Service Manual

Telephone Equipment

Caller ID Compatible

KX-TSC11MXB
KX-TSC11MXW

Integrated Telephone System

Black Version

White Version

(for Asia, Middle Near East and Other Areas)

■**SPECIFICATIONS**

Power Source:	From telephone line/From 3 AA(R6, UM-3, LR6) batteries
Memory Capacity:	50 Caller ID memory, 50 Directory memory.
Dialing Mode:	Tone(DTMF)/Pulse
Redial:	The unit redials the last 20 dialed number
Speaker Unit:	Handset; 3 cm (1$^{13}/_{16}$") PM dynamic type 150Ω
Microphone:	Electret condenser microphone
Input Jack:	Telephone Line
Operating Enviroment:	5 °C - 40 °C
Dimensions (H × W × D):	Approx. 96 mm × 150 mm × 200 mm
Mass (weight):	Approx. 550g

Specifications are subject to change without notice.
The illustrations used in this manual may differ slightly from the original device.

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.

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.

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

Note:

Because CONTENTS 4 to 9 are the extracts from the Operating Instructions of this model, they are subject to change without notice. Please refer to the original Operating Instructions for further information.

CONTENTS

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 although, with some precautions, standard Pb solder can also be used.

Caution
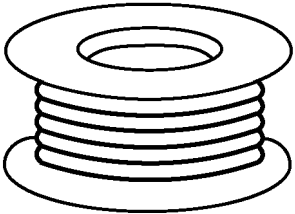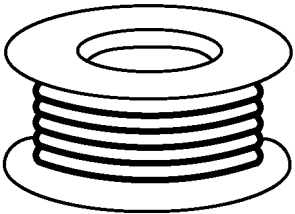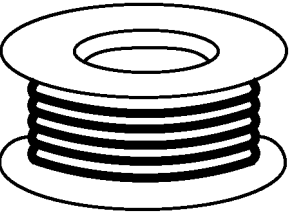
- PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.

- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).

- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.

- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).
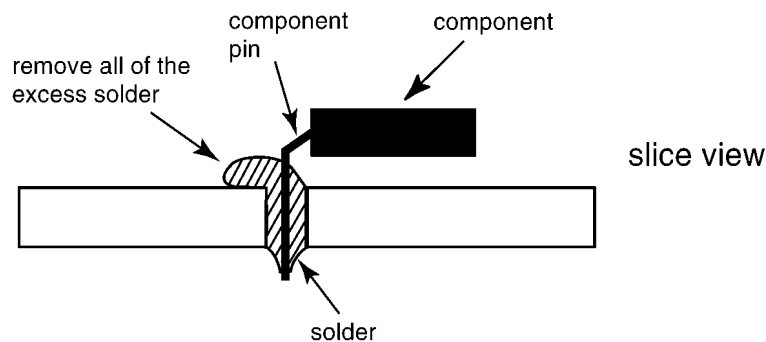
1.1. Suggested PbF Solder

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

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

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

1.2.   How to recognize that Pb Free solder is used

Marked

PQUP11270ZA

(Component View)

Marked

(Flow Solder Side View)
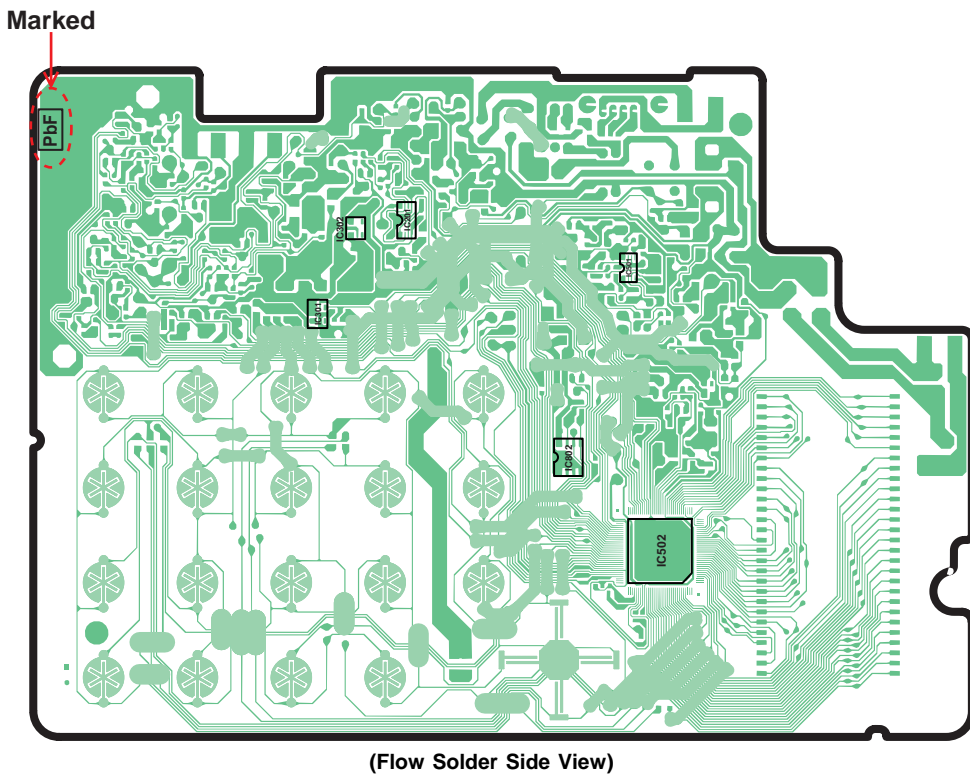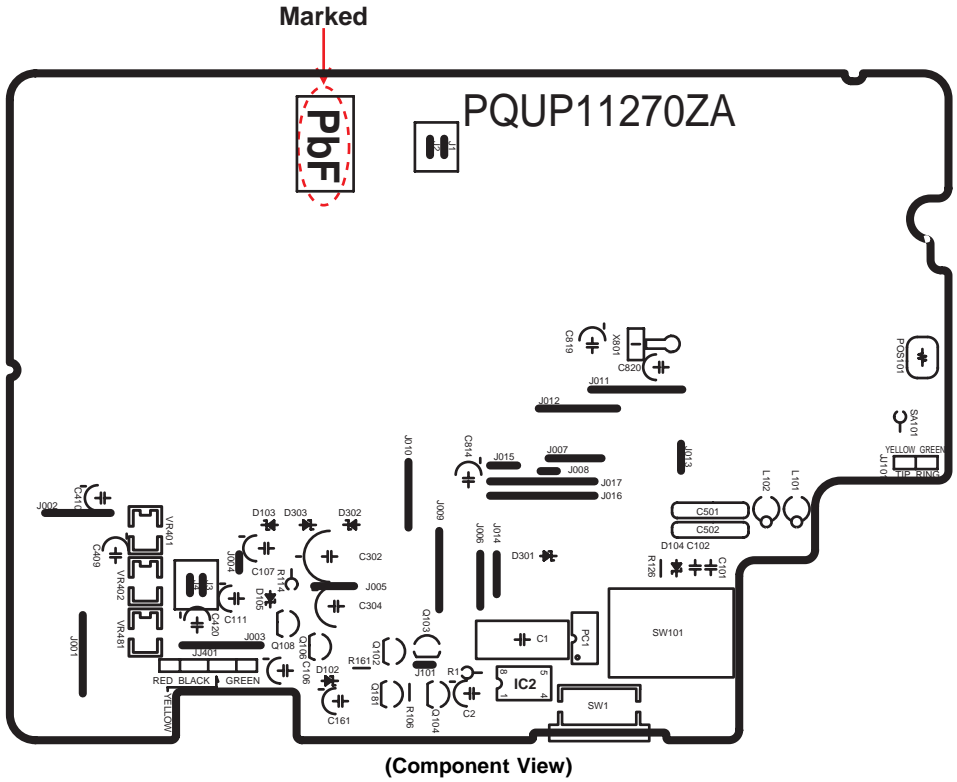
Note:

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

4

2 FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When replacing, 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 grasp IC or LSI pins with bare fingers.

3 CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer´s Instructions.

4 BATTERY
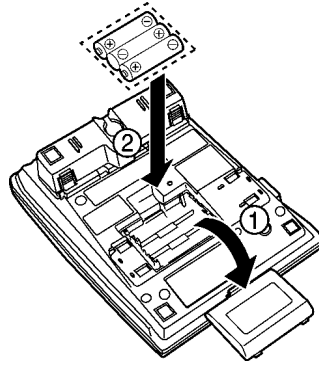
4.1. Installing the Batteries

1 Press down in the direction of the arrow and remove the battery cover (①).

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

3 Close the battery cover.

* Batteries are not included in the unit.
* Install three high quality "AA" size Alkaline (LR6) or Manganese (R6, UM-3) batteries.
  We recommend to use Alkaline batteries.
  Battery life is: —about six months in use of Alkaline batteries.
                    —about three months in use of Manganese batteries.
  Battery life may depend on usage conditions and ambient temperature.
* Make sure batteries were inserted properly in phase to ensure the functionality of this unit.

THE UNIT MAY NOT WORK PROPERLY WITHOUT BATTERIES.

4.2. Battery Replacement

If "▭" flashes, the battery power is low. Install new batteries as soon as possible.

1 Disconnect the telephone line cord from the unit.

2 Press down in the direction of the arrow and remove the battery cover (①).

3 Replace the batteries with new ones using correct polarity (+, −) (②), and close the battery cover.

4 Connect the telephone line cord to the unit.

* After the battery replacement, the information stored in the Redial List will be cleared. Store the desired item in the Phone Book List and Caller List.
* The time will be shown as "12:00ᴬᴹ 31/12" or "0:00 31/12" after replacing the batteries, readjust the time and date.

Battery Precautions:
The batteries should be used correctly, otherwise the unit may be damaged by battery leakage.
—Do not mix different types of batteries.
—Do not charge, short-circuit, disassemble, heat or dispose of in fire.
—Remove all the batteries when replacing.

Note:
— If you do not install the batteries or if the battery power is low, the time will be shown as
  "12:00ᴬᴹ 31/12" or "0:00 31/12". Readjust the time and date after the battery replacement.
— Replace all the batteries every six months if using Alkaline batteries, or misoperation may occur.
  (When you use Manganese batteries, replace all of them every three months.)
— Do not use nickel-cadmium batteries.
---

5 LOCATION OF CONTROLS

[ENTER] Button

[CLEAR] Button

[FUNCTION/EXIT] Button

Display

RINGER Selector

Navigator Key
([▼], [▲], [◄], [►])
(see below)

[DIAL LOCK] Button

TONE Button [*]

[REDIAL] Button   [FLASH] Button

[PAUSE] Button
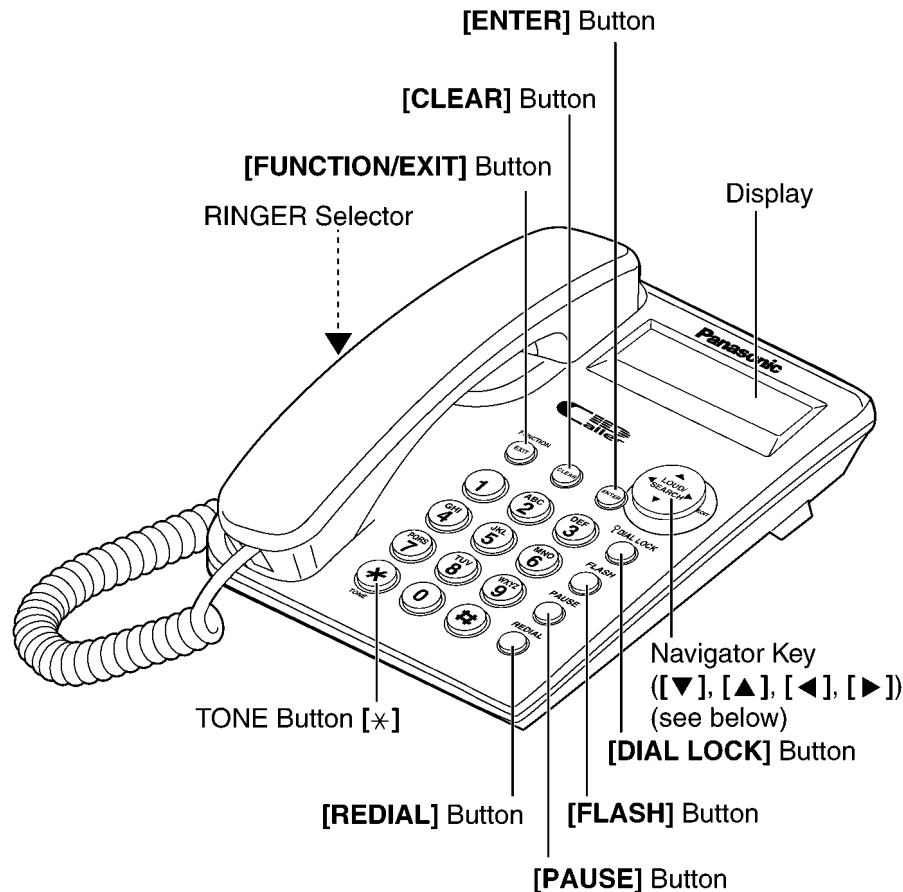
How to use the Navigator key
This key has four active areas that are indicated by arrows.

- Pressing the up and down arrows allows you to enter the Caller List and select the function menu, the Caller List and the Phone Book List. The up and down arrows are also used to adjust the receiver volume while talking.
- Pressing the right and left arrows allows you to enter the Phone Book List and move the cursor when entering items.

Throughout this Service Manual, the navigator key is indicated by the arrows [▼], [▲], [◄] or [►].

7

6 DISPLAY

```
1234567890123456
⚷88:88ᴬᴹ88/88 [CALL WAIT] 📞 NEW  X8 ✉
```
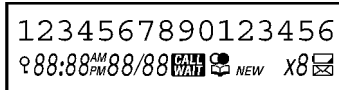
(This display shows all of the possible configurations.)

```
10 MISSED CALLS
12:34ᴬᴹ24/11
```
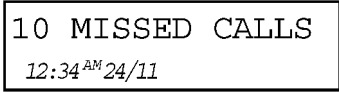
While the unit is not in use, the display shows the current time and date, and the number of new calls.

```
12:00ᴬᴹ31/12
```
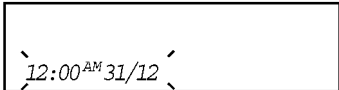
If the display continuously shows "12:00ᴬᴹ 31/12" or "0:00 31/12", the clock needs adjustment.

```
01-06-35
12:34ᴬᴹ17/5
```
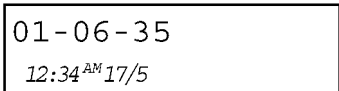
During a conversation, the display shows the length of the call (Ex. 1 hour, 6 minutes and 35 seconds).

```
1114447777
11:50ᴬᴹ17/5        NEW  X3
```
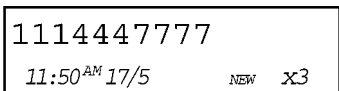
This is a display from the Caller List. The display shows:
— the caller's number,
— the time and date of the last call (Ex. May 17, 11:50 AM),
— the caller's information is new and has not been viewed ("NEW" is displayed), and
— the number of times called (Ex. 3 times).

⚷ : The dial lock mode is set.

[CALL WAIT] : The second call has been received while talking.

📖 : The unit enters in the Phone Book List.

📞 : [REDIAL] was pressed while the handset is on the cradle.

🔋 : This display flashes, when the battery power is low. Replace the batteries.

✉ : The voice mail message(s) is/are recorded.

P : [PAUSE] was pressed while dialing or storing phone numbers.

F : [FLASH] was pressed while storing phone numbers.

7   SETTINGS

＊To Set the Each Settings (7.2. ~ 7.5.) Back to the Factory Preset < for Service>

You can set the each settings (7.2. ~ 7.5.) back to the factory preset by the following steps.

1) Remove the battery.
2) Press 1 and 9 and # button.
3) Insert the battery with holding above three buttons.
   ➤ LCD turns on all dots.
4) Release the buttons.
   ➤ LCD displays 0123456789 : ; 06AE
      "06AE" is a check sum of EEPROM.
5) Remove the battery.
6) Insert the battery again.

After this, the set works as a factory preset mode.
If the check sum wasn't "06AE", that means the internal value of EEPROM had been changed by some accident.

7.1.   Connecting the Handset/Telephone Line Cord

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

Handset

To Single-Line
Telephone Jack

Telephone Line
Cord
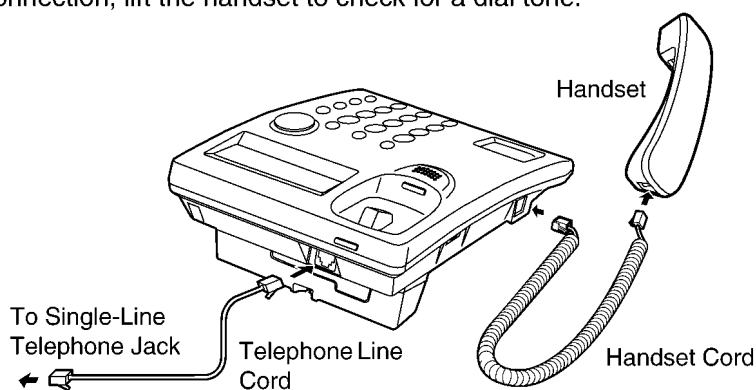
Handset Cord

- Use only a specified Handset for the KX-TSC11MXB or KX-TSC11MXW.

- Use only a telephone line cord included in the unit.

- If your unit is connected to a PBX which does not support Caller ID services, you cannot access those services.

7.2. Dialing Mode

You can select the dialing mode by programming. If you have touch tone service, set to Tone. If rotary or pulse service is used, set to Pulse. Your phone comes from the factory set to Tone.

Make sure that the handset is on the cradle.

1 Press **[FUNCTION/EXIT]**.

2 Scroll to "SET DIAL MODE ?" by pressing **[▼]** or **[▲]**.

```
SET DIAL MODE ?
```

3 Press **[ENTER]**.

```
:TONE
```

4 Select "PULSE" or "TONE" by pressing **[▼]** or **[▲]**.

5 Press **[ENTER]**.
  • The display will return to step 2. To exit the programming mode, press **[FUNCTION/EXIT]** or wait for 60 seconds.

```
SAVED
```

• You can exit the programming mode any time by pressing **[FUNCTION/EXIT]**.

7.3. Dial Lock

The Dial Lock feature allows you to prevent others from making calls. To use this feature, turn the feature ON. The factory preset is OFF.

> Before using the Dial Lock or Call Restriction feature, we recommend storing emergency numbers in the Phone Book. When the Dial Lock is ON, only numbers stored in the Phone Book as emergency numbers can be dialed.

To set the dial lock

1 Press **[DIAL LOCK]**.
- " ♀ " flashes on the display.

```
ENTER PASSWORD
♀
```

2 Enter the password.*

```
: ✳✳✳▨
♀
```

3 Press **[ENTER]**.
- " ♀ " displays.
- If the wrong password was entered, "ERROR" will be displayed, then "– – – –" will be displayed. Enter the correct password.

> If the dial buttons are pressed after lifting the handset, "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 the Phone Book
>   (ONLY for # emergency items)
> - Selecting the ringer volume
> - Adjusting the handset volumes
> - Answering the second call by pressing **[FLASH]**
> - Programming [except storing/erasing Phone Book List
>   (ONLY for # emergency items)]
> - Finding an item in the following lists
>   —Caller list
>   —Phone Book List
>   —Redial list

To cancel the dial lock

Follow above steps 1 through 3. In step 3, " ♀ " will go out.

For Service Hint:

*: If the current password is forgotten, reter to **How to Release the Establishment of Password** (P.12).

7.4. How to Release the Establishment of Password

[ENTER] Button

[FUNCTION/EXIT] Button

Display

Navigator Key
([▼], [▲], [◄], [►])
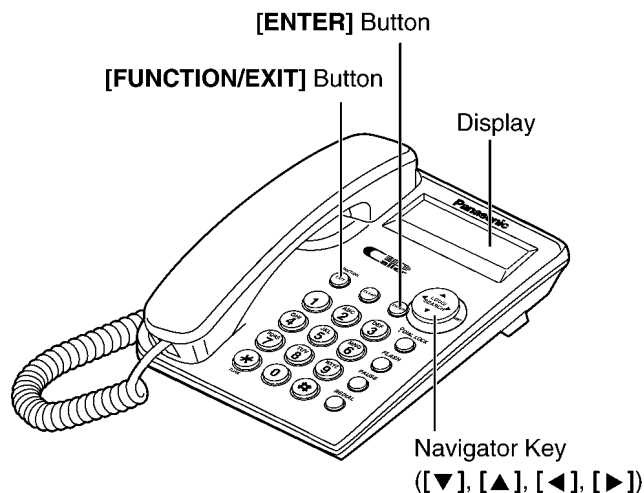
After the following procedure, you will be able to establish a new password.

1 Press **[FUNCTION/EXIT]**.

2 Scroll to "CHANGE PASSWORD?" by pressing [▼] or [▲].

CHANGE PASSWORD?

3 Press **[ENTER]**.

CURRENT PASSWORD

4 Enter "726276642" for initializing the password.

: ✳✳✳✳

5 Press **[ENTER]**.
• If the wrong password was entered at step 4, "ERROR" will be displayed, then "– – – –" will be displayed.

NEW PASSWORD

6 Enter a new password using a 4-digit number. (Ex. "1234" is entered.)

:1234

7 Press **[ENTER]**.
• The display will return to step 2. To exit the programming mode, press **[FUNCTION/EXIT]** or wait for 60 seconds.

SAVED

7.5. Call Restriction

You can prevent the unit from dialing phone numbers beginning with specified digit(s) (1 digit or 2 digits). Phone numbers with the restricted leading digits cannot be dialed out.

To set the call restriction

Make sure that the handset is on the cradle.

1 Press **[FUNCTION/EXIT]**.

2 Scroll to "CALL RESTRICT ?" by pressing **[▼]** or **[▲]**.

```
CALL RESTRICT ?
```

3 Press **[ENTER]**.

```
RESTRICT NO.:日-
```

If you changed the password "1111" (factory set), the display on the right will be shown. Follow below steps 1 and 2.

1. Enter the password.*
2. Press **[ENTER]**. Go to step 4.
• If the wrong password was entered, "ERROR" will be displayed, then "– – – –" will be displayed. Enter the correct password.

```
ENTER PASSWORD
```

```
:***田
```

4 Enter the number(s) (1 digit or 2 digits) you want to restrict (**[0]** to **[9]**).

• If the wrong number was entered, press **[CLEAR]** and enter the correct number.

```
RESTRICT NO.:9日
```

5 Press **[ENTER]**.

• The display will return to step 2. To exit the programming mode, press **[FUNCTION/EXIT]** or wait for 60 seconds.

```
SAVED
```

When dialing a phone number with the restricted leading digit(s), "CALL RESTRICTED" is displayed.

To cancel the call restriction

Follow steps 1 through 3. In step 4, press **[CLEAR]** to clear the restricted digits, and press **[ENTER]**.

For Service Hint:

*: If the current password is forgotten, reter to **How to Release the Establishment of Password** (P.12).

8 OPERATIONS

8.1. Making Calls

To make a call, this unit can dial up by 2 methods as below steps.

1 Enter a phone number, then lift the handset.
OR
Lift the handset, then dial a phone number.

- The dialed number is displayed.
- After a few seconds, the display will show the length of the call.
- If you misdial, hang up and start again from step 1.

```
1234567890
12:34PM24/11
```

```
00-00-00
12:34PM24/11
```

2 When finished talking, hang up.

To redial the last number dialed

Lift the handset ➔ press **[REDIAL]**.

To redial using the redial list (Memory Redial)

The last 20 phone numbers dialed are stored in the redial list.
Make sure that the handset is on the cradle.

1. Press **[REDIAL]**.
   - The last number dialed and "⊙●" are displayed.
   - When the dialed number has been stored in the Phone Book List, the name is displayed instead of the number. To see the number, press **[◄]**.

2. Select the desired number by pressing **[▼]** or **[▲]**.
   - You can also select through the list by pressing **[REDIAL]**.
   - To exit the list, press **[FUNCTION/EXIT]**.

3. Lift the handset.
   - The displayed phone number is dialed.

- To erase an item, repeat steps 1 and 2, and press **[CLEAR]**.
- If "NO ITEMS STORED" is displayed, the list is empty.

To adjust the handset volume (4 levels) while talking

To increase, press **[▲]**.
To decrease, press **[▼]**.

- The display shows the volume level for a few seconds.

Ex. Handset volume level: 2

```
□□
12:34PM24/11
```

8.2. Answering Calls

When a call is received, the unit rings, "INCOMING CALL" is displayed.
If you subscribe to a Caller ID service, the calling party's information will be displayed when the unit is ringing (see below).

1 When the unit rings, lift the handset.

2 When finished talking, hang up.

- When the ringer volume is set to OFF, the unit will not ring.
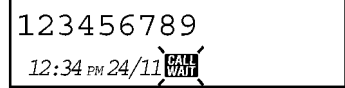
8.3. For Call Waiting Service Users

Press **[FLASH]** if you hear a call-waiting tone while talking.

- The first call is put on hold and you can answer the second call.
- To return to the first caller, press **[FLASH]** again.
- The call waiting service cannot be used when a parallel connected telephone is in use.
- If this function does not operate properly, consult your telephone company for details.

Call Waiting Caller ID Feature

Call Waiting Caller ID Feature allows your unit to display the second caller's information. After you hear a call-waiting tone while talking, the unit will display the caller's phone number and " **WAIT** ".

```
123456789
12:34 PM 24/11 CALL
              WAIT
```

- Please contact your telephone company for details and availability in your area.

8.4. FLASH Button

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

Selecting the flash time

The flash time depends on your telephone exchange or host PBX. You can select the following flash times: "80, 90, 100, 110, 200, 250, 300, 400, 600, 700 ms (milliseconds)". Your phone comes from the factory set to "600 ms". **Make sure that the handset is on the cradle.**
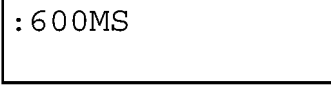
1 Press **[FUNCTION/EXIT]**.

2 Scroll to "SET FLASH TIME ?" by pressing **[▼]** or **[▲]**.

```
SET FLASH TIME ?
```

3 Press **[ENTER]**.

```
:600MS
```

4 Select the desired time by pressing **[▼]** or **[▲]**.

5 Press **[ENTER]**.
- The display will return to step 2. To exit the programming mode, press **[FUNCTION/EXIT]** or wait for 60 seconds.

```
SAVED
```

- You can exit the programming mode any time by pressing **[FUNCTION/EXIT]**.
- If the unit is connected via a PBX, PBX functions (transferring a call, etc.) might not work correctly. Consult your PBX supplier for the correct setting.
- If there is no battery, Flash function may not operate appropriately.

8.5. Voice Mail Service
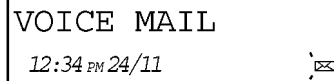
Voice mail service is an electronic on-line answering system offered by your telephone company. After subscribing, the voice mail system can answer calls automatically when your line is busy or if calls are not answered. Callers can leave messages by following the pre-recorded instructions. When voice mail messages will be recorded, "VOICE MAIL"* will be displayed and "⊠" will be displayed.

*The message "VOICE MAIL" will appear only when no new call exists in the caller list.

8.5.1. Listening to Voice Mail Message(s)

After receiving a voice mail message, "⊠" will flash on the display.
To listen to your voice mail, perform the following steps.

1 Lift the handset and dial an access phone number.

- You will get an access phone number from your telephone company.

```
VOICE MAIL
12:34 PM 24/11            ⊠
```

2 Follow the pre-recorded instructions.

3 When finished, place the handset on the cradle.

- "⊠" will go out.

- If "⊠" still flash after you have listened to your voice mail message(s), press **[FUNCTION/EXIT]**, and then press and hold **[CLEAR]**. "VOICE MAIL" and "⊠" will disappear.

8.6. Phone Book

8.6.1. Storing Names and Phone Numbers in Phone Book List

You can store up to 50 names and phone numbers in the Phone Book.
Make sure that the handset is on the cradle.

1 Press **[FUNCTION/EXIT]**.

```
SAVE PHONEBOOK ?
```

2 Press **[ENTER]**.

- The display will show the number of stored items.
- After a few second the display will change.

```
12 ITEMS STORED
```

3 Enter a name, up to 15 characters with the dialing buttons.

- To move the cursor while entering name, press **[◀]** or **[▶]**.
- If a name is not required, press **[ENTER]** and go to step 5.

```
ENTER NAME
```

4 Press **[ENTER]**.

- If you want to return to step 3 for editing, press **[▲]**.

```
ENTER PHONE NO.
```

5 Enter a phone number up to 22 digits.
- If you entered a wrong number, press **[CLEAR]** and enter the correct number.
- To move the cursor while entering number, press **[◄]** or **[►]**.

```
12345678900
             ✉
```

6 Press **[ENTER]**.
- To continue storing other items, repeat from step 2.
- The display will return to step 1. To exit the programming mode, press **[FUNCTION/EXIT]** or wait for 60 seconds.

```
SAVED
             ✉
```

- If the display shows "PHONEBOOK FULL" in step 2, press **[FUNCTION/EXIT]** to exit. To erase other stored items from the Phone Book List, see "**Erasing**".
- You can exit the programming mode any time by pressing **[FUNCTION/EXIT]**.
- If a pause is required for dialing, press **[PAUSE]** where needed. If required, you can also store **[FLASH]** in a phone number. Pressing **[PAUSE]** or **[FLASH]** counts as one digit.
- To store numbers for calling card access (see "**Chain Dial**"), we recommend you add pauses after each item. Storing pauses with numbers will prevent misdialing. The delay time necessary will depend on your telephone company.
- When using the Dial Lock or Call Restriction feature, you cannot store the emergency number in the Phone Book.
- If the display shows "DIAL LOCKED" or "CALL RESTRICTED" in step 4, you cannot store the emergency number in the Phone Book.
- When the dialing buttons are locked, only numbers stored in the Phone Book as emergency numbers can be dialed.
- When storing a name, you can also enter space by pressing **[0]**. Items with space at the beginning will be displayed with first priority.

To store an emergency number:
When storing a name in step 3, enter # at the beginning of the name by pressing **[#]**.

- Items with # at the beginning will be displayed with first priority if DIAL LOCK or CALL RESTRICTION is set to ON.

Cross Reference:
    Erasing (P.22)
    Chain Dial (P.21)

Selecting characters to enter names

The dialing buttons ([0] to [9]) can be used to enter letters and symbols. Pressing each button selects a character as shown below.

Keys	Number of times key is pressed								
	1	2	3	4	5	6	7	8	9
[1]	&	'	(	)	,	–	.	/	1
[2]	A	B	C	2					
[3]	D	E	F	3					
[4]	G	H	I	4					
[5]	J	K	L	5					
[6]	M	N	O	6					
[7]	P	Q	R	S	7				
[8]	T	U	V	8					
[9]	W	X	Y	Z	9				
[✶]	✶								
[0]	0	Space							
[#]	#								
[◄]	To move the cursor to the left								
[►]	To move the cursor to the right								

If you make a mistake while entering a name

Use [◄] or [►] to move the cursor to the incorrect character, press [CLEAR] to delete and enter the correct character. Each time you press [CLEAR], a character is erased.

For example, to enter "TOM JONES":

1 Press [8].

2 Press [6] three times, then press [►].

3 Press [6] once, then press [►] twice.

4 Press [5], press [6] three times, then press [►].

5 Press [6] twice, press [3] twice, then press [7] four times.

18

8.6.2. Storing Caller List Information in the Phone Book List

You can store numbers in the Caller List to the Phone Book List.
Make sure that the handset is on the cradle.

1 Press [▼] or [▲] to enter the Caller List.

2 Scroll to the caller you want to store by pressing [▼] or [▲].

```
1234567890
10:50ᴬᴹ 23/11        NEW    x4
```

3 Press [►] or **[ENTER]**.

```
☐1234567890
```

4 Press **[ENTER]**.

If there is no name information for the caller, "ENTER NAME" will be displayed.

a) If a name is required, enter the name. When finished, go to step 5.

b) If a name is not required, go to step 5.

```
ENTER NAME
            ☐
```

If there is name information for the caller, you can edit name information.

a) If you need to change the name, enter the name. When finished, go to step 5.

b) If you do not need to change the name, go to step 5.

5 Press **[ENTER]**.

• After a few seconds, the display will return to the Caller List. You can continue storing other items. To exit the Caller List, press **[FUNCTION/EXIT]** or wait for 60 seconds.

```
SAVED
            ☐
```

• If the display shows "PHONEBOOK FULL" in step 4, press **[FUNCTION/EXIT]** to exit the list. To erase other stored items from the Phone Book List, see "**Erasing**".
• To cancel during programming, press **[FUNCTION/EXIT]**. Start again from step 1.
• You cannot store caller information in the Phone Book List if a phone number is not displayed.

Cross Reference:

Erasing (P.22)

19

8.6.3. Dialing from the Phone Book

Make sure that the handset is on the cradle.

1 Press [◄] or [►] to enter the Phone Book List.

PHONEBOOK LIST

2 Press [▼] or [▲].
• The first item is displayed.

3 Scroll to the desired item by pressing [▼] or [▲].
• All Phone Book items are stored in the order shown on the right.

To search for a name by initial:
1. Press the dialing button for the first letter of the desired name until any name with the same initial is displayed (see the Index table).
Ex. To find "Frank", press **[3]** repeatedly until the first item under "F" is displayed.
2. Press [▼] repeatedly until the name is displayed.

Press [▼].   Press [▲].

Space + Alphabet

Alphabet

Symbol (excluding # and ∗)

Number

and ∗

Telephone number
(When a name is not stored)

4 Lift the handset.
• The number is dialed automatically.

5 To hang up, place the handset on the cradle.

• If "NO ITEMS STORED" is displayed in step 2, the Phone Book is empty.
• You can exit the Phone Book List any time by pressing **[FUNCTION/EXIT]**.
• You can also dial the stored number as follows:
  1. Lift the handset.
  2. Find the desired item (above step).
  3. Press **[ENTER]**.
• If there is no battery, this function will not operate.

Index table

Keys	Index	Keys	Index
[1]	Symbols, 1	**[7]**	P, Q, R, S, 7
[2]	A, B, C, 2	**[8]**	T, U, V, 8
[3]	D, E, F, 3	**[9]**	W, X, Y, Z, 9
[4]	G, H, I, 4	**[∗]**	∗
[5]	J, K, L, 5	**[0]**	0, Space
[6]	M, N, O, 6	**[#]**	#

8.6.4. Chain Dial

You can dial a combination of Phone Book or manual key pad entries while making a call. This feature can be used, for example, to first automatically dial a calling card access number that you have stored in the Phone Book, then manually or automatically dial your PIN and then automatically dial the destination number from the Phone Book.

Ex. Using a long distance calling card

• To prevent misdialing, we recommend you add pauses where needed when storing numbers. For example, add pauses after a calling card access number and your PIN when storing in the Phone Book.

1. Search and dial from Phone Book: 18000123456 (Calling card access number)
   • The voice guidance may be announced.
2. Search and dial from Phone Book: 1234 (Calling card PIN)
3. Search and dial from Phone Book: 15550123456 (Destination number)

1   **While you are on a call;**
    Press [◄] or [►].

2   Search for the desired item by pressing [▼] or [▲].
    • To search for an item by initial, see "**Dialing from the Phone Book**".

3   Press **[ENTER]**.
    • The phone number is dialed.
    • If required, repeat steps 1 to 3 for any remaining numbers.

• If you have rotary or pulse service, you need to press [✳] before pressing [◄] or [►] in step 1 to change the dialing mode temporarily to tone.

Cross Reference:

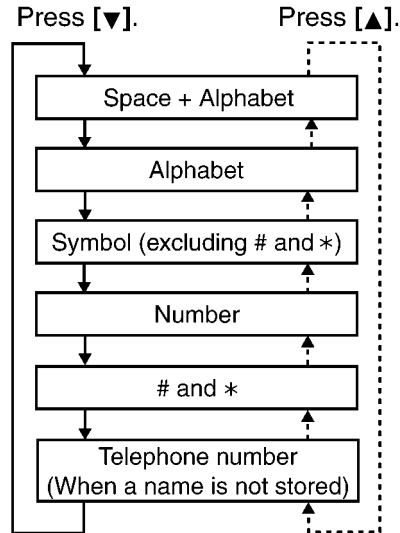 **Dialing from the Phone Book** (P.20)

8.6.5. Editing

Make sure that the handset is on the cradle.

1 Press [◄] or [►] to enter the Phone Book List.

2 Press [▼] or [▲].
- The first item is displayed.

3 Scroll to the Phone Book item you want to change by pressing [▼] or [▲].
- To search for the item by initial, see "**Dialing from the Phone Book**".

```
JANE                    ◄
                  📖
```

4 Press [►] or [ENTER].
- If you do not need to change the name, go to step 6.

```
☐ANE
                  📖
```

5 Edit the name using the dialing buttons.
- To clear an incorrect character, move the cursor to the character by using [◄] or [►], then press [CLEAR].

6 Press [ENTER].

To add a number
Add a number to the current number.

```
0☐123456789
                  📖
```
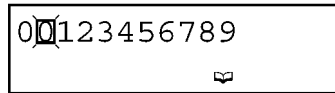
To erase a number
Press [CLEAR] to erase the number.
- To move the cursor, press [◄] or [►].

7 Press [ENTER].
- To continue editing other items repeat from step 3.

Cross Reference:
Dialing from the Phone Book (P.20)

8.6.6. Erasing

Make sure that the handset is on the cradle.

1 Press [◄] or [►] to enter the Phone Book List.

2 Scroll to the Phone Book item that you want to erase by pressing [▼] or [▲].
- To search for the item by initial, see "**Dialing from the Phone Book**".

3 Press [CLEAR].
- To stop erasing, press [◄].

```
ERASE  ?
                  📖
```
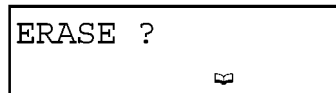
4 Press [ENTER].
- To erase other items, repeat from step 2.
- To exit the Phone Book List, press [FUNCTION/EXIT].

```
ERASED
                  📖
```
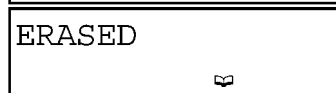
Cross Reference:
Dialing from the Phone Book (P.20)

9 TROUBLESHOOTING

Problem	Cause and Remedy
The unit does not work.	• Check the settings. • Remove the batteries and reinstall them to reset the unit.
The unit does not ring.	• The ringer selector is set to OFF. Set to HIGH or LOW.
The display is blank.	• Install new batteries (*1).
You cannot dial.	• Check that the dialing mode selection is correct (*2). • Dial lock mode is set (*3). • The dialed number is restricted (*4).
You cannot program items such as the dialing mode.	• Programming is not possible when the handset is off the cradle. • Do not pause for over 60 seconds while programming.
You cannot store a name and phone number in memory.	• When using the Dial Lock (*3) or Call Restriction feature (*4), you cannot store an emergency number in the Phone Book List. • If "PHONEBOOK FULL" is displayed, erase other stored items from the Phone Book List. • Programming is not possible when the handset is off the cradle. • Check that the batteries are installed in the unit and that the battery power is not low. • Do not pause for over 60 seconds while storing. • Do not enter a phone number more than 22 digits long.

Cross Reference:

(*1) **Battery Replacement** (P.6)

(*2) **Dialing Mode** (P.10)

(*3) **Dial Lock** (P.11)

(*4) **Call Restriction** (P.13)

Problem	Cause and Remedy
While programming or searching, the unit starts to ring and stops the program/ search.	• To answer the call, lift the handset. Start again from the beginning after hanging up.
The unit does not display the caller's phone number.	• You need to subscribe to a Caller ID service. • Install or replace the batteries. • Other telephone equipment may be interfering with your phone. Disconnect it and try again. • Telephone line noise may be interfering with the Caller ID 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.
Information stored in the Redial List is erased.	• If "⬜" flashes, replace the batteries as soon as possible. Otherwise, information stored in the Redial List may be erased. Store the desired item in the Phone Book List, if necessary.

10 DISASSEMBLY INSTRUCTIONS

Remove Hook Button, TEL Jack and Handset Jack.

Remove Main P.C.Board.

(A)
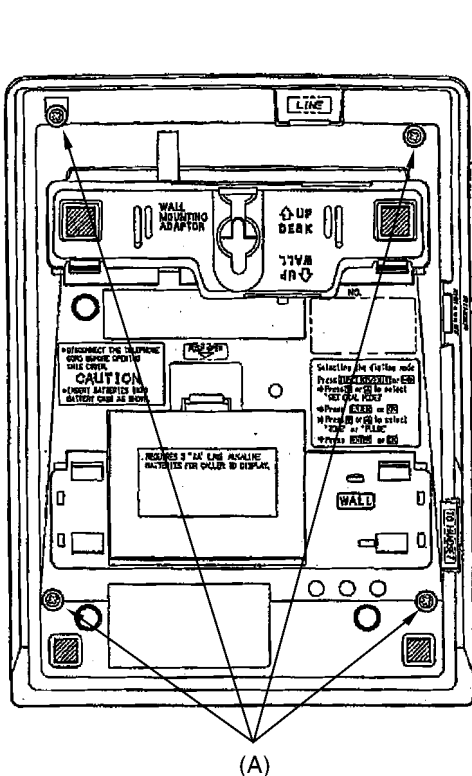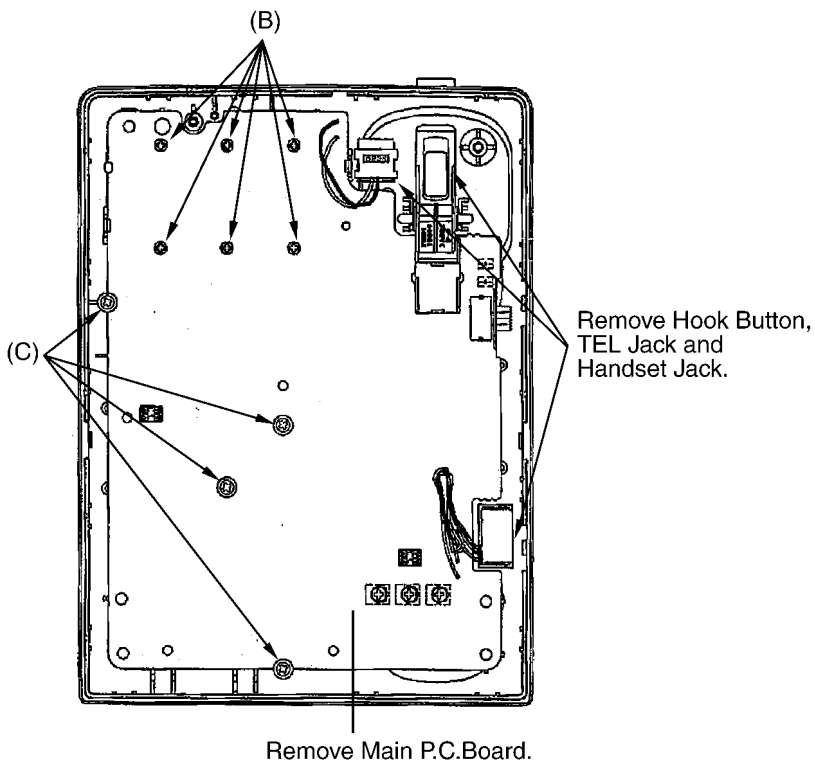
Fig. 1   Fig. 2

Shown in Fig —.	To remove —.	Remove —.
1	Cabinet Cover	Screws (2.6 × 12).....................................(A) × 4
2	Main P.C. Board	Screws (2.0 × 6).....................................(B) × 6
		Screws (2.6 × 10).....................................(C) × 4
		Main P.C. Board

11 TROUBLESHOOTING GUIDE

Make sure batteries are installed for proper operation before troubleshooting.

11.1. Service Hints

SYMPTOM	CURE
Dead.	Check IC801, X801, X802.
Can't hear the voice from handset.	Check Q401, Q403, Q404.
No voice transmit.	Check Q422, Q108.
Can't tone dial.	Check IC801(94), R819, R481~R484, R553, C483.
Can't pulse dial.	Check Q105, Q104.
No rings.	Check IC1 and PC1.
Can't speak with the handset.	Check Handset jack.
Can't change the volume for Handset.	Check IC801, Q406~Q408, R407~R409.
No volume handset.	Check Q108, Q422.
Caller ID Function doesn't work.	Check C551, C552, R551, R552, D551~D554, IC801.
Caller ID Function doesn't work. (DTMF)	Check around IC501, Q501, Q502.

11.2. Pulse Dialing Problems
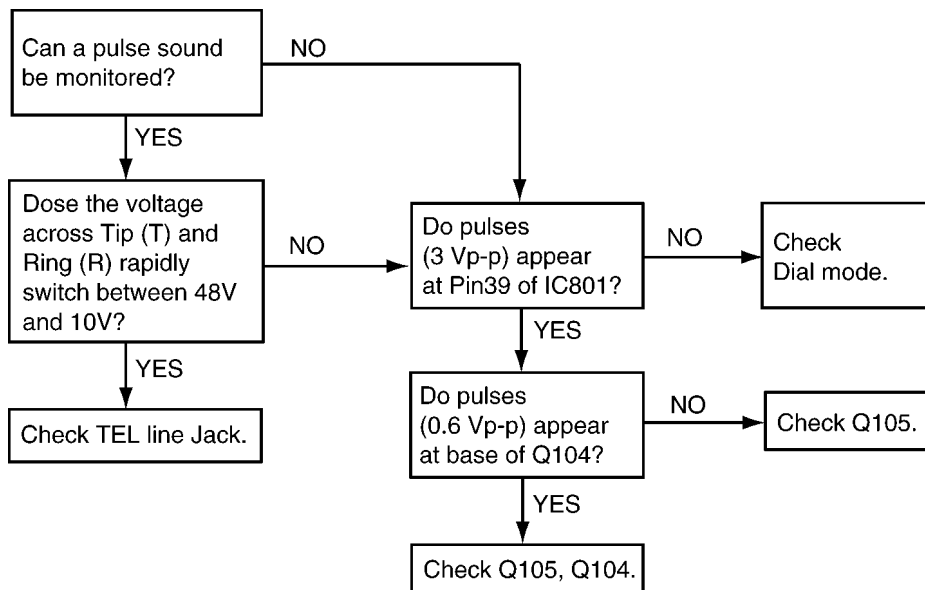
11.3. Tone Dialing Problems (handset)
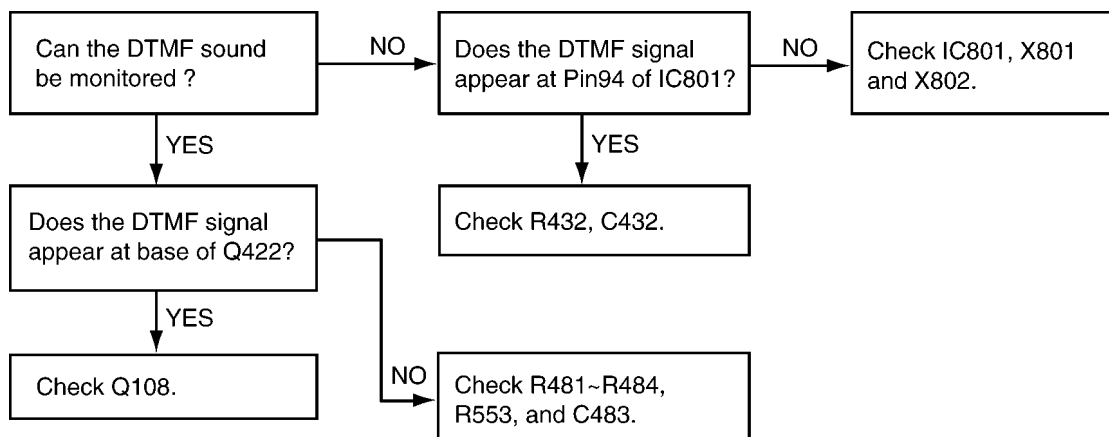
11.4. No Ringing Sound When Ring Signal is Input

```
┌─────────────────────────────────┐
│ Call the unit from another telephone. │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐   NO   ┌─────────────────────────────┐
│ Does a sine wave of approximately 60V │ ─────► │ Check the telephone line and │
│ or more appear across Tip and Ring?   │        │ the telephone line.          │
└─────────────────────────────────┘        └─────────────────────────────┘
                 │ YES
                 ▼
┌─────────────────────────────────┐   NO   ┌─────────────────────────────┐
│ Is the voltage at the anode and │ ─────► │ Check C1, C2, R1.           │
│ cathod of C2 30V?               │        └─────────────────────────────┘
└─────────────────────────────────┘
                 │ YES
                 ▼
┌─────────────────────────────────┐   NO   ┌─────────────────────────────┐
│ Does the tone ringer output signal │ ─────► │ Check IC2, R2, C3.          │
│ appear across Pin 5 of IC2?        │        └─────────────────────────────┘
└─────────────────────────────────┘
                 │ YES
                 ▼
┌─────────────────────────────────┐
│ Check the SW1, PC1.             │
└─────────────────────────────────┘
```
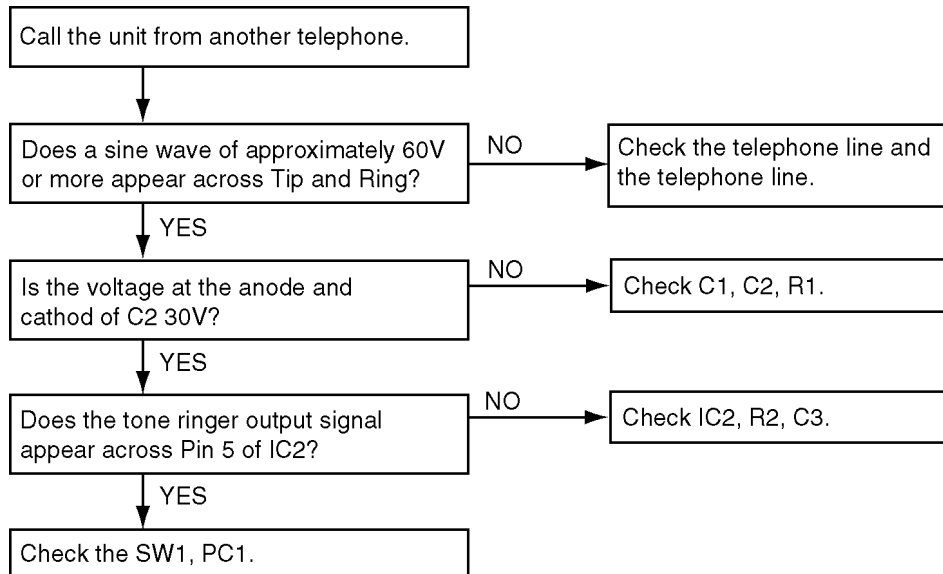
12 TEST MODE

POWER OFF

Press **[1]**, **[9]** and **[✳]** simultaneously, then connect the line.

Simulator

LCD

All the dots flush.

0123456789:;06AE
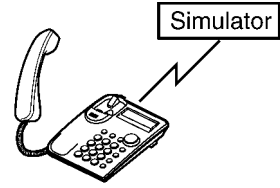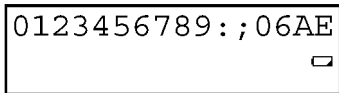
Key Check

Press the following buttons in turn.

FUNCTION/EXIT → CLEAR → (◄) → (▲)

left   up

→ (▼) → (►) → **[1]** → **[2]** → **[3]**

down   right

→ **[4]** → • • • • • • • → **[✳]** → **[0]** → **[#]**

→ ⚲ DIAL LOCK → FLASH → PAUSE → REDIAL

→ ENTER

• You can hear "beep" over the handset if all the keys are o.k.
• If the check wasn't successful, you will hear 3 short "beeps" over the handset.

END

Note:

After the test, the unit will be back to the factory preset mode.
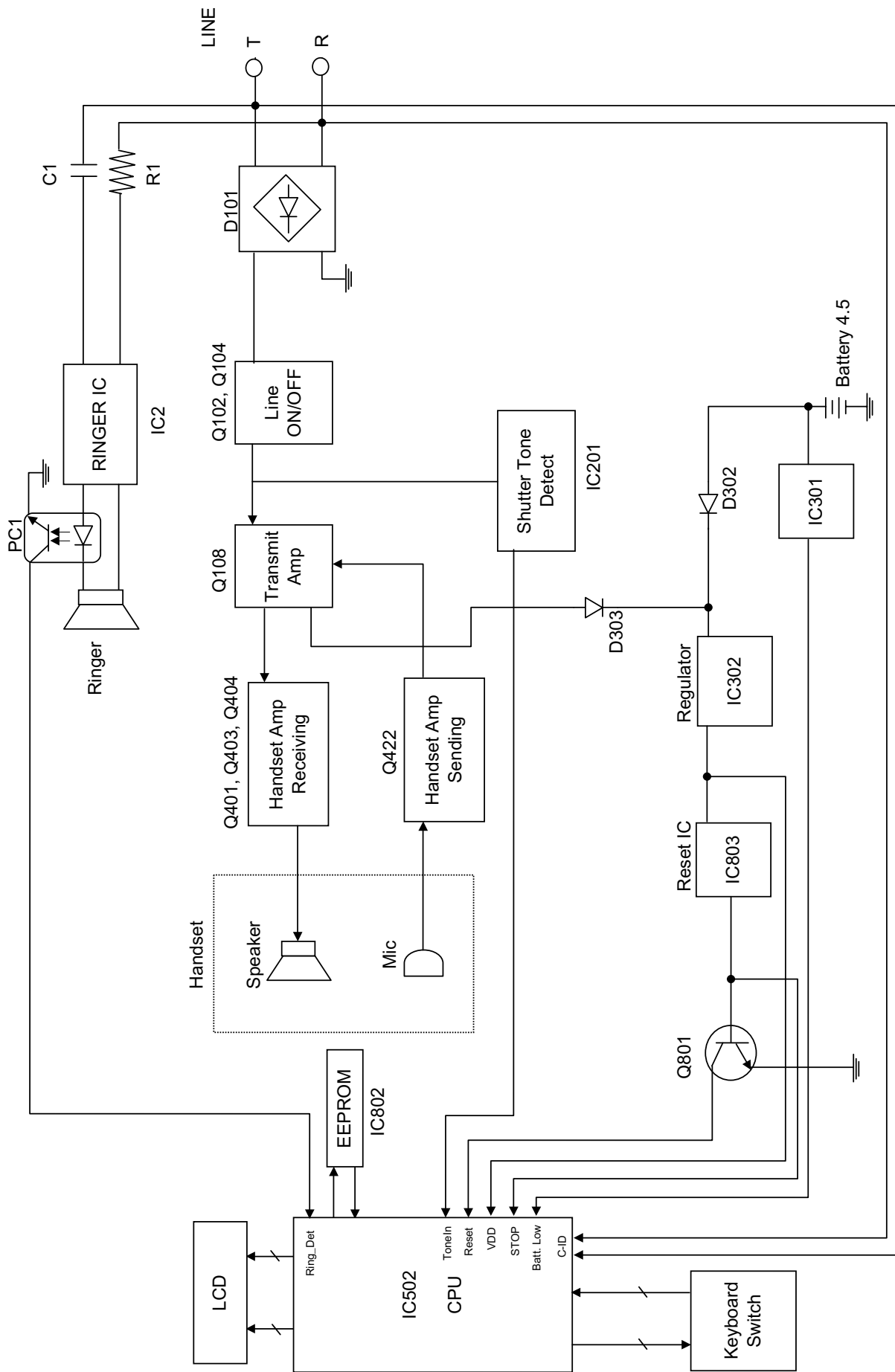
13 BLOCK DIAGRAM

14 CIRCUIT OPERATION

14.1. Bell Detector Circuit

When the bell signal is input between T/R, the signal are outputted at the speaker via the following path:

TEL line → R1/C1 → Pin 8 of IC2 → Pin 5 of IC2 → PC1 → SW1 → Ringer

14.2. Line Interface

In talk status, SW101 become ON and Q104 base changes to high level, causing Q104, Q102 to turn on and resulting in a line loop. The loop current flows from D101(+) → Q102 → Q108 → R114 → D103 in that order, A pulse signal that repeated switches between high and low logic is output from pin 39 of the CPU. This switches the line loop on and off, generating the dial pulse signal.

14.3. MODULE BLOCK DIAGRAM

14.3.1. Telephone Line Interface

14.3.1.1. Circuit operation

● **On hook**

Q102 is open, Q102 is connected as to cut DC loop current and cut the voice signal.

● **Off hook**

Q102 turns on thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the DC loop current.

T → D101 → Q102 → Q108 → R114 → D103 → D101 → R

● **The receiving signal flows:**

TEL line → Q102 → C401 → R401 → Q401 → Q403 → Q404 → H/S SP

● **The transmission signal flows**

MIC → Q422 → R428 → C427 → Q108 → TEL Line

14.3.2. Initializing Circuit

14.3.2.1. Function

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

14.3.2.2. Circuit operation

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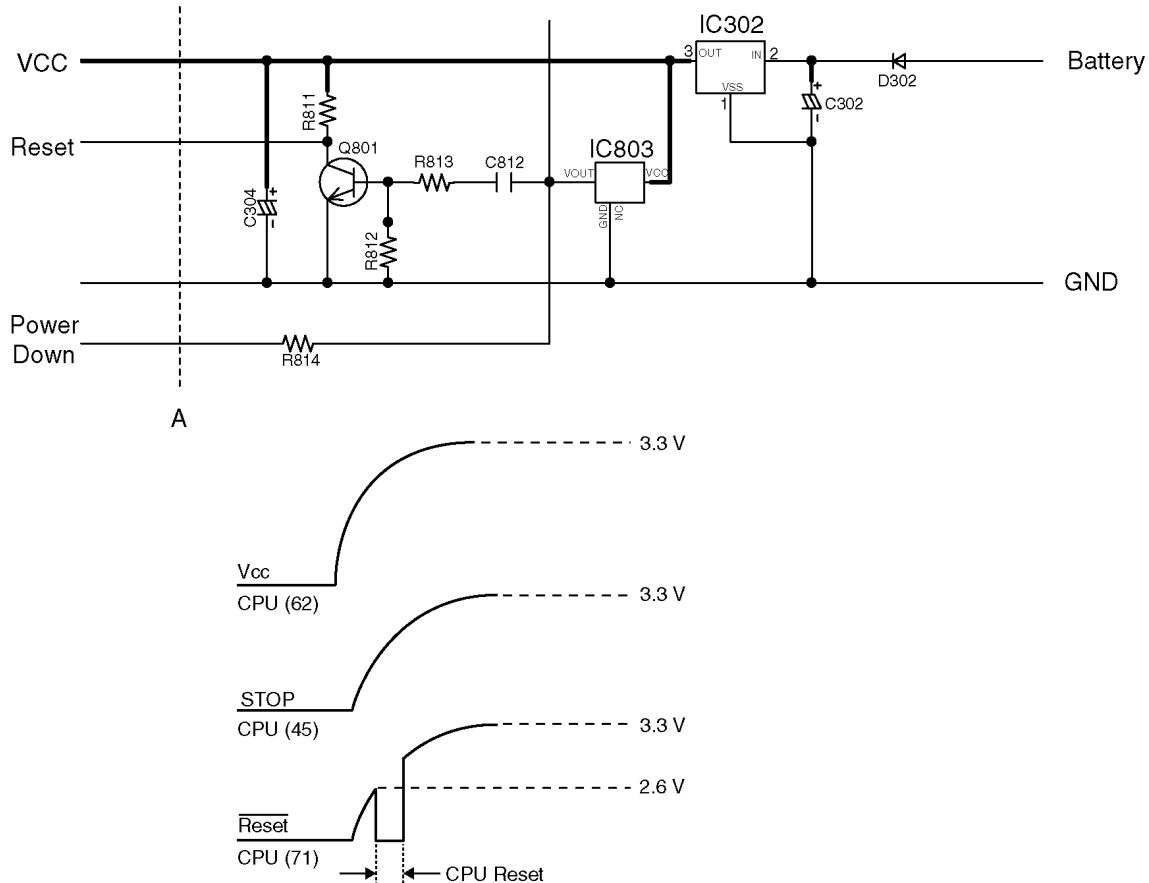
14.4. Caller ID Detect Circuit

14.4.1. Function (FSK signal)

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

The Caller-ID data from exchange is supplied to the telephone using the method of FSK and displayed on LCD of the unit.

● **FSK (Frequency Shift Keying) format**
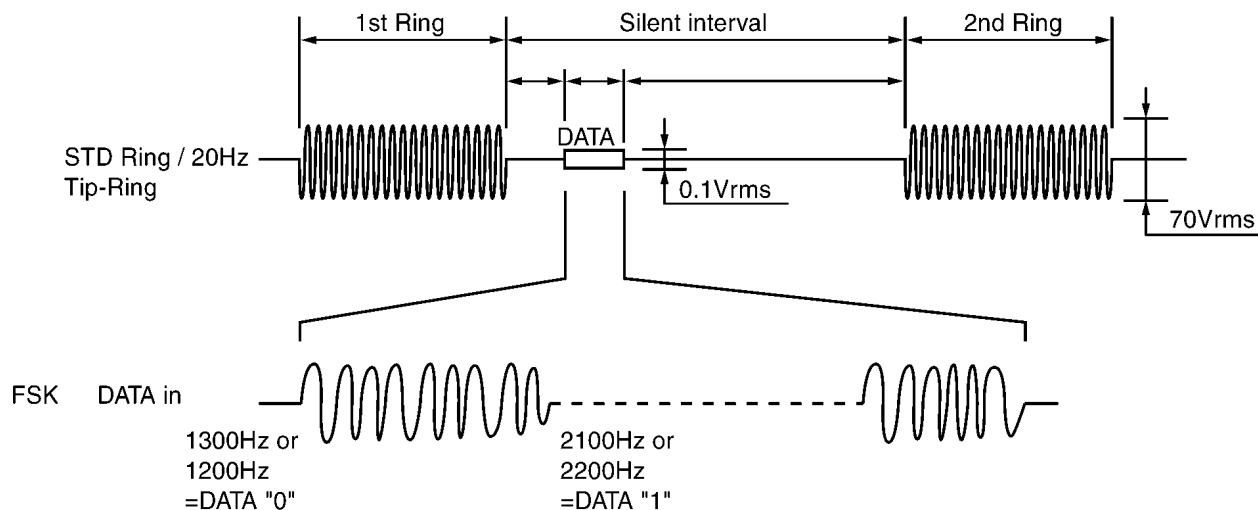
14.4.2. Circuit operation

Caller ID

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

TEL Line → C501, C502 → R551, R552 → Pin92,93 of IC502

15 BLOCK DIAGRAM

15.1. IC502

15.2. CPU DATA (IC502)

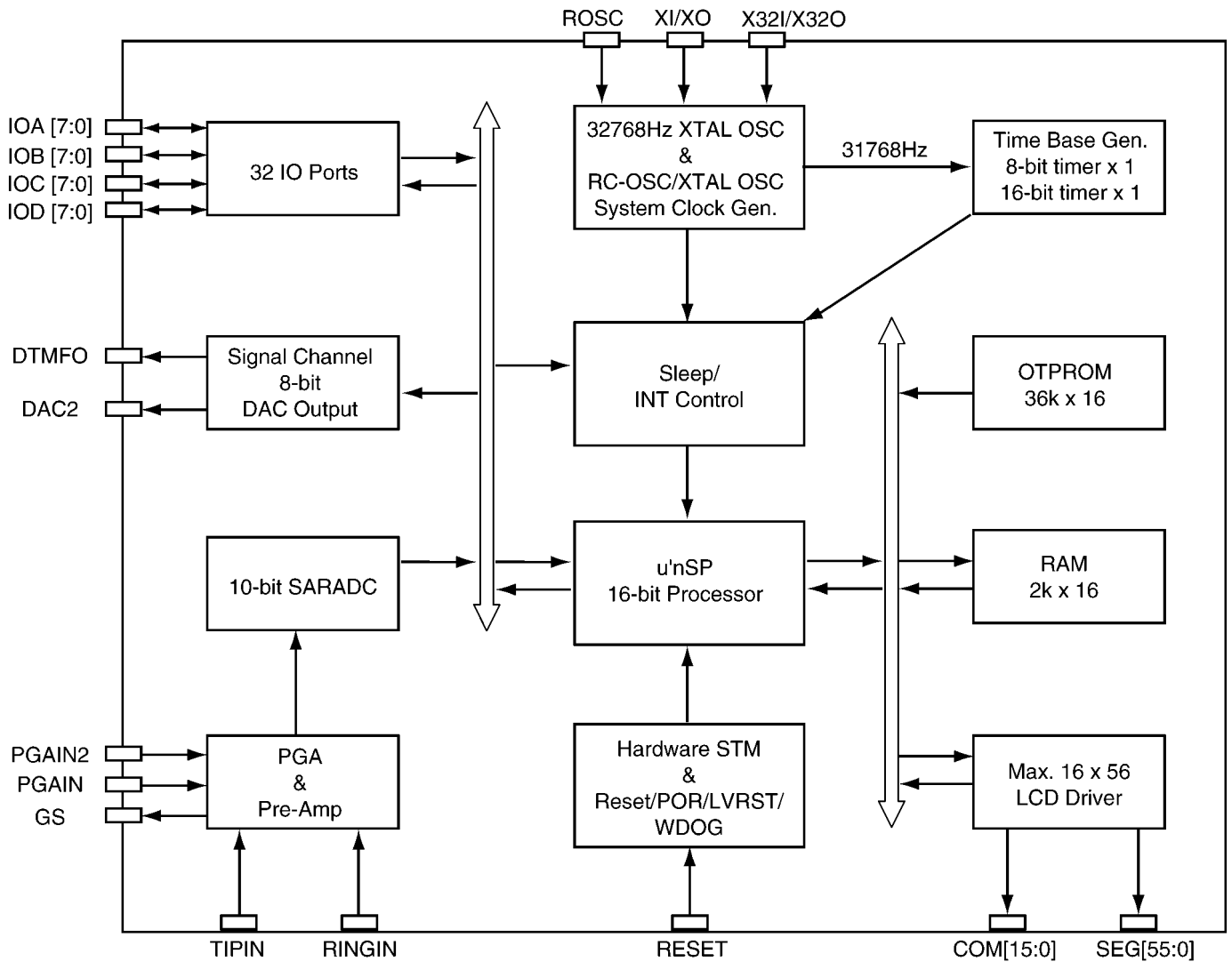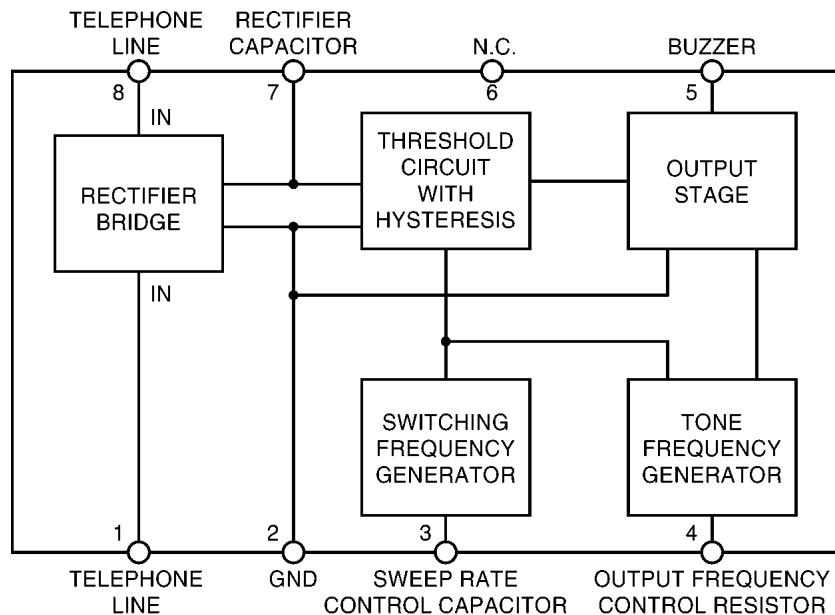| Pin	Description	I/O	High	Hi-z	Low	Pin	Description	I/O	High	Hi-z	Low
1	NC	-	-	-	-	65	NC	-	-	-	-
2	NC	-	-	-	-	66	NC	-	-	-	-
3	NC	-	-	-	-	67	NC	-	-	-	-
4	SEG4/KeyStrobe4	O	Active	-	Active	68	IN_USE Det	I	IN_USE	-	NO_USE
5	SEG5/KeyStrobe5	O	Active	-	Active	69	120KLOAD/L_SEIZE	O	Active	-	Not
6	SEG6	O	Active	-	Active	70	RELAY	O	ON	-	OFF
7	SEG7	O	Active	-	Active	71	BATT_OUT	I	Battery ON	-	No Battery
8	SEG8	O	Active	-	Active	72	Wakeup	I	Wake Up	-	Not Wakeup
9	SEG9	O	Active	-	Active	73	PULSE	O	-	Break	Make
10	SEG10	O	Active	-	Active	74	OPTION_Strobe	O	-	Normal	Active
11	SEG11	O	Active	-	Active	75	EEPROM_CS	O	ON	-	Off
12	SEG12	O	Active	-	Active	76	EEPROM_DATA	I/O	Active (Non)	-	Active
13	SEG13	O	Active	-	Active	77	EEPROM_CLOCK	O	Active	-	Active
14	SEG14	O	Active	-	Active	78	Volume3	O	UP	-	DOWN
15	SEG15	O	Active	-	Active	79	Volume2	O	UP	-	DOWN
16	SEG16	O	Active	-	Active	80	Volume1	O	UP	-	DOWN
17	SEG17	O	Active	-	Active	81	STOP	I	Normal	-	STOP
18	SEG18	O	Active	-	Active	82	HOOK SW	I	ON HOOK	-	OFF HOOK
19	SEG19	O	Active	-	Active	83	KEY_IN4	I	Normal	-	Key_IN
20	SEG20	O	Active	-	Active	84	KEY_IN3	I	Normal	-	Key_IN
21	SEG21	O	Active	-	Active	85	KEY_IN2	I	Normal	-	Key_IN
22	SEG22	O	Active	-	Active	86	KEY_IN1	I	Normal	-	Key_IN
23	SEG23	O	Active	-	Active	87	TONE_IN	I	NO TONE	-	TONE IN
24	SEG24	O	Active	-	Active	88	EX_HOOK	I	-	-	-
25	SEG25	O	Active		Active	89	BEEP	O	Active	-	Active
26	SEG26	O	Active	-	Active	90	A_GND	I	-	-	Fix
27	SEG27	O	Active	-	Active	91	DTMF	O	Active	-	Active
28	SEG28	O	Active	-	Active	92	TIP	I	High	-	Low
29	SEG29	O	Active	-	Active	93	RING	I	High	-	Low
30	NC	-	-	-	-	94	NC	-	-	-	-
31	NC	-	-	-	-	95	NC	-	-	-	-
32	NC	-	-	-	-	96	NC	-	-	-	-
33	NC	-	-	-	-	97	NC	-	-	-	-
34	NC	-	-	-	-	98	NC	-	-	-	-
35	NC	-	-	-	-	99	NC	-	-	-	-
36	SEG30	O	High	-	Active	100	GS	O	-	-	-
37	SEG31	O	High	-	Active	101	PGAIN	I	-	-	-
38	SEG32	O	High	-	Active	102	PGAIN2	I	-	-	-
39	SEG33	O	High	-	Active	103	VR2	O	-	-	-
40	SEG34	O	High	-	Active	104	A_GND	I	-	-	Fix
41	SEG35	O	Active	-	Active	105	D.VDD	I	Normal	-	-
42	SEG36	O	Active	-	Active	106	COM0	O	Active	-	Active
43	SEG37	O	Active	-	Active	107	COM1	O	Active	-	Active
44	SEG38	O	Active	-	Active	108	COM2	O	Active	-	Active
45	SEG39	O	Active	-	Active	109	COM3	O	Active	-	Active
46	D.VDD	I	Normal	-	-	110	COM4	O	Active	-	Active
47	D.VDD	I	Normal	-	-	111	COM5	O	Active	-	Active
48	EXTCLK_XI	I	-	-	-	112	COM6	O	Active	-	Active
49	ROSC_XO	I	-	-	-	113	COM7	O	Active	-	Active
50	RESET	I	Normal	-	Reset	114	COM8	O	Active	-	Active
51	32K	I	Normal	-	Normal	115	COM9	O	Active	-	Active
52	32K	O	Normal	-	Normal	116	COM10	O	Active	-	Active
53	GND	GND	-	-	-	117	COM11	O	Active	-	Active
54	RX_MUTE	O	MUTE	-	UNMUTE	118	COM12	O	Active	-	Active
55	TX_MUTE	O	MUTE	-	UNMUTE	119	COM13	O	Active	-	Active
56	UART (RX from PC)	I	Normal	-	Normal	120	COM14	O	Active	-	Active
57	Dummy Ring UART (TX to PC)	O	Normal	-	Normal	121	COM15	O	Active	-	Active
58	ACK_MUTE	O	MUTE	-	UNMUTE	122	SEG0/KeyStrobe0	O	Active	-	Active
59	BATT_LOW	I	NOT LOW	-	LOW	123	SEG1/KeyStrobe1	O	Active	-	Active
60	BACK_UP	O	Normal	-	STOP	124	SEG2/KeyStrobe2	O	Active	-	Active
61	Ring_DET	I	No Ring	-	Ring	125	SEG3/KeyStrobe3	O	Active	-	Active
62	NC	-	-	-	-	126	NC	-	-	-	-
63	NC	-	-	-	-	127	NC	-	-	-	-
64	NC	-	-	-	-	128	NC	-	-	-	-

15.3. RINGER IC (IC2)

15.4. EEPROM (IC802)
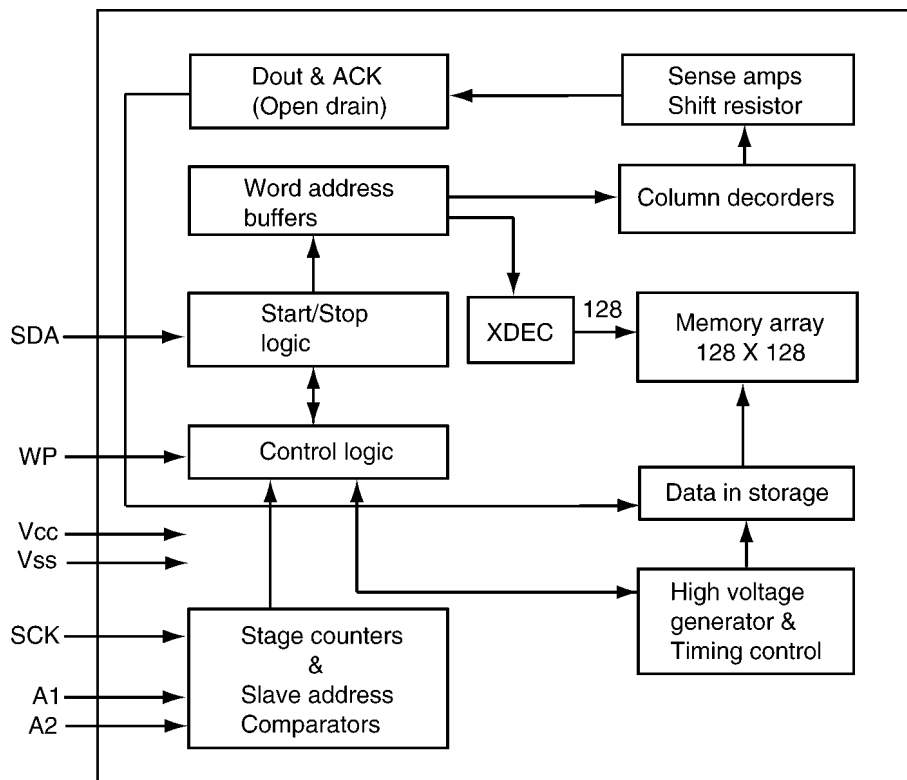
(1) SCK

SCK terminal is input terminal of Serial Clock to control transmit and receipt between Master and Slave.

(2) SDA

SDA terminal is input terminal, to forward the address and the mutual data between Master Device and Slave Device the mutual. This terminal needs the pull-up resistance external because output circuit of SDA uses Open Drain.

(3) A0, A1, A2

A0, A1, and A2 terminal is not used.

(4) WP

WP terminal controls writing action. It is possible to do only reading action when high level input and it is possible to do reading and writing action when low level input.

16 HOW TO REPLACE FLAT PACKAGE IC

16.1. 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.
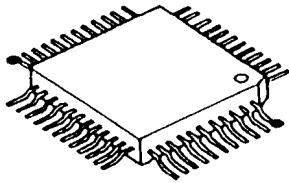
- Flux

  Recommended Flux: Specific Gravity → 0.82.

  Type → RMA (lower residue, non-cleaning type)

  Note: See **ABOUT LEAD FREE SOLDER (PbF: Pb free)** (P.3).
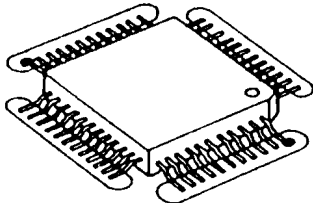
16.2. Procedure

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

   ● – – – – – –Temporary soldering point.

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

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

   – – – – – Flux

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

   Soldering iron

   Specified solder
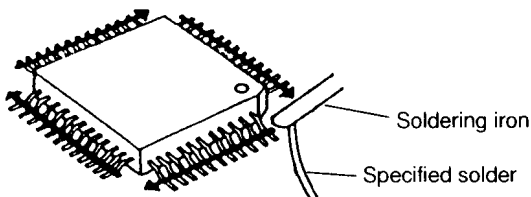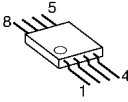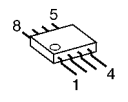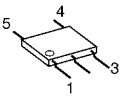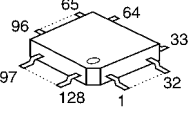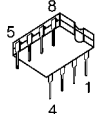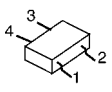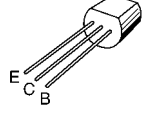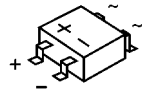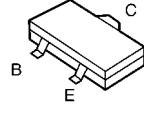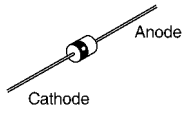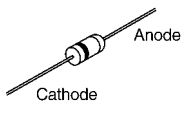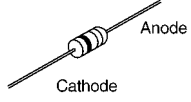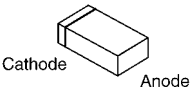
16.3. Modification Procedure of Bridge

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

bridge
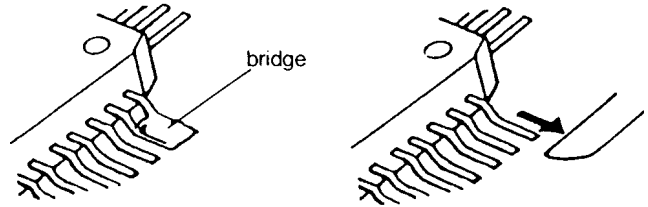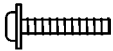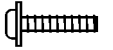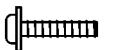
17 TERMINAL GUIDE OF THE ICs, TRANSISTORS AND DIODES

PQVINJU7014R	PQWITSC11MXH	C0CBABE00023 PQVIPS3238NT	C2CBHG000155
C1CA00000254	PQVIPS3327UT	PQVT2N6517CA B1AAJC000010 2SA1625	PQVDS1ZB60F1
2SD1819A, UN5213, PQVTFB1A4M UN5113, PQVTDTC144TU, 2SB1218A	MA723, MA165 MA700A	MA4180	
MA4051	MA111		

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18 CABINET AND ELECTRICAL PARTS
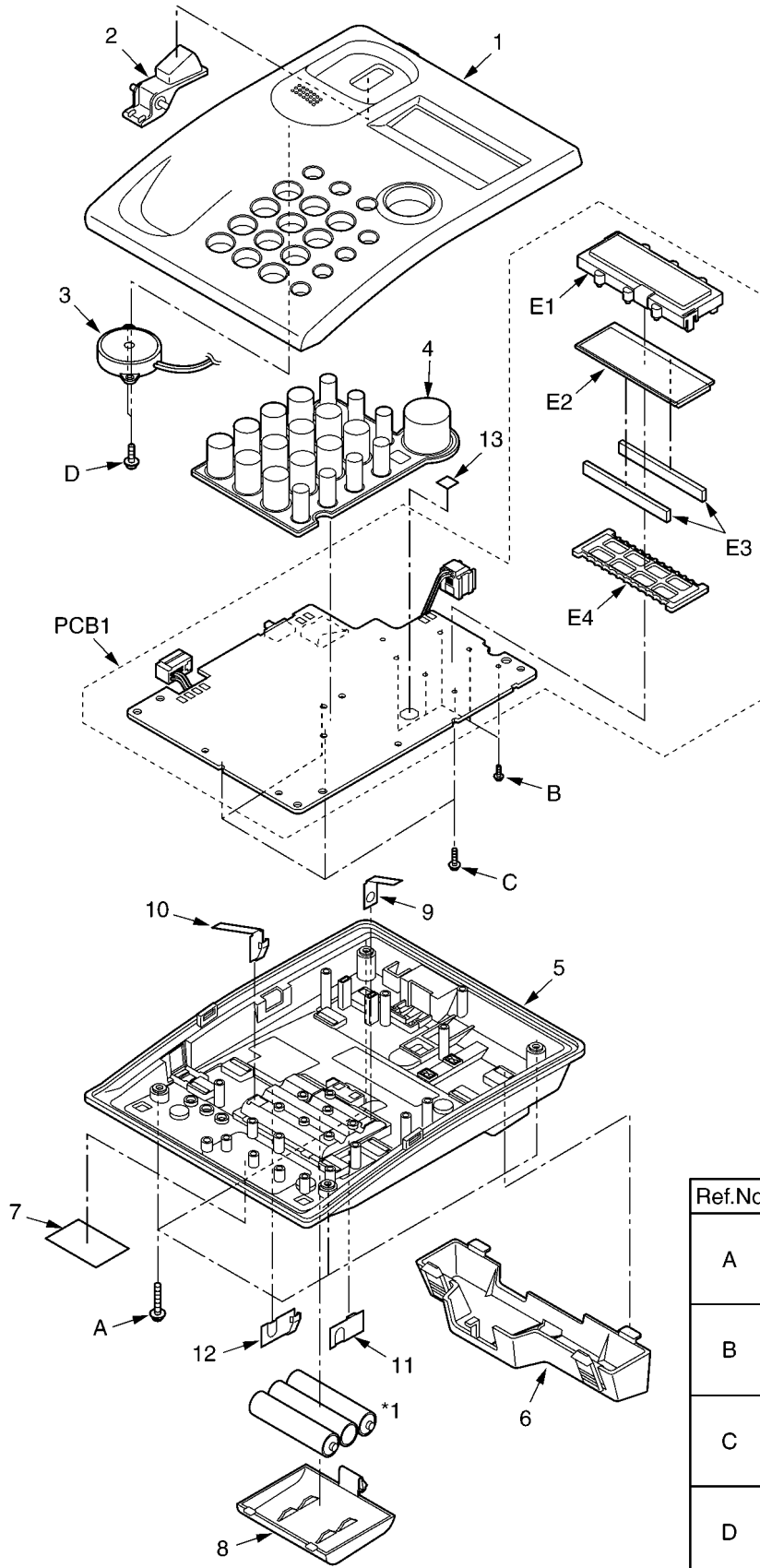
Ref.No.	Part No.	Figure
A	XTW26+12P	$\phi 2.6 \times 12$mm
B	XTN2+6G	$\phi 2 \times 6$mm
C	XTW26+10P	$\phi 2.6 \times 10$mm
D	XTW26+10P	$\phi 2.6 \times 10$mm

Note:

*1: Batteries are not included.

19 ACCESSORIES AND PACKING MATERIALS
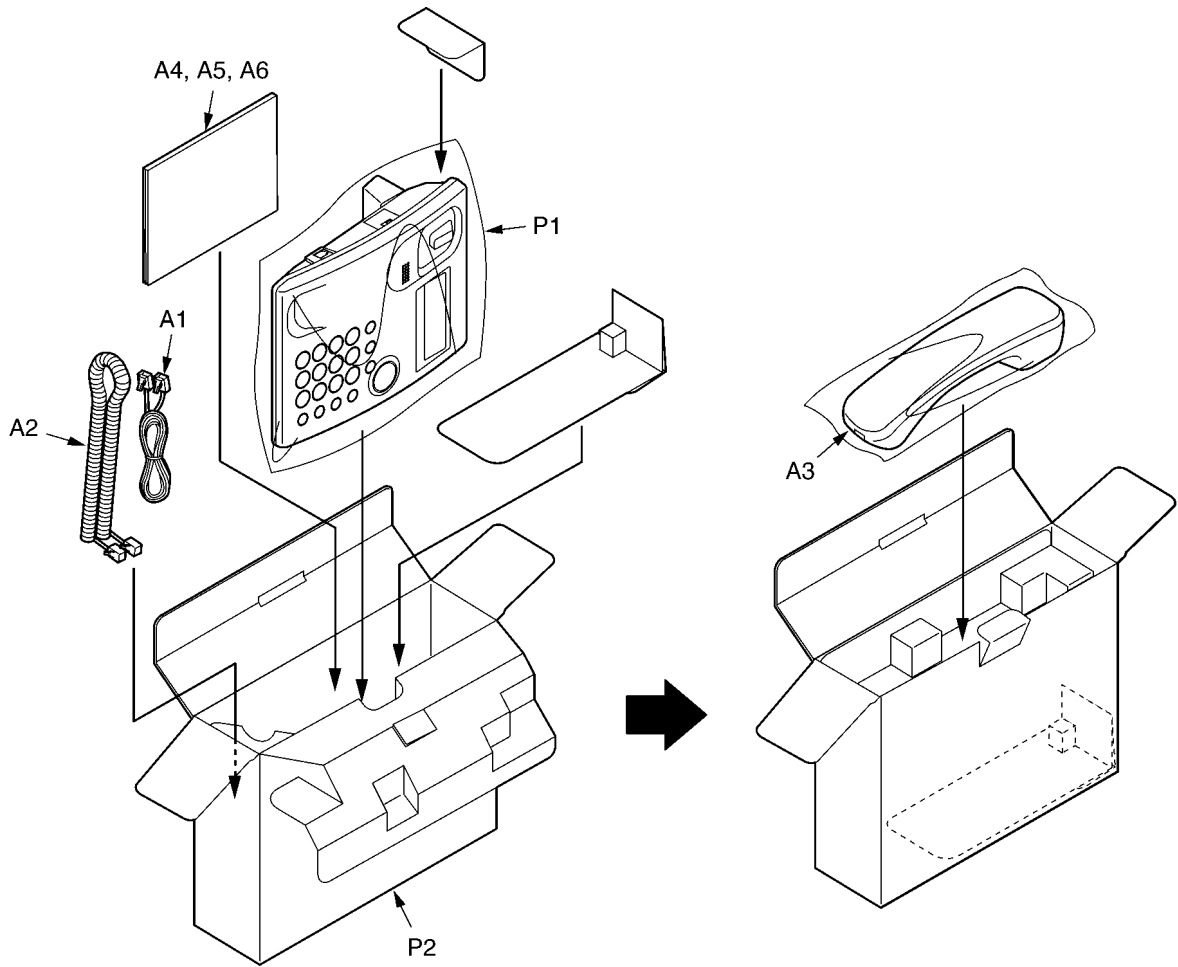
20 REPLACEMENT PARTS LIST

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 parts 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

20.1. Base Unit

20.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQKM10646Z2	CABINET BODY (for KX-TSC11MXB)	PS-HB
1	PQKM10646Z1	CABINET BODY (for KX-TSC11MXW)	PS-HB
2	PQBH10042Z2	BUTTON, HOOK (for KX-TSC11MXB)	ABS-HB
2	PQBH10042Z1	BUTTON, HOOK (for KX-TSC11MXW)	ABS-HB
3	L0DDFD000002	BUZZER	

Ref. No.	Part No.	Part Name & Description	Remarks
4	PQSX10273Y	KEYBOARD SWITCH (for KX-TSC11MXB)	
4	PQSX10273Z	KEYBOARD SWITCH (for KX-TSC11MXW)	
5	PQYF10593X2	CABINET COVER (for KX-TSC11MXB)	PS-HB
5	PQYF10593X1	CABINET COVER (for KX-TSC11MXW)	PS-HB
6	PQYL10014Z2	STAND, WALL MOUNT (for KX-TSC11MXB)	PS-HB
6	PQYL10014Z1	STAND, WALL MOUNT (for KX-TSC11MXW)	PS-HB
7	PQGT17302Z	NAME PLATE (for KX-TSC11MXB)	
7	PQGT17376Z	NAME PLATE (for KX-TSC11MXW)	
8	PQKK10105X2	LID, BATTERY (for KX-TSC11MXB)	ABS-HB
8	PQKK10105X1	LID, BATTERY (for KX-TSC11MXW)	ABS-HB
9	PQJC10064Z	BATTERY TERMINAL (+)	
10	PQJC10045Z	BATTERY TERMINAL (-)	
11	PQJC313Y	BATTERY TERMINAL (+) (-)	
12	PQJC314Y	BATTERY TERMINAL (-) (+)	
13	PQHX11312Z	SPACER, SHEET	

20.1.2. Main P.C. Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWPTSC11MXH	MAIN P.C.BOARD ASS´Y (RTL)	
		(ICs)	
IC2	C1CA00000254	IC	
IC301	PQVIPS3238NT	IC	S
IC302	C0CBABE00023	IC	
IC501	PQVINJU7014R	IC	
IC502	C2CBHG000155	IC	
IC802	PQWITSC11MXH	IC	
IC803	PQVIPS3327UT	IC	
		(TRANSISTORS)	
Q102	2SA1625	TRANSISTOR(SI)	S
Q104	PQVT2N6517CA	TRANSISTOR(SI)	S
Q105	2SD1819A	TRANSISTOR(SI)	
Q108	B1AAJC000010	TRANSISTOR(SI)	
Q110	2SD1819A	TRANSISTOR(SI)	
Q111	2SD1819A	TRANSISTOR(SI)	
Q401	2SD1819A	TRANSISTOR(SI)	
Q402	2SD1819A	TRANSISTOR(SI)	
Q403	2SD1819A	TRANSISTOR(SI)	
Q404	2SD1819A	TRANSISTOR(SI)	
Q406	UN5213	TRANSISTOR(SI)	S
Q407	UN5213	TRANSISTOR(SI)	S
Q408	UN5213	TRANSISTOR(SI)	S
Q421	PQVTFB1A4M	TRANSISTOR(SI)	S
Q422	2SD1819A	TRANSISTOR(SI)	
Q501	2SB1218A	TRANSISTOR(SI)	
Q502	2SD1819A	TRANSISTOR(SI)	
Q801	2SD1819A	TRANSISTOR(SI)	
Q802	PQVTDTC144TU	TRANSISTOR(SI)	S
Q911	UN5213	TRANSISTOR(SI)	S
Q912	UN5113	TRANSISTOR(SI)	S
		(DIODES)	
D101	PQVDS1ZB60F1	DIODE(SI)	S
D102	MA4180	DIODE(SI)	S
D103	MA4051	DIODE(SI)	S
D104	MA4180	DIODE(SI)	S
D301	MA165	DIODE(SI)	S
D302	MA723	DIODE(SI)	S
D303	MA700A	DIODE(SI)	S
D501	MA111	DIODE(SI)	S
D502	MA111	DIODE(SI)	S
D503	MA111	DIODE(SI)	S
D504	MA111	DIODE(SI)	S
D551	MA111	DIODE(SI)	S

Ref. No.	Part No.	Part Name & Description	Remarks
D552	MA111	DIODE(SI)	S
D553	MA111	DIODE(SI)	S
D554	MA111	DIODE(SI)	S
D556	MA111	DIODE(SI)	S
D600	MA111	DIODE(SI)	S
D601	MA111	DIODE(SI)	S
D602	MA111	DIODE(SI)	S
D603	MA111	DIODE(SI)	S
D604	MA111	DIODE(SI)	S
D605	MA111	DIODE(SI)	S
D915	MA111	DIODE(SI)	S
		(COILS)	
L101	ELEV101KA	COIL	
L102	ELEV101KA	COIL	
		(JACKS)	
JJ101	PQJJ1T029Z	JACK, MODULAR	
JJ401	PQJJ1T030Z	JACK, HANDSET	
		(SWITCHES)	
SW1	PQSS3A17W	SWITCH, SLIDE	
SW101	PQSH2B105Z	SWITCH, HOOK	S
		(RESISTORS)	
R1	ERDS1TJ682	6.8K	S
R2	ERJ3GEYJ223	22K	
R6	ERJ3GEYJ102	1K	
R7	ERJ3GEYJ103	10K	
R9	ERJ3GEYJ103	10K	
R103	PQ4R10XJ474	470K	S
R104	PQ4R10XJ683	68K	S
R105	ERJ3GEYJ104	100K	
R106	ERDS2TJ472	4.7K	S
R107	ERJ3GEYJ104	100K	
R108	ERJ3GEYJ474	470K	
R112	ERJ3GEYJ152	1.5K	
R113	ERJ3GEYJ560	56	
R114	ERDS1TJ150	15	S
R115	ERJ3GEYJ102	1K	
R116	ERJ3GEYJ153	15K	
R119	ERJ3GEY0R00	0	
R120	ERJ3GEYJ334	330K	
R121	PQ4R10XJ475	4.7M	S
R122	PQ4R10XJ335	3.3M	S
R123	PQ4R10XJ105	1M	S
R126	ERDS2TJ104	100K	S
R127	PQ4R10XJ104	100K	S
R301	ERJ3GEYJ105	1M	
R302	ERJ3GEYJ475	4.7M	
R303	ERJ3GEYJ105	1M	
R304	ERJ3GEYJ475	4.7M	
R401	ERJ3GEYJ103	10K	
R402	ERJ3GEYJ475	4.7M	
R403	ERJ3GEYJ392	3.9K	
R404	ERJ3GEYJ560	56	
R405	ERJ3GEYJ333	33K	
R406	ERJ3GEYJ224	220K	
R407	ERJ3GEYJ273	27K	
R408	ERJ3GEYJ103	10K	
R409	ERJ3GEYJ472	4.7K	
R410	ERJ3GEYJ335	3.3M	
R411	ERJ3GEYJ272	2.7K	
R412	ERJ3GEYJ221	220	
R413	ERJ3GEYJ183	18K	
R414	ERJ3GEYJ334	330K	
R415	ERJ3GEYJ683	68K	
R416	ERJ3GEYJ561	560	
R417	ERJ3GEYJ151	150	
R420	ERJ3GEY0R00	0	
R421	ERJ3GEYJ272	2.7K	
R422	ERJ3GEYJ223	22K	
R423	ERJ3GEYJ103	10K	
R424	ERJ3GEYJ104	100K	
R425	ERJ3GEYJ185	1.8M	
R426	ERJ3GEYJ182	1.8K	
R427	ERJ3GEYJ121	120	

Ref. No.	Part No.	Part Name & Description	Remarks
R428	ERJ3GEYJ103	10K	
R431	ERJ3GEYJ335	3.3M	
R432	ERJ3GEYJ474	470K	
R481	ERJ3GEYJ223	22K	
R482	ERJ3GEYJ103	10K	
R483	ERJ3GEY0R00	0	
R484	ERJ3GEYJ104	100K	
R486	ERJ3GEYJ103	10K	
R487	ERJ3GEY0R00	0	
R501	PQ4R10XJ184	180K	S
R502	PQ4R10XJ184	180K	S
R503	ERJ3GEYJ154	150K	
R504	ERJ3GEYJ154	150K	
R505	ERJ3GEYJ334	330K	
R506	ERJ3GEYJ222	2.2K	
R507	ERJ3GEYJ334	330K	
R508	ERJ3GEYJ335	3.3M	
R509	ERJ3GEYJ273	27K	
R510	ERJ3GEYJ394	390K	
R511	ERJ3GEYJ105	1M	
R512	ERJ3GEYJ104	100K	
R513	ERJ3GEYJ105	1M	
R514	ERJ3GEYJ473	47K	
R515	ERJ3GEYJ104	100K	
R516	ERJ3GEYJ224	220K	
R520	ERJ3GEYJ105	1M	
R551	PQ4R10XJ563	56K	S
R552	PQ4R10XJ563	56K	S
R553	ERJ3GEYJ103	10K	
R561	PQ4R10XJ335	3.3M	S
R563	PQ4R10XJ335	3.3M	S
R564	ERJ3GEYJ473	47K	
R565	ERJ3GEYJ473	47K	
R807	ERJ3GEYJ104	100K	
R808	ERJ3GEYJ104	100K	
R811	ERJ3GEYJ104	100K	
R812	ERJ3GEYJ104	100K	
R813	ERJ3GEYJ223	22K	
R814	ERJ3GEYJ104	100K	
R915	ERJ3GEYJ104	100K	
R916	ERJ3GEYJ563	56K	
R921	ERJ3GEYJ104	100K	
R923	ERJ3GEYJ104	100K	
R924	ERJ3GEYJ100	10	
JP001	ERJ3GEY0R00	0	
JP003	ERJ3GEY0R00	0	
JP004	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	F0C2E105A037	1	
C2	ECEA1HKS100	10	S
C3	ECUV1C563KBV	0.056	
C9	ECUV1H103KBV	0.01	
C101	ECKD2H681KB	680P	S
C102	ECKD2H681KB	680P	S
C103	ECUV1H103KBV	0.01	
C104	ECUV1H103KBV	0.01	
C105	ECUV1H153KBV	0.015	
C106	ECEA1CKA470	47	
C107	ECEA0JKA221	220	
C108	ECUV1H102KBV	0.001	
C111	ECEA1CKS100	10	
C115	ECUV1H103KBV	0.01	
C301	ECUV1C104KBV	0.1	
C302	ECA0JM222	0.0022	S
C303	ECUV1C104KBV	0.1	
C304	ECA0JM102	0.001	S
C401	ECUV1C104KBV	0.1	
C402	ECJ1VB1H221K	220P	
C403	ECUV1H102KBV	0.001	
C404	ECUV1C104KBV	0.1	
C405	ECUV1C104KBV	0.1	
C407	ECUV1C473KBV	0.047	
C409	ECEA1CKS100	10	

Ref. No.	Part No.	Part Name & Description	Remarks
C410	ECEA1HKS4R7	4.7	
C421	ECUV1C223KBV	0.022	
C422	ECUV1H103KBV	0.01	
C423	ECUV1H222KBV	0.0022	
C424	ECUV1C104KBV	0.1	
C425	ECUV1H102KBV	0.001	
C426	ECUV1H151JCV	150P	S
C427	ECUV1C393KBV	0.039	
C431	ECUV1H103KBV	0.01	
C432	ECUV1H103KBV	0.01	
C481	ECUV1H102KBV	0.001	
C482	ECUV1H102KBV	0.001	
C483	ECUV1H272KBV	0.0027	
C501	ECKD2H103KB	0.01	S
C502	ECKD2H103KB	0.01	S
C503	ECUV1H103KBV	0.01	
C504	ECUV1H103KBV	0.01	
C505	ECUV1H680JCV	68P	
C506	ECUV1H222KBV	0.0022	
C507	ECUV1C104KBV	0.1	
C508	ECUV1C104KBV	0.1	
C509	ECUV1C104KBV	0.1	
C510	ECUV1H821KBV	820P	
C511	ECUV1H821KBV	820P	
C512	ECUV1H152KBV	0.0015	
C513	ECUV1H152KBV	0.0015	
C555	ECUV1H331JCV	330P	S
C557	ECUV1H103KBV	0.01	
C806	ECUV1H150JCV	15P	
C807	ECUV1H150JCV	15P	
C808	ECUV1H101JCV	100P	
C810	ECUV1C104KBV	0.1	
C811	ECUV1H102KBV	0.001	
C812	ECUV1C333KBV	0.033	
C814	ECEA1CKA100	10	
C815	ECUV1H102KBV	0.001	
C816	ECUV1C104KBV	0.1	
C817	ECUV1C104KBV	0.1	
C818	ECUV1C104KBV	0.1	
C819	ECEA1CKA100	10	
C820	ECEA1CK101	100	S
C822	ECUV1C104KBV	0.1	
		(OTHERS)	
E1	PQGP10263Y1	PANEL, LCD	S
E2	L5ACAHC00008	LIQUID CRYSTAL DISPLAY	
E3	PQJE10110Z	CONNECTOR, ZEBRA	
E4	PQHR10937Z	SPACER, LCD	
PC1	0N3181	PHOTO COUPLER	S
SA101	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
X801	PQVCL3276N6Z	CRYSTAL OSCILLATOR	S
POS101	PFRT002	THERMISTOR	S

20.2. Accessories and Packing Materials

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10075Z	CORD, TELEPHONE	
A2	PQJA212N	CORD, HANDSET (for KX-TSC11MXB)	
A2	PQJA212M	CORD, HANDSET (for KX-TSC11MXW)	
A3	PQJXE0401Z	HANDSET (for KX-TSC11MXB)	
A3	PQJXE0411Z	HANDSET (for KX-TSC11MXW)	
A4	PQQX14252Y	INSTRUCTION BOOK	
A5	PQQW13442Z	QUICK GUIDE (for Arabic/Farsi)	
A6	PQQW13492Z	QUICK GUIDE (for Chinese/Thai)	
P1	PQPH89Y	PROTECTION COVER	
P2	PQPK14369Y	GIFT BOX	

21 FOR SCHEMATIC DIAGRAM

1. SW101: Hook switch.

2. SW1: Ringer selector.

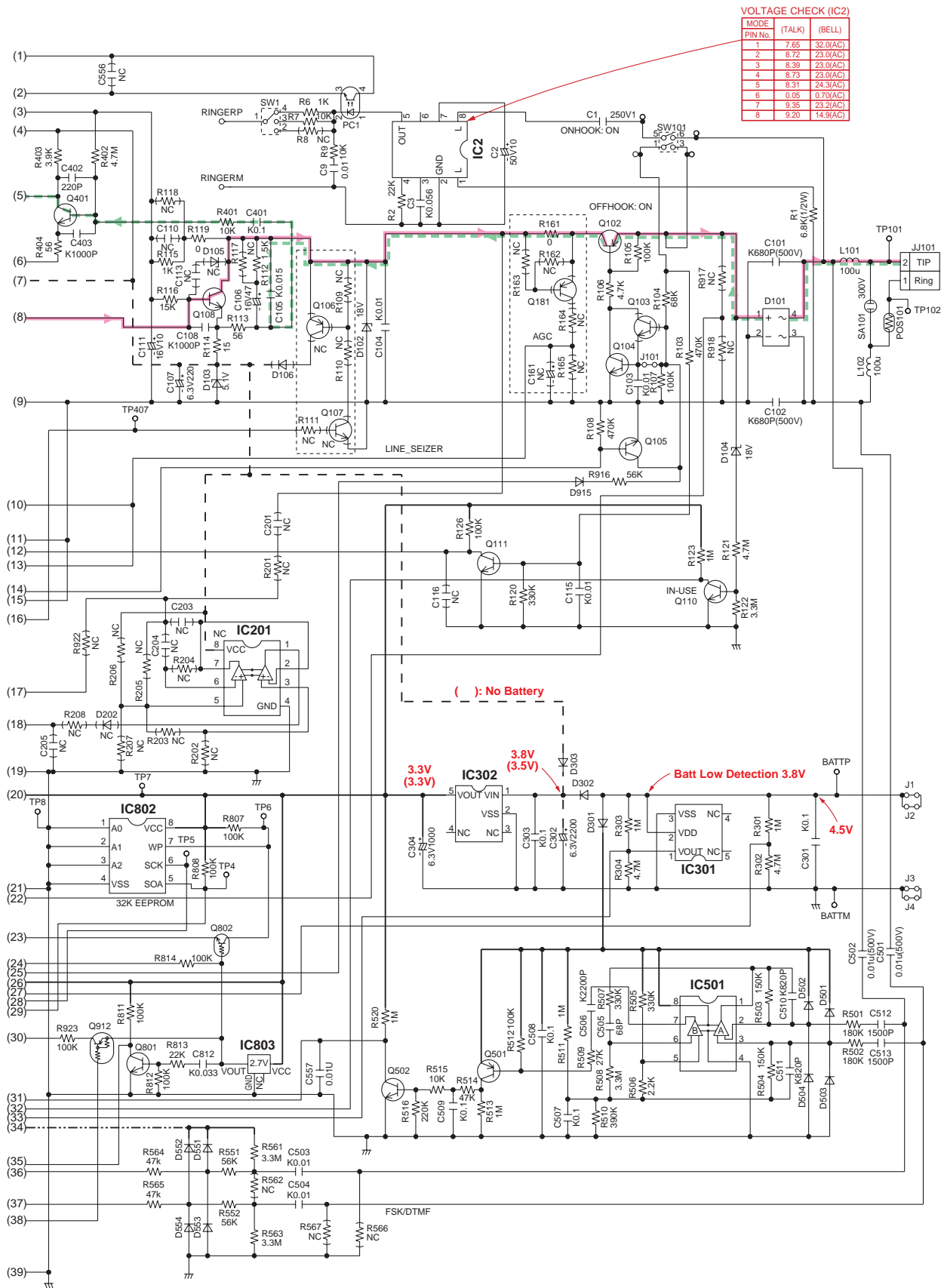3. DC voltage measurements are taken with electronic voltmeter from negative voltage line.

4. (Add 40 mA to telephone line from the loop simulator.)

5. Off-hook condition

6. No Mack: Handset Mode

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

8. **The shades area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.**

9. **When servicing, it is essential that only manufacture´s specified parts be used for the critical components in the shaded areas of the schematic.**

General	Zener	Photo Diode
Anode	Anode	Cathode
Cathode	Cathode	Anode

22 SCHEMATIC DIAGRAM

TRANSISTOR VOLTAGE CHECK (MAIN PCB)

MODE	(TALK)			(BELL)		
PARTS No.	Emitter	Collector	Base	Emitter	Collector	Base
Q102	8.79	8.59	8.08	0.11	0.37	0.10
Q104	0.00	0.10	0.63	0.00	0.35	0.31
Q108	5.79	8.59	6.46	0.05	0.35	0.35
Q401	0.03	3.25	0.62	0.00	0.00	0.00
Q402	0.00	0.00	0.00	0.00	0.00	0.00
Q403	0.15	3.36	0.75	0.00	0.00	0.00
Q404	2.65	5.22	3.27	0.00	0.05	0.36
Q421	0.00	0.00	0.00	0.00	0.00	0.00
Q422	0.13	3.25	0.75	0.00	0.05	0.36

RX
TX

IC502

NC: No Components

VOLTAGE CHECK (IC2)

MODE PIN No.	(TALK)	(BELL)
1	7.65	32.0(AC)
2	8.72	23.0(AC)
3	8.39	23.0(AC)
4	8.73	23.0(AC)
5	8.31	24.3(AC)
6	0.05	0.70(AC)
7	9.35	23.2(AC)
8	9.20	14.9(AC)

( ): No Battery

3.3V (3.3V)

3.8V (3.5V)

Batt Low Detection 3.8V

4.5V

LINE_SEIZER

ONHOOK: ON

OFFHOOK: ON

AGC
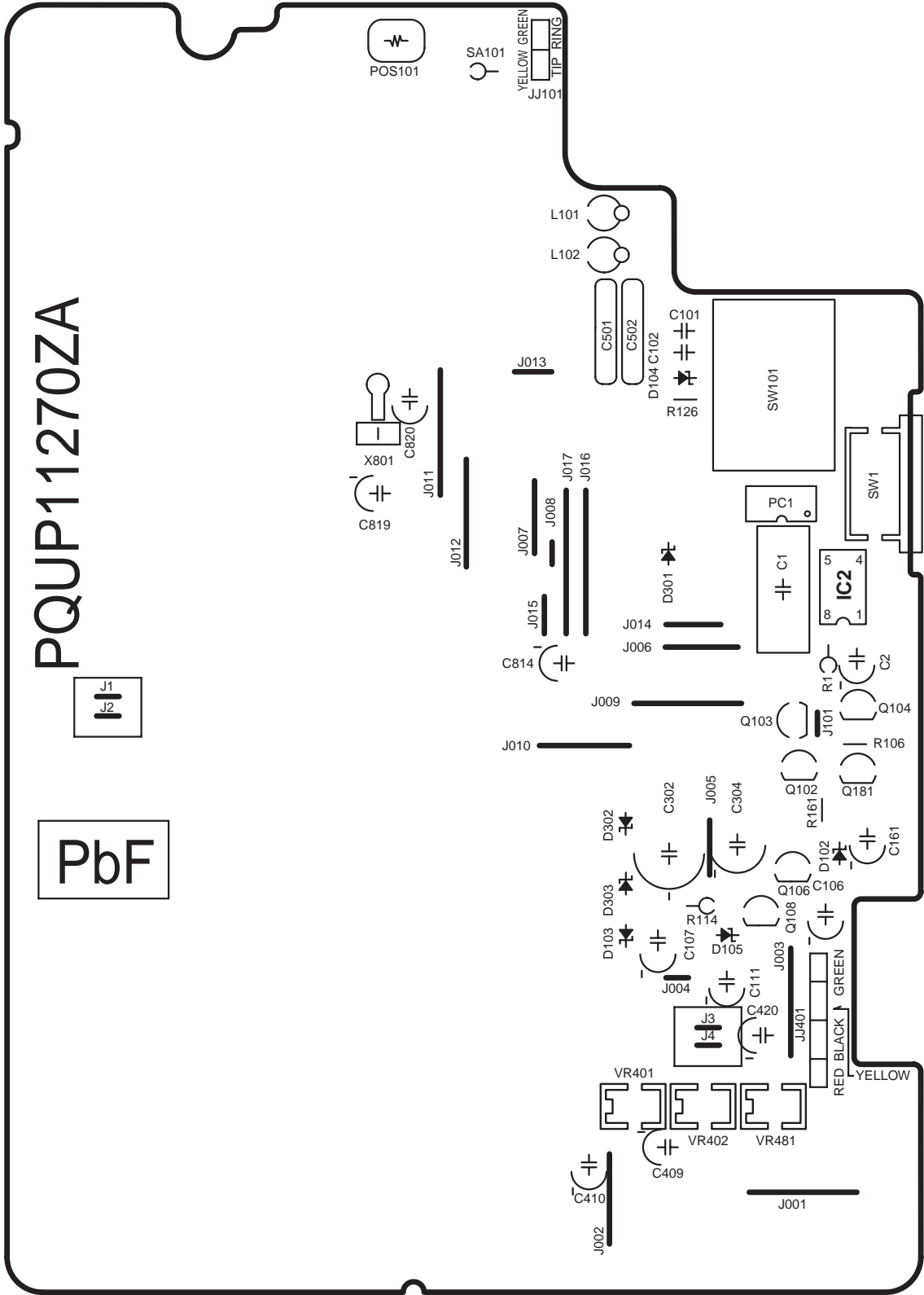
IN-USE

FSK/DTMF

NC: No Components

KX-TSC11MXB/MXW   SCHEMATIC DIAGRAM
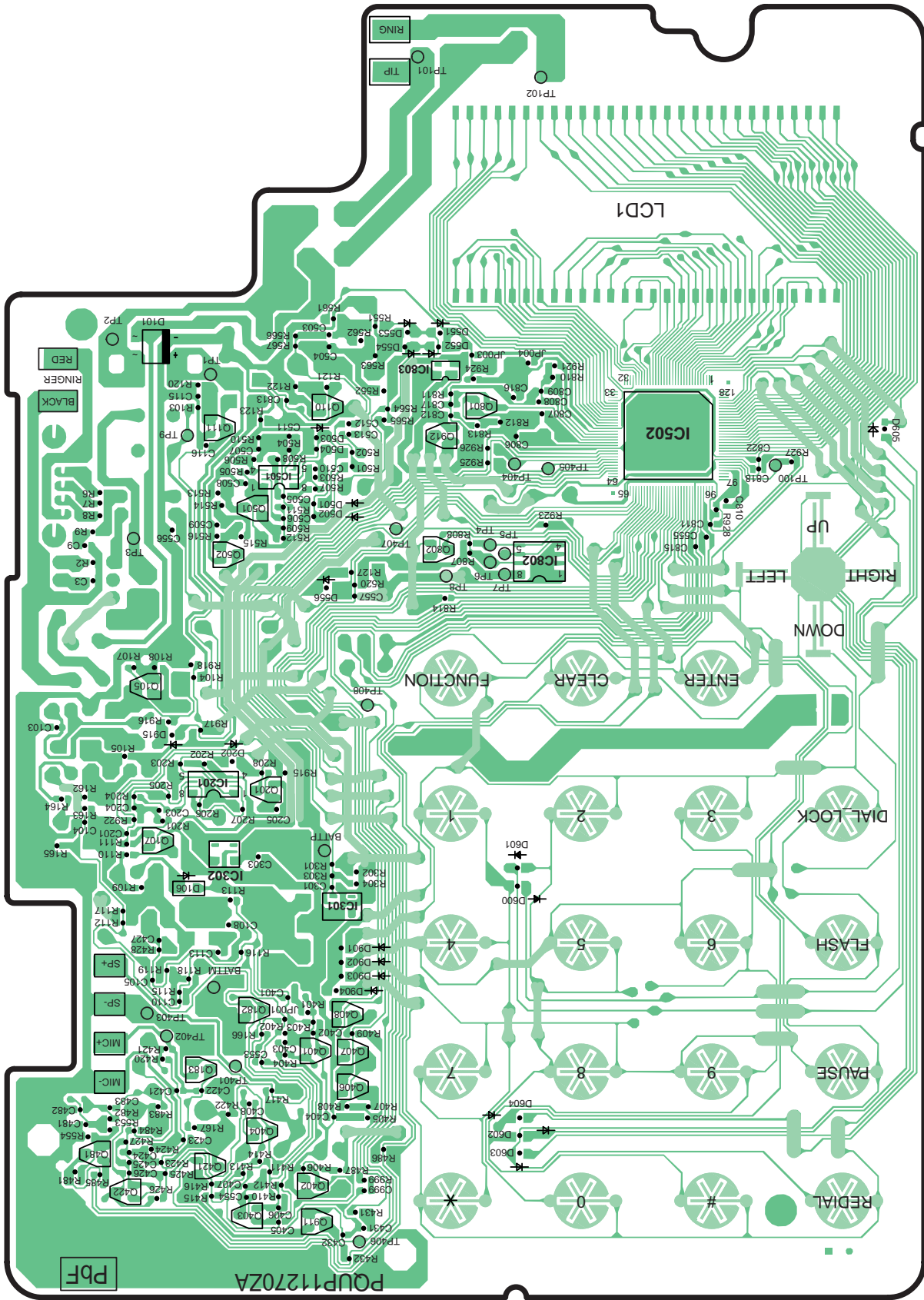
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22.1. Memo

23 CIRCUIT BOARD

23.1. Component View

PQUP11270ZA

PbF

KX-TSC11MXB/MXW CIRCUIT BOARD (Component View)

23.2. Flow Solder Side View

KX-TSC11MXB/MXW CIRCUIT BOARD (Flow Solder Side View)

G/N
KXTSC11MXB
KXTSC11MXW