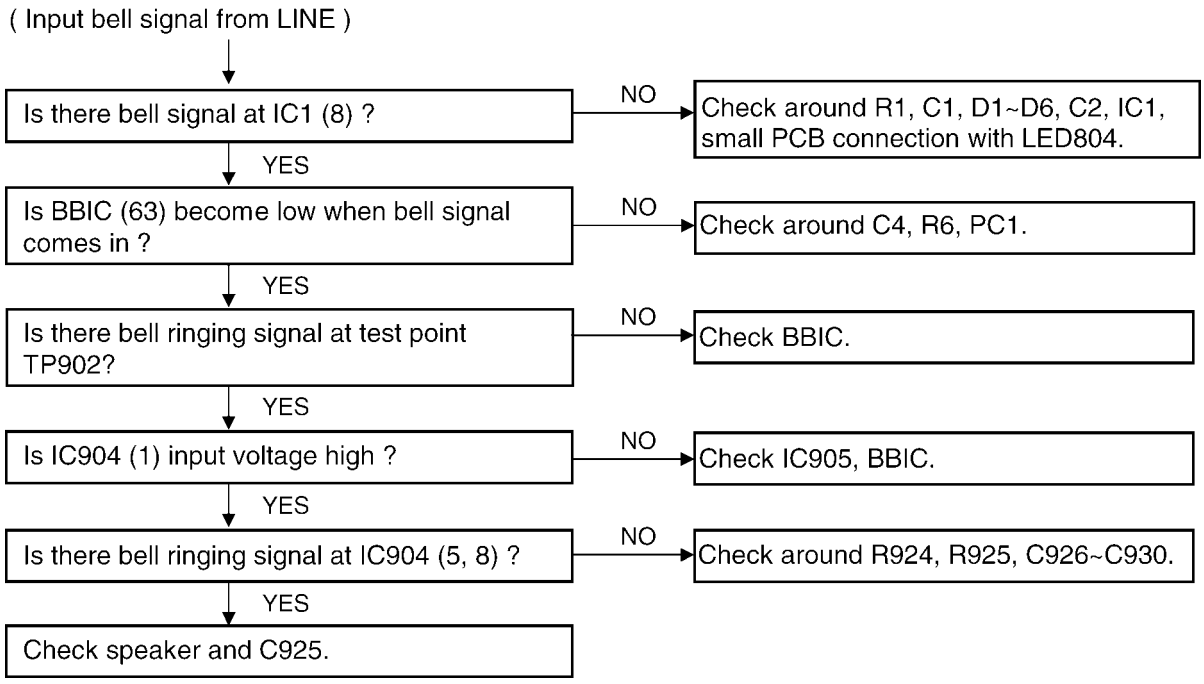
8.1.1. Check Power



Cross Reference:
Power Supply Circuit (P.8)

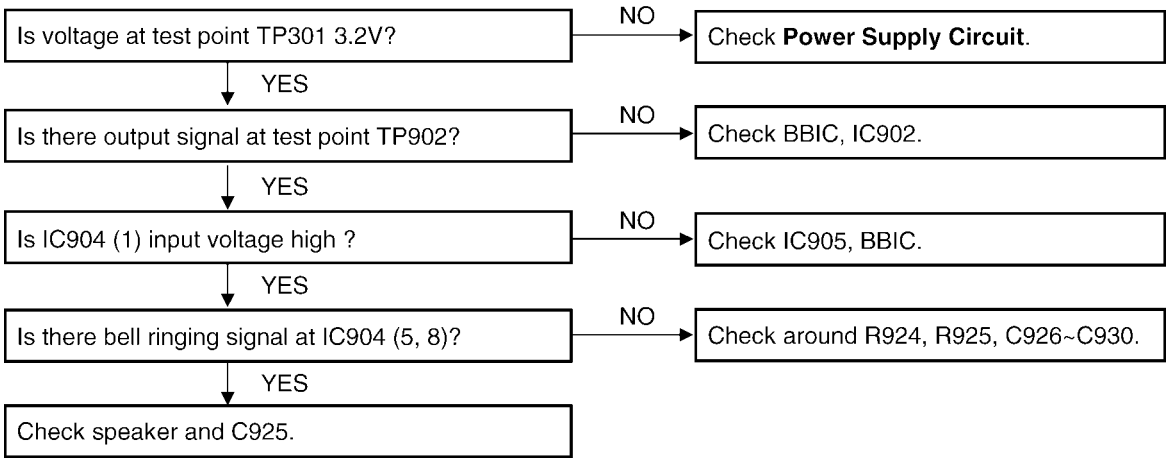
Note:
BBIC is IC901.
(*1) Refer to “SPECIFICATIONS” on the cover page for part number and supply voltage of AC adaptor.

8.1.2. Check Bell Detection



Note:
BBIC is IC901.

8.1.3. Check Playback

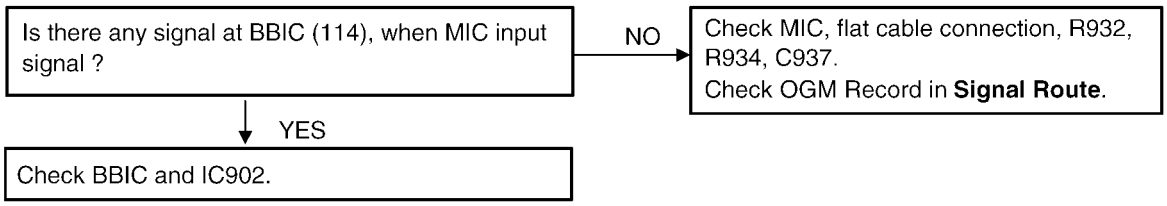


Cross Reference:
Power Supply Circuit (P.8)

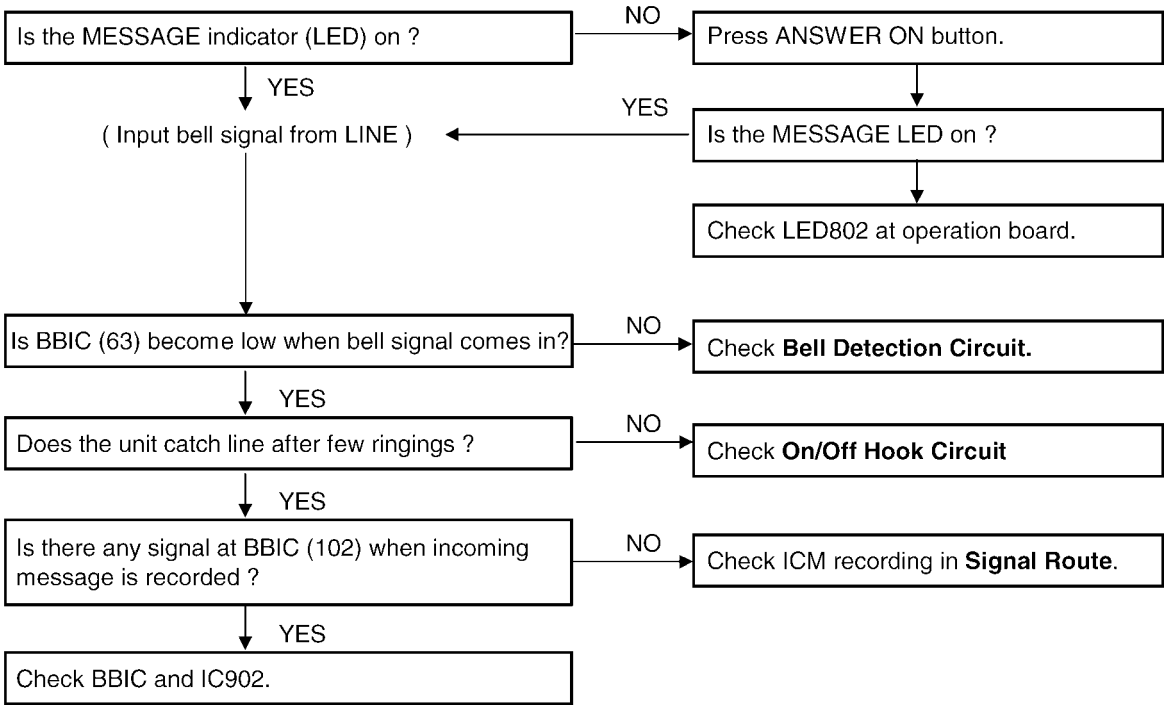
Note:
BBIC is IC901.
Flash Memory is IC902.

8.1.4. Check Record OGM/IGM

Greeting Message (OGM) not recorded



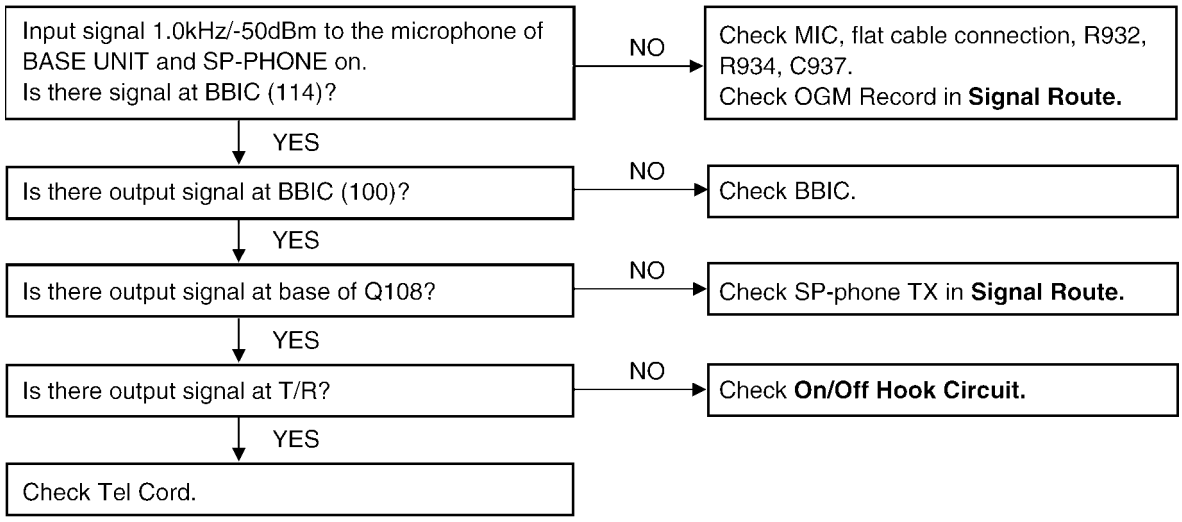
Incoming Message (ICM) not recorded



Cross Reference:
Signal Route (P.12)
Bell Detection Circuit (P.9)
On/Off Hook Circuit (P.9)

Note:
BBIC is IC901.
Flash Memory is IC902

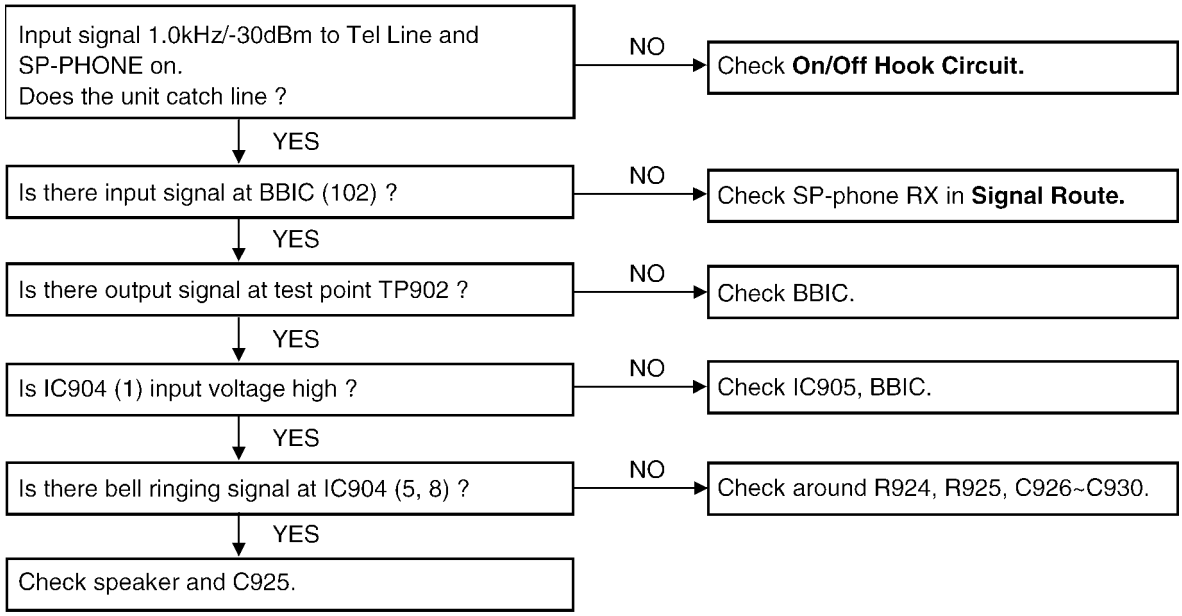
8.1.5. Check SP-phone Voice Transmission



Cross Reference:
Signal Route (P.12)
On/Off Hook Circuit (P.9)

Note:
BBIC is IC901.

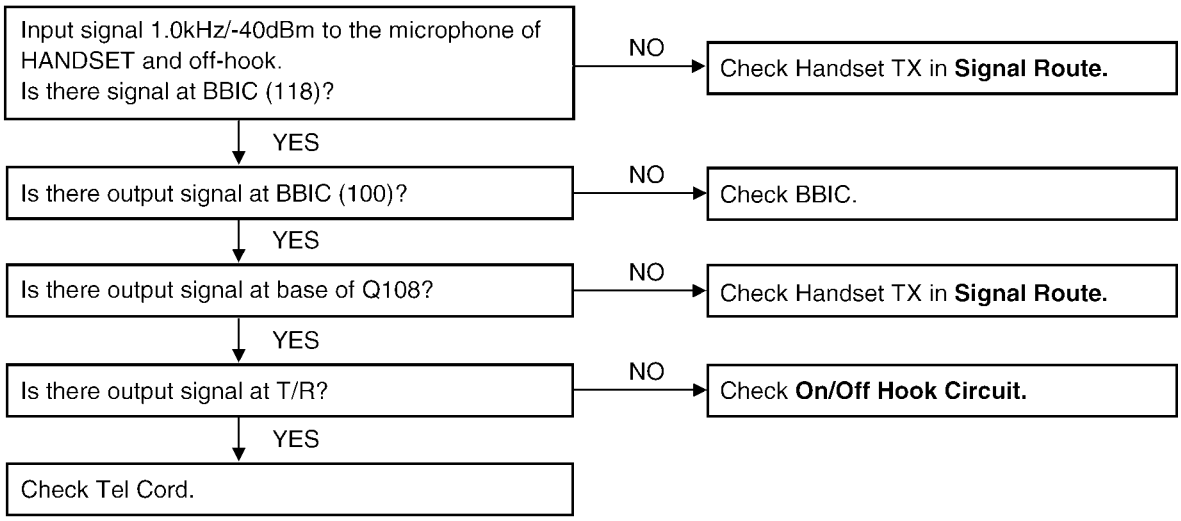
8.1.6. Check SP-phone Voice Reception



Cross Reference:
On/Off Hook Circuit (P.9)
Signal Route (P.12)

Note:
BBIC is IC901.

8.1.7. Check Handset Voice Transmission



Cross Reference:

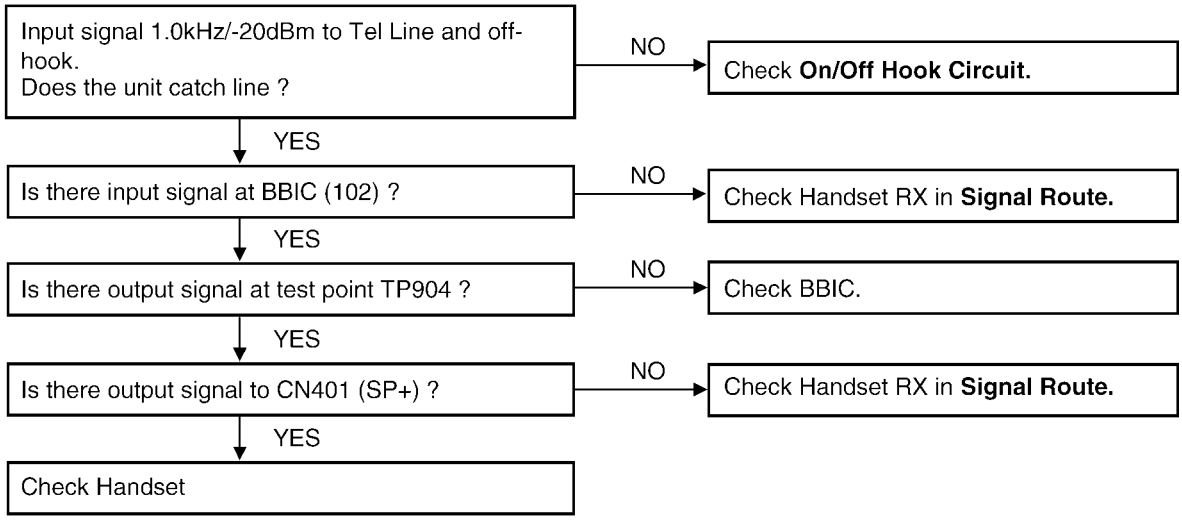
Signal Route (P.12)

On/Off Hook Circuit (P.9)

Note:

BBIC is IC901.

8.1.8. Check Handset Voice Reception



Cross Reference:

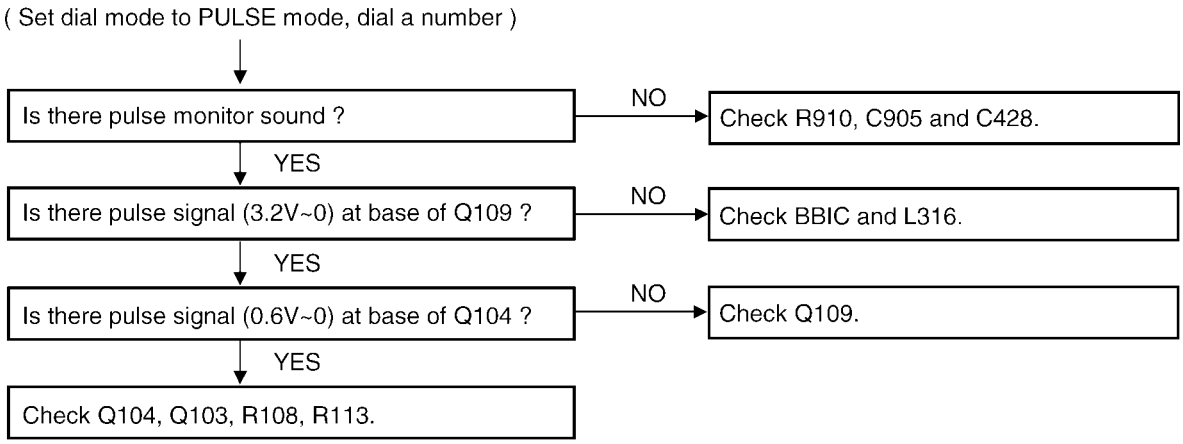
On/Off Hook Circuit (P.9)

Signal Route (P.12)

Note:

BBIC is IC901.

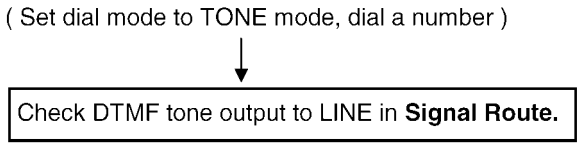
8.1.9. Check Pulse Dial



Note:

BBIC is IC901.

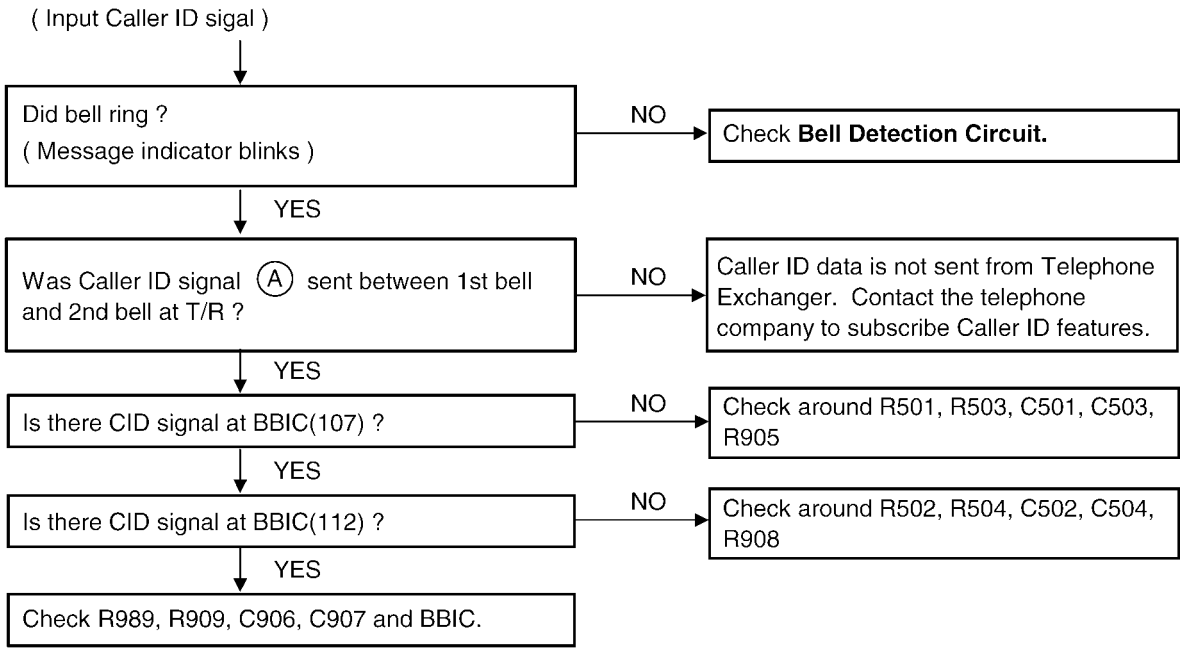
8.1.10. Check DTMF Dial

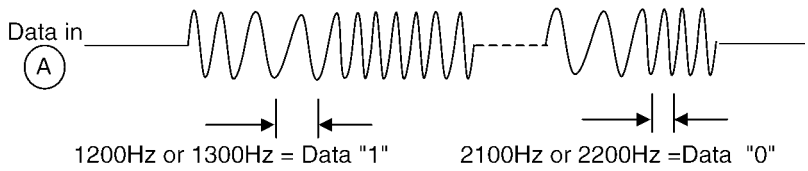


Cross Reference:

Signal Route (P.12)

8.1.11. Check Caller ID Detection





Cross Reference:

Bell Detection Circuit (P.9)

Caller ID Detection Circuit (P.9)

8.2. 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.

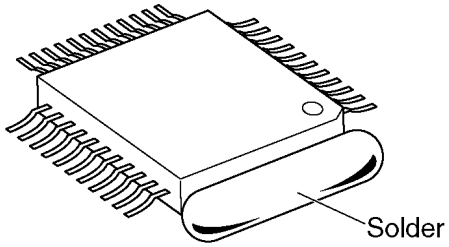
8.2.1. Preparation

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

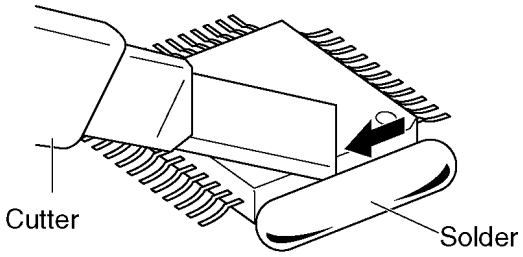
Note: See **About Lead Free Solder (Pbf: Pb free)** (P.4).

8.2.2. How to Remove the IC

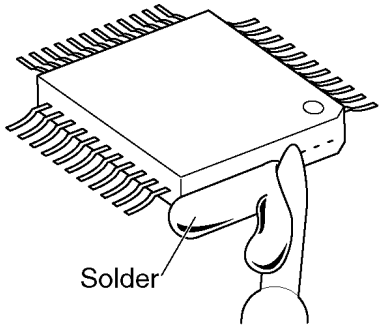
1. Put plenty of solder on the IC pins so that the pins can be completely covered.
   Note:
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



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



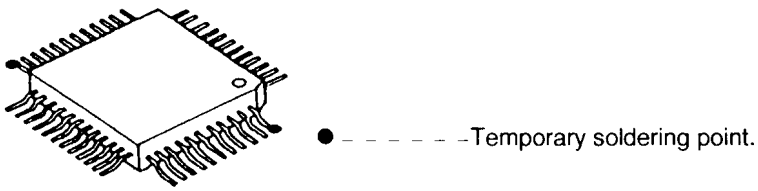
3. While the solder melts, remove it together with the IC pins.



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

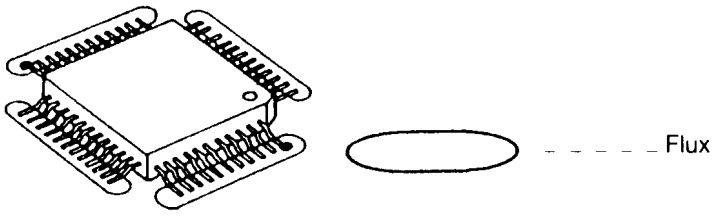
8.2.3. How to Install the IC

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

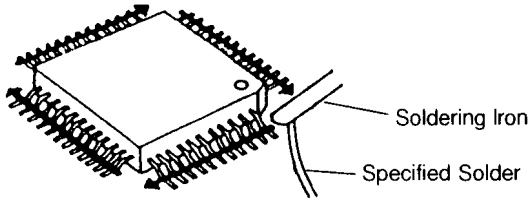


*Check the accuracy of the IC setting with the corresponding soldering foil.

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

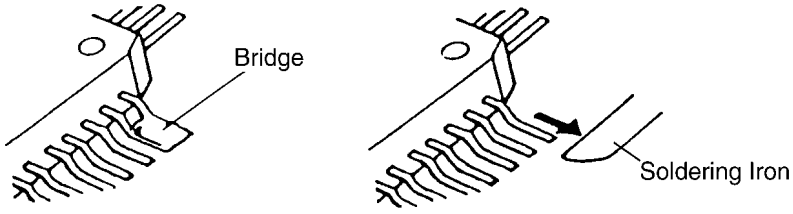


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



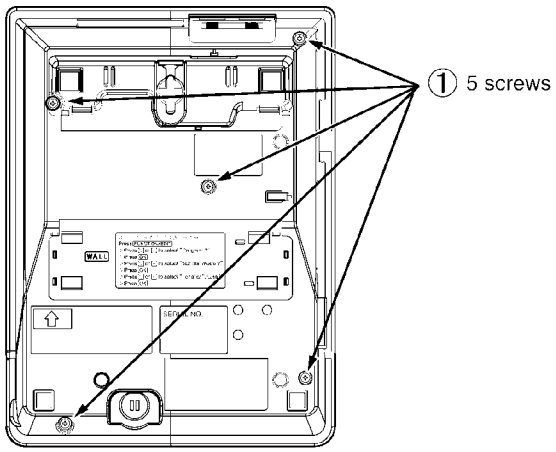
8.2.4. How to Remove a Solder Bridge

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



9 Disassembly and Assembly Instructions

① Remove the 5 screws to remove the cabinet cover.

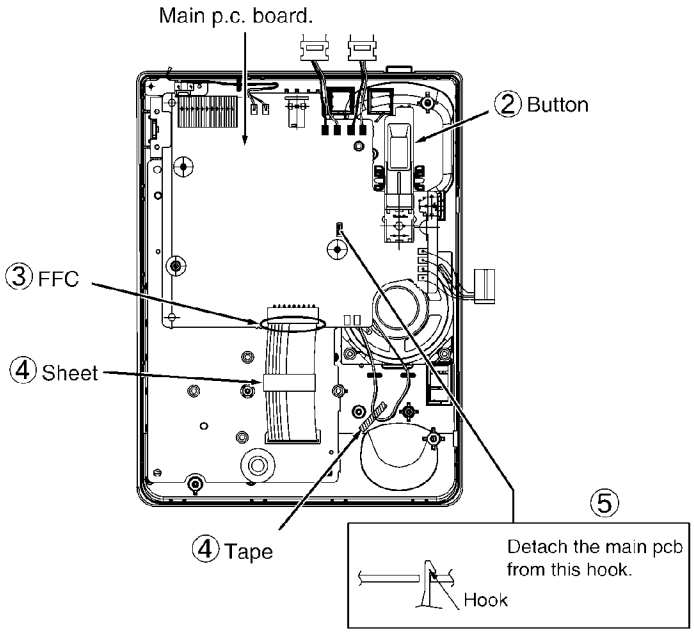


② Take off the button.

③ Remove the FFC (Fexible Flat cable).

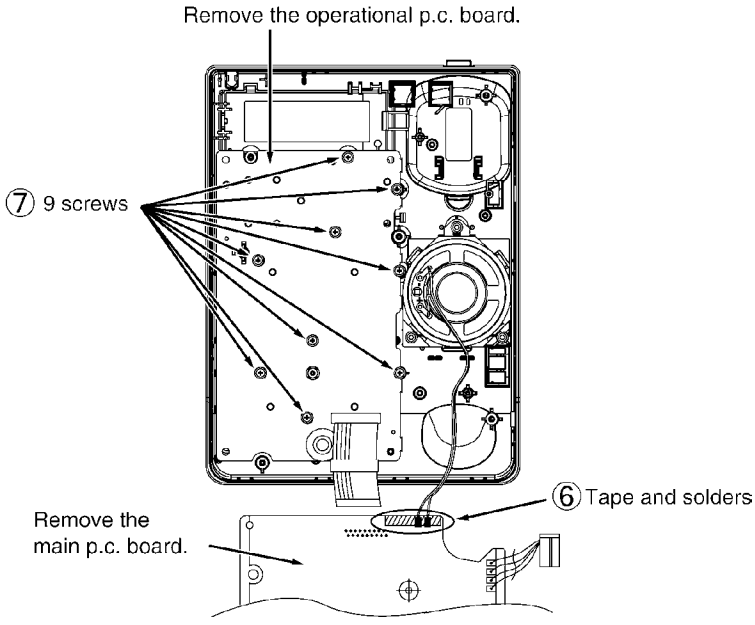
④ Remove the sheet and the tape.

⑤ Detach the main p. c. board from the hook.



⑥ Remove the tape and solders to remove the main p. c. board.

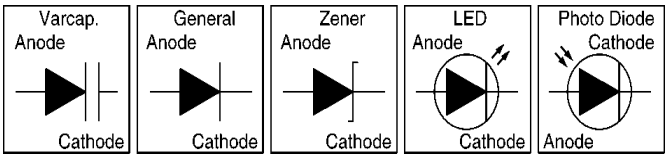
⑦ Remove the 9 screws to remove the operational p. c. board.



10 Schematic Diagram

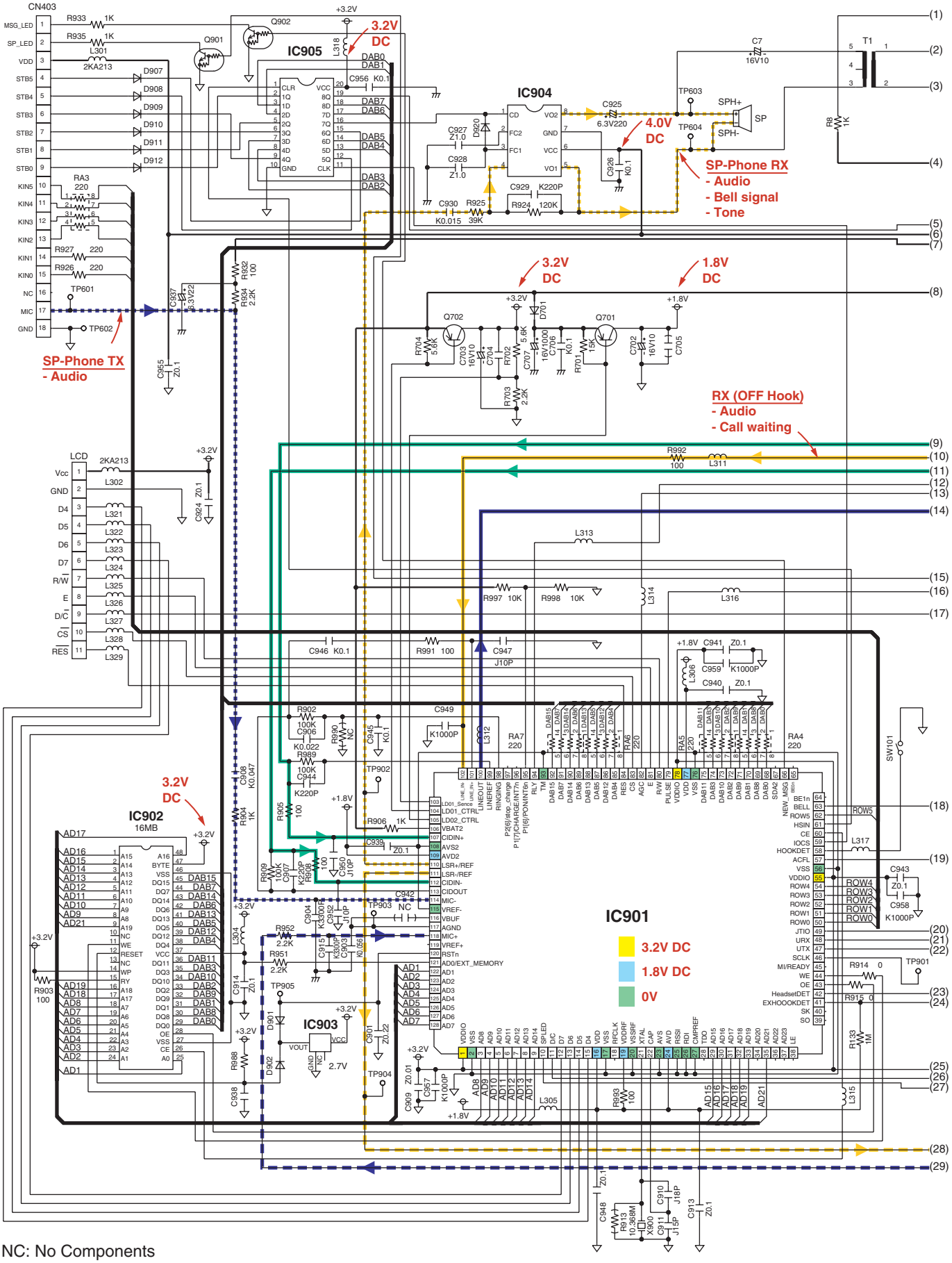
10.1. For Schematic Diagram

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

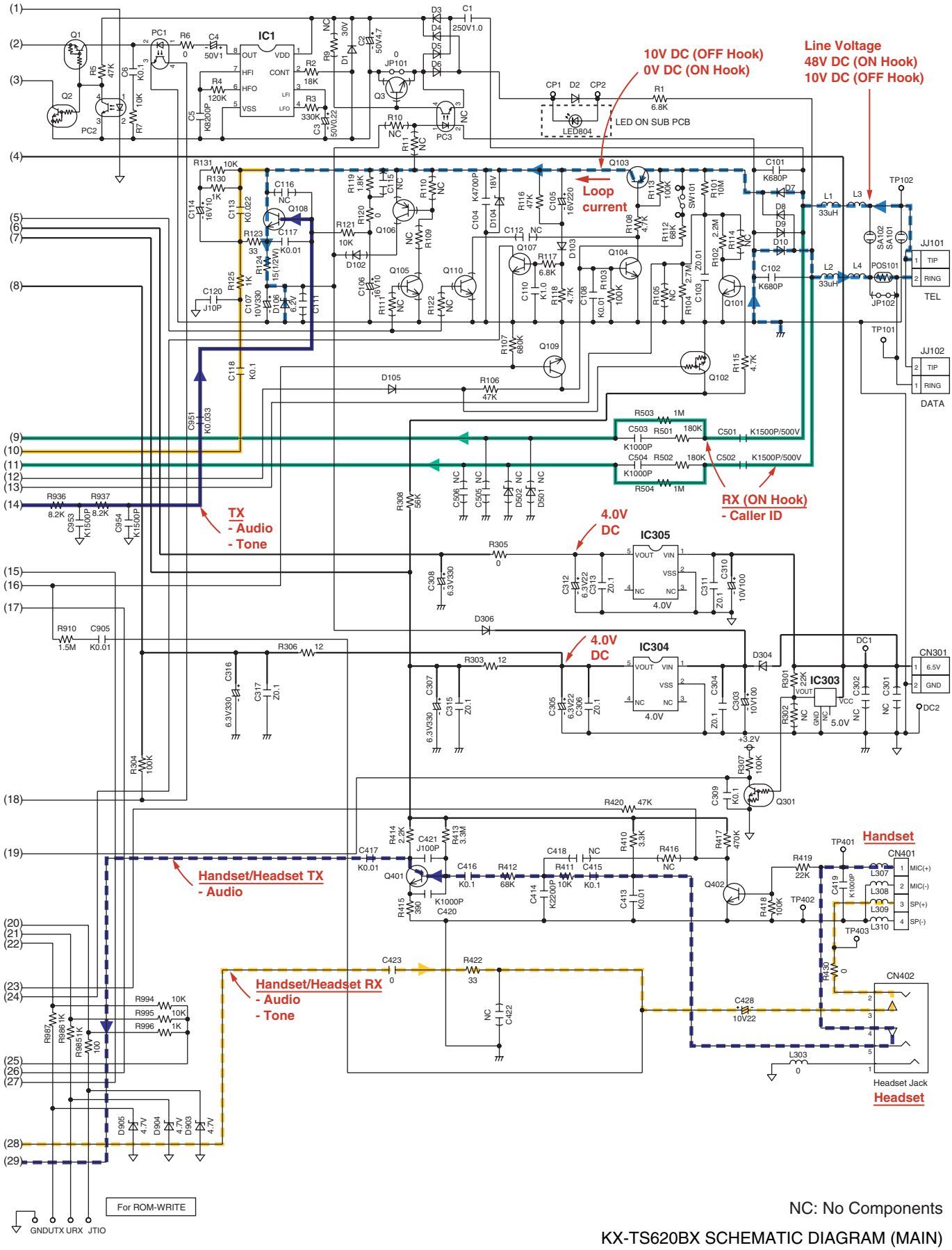


Memo

10.2. Schematic Diagram (Main)



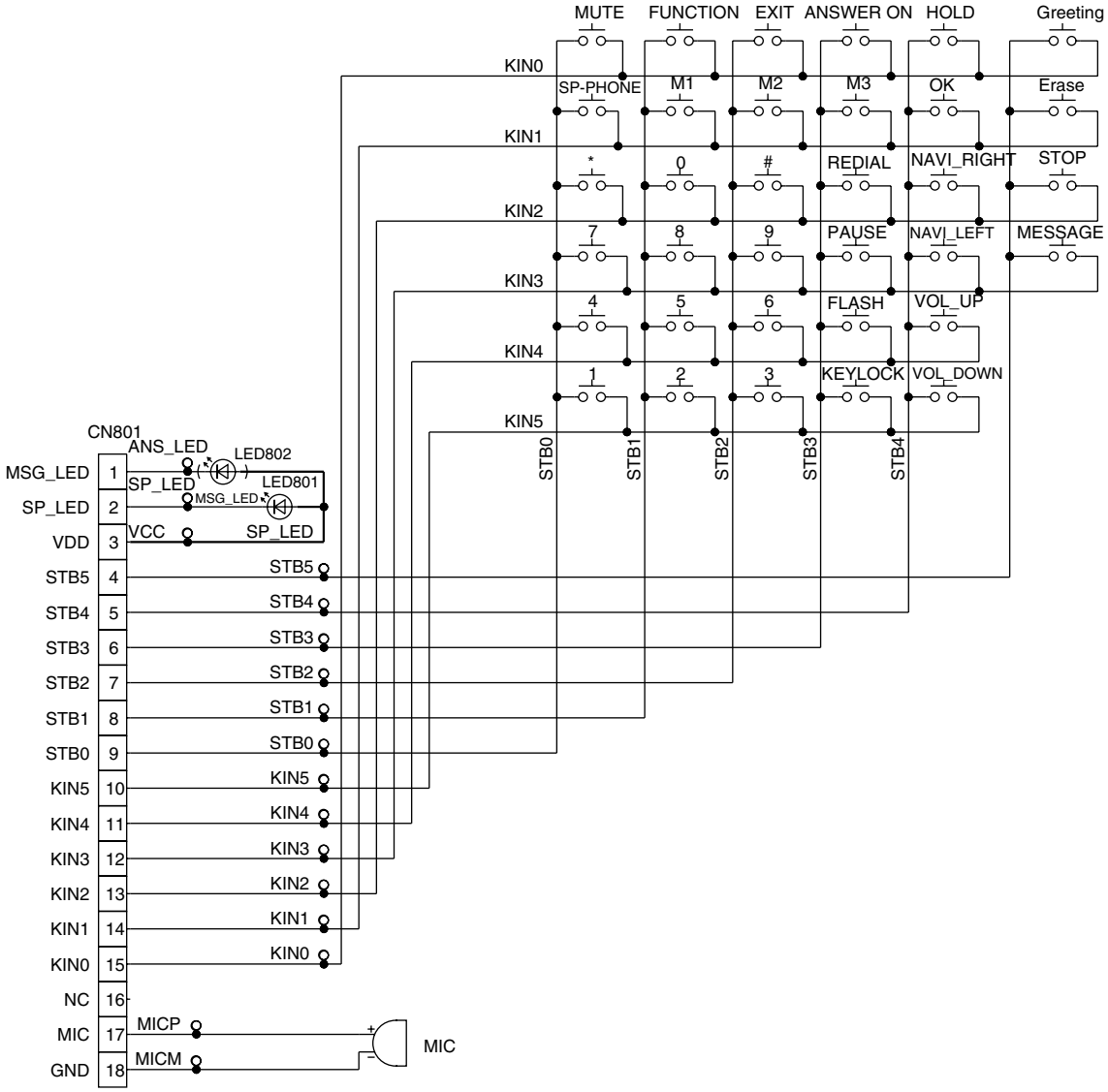
NC: No Components



NC: No Components

KX-TS620BX SCHEMATIC DIAGRAM (MAIN)

10.3. Schematic Diagram (Operation)



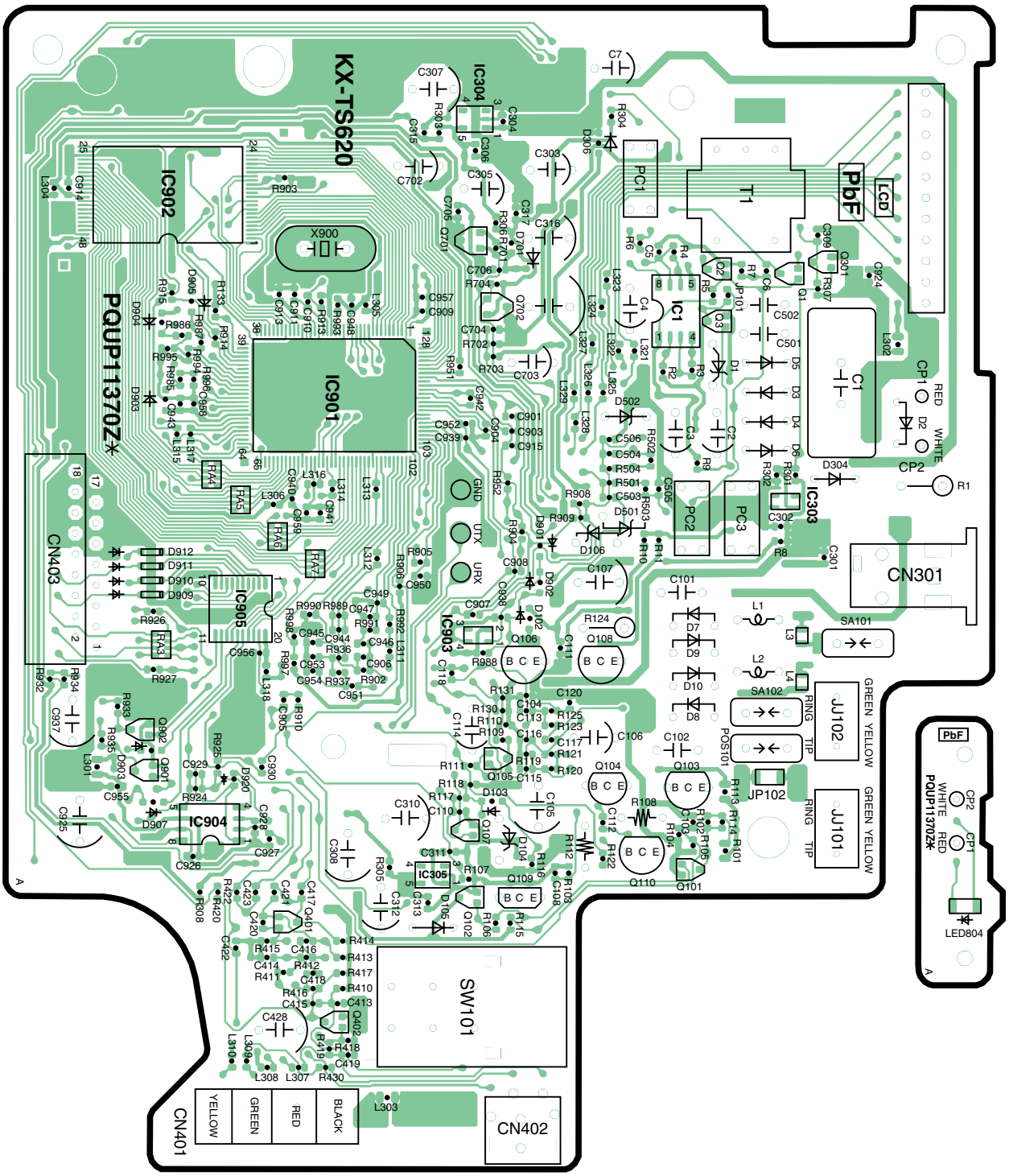
NC: No Components

KX-TS620 SCHEMATIC DIAGRAM (OPERATION)

11 Printed Circuit Board

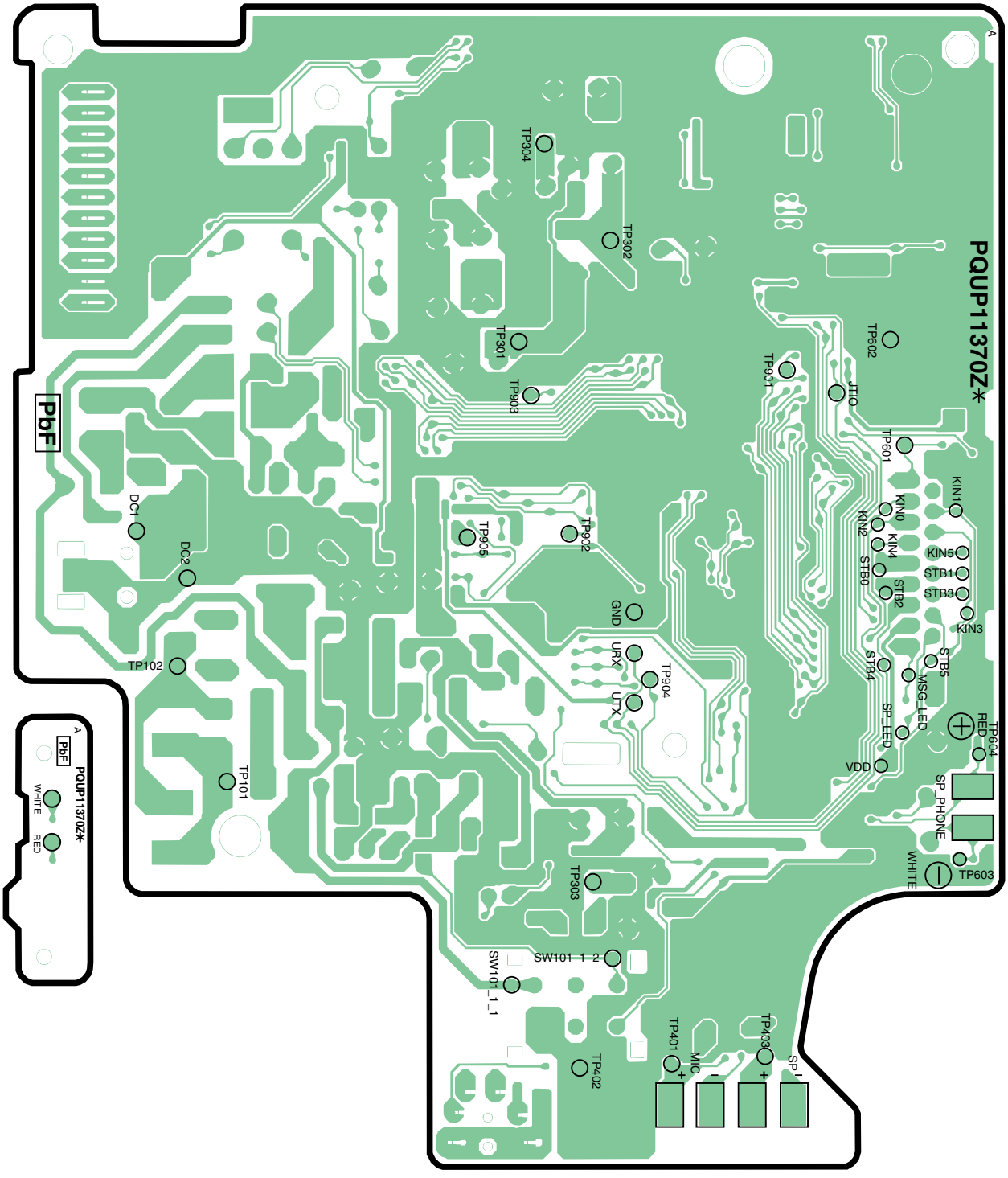
11.1. Circuit Board (Main)

11.1.1. Component View



KX-TS620 CIRCUIT BOARD (MAIN) Component View

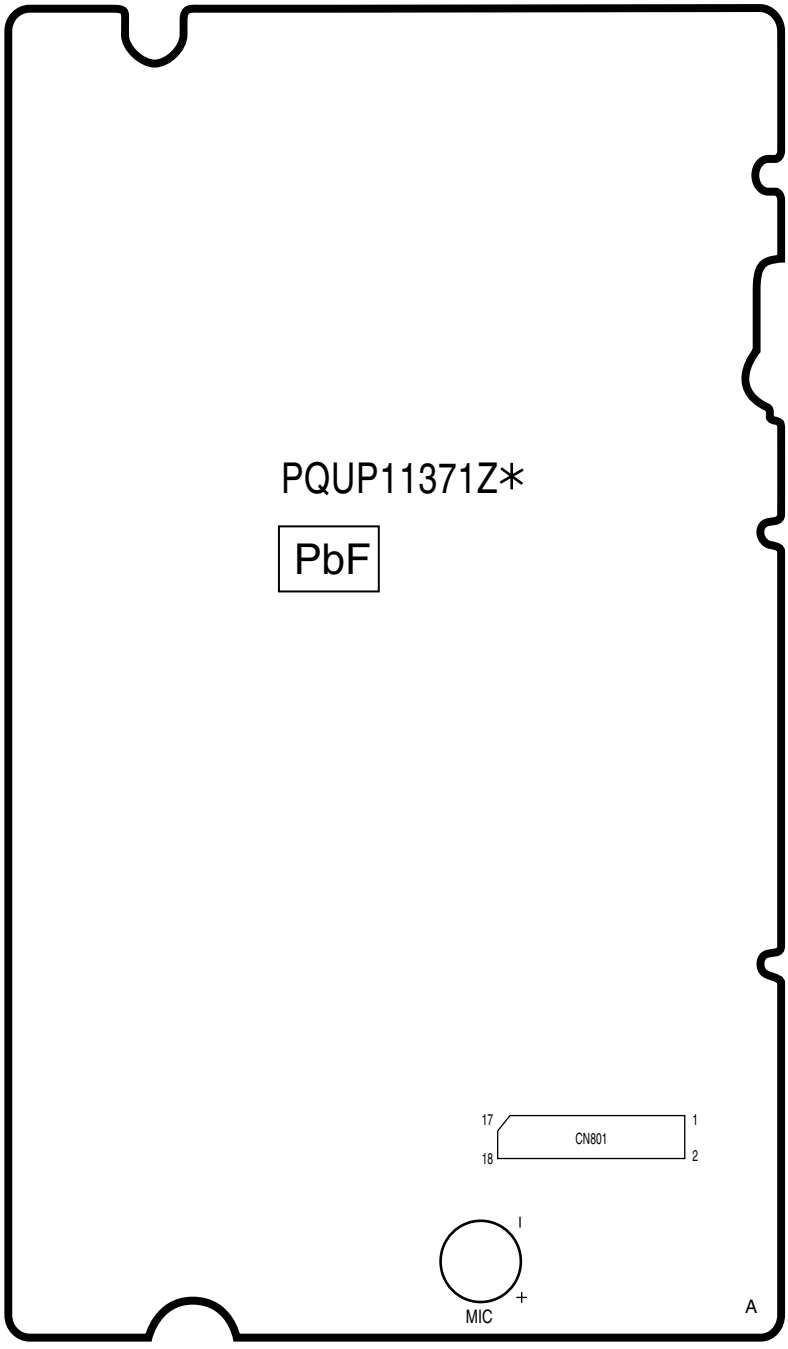
11.1.2. Flow Solder Side View



KX-TS620 CIRCUIT BOARD (MAIN) Flow Solder Side View

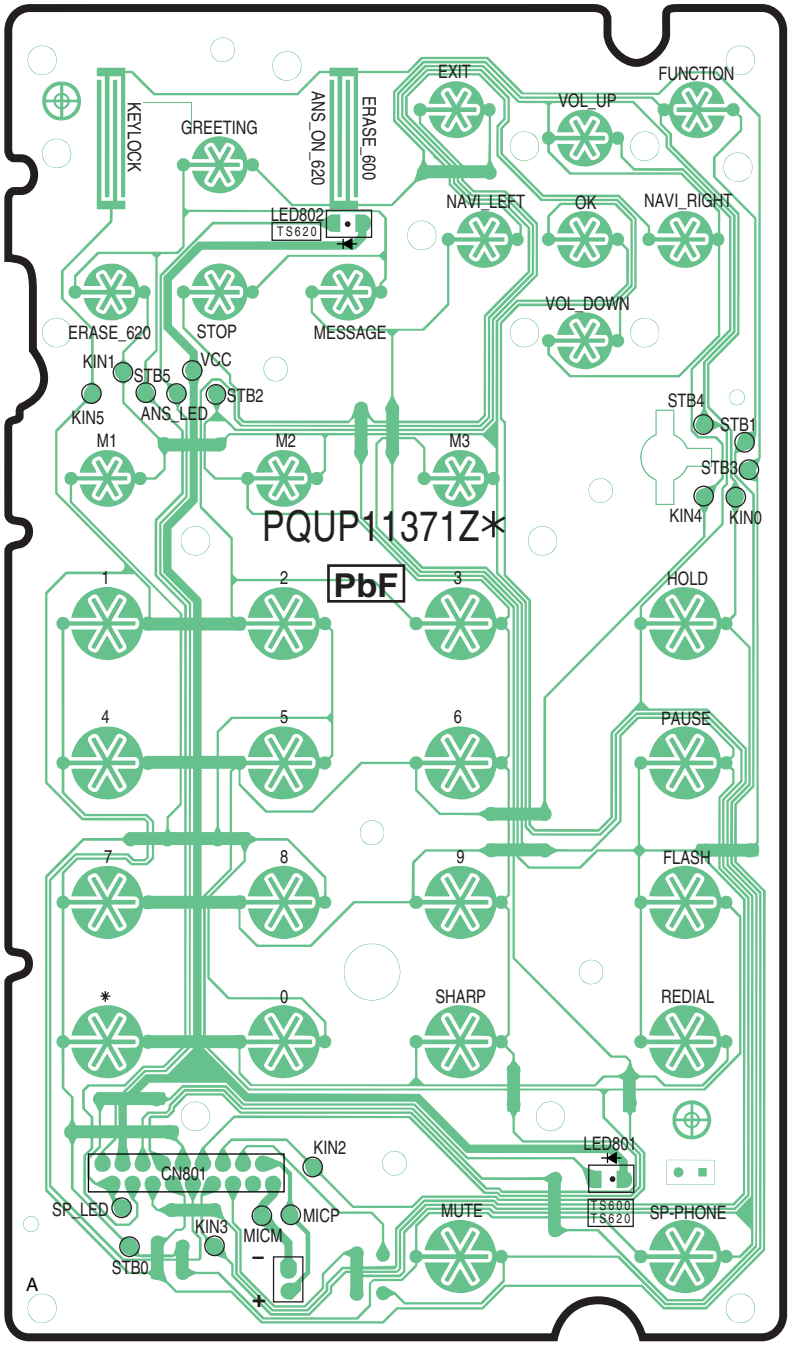
11.2. Circuit Board (Operation)

11.2.1. Component View



KX-TS620 CIRCUIT BOARD (OPERATION) Component View

11.2.2. Flow Solder Side View



KX-TS620 CIRCUIT BORAD (OPERATION) Flow Solder Side View

12 Appendix Information of Schematic Diagram

12.1. CPU Data

PIN	I/O	Description	High	High_Z	Low
1	-	VDDIO	--	--	--
2	-	VSS	--	--	--
3	D.O	AD8	--	--	--
4	D.O	AD9	--	--	--
5	D.O	AD10	--	--	--
6	D.O	AD11	--	--	--
7	D.O	AD12	--	--	--
8	D.O	AD13	--	--	--
9	D.O	AD14	--	--	--
10	D.O	SP_LED	ON	--	OFF
11	D.O	D/C	Data	--	Command
12	D.O	D7	Active	--	Active
13	D.O	D6	Active	--	Active
14	D.O	D5	Active	--	Active
15	D.O	D4	Active	--	Active
16	-	VDD	--	--	--
17	-	VSS	--	--	--
18	D.O	RFCLK	--	--	--
19	-	VDDRF	--	--	--
20	-	VSSRF	--	--	--
21	A.I	Xtal1	--	--	--
22	A.I	CAP	--	--	--
23	-	AVS	--	--	--
24	-	AVD	--	--	--
25	A.I	RSSI	--	--	--
26	A.I	RXDA	--	--	--
27	A.I	CMPREF	--	--	--
28	A.O	TDO	--	--	--
29	D.O	AD15	--	--	--
30	D.O	AD16	--	--	--
31	D.O	AD17	--	--	--
32	D.O	AD18	--	--	--
33	D.O	AD19	--	--	--
34	D.O	NC	--	--	--
35	D.O	AD21	--	--	--
36	D.O	NC	--	--	--
37	D.O	NC	--	--	--
38	D.O	LE	--	--	--
39	D.O	SO	--	--	--
40	D.O	SK	--	--	--
41	A.I	EXHOOKDET	EX OFF-HOOK	--	EX ON-HOOK
42	D.I	HeadSetDET	Headset On	--	Headset OFF
43	D.O	OE	--	--	--
44	D.O	WE	--	--	--
45	D.I	NC	--	--	--
46	D.O	NC	--	--	--
47	D.O	UTX	High	--	Low
48	D.I	URX	High	--	Low
49	D.I/O	JTIO	High	--	Low
50	D.I	ROW0	Normal	--	Active
51	D.I	ROW1	Normal	--	Active
52	D.I	ROW2	Normal	--	Active
53	D.I	ROW3	Normal	--	Active
54	D.I	ROW4	Normal	--	Active
55	-	VDDIO	--	--	--
56	-	VSS	--	--	--
57	D.I	ACFL	power fail-ure	--	Normal
58	D.I	HOOKDET	On-Hook	--	Off-Hook
59	D.O	IOCS	Clock	--	Normal
60	D.O	ACS0	Normal	--	Select
61	D.O	HSIN	Normal	--	CLEAR
62	D.I	ROW5	Normal	--	Active
63	D.I	BELL	Normal	--	Bell input
64	D.O	NC	--	--	--
65	D.O	NC	--	--	--
66	D.O	RLY	On	--	Off
67	D.I/O	NC	--	--	--
68	D.I/O	DAB0	Active	--	Active
69	D.I/O	DAB8	Active	--	Active
70	D.I/O	DAB1	Active	--	Active
71	D.I/O	DAB9	Active	--	Active
72	D.I/O	DAB2	Active	--	Active
73	D.I/O	DAB10	Active	--	Active
74	D.I/O	DAB3	Active	--	Active
75	D.I/O	DAB11	Active	--	Active
76	-	VSS	--	--	--
77	-	VDD	--	--	--
78	-	VDDIO	--	--	--
79	D.O	PULSE	Break	--	Make
80	D.O	R/W	Read	--	Write
81	D.O	E	Active	--	Normal
82	A.I	AGC	analog input	--	--
83	D.O	CS	Normal	--	Select
84	D.O	RES	Normal	--	Reset
85	D.I/O	DAB4	Active	--	Active
86	D.I/O	DAB12	Active	--	Active
87	D.I/O	DAB5	Active	--	Active
88	D.I/O	DAB13	Active	--	Active
89	D.I/O	DAB6	Active	--	Active
90	D.I/O	DAB14	Active	--	Active
91	D.I/O	DAB7	Active	--	Active
92	D.I/O	DAB15	Active	--	Active
93	D.I	TM	--	--	--
94	D.O	NEWMSG_LED	ON	--	OFF
95	A.I	NC	--	--	--
96	D.I/O	NC	--	--	--
97	D.O	NC	--	--	--
98	A.I	RINGING	--	--	--
99	A.O	LINEREF	--	--	--
100	A.O	LINEOUT	--	--	--
101	A.I	LINE_IN+	--	--	--
102	A.I	LINE_IN-	--	--	--
103	A.I	LDO1_Senes	--	--	--
104	A.O	LDO1_CTRL	--	--	--
105	A.O	LDO2_CTRL	--	--	--
106	A.I	VBAT2	--	--	--
107	A.I	CIDIN+	--	--	--
108	-	AVS2	--	--	--
109	-	AVD2	--	--	--
110	A.O	LSR+/REF	--	--	--
111	A.O	LSR-/REF	--	--	--
112	A.I	CIDIN-	--	--	--
113	A.O	CIDOUT	--	--	--
114	A.I	MIC-	--	--	--
115	A.O	VREF-	--	--	--
116	A.O	VBUF	--	--	--
117	A.O	AGND	--	--	--
118	A.I	MIC+	--	--	--
119	A.O	NC	--	--	--
120	A.I	RSTn	--	--	--
121	D.I	EXT_MEMORY	--	--	--

PIN	I/O	Description	High	High_Z	Low
122	D.O	AD1	--	--	--
123	D.O	AD2	--	--	--
124	D.O	AD3	--	--	--
125	D.O	AD4	--	--	--
126	D.O	AD5	--	--	--
127	D.O	AD6	--	--	--
128	D.O	AD7	--	--	--

Note:

Data in the blank columns are omitted because of the Analog I/O.

12.2. Terminal Guide of the Ics, Transistor and Diodes

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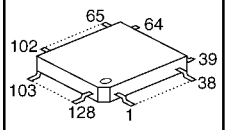
<td> 

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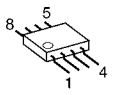
<td> 

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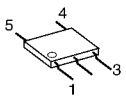
<td> 

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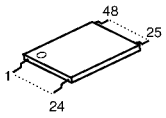
<td> 

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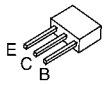
<td> 

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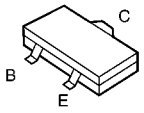
<td colspan="2"> 

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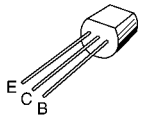
<td> 

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B1AAKD000013</td>
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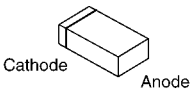
<td> 

MA8047, MA111
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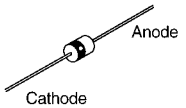
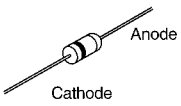
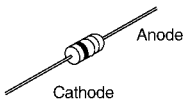
<td> 

B0EAAD000001
PQVD1T4R1T</td>
<td> 

MA4180, MA4300</td>
<td> 

MA4062</td>
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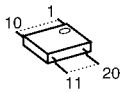
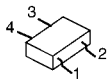
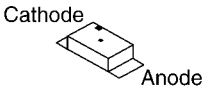
<td> 

PQVISN7V273AT</td>
<td> 

PQVIPS3450UT
PQVIPS3327U</td>
<td> 

PSVD1SRCT</td>
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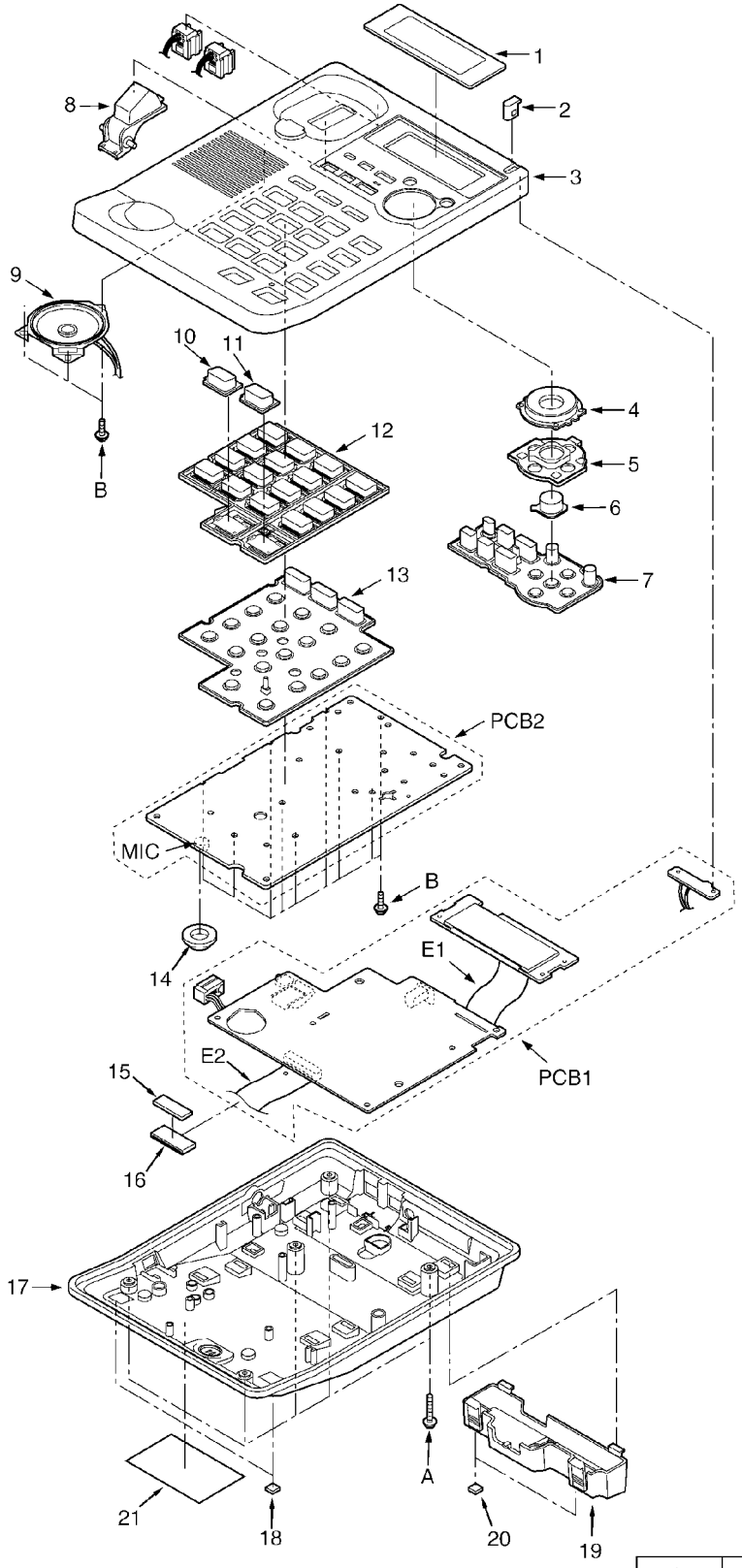
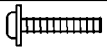
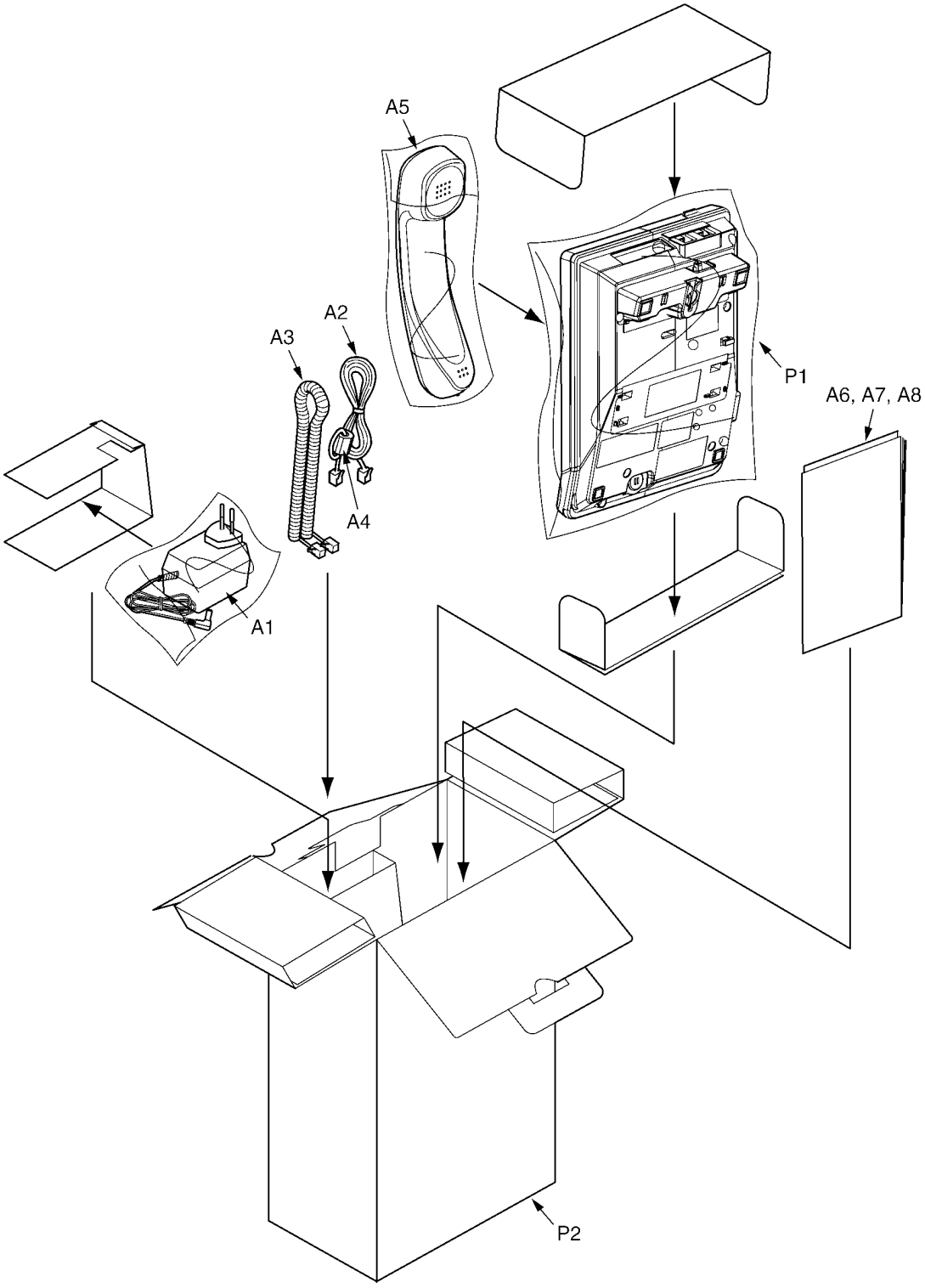
13 Exploded View and Replacement Parts List

13.1. Cabinet and Electric Parts



Ref.No.	Part No.	Figure
A	PQHV2612PJ65	 ϕ2.6 × 12mm
B	XTW26+8PFJ7	 ϕ2.6 × 8mm

13.2. Accessories and Packing Materials



13.3. Replacement Part List

1. RTL (Retention Time Limited)

   Note:

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

   After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly 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. Cabinet and Electrical Parts

13.3.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQGP10298Z1	PANEL, LCD	
2	PQHR11185Z	OPTIC CONDUCTIVE PARTS, LED LENS	PS-HB
3	PQKM10704Y2	CABINET BODY (for KX-TS620BXB)	ABS-HB
3	PQKM10704Y1	CABINET BODY (for KX-TS620BXW)	ABS-HB
4	PQBC10456Y2	BUTTON, NAVIGTOR KEY (for KX-TS620BXB)	PS-HB
4	PQBC10456Y1	BUTTON, NAVIGTOR KEY (for KX-TS620BXW)	PS-HB
5	PQHR11184Z	HOLDER, NAVIGTOR KEY	POM-HB
6	PQBC10455Y4	BUTTON, SP PHONE (for KX-TS620BXB)	ABS-HB
6	PQBC10455Y2	BUTTON, SP PHONE (for KX-TS620BXW)	ABS-HB
7	PQSX10308Y	KEYBOARD SWITCH, 21 KEY (for KX-TS620BXB)	
7	PQSX10308Z	KEYBOARD SWITCH, 21 KEY (for KX-TS620BXW)	
8	PQBH10043Z2	BUTTON, HOOK (for KX-TS620BXB)	ABS-HB
8	PQBH10043Z1	BUTTON, HOOK (for KX-TS620BXW)	ABS-HB
9	PQAS57P03Z	SPEAKER	
10	PQBC10455Z3	BUTTON, MUTE (for KX-TS620BXB)	ABS-HB
10	PQBC10455Z1	BUTTON, MUTE (for KX-TS620BXW)	ABS-HB
11	PQBC10454Z2	BUTTON, OK (for KX-TS620BXB)	PS-HB
11	PQBC10454Z1	BUTTON, OK (for KX-TS620BXW)	PS-HB
12	PQBX10389W2	BUTTON, DIAL KEY (for KX-TS620BXB)	ABS-HB
12	PQBX10389W1	BUTTON, DIAL KEY (for KX-TS620BXW)	ABS-HB
13	PQSX10309Y	KEYBOARD SWITCH, 13 KEY (for KX-TS620BXB)	
13	PQSX10309Z	KEYBOARD SWITCH, 13 KEY (for KX-TS620BXW)	
14	PQMG10025Z	RUBBER PARTS, MIC	
15	PQHG10622Z	RUBBER PARTS, SHEET	
16	J0KD00000070	FILTER	
17	PQKF10696U2	CABINET COVER (for KX-TS620BXB)	PS-HB
17	PQKF10696U1	CABINET COVER (for KX-TS620BXW)	PS-HB
18	PQHA10025Z	RUBBER PARTS, FOOT CUSHION	
19	PQKL10072Z2	STAND, WALL MOUNT (for KX-TS620BXB)	PS-HB
19	PQKL10072Z1	STAND, WALL MOUNT (for KX-TS620BXW)	PS-HB
20	PQHA10018Y	RUBBER PARTS, FOOT CUSHION	
21	PQGT18599Y	NAME PLATE (for KX-TS620BXB)	
21	PQGT18296Y	NAME PLATE (for KX-TS620BXW)	

13.3.1.2. Main P. C. Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP1TS620BX	MAIN P.C. BOARD ASS'Y (RTL)	
		(ICs)	
IC1	C1CB00002315	IC	
IC303	PQVIPS3450UT	IC	
IC304	C0CBACC00036	IC	
IC305	C0CBACC00036	IC	
IC901	C1CB00001879	IC	
IC902	PQWITS620BX	IC	
IC903	PQVIPS3327UT	IC	
IC904	C1BB00001024	IC	
IC905	PSVISNLV273A	IC	S
		(TRANSISTORS)	
Q1	UN5213	TRANSISTOR(SI)	S
Q2	UN5213	TRANSISTOR(SI)	S
Q101	2SD1819A	TRANSISTOR(SI)	
Q102	UN5213	TRANSISTOR(SI)	S
Q103	B1ACGP000007	TRANSISTOR(SI)	
Q104	PQVT2N6517CA	TRANSISTOR(SI)	S
Q107	2SD1819A	TRANSISTOR(SI)	
Q108	B1AAKD000013	TRANSISTOR(SI)	
Q109	B1CEGF000004	TRANSISTOR(SI)	
Q301	UN5213	TRANSISTOR(SI)	S
Q401	2SD1819A	TRANSISTOR(SI)	
Q402	2SD1819A	TRANSISTOR(SI)	
Q701	B1ADGE000004	TRANSISTOR(SI)	
Q702	B1ADGE000004	TRANSISTOR(SI)	
Q901	UN5213	TRANSISTOR(SI)	S
Q902	UN5213	TRANSISTOR(SI)	S

Ref. No.	Part No.	Part Name & Description	Remarks
		(DIODES)	
D1	MA4300	DIODE(SI)	S
D2	B0EAAD000001	DIODE(SI)	
D3	B0EAAD000001	DIODE(SI)	
D4	B0EAAD000001	DIODE(SI)	
D5	B0EAAD000001	DIODE(SI)	
D6	B0EAAD000001	DIODE(SI)	
D7	PQVD1T4R1T	DIODE(SI)	
D8	PQVD1T4R1T	DIODE(SI)	
D9	PQVD1T4R1T	DIODE(SI)	
D10	PQVD1T4R1T	DIODE(SI)	
D102	MA111	DIODE(SI)	S
D103	MA111	DIODE(SI)	S
D104	MA4180	DIODE(SI)	S
D105	B0EAAD000001	DIODE(SI)	
D106	MA4062	DIODE(SI)	S
D304	B0EAAD000001	DIODE(SI)	
D306	MA111	DIODE(SI)	S
D701	MA111	DIODE(SI)	S
D901	MA111	DIODE(SI)	S
D902	MA111	DIODE(SI)	S
D903	MA8047	DIODE(SI)	S
D904	MA8047	DIODE(SI)	S
D905	MA8047	DIODE(SI)	S
D907	MA111	DIODE(SI)	S
D908	MA111	DIODE(SI)	S
D909	MA111	DIODE(SI)	S
D910	MA111	DIODE(SI)	S
D911	MA111	DIODE(SI)	S
D912	MA111	DIODE(SI)	S
D920	B0JCDD000002	DIODE(SI)	
LED804	PSVD1SRCT	LED	S
		(COILS)	
L1	PQLQXF330K	COIL	S
L2	PQLQXF330K	COIL	S
L3	PQLQR2BT	COIL	S
L4	PQLQR2BT	COIL	S
L301	PQLQR2KA213	COIL	S
L302	PQLQR2KA213	COIL	S
L304	PQLQR2KA20T	COIL	S
L305	PQLQR2KB113T	COIL	S
L306	PQLQR2KB113T	COIL	S
L313	PQLQR2KB113T	COIL	S
L314	PQLQR2KB113T	COIL	S
L315	PQLQR2KB113T	COIL	S
L316	PQLQR2KB113T	COIL	S
L317	PQLQR2KB113T	COIL	S
L318	PQLQR2KA20T	COIL	S
L321	PQLQR2KB113T	COIL	S
L322	PQLQR2KB113T	COIL	S
L323	PQLQR2KB113T	COIL	S
L324	PQLQR2KB113T	COIL	S
L325	PQLQR2KB113T	COIL	S
L326	PQLQR2KB113T	COIL	S
L327	PQLQR2KB113T	COIL	S
L328	PQLQR2KB113T	COIL	S
L329	PQLQR2KB113T	COIL	S
		(CONNECTOR)	
CN403	PQJS18X53Z	CONNECTOR	S
		(JACKS)	
CN401	PQJJ1T030Y	JACK/SOCKET, HANDSET	
CN402	PQJJ1C001Z	JACK/SOCKET, HEADSET	
JJ101	PQJJ1T029Z	JACK/SOCKET MODULAR	
JJ102	PQJJ1T029Z	JACK/SOCKET MODULAR	
CN301	K2ECYB000001	JACK	
		(LCR FILTERS)	
L307	PFVF1B252SDT	LCR FILTER	S
L308	PFVF1B252SDT	LCR FILTER	S
L309	PFVF1B252SDT	LCR FILTER	S
L310	PFVF1B252SDT	LCR FILTER	S
L311	J0JCC0000309	LCR FILTER	
L312	J0JCC0000309	LCR FILTER	
		(COMPONENTS PARTS)	

Ref. No.	Part No.	Part Name & Description	Remarks
RA3	EXB38V221J	RESISTOR ARRAY	
RA4	EXB38V221J	RESISTOR ARRAY	
RA5	EXB38V221J	RESISTOR ARRAY	
RA6	EXB38V221J	RESISTOR ARRAY	
RA7	EXB38V221J	RESISTOR ARRAY	
		(TRANSFORMER)	
T1	PQLT2D2A	TRANSFORMER	S
		(VARISTOR)	
SA101	PQVDDSS301L	VARISTOR(SURGE ABSORBER)	S
SA102	PQVDDSS301L	VARISTOR(SURGE ABSORBER)	S
		(PHOTO ELECTRIC TRANSDUCER)	
PC1	0N3181	PHOTO ELECTRIC TRANSDUCER	S
PC2	0N3181	PHOTO ELECTRIC TRANSDUCER	S
		(RESISTORS)	
R1	ERDS1VJ682	6.8K	
R2	ERJ3GEYJ183	18K	
R3	ERJ3GEYJ334	330K	
R4	ERJ3GEYJ124	120K	
R5	ERJ3GEYJ473	47K	
R6	ERJ3GEY0R00	0	
R7	ERJ3GEYJ103	10K	
R8	ERJ3GEYJ102	1K	
R101	D0GD106JA016	10M	
R102	ERJ3GEYJ225	2.2M	
R103	ERJ3GEYJ104	100K	
R104	ERJ3GEYJ275	2.7M	
R106	ERJ3GEYJ473	47K	
R107	ERJ3GEYJ684	680K	
R108	ERDS2TJ472	4.7K	
R112	ERDS2TJ683	68K	
R113	PQ4R10XJ104	100K	S
R115	ERJ3GEYJ472	4.7K	
R116	ERJ3GEYJ473	47K	
R117	ERJ3GEYJ682	6.8K	
R118	ERJ3GEYJ472	4.7K	
R119	ERJ3GEYJ182	1.8K	
R120	ERJ3GEY0R00	0	
R121	ERJ3GEYJ103	10K	
R123	ERJ3GEYJ330	33	
R124	ERDS1TJ150	15	S
R125	ERJ3GEYJ102	1K	
R130	ERJ3GEYJ102	1K	
R131	ERJ3GEYJ103	10K	
R133	ERJ3GEYJ105	1M	
R301	ERJ3GEYJ223	22K	
R303	ERJ3GEYJ120	12	
R304	ERJ3GEYJ104	100K	
R305	ERJ3GEY0R00	0	
R306	ERJ3GEYJ120	12	
R307	ERJ3GEYJ104	100K	
R308	ERJ3GEYJ563	56K	
R410	ERJ3GEYJ332	3.3K	
R411	ERJ3GEYJ103	10K	
R412	ERJ3GEYJ683	68K	
R413	ERJ3GEYJ335	3.3M	
R414	ERJ3GEYJ222	2.2K	
R415	ERJ3GEYJ391	390	
R417	ERJ3GEYJ474	470K	
R418	ERJ3GEYJ104	100K	
R419	ERJ3GEYJ223	22K	
R420	ERJ3GEYJ473	47K	
R422	ERJ3GEYJ330	33	
R430	ERJ3GEY0R00	0	
R501	ERJ3GEYJ184	180K	
R502	ERJ3GEYJ184	180K	
R503	ERJ3GEYJ105	1M	
R504	ERJ3GEYJ105	1M	
R701	ERJ3GEYJ153	15K	
R702	ERJ3GEYJ562	5.6K	
R703	ERJ3GEYJ222	2.2K	
R704	ERJ3GEYJ562	5.6K	
R902	ERJ3GEYJ104	100K	
R903	ERJ3GEYJ101	100	

Ref. No.	Part No.	Part Name & Description	Remarks
R904	ERJ3GEYJ102	1K	
R905	ERJ3GEYJ101	100	
R906	ERJ3GEYJ102	1K	
R908	ERJ3GEYJ101	100	
R909	ERJ3GEYJ104	100K	
R910	ERJ3GEYJ155	1.5M	
R914	ERJ3GEY0R00	0	
R915	ERJ3GEY0R00	0	
R924	ERJ3GEYJ124	120K	
R925	ERJ3GEYJ393	39K	
R926	ERJ3GEYJ221	220	
R927	ERJ3GEYJ221	220	
R932	ERJ3GEYJ101	100	
R933	ERJ3GEYJ102	1K	
R934	ERJ3GEYJ222	2.2K	
R935	ERJ3GEYJ102	1K	
R936	ERJ3GEYJ822	8.2K	
R937	ERJ3GEYJ822	8.2K	
R951	ERJ3GEYJ222	2.2K	
R952	ERJ3GEYJ222	2.2K	
R985	ERJ3GEYJ101	100	
R986	ERJ3GEYJ102	1K	
R987	ERJ3GEYJ102	1K	
R988	ERJ3GEYJ104	100K	
R989	ERJ3GEYJ104	100K	
R991	ERJ3GEYJ101	100	
R992	ERJ3GEYJ101	100	
R993	ERJ3GEYJ101	100	
R994	ERJ3GEYJ103	10K	
R995	ERJ3GEYJ103	10K	
R996	ERJ3GEYJ102	1K	
R997	ERJ3GEYJ103	10K	
R998	ERJ3GEYJ103	10K	
C423	ERJ3GEY0R00	0	
L303	ERJ6GEY0R00	0	
JP101	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	F0C2E105A146	1	
C2	ECEA1HKA4R7	4.7	
C3	ECEA1HKSR22	0.22	S
C4	ECEA1HKA010	1	
C5	ECJ1VB1H822K	0.0082	
C6	ECUV1C104KBV	0.1	
C7	ECEA1CKA100	10	
C101	ECKD2H681KB	680P	S
C102	ECKD2H681KB	680P	S
C103	ECUV1H103KBV	0.01	S
C104	ECJ1VB1H472K	0.0047	
C105	ECEA1CU221	220	
C106	ECEA1CKA100	10	
C107	ECEA1AU331	330	
C108	ECUV1H103KBV	0.01	
C110	ECUV0J105KBV	1	
C113	ECUV1E223KBV	0.022	
C114	ECEA1CKA100	10	
C117	ECUV1H103KBV	0.01	
C118	ECUV1C104KBV	0.1	
C120	ECUV1H100JCV	10P	
C303	ECEA1AU101	100	
C304	ECUV1C104ZFV	0.1	
C305	ECEA0JKS220	22	S
C306	ECUV1C104ZFV	0.1	
C307	ECA0JM331	330P	S
C308	ECA0JM331	330P	S
C309	ECUV1C104ZFV	0.1	
C310	ECEA1AU101	100	
C312	ECEA0JKS220	22	S
C313	ECUV1C104ZFV	0.1	
C315	ECUV1C104ZFV	0.1	
C316	ECA0JM331	330P	S
C317	ECUV1C104ZFV	0.1	
C311	ECUV1C104ZFV	0.1	
C413	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C414	ECUV1H222KBV	0.0022	
C415	ECUV1C104KBV	0.1	
C416	ECUV1C104KBV	0.1	
C417	ECUV1H103KBV	0.01	
C419	ECUV1H102KBV	0.001	
C420	ECUV1H102KBV	0.001	
C421	ECUV1H101JCV	100P	
C428	ECEA1CKS220	22	S
C501	F1B2H152A048	1500P	
C502	F1B2H152A048	1500P	
C503	ECUV1H102KBV	0.001	
C504	ECUV1H102KBV	0.001	
C702	ECEA1CKA100	10	
C703	ECEA1CKA100	10	
C704	ECUV1C104KBV	0.1	
C706	ECUV1C104KBV	0.1	
C707	ECA0JM102	0.001	S
C901	ECUV1C224ZFV	0.22	
C903	ECUV1C563KBV	0.056	
C904	ECUV1H332KBV	0.0033	
C905	ECUV1H103KBV	0.01	
C906	ECUV1H223KBV	0.022	
C907	ECJ1VB1H221K	220P	
C908	ECUV1C473KBV	0.047	
C909	ECUV1H103KBV	0.01	S
C910	ECUV1H180JCV	18P	
C911	ECUV1H150JCV	15P	
C913	ECUV1C104ZFV	0.1	
C914	ECUV1C104ZFV	0.1	
C915	ECUV1H332KBV	0.0033	
C924	ECUV1C104ZFV	0.1	
C925	ECEA0JKA221	220	
C926	ECUV1C104KBV	0.1	
C927	ECUV1C105ZFV	1	
C928	ECUV1C105ZFV	1	
C929	ECJ1VB1H221K	220P	
C930	ECUV1H153KBV	0.015	
C937	ECEA0JU220	22	
C938	ECUV1C104ZFV	0.1	
C939	ECUV1C104ZFV	0.1	
C940	ECUV1C104ZFV	0.1	
C941	ECUV1C104ZFV	0.1	
C943	ECUV1C104ZFV	0.1	
C944	ECJ1VB1H221K	220P	
C945	ECUV1C104KBV	0.1	
C946	ECUV1C104KBV	0.1	
C947	ECUV1H100JCV	10P	
C948	ECUV1C104ZFV	0.1	
C949	ECUV1H102KBV	0.001	
C950	ECUV1H100JCV	10P	
C951	ECUV1C333KBV	0.033	
C952	ECUV1H100JCV	10P	
C953	ECUV1H152KBV	0.0015	
C954	ECUV1H152KBV	0.0015	
C955	ECUV1C104ZFV	0.1	
C956	ECUV1C104KBV	0.1	
C957	ECUV1H102KBV	0.001	
C958	ECUV1H102KBV	0.001	
C959	ECUV1H102KBV	0.001	
		(OTHERS)	
E1	WBH2AW-16AAY	PARALLEL WIRE	
E2	PQJE10159Z	LEAD WIRE, FFC	
LCD	L5DCAYY00006	LIQUID CRYSTAL DISPLAY	
SW101	PQSH2B105Z	PUSH SWITCH, HOOK	
POS101	PFRT002	THERMISTOR	S
X900	H0D103500004	CRYSTAL OSCILLATOR	

13.3.1.3. Operational P. C. Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQWP2TS620BX	OPERATIONAL P.C.BOARD ASS'Y (RTL)	

Ref. No.	Part No.	Part Name & Description	Remarks
		(LEDS)	
LED801	PSVD1SRCT	LED	S
LED802	PSVD1SRCT	LED	S
		(CONNECTOR)	
CN801	PQJS18X54Z	CONNECTOR	S
		(OTHERS)	
MIC	PQJM122Z	MICROPHONE	

13.3.1.4. Accessories and Packing Materials

Note:

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

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV207BXZ	AC ADAPTOR	⚠
A2	PQJA10075Z	CORD, TELEPHONE	
A3	PQJA212N	CORD, HANDSET (for KX-TS620BXB)	
A3	PQJA212M	CORD, HANDSET (for KX-TS620BXW)	
A4	KRCBC130714B	MAGNET FERITE CORE	
A5	PQJXF0101Z	HANDLE/HANDSET (for KX-TS620BXB)	
A5	PQJXF0102Z	HANDLE/HANDSET (for KX-TS620BXW)	
A6	PQQX14911Y	INSTRUCTION BOOK (*1)	
A7	PQQW15014Y	LEAFLET, QUICK GUIDE (for Arabic/Farsi)	
A8	PQQW15396Z	QUICK GUIDE (for Thai)	
P1	PQPH10076Y	PROTECTION COVER	
P2	PQPK15005Z	GIFT BOX	