

# 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 <sup>13</sup> / <sub>16</sub> " ) PM dynamic type 150Ω |
| Microphone:             | Electret condenser microphone                                           |
| Input Jack:             | Telephone Line                                                          |
| Operating Environment:  | 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.

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## **WARNING**

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

When you 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.

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# 1 ABOUT LEAD FREE SOLDER (PbF: Pb free)

## Note:

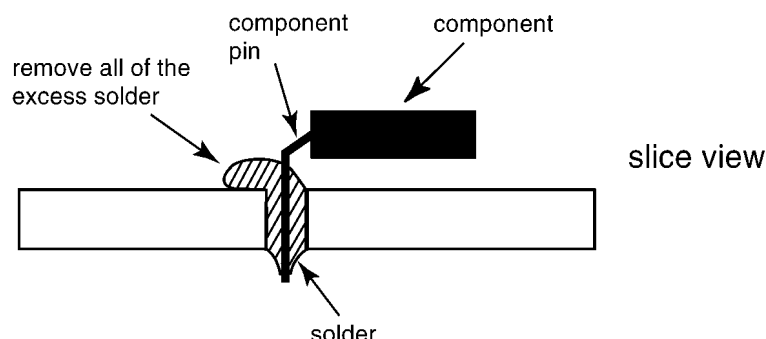
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

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).



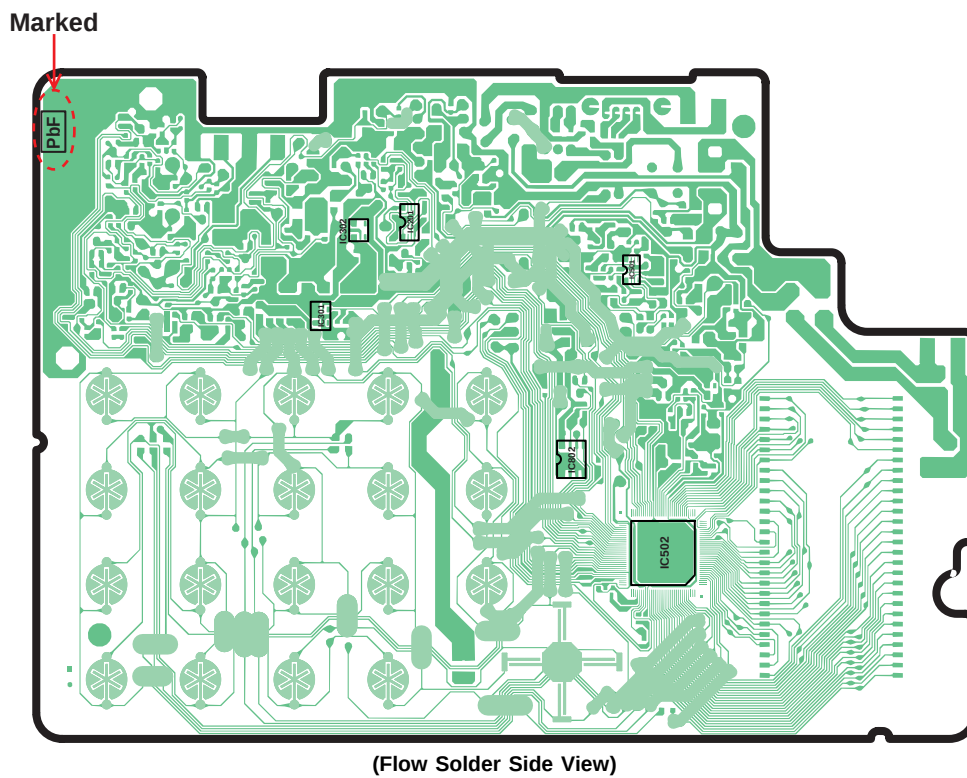
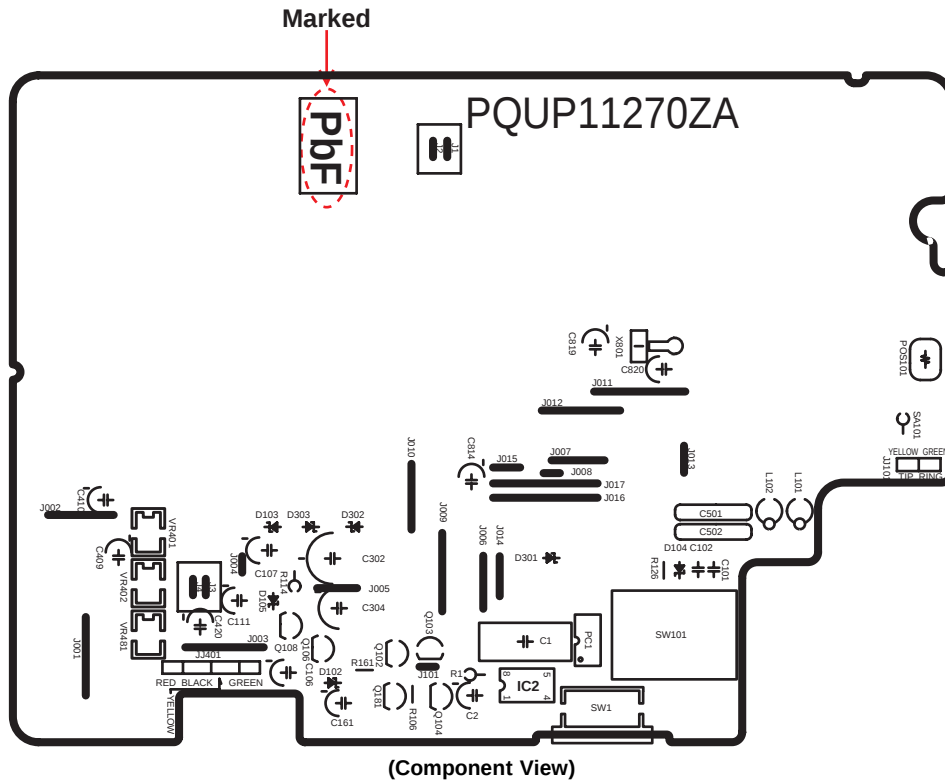
## 1.1. Suggested PbF Solder

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



### Note:

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

## 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.

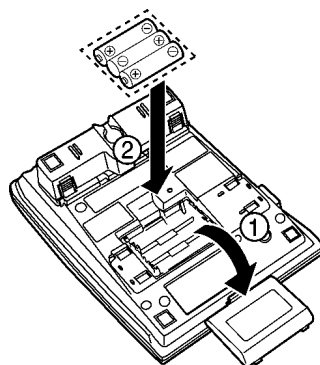
## 3 CAUTION

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 “12:00<sup>AM</sup> 31/12” or “0:00 31/12” after replacing the batteries, readjust the time and date.

#### **Battery Precautions:**

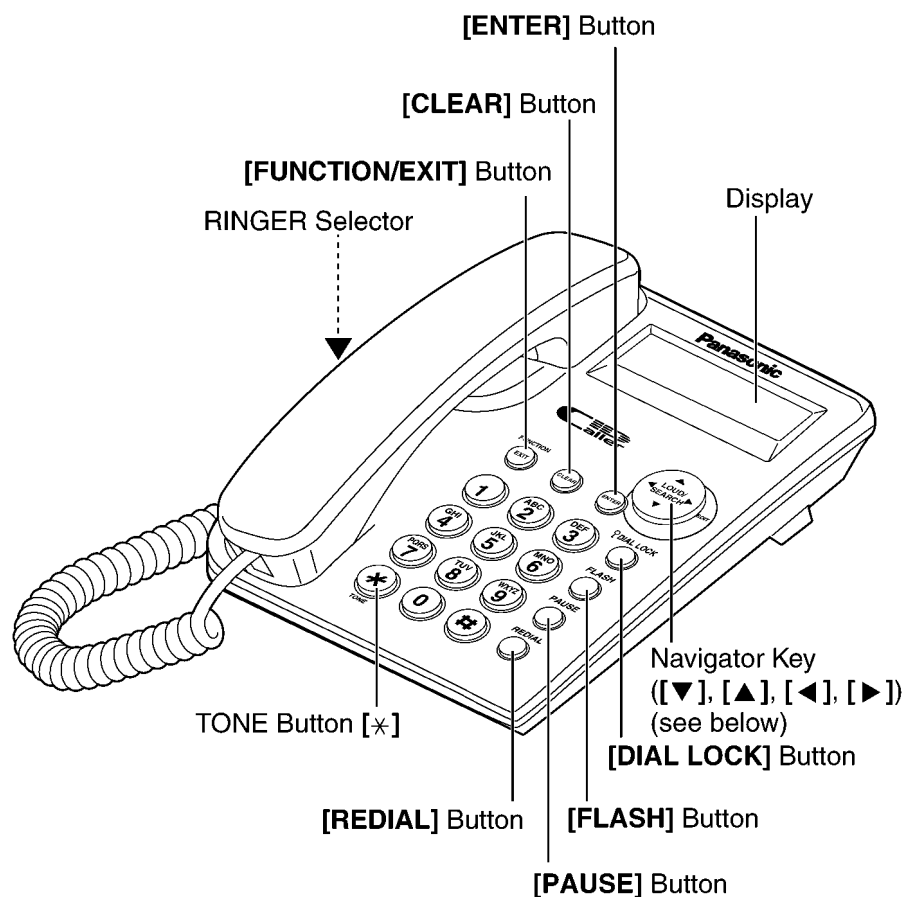
The batteries should be used correctly, otherwise the unit may be damaged by battery leakage.

- 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 “12:00<sup>AM</sup> 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



### 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 [▶].

## 6 DISPLAY

1234567890123456  
 88:88<sup>AM</sup>88/88   x8 

(This display shows all of the possible configurations.)

10 MISSED CALLS  
 12:34<sup>AM</sup> 24/11

While the unit is not in use, the display shows the current time and date, and the number of new calls.

12:00<sup>AM</sup> 31/12

If the display continuously shows “12:00<sup>AM</sup> 31/12” or “0:00 31/12”, the clock needs adjustment.

01-06-35  
 12:34<sup>AM</sup> 17/5

During a conversation, the display shows the length of the call (Ex. 1 hour, 6 minutes and 35 seconds).

1114447777  
 11:50<sup>AM</sup> 17/5  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.

 : 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.

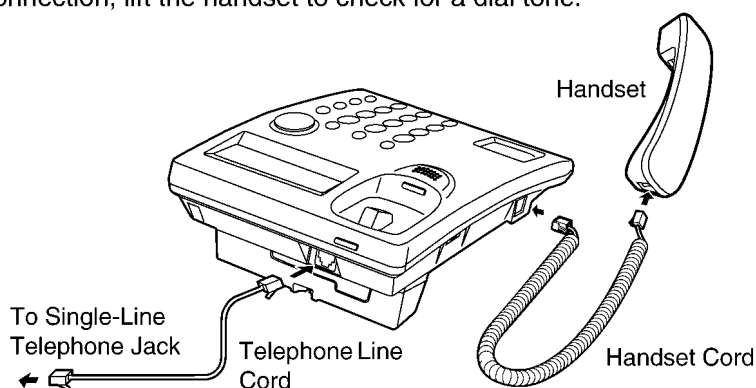
- 1) Remove the battery.
- 2) Press 1 and 9 and # button.
- 3) Insert the battery with holding above three buttons.  
→ LCD turns on all dots.
- 4) Release the buttons.  
→ LCD displays 0123456789 : ; 06AE  
"06AE" is a check sum of EEPROM.
- 5) Remove the battery.
- 6) Insert the battery again.

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.



- 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

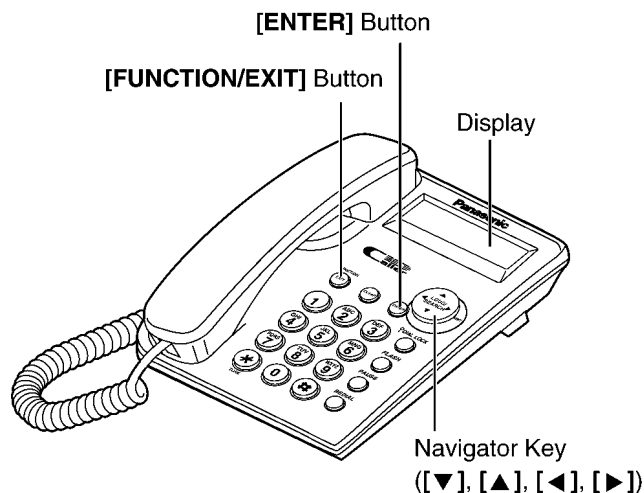
### To cancel the dial lock

Follow above steps 1 through 3. In step 3, “ ” will go out.

#### For Service Hint:

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

## 7.4. How to Release the Establishment of Password



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]**.
 

NEW PASSWORD

  - If the wrong password was entered at step 4, "ERROR" will be displayed, then "—" will be displayed.
- 6 Enter a new password using a 4-digit number. (Ex. "1234" is entered.)
 

: 1234
- 7 Press **[ENTER]**.
 

SAVED

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

## 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. : 0-

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

ENTER PASSWORD

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.

: \*\*\*\*

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

RESTRICT NO. : 9

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

5 Press **[ENTER]**.

SAVED

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

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, refer 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

12:34PM 24/11

00-00-00

12:34PM 24/11

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 [▼].

Ex. Handset volume level: 2

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

□□

12:34PM 24/11

### 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.

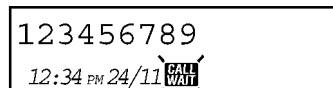
### 8.3. For Call Waiting Service Users

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 "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]**.

SAVED

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

- 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.
  - 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.

VOICE MAIL  
 12:34 PM 24/11 

## 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.

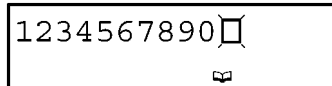
ENTER NAME  

- 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 **[▶]**.



## 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.



- 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.

|           |
|-----------|
| T         |
| TO        |
| TOM       |
| TOM JO    |
| TOM JONES |

## 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                       |
| 10:50 <sup>AM</sup> 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.**

|            |
|------------|
| ENTER NAME |
|------------|

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.

**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)

### 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 [▲].

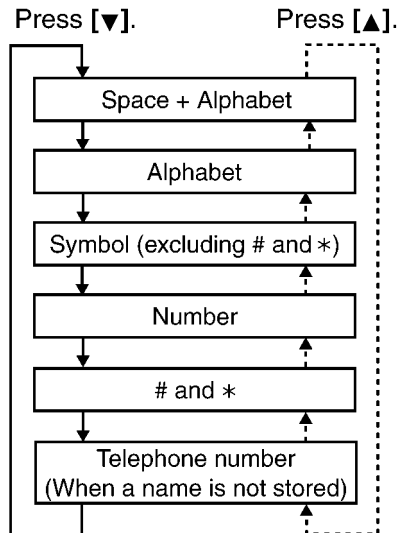
- All Phone Book items are stored in the order shown on the right.

**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.



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.

JANE

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.

0123456789

### 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.                             | <ul style="list-style-type: none"> <li>• Check the settings.</li> <li>• Remove the batteries and reinstall them to reset the unit.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| The unit does not ring.                             | <ul style="list-style-type: none"> <li>• The ringer selector is set to OFF. Set to HIGH or LOW.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| The display is blank.                               | <ul style="list-style-type: none"> <li>• Install new batteries (*1).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| You cannot dial.                                    | <ul style="list-style-type: none"> <li>• Check that the dialing mode selection is correct (*2).</li> <li>• Dial lock mode is set (*3).</li> <li>• The dialed number is restricted (*4).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                           |
| You cannot program items such as the dialing mode.  | <ul style="list-style-type: none"> <li>• Programming is not possible when the handset is off the cradle.</li> <li>• Do not pause for over 60 seconds while programming.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
| You cannot store a name and phone number in memory. | <ul style="list-style-type: none"> <li>• When using the Dial Lock (*3) or Call Restriction feature (*4), you cannot store an emergency number in the Phone Book List.</li> <li>• If "PHONEBOOK FULL" is displayed, erase other stored items from the Phone Book List.</li> <li>• Programming is not possible when the handset is off the cradle.</li> <li>• Check that the batteries are installed in the unit and that the battery power is not low.</li> <li>• Do not pause for over 60 seconds while storing.</li> <li>• Do not enter a phone number more than 22 digits long.</li> </ul> |

### 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. | <ul style="list-style-type: none"> <li>• To answer the call, lift the handset. Start again from the beginning after hanging up.</li> </ul>                                                                                                                                                                                                                              |
| The unit does not display the caller's phone number.                                  | <ul style="list-style-type: none"> <li>• You need to subscribe to a Caller ID service.</li> <li>• Install or replace the batteries.</li> <li>• Other telephone equipment may be interfering with your phone. Disconnect it and try again.</li> <li>• Telephone line noise may be interfering with the Caller ID information. Consult your telephone company.</li> </ul> |
| The display exits the Caller List.                                                    | <ul style="list-style-type: none"> <li>• Do not pause for over 60 seconds while searching.</li> </ul>                                                                                                                                                                                                                                                                   |
| You cannot redial by pressing <b>[REDIAL]</b> .                                       | <ul style="list-style-type: none"> <li>• If the last number dialed was more than 32 digits long, the number will not be redialed correctly.</li> </ul>                                                                                                                                                                                                                  |
| Information stored in the Redial List is erased.                                      | <ul style="list-style-type: none"> <li>• 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.</li> </ul>                                             |

# 10 DISASSEMBLY INSTRUCTIONS

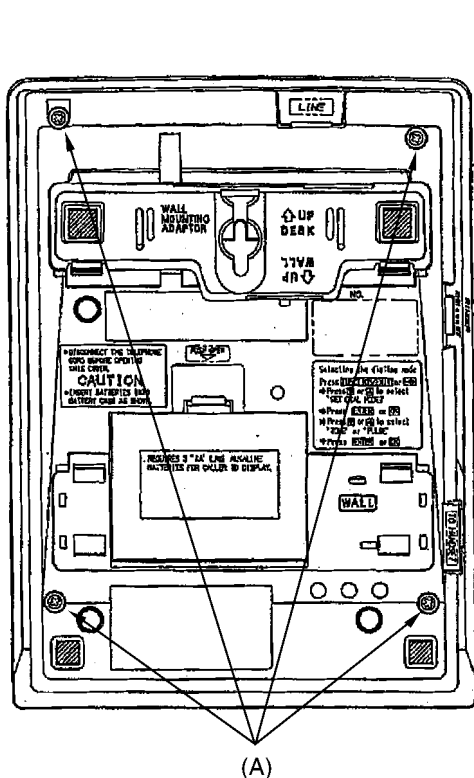


Fig. 1

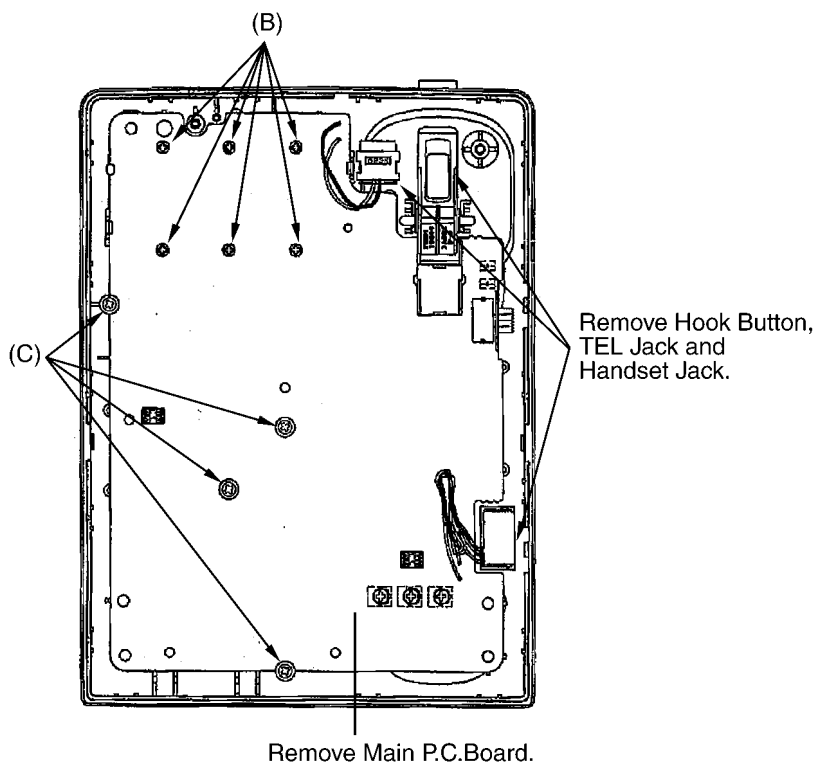


Fig. 2

| 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               |

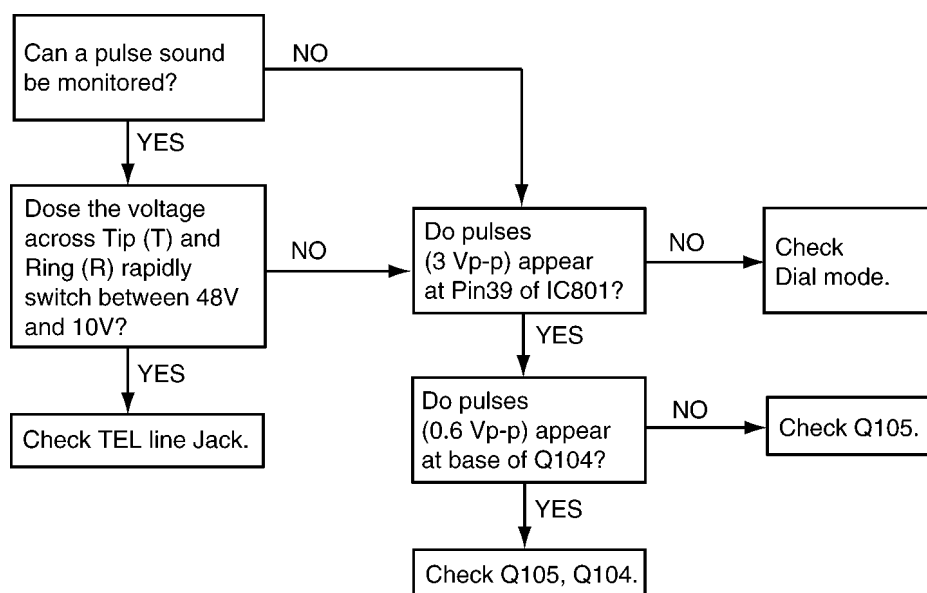
# 11 TROUBLESHOOTING GUIDE

Make sure batteries are installed for proper operation before troubleshooting.

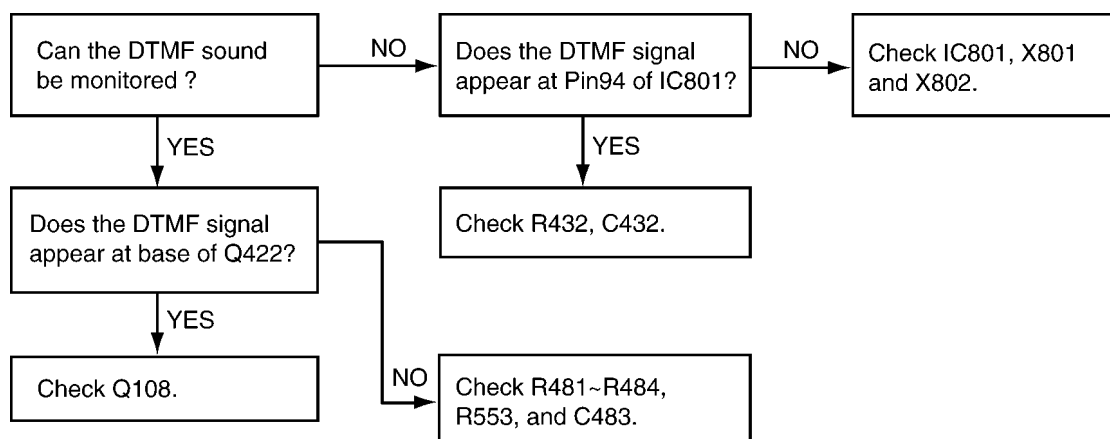
## 11.1. Service Hints

| 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.                 |

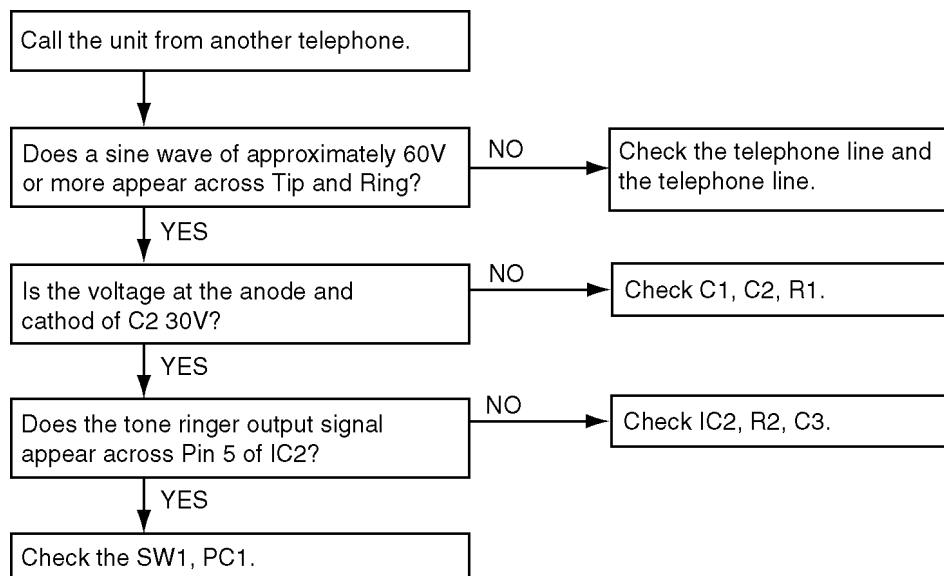
## 11.2. Pulse Dialing Problems



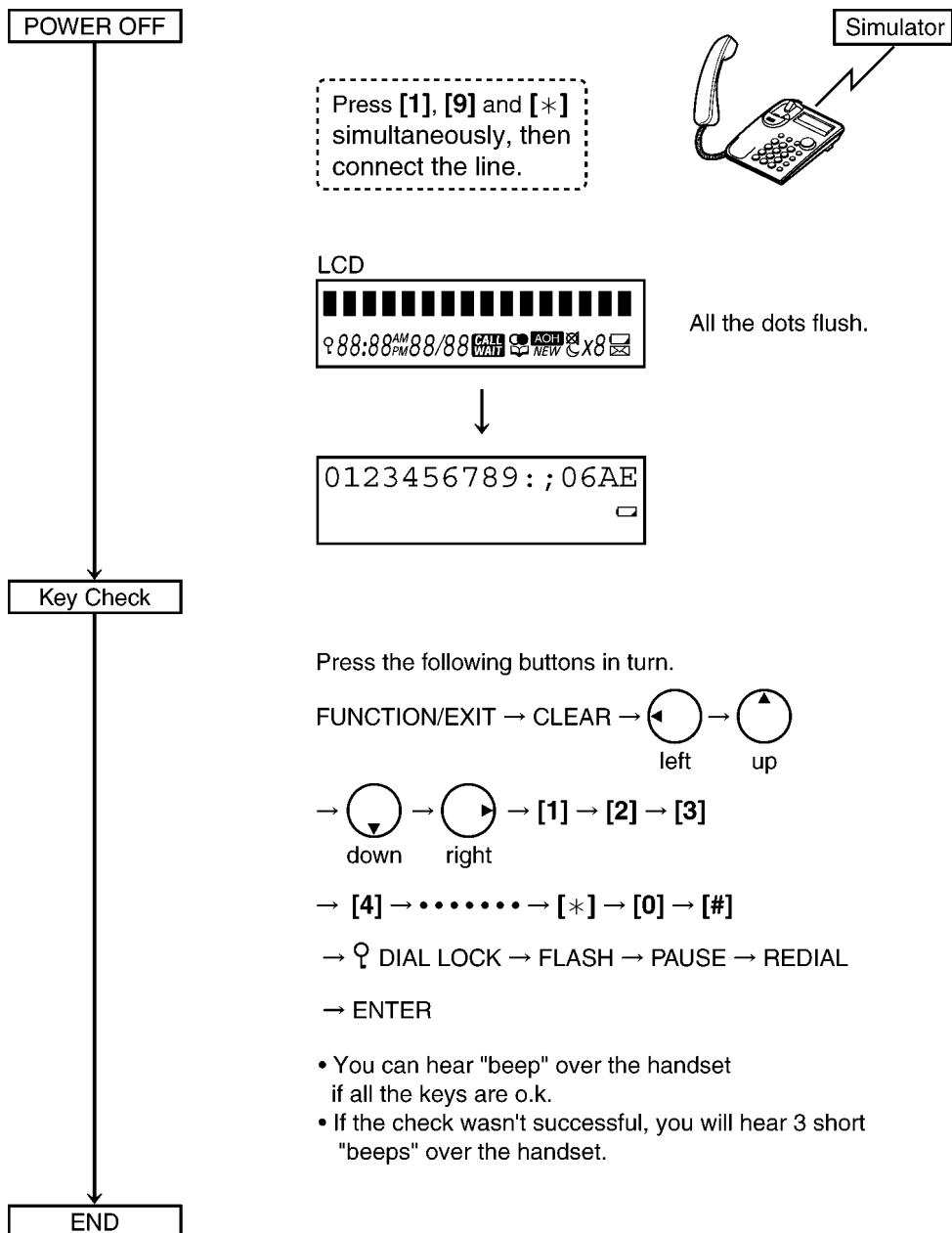
## 11.3. Tone Dialing Problems (handset)



## 11.4. No Ringing Sound When Ring Signal is Input



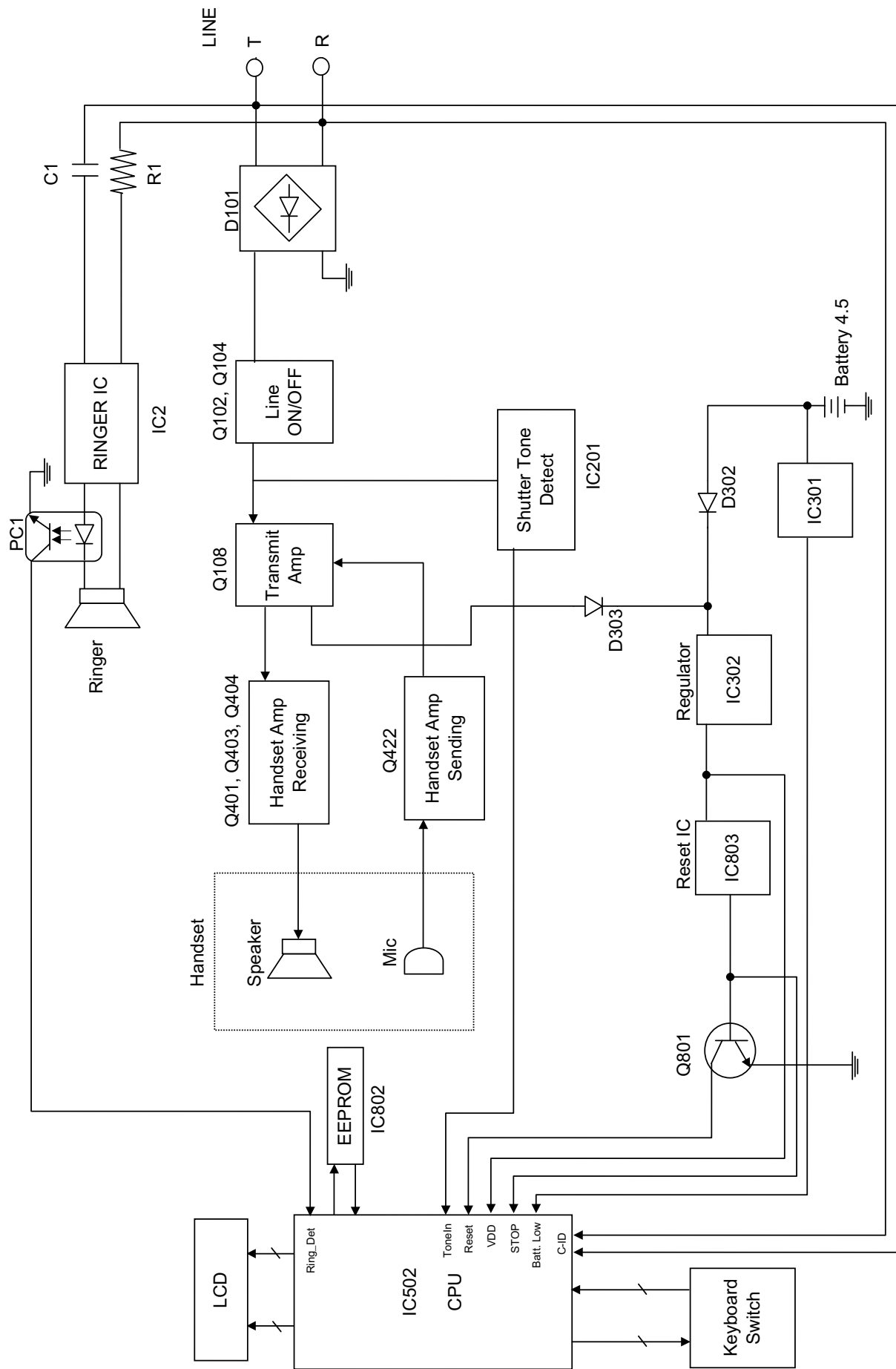
## 12 TEST MODE



**Note:**

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

# 13 BLOCK DIAGRAM



KX-TSC11MXB/MXW : 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

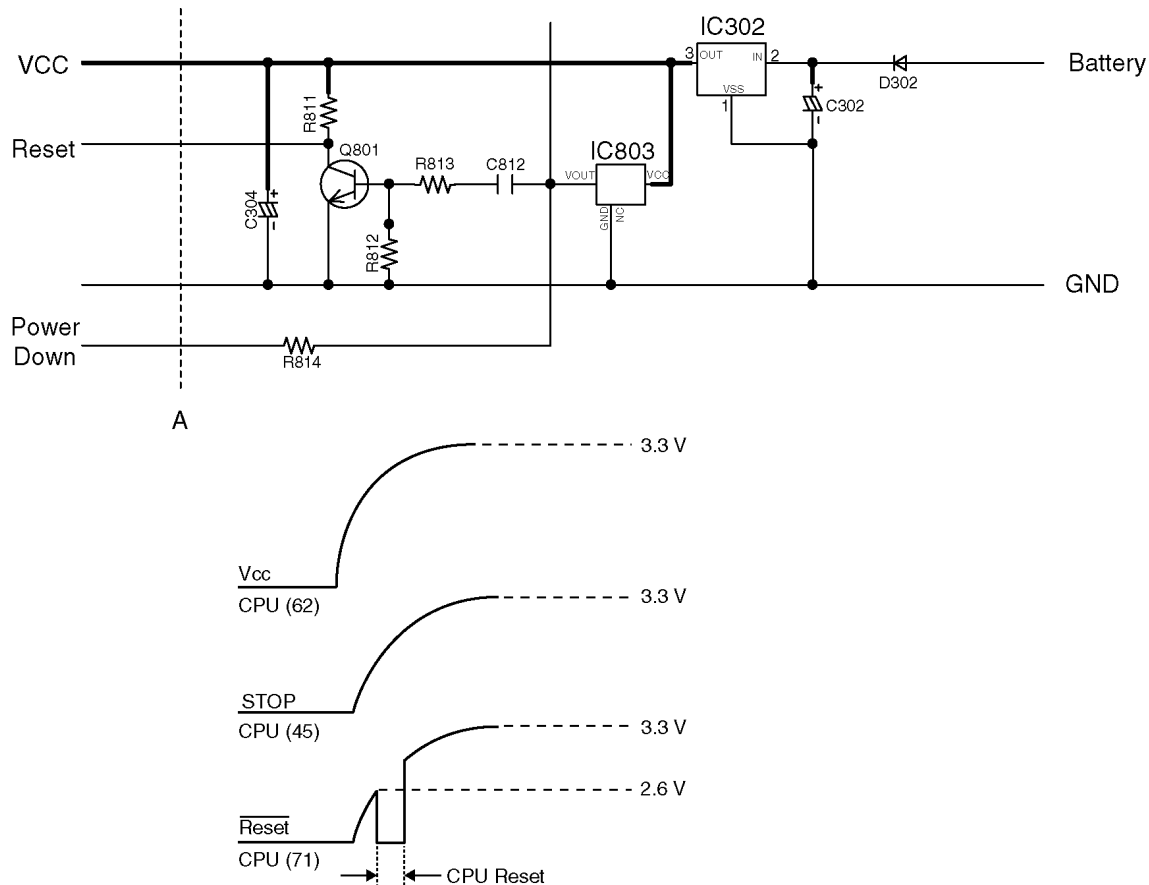
## 14.3.2. Initializing Circuit

### 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.



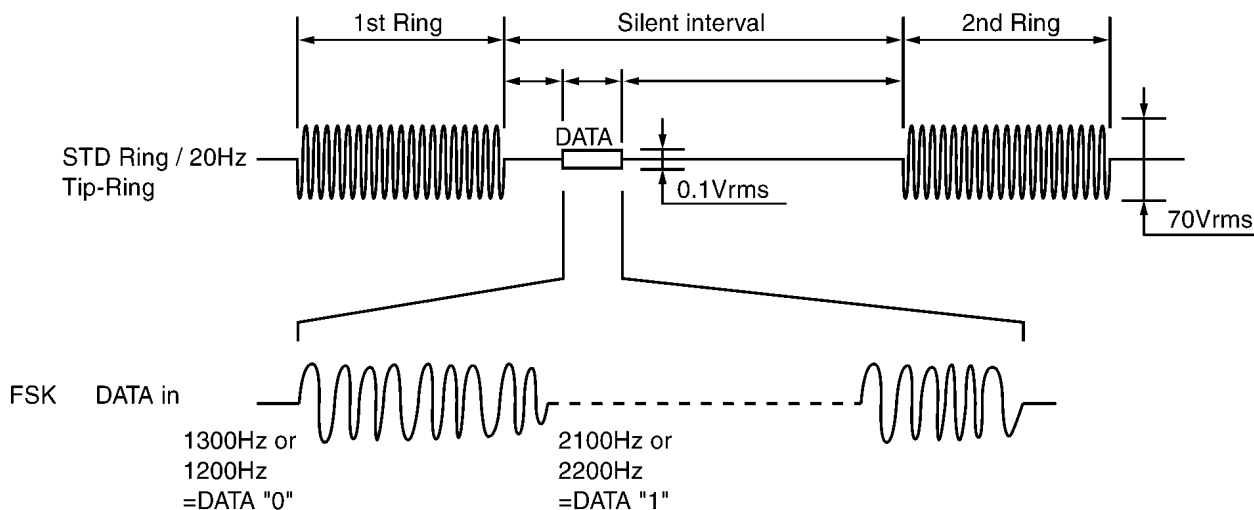
## 14.4. Caller ID Detect Circuit

### 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

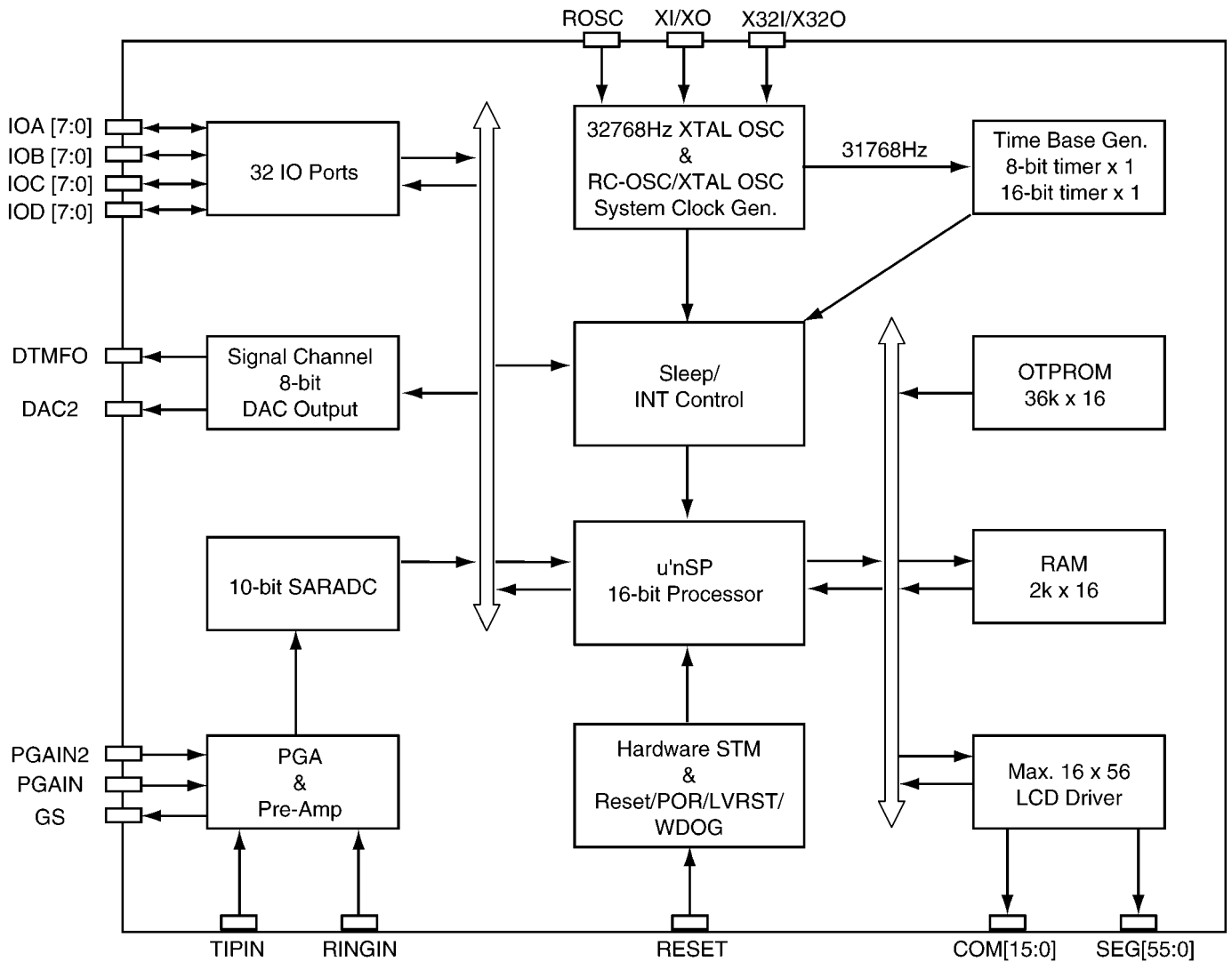
Caller ID

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

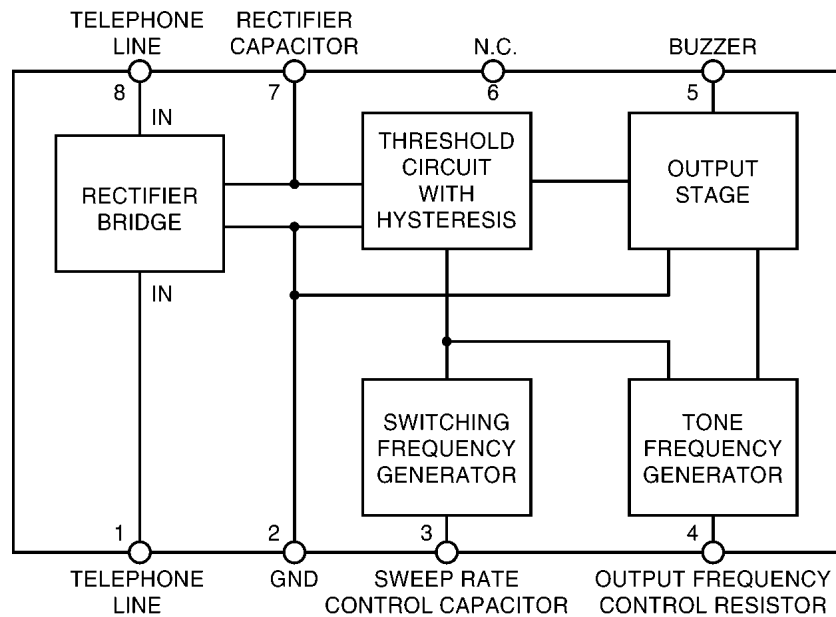


## 15.2. CPU DATA (IC502)

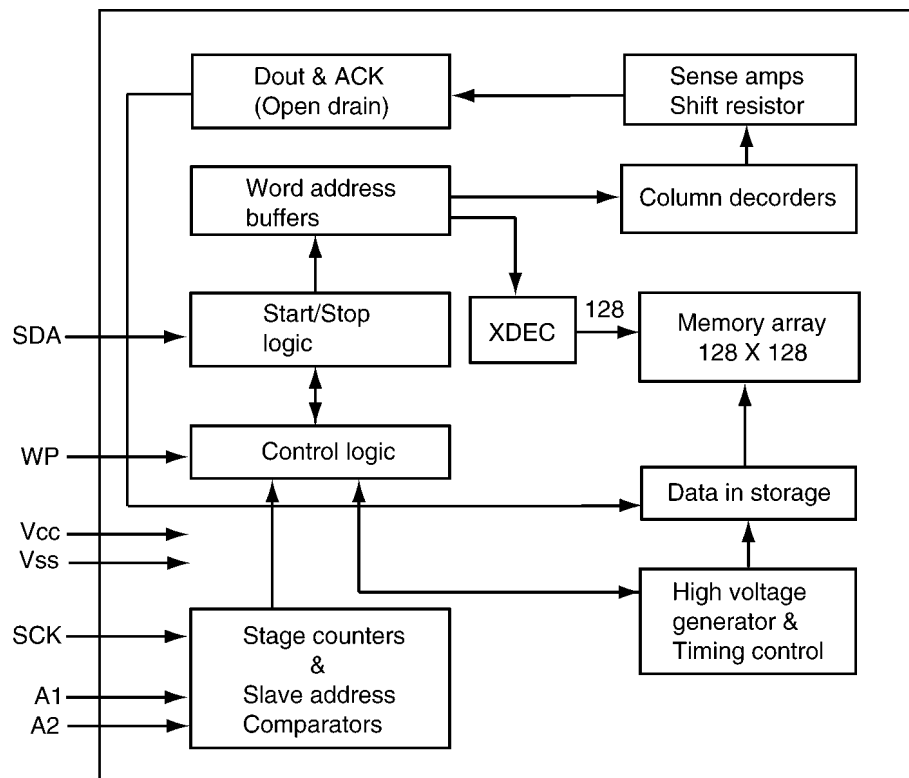
| Pin | Description                | I/O | High    | Hi-z | Low    |
|-----|----------------------------|-----|---------|------|--------|
| 1   | NC                         | -   | -       | -    | -      |
| 2   | NC                         | -   | -       | -    | -      |
| 3   | NC                         | -   | -       | -    | -      |
| 4   | SEG4/KeyStrobe4            | O   | Active  | -    | Active |
| 5   | SEG5/KeyStrobe5            | O   | Active  | -    | Active |
| 6   | SEG6                       | O   | Active  | -    | Active |
| 7   | SEG7                       | O   | Active  | -    | Active |
| 8   | SEG8                       | O   | Active  | -    | Active |
| 9   | SEG9                       | O   | Active  | -    | Active |
| 10  | SEG10                      | O   | Active  | -    | Active |
| 11  | SEG11                      | O   | Active  | -    | Active |
| 12  | SEG12                      | O   | Active  | -    | Active |
| 13  | SEG13                      | O   | Active  | -    | Active |
| 14  | SEG14                      | O   | Active  | -    | Active |
| 15  | SEG15                      | O   | Active  | -    | Active |
| 16  | SEG16                      | O   | Active  | -    | Active |
| 17  | SEG17                      | O   | Active  | -    | Active |
| 18  | SEG18                      | O   | Active  | -    | Active |
| 19  | SEG19                      | O   | Active  | -    | Active |
| 20  | SEG20                      | O   | Active  | -    | Active |
| 21  | SEG21                      | O   | Active  | -    | Active |
| 22  | SEG22                      | O   | Active  | -    | Active |
| 23  | SEG23                      | O   | Active  | -    | Active |
| 24  | SEG24                      | O   | Active  | -    | Active |
| 25  | SEG25                      | O   | Active  | -    | Active |
| 26  | SEG26                      | O   | Active  | -    | Active |
| 27  | SEG27                      | O   | Active  | -    | Active |
| 28  | SEG28                      | O   | Active  | -    | Active |
| 29  | SEG29                      | O   | Active  | -    | Active |
| 30  | NC                         | -   | -       | -    | -      |
| 31  | NC                         | -   | -       | -    | -      |
| 32  | NC                         | -   | -       | -    | -      |
| 33  | NC                         | -   | -       | -    | -      |
| 34  | NC                         | -   | -       | -    | -      |
| 35  | NC                         | -   | -       | -    | -      |
| 36  | SEG30                      | O   | High    | -    | Active |
| 37  | SEG31                      | O   | High    | -    | Active |
| 38  | SEG32                      | O   | High    | -    | Active |
| 39  | SEG33                      | O   | High    | -    | Active |
| 40  | SEG34                      | O   | High    | -    | Active |
| 41  | SEG35                      | O   | Active  | -    | Active |
| 42  | SEG36                      | O   | Active  | -    | Active |
| 43  | SEG37                      | O   | Active  | -    | Active |
| 44  | SEG38                      | O   | Active  | -    | Active |
| 45  | SEG39                      | O   | Active  | -    | Active |
| 46  | D.VDD                      | I   | Normal  | -    | -      |
| 47  | D.VDD                      | I   | Normal  | -    | -      |
| 48  | EXTCLK_XI                  | I   | -       | -    | -      |
| 49  | ROSC_XO                    | I   | -       | -    | -      |
| 50  | RESET                      | I   | Normal  | -    | Reset  |
| 51  | 32K                        | I   | Normal  | -    | Normal |
| 52  | 32K                        | O   | Normal  | -    | Normal |
| 53  | GND                        | GND | -       | -    | -      |
| 54  | RX_MUTE                    | O   | MUTE    | -    | UNMUTE |
| 55  | TX_MUTE                    | O   | MUTE    | -    | UNMUTE |
| 56  | UART (RX from PC)          | I   | Normal  | -    | Normal |
| 57  | Dummy Ring UART (TX to PC) | O   | Normal  | -    | Normal |
| 58  | ACK_MUTE                   | O   | MUTE    | -    | UNMUTE |
| 59  | BATT_LOW                   | I   | NOT LOW | -    | LOW    |
| 60  | BACK_UP                    | O   | Normal  | -    | STOP   |
| 61  | Ring_DET                   | I   | No Ring | -    | Ring   |
| 62  | NC                         | -   | -       | -    | -      |
| 63  | NC                         | -   | -       | -    | -      |
| 64  | NC                         | -   | -       | -    | -      |

| Pin | Description      | I/O | High         | Hi-z   | Low        |
|-----|------------------|-----|--------------|--------|------------|
| 65  | NC               | -   | -            | -      | -          |
| 66  | NC               | -   | -            | -      | -          |
| 67  | NC               | -   | -            | -      | -          |
| 68  | IN USE Det       | I   | IN USE       | -      | NO USE     |
| 69  | 120KLOAD/L SEIZE | O   | Active       | -      | Not        |
| 70  | RELAY            | O   | ON           | -      | OFF        |
| 71  | BATT_OUT         | I   | Battery ON   | -      | No Battery |
| 72  | Wakeup           | I   | Wake Up      | -      | Not Wakeup |
| 73  | PULSE            | O   | -            | Break  | Make       |
| 74  | OPTION Strobe    | O   | -            | Normal | Active     |
| 75  | EEPROM_CS        | O   | ON           | -      | Off        |
| 76  | EEPROM_DATA      | I/O | Active (Non) | -      | Active     |
| 77  | EEPROM_CLOCK     | O   | Active       | -      | Active     |
| 78  | Volume3          | O   | UP           | -      | DOWN       |
| 79  | Volume2          | O   | UP           | -      | DOWN       |
| 80  | Volume1          | O   | UP           | -      | DOWN       |
| 81  | STOP             | I   | Normal       | -      | STOP       |
| 82  | HOOK SW          | I   | ON HOOK      | -      | OFF HOOK   |
| 83  | KEY_IN4          | I   | Normal       | -      | Key_IN     |
| 84  | KEY_IN3          | I   | Normal       | -      | Key_IN     |
| 85  | KEY_IN2          | I   | Normal       | -      | Key_IN     |
| 86  | KEY_IN1          | I   | Normal       | -      | Key_IN     |
| 87  | TONE_IN          | I   | NO TONE      | -      | TONE_IN    |
| 88  | EX_HOOK          | I   | -            | -      | -          |
| 89  | BEEP             | O   | Active       | -      | Active     |
| 90  | A_GND            | I   | -            | -      | Fix        |
| 91  | DTMF             | O   | Active       | -      | Active     |
| 92  | TIP              | I   | High         | -      | Low        |
| 93  | RING             | I   | High         | -      | Low        |
| 94  | NC               | -   | -            | -      | -          |
| 95  | NC               | -   | -            | -      | -          |
| 96  | NC               | -   | -            | -      | -          |
| 97  | NC               | -   | -            | -      | -          |
| 98  | NC               | -   | -            | -      | -          |
| 99  | NC               | -   | -            | -      | -          |
| 100 | GS               | O   | -            | -      | -          |
| 101 | PGAIN            | I   | -            | -      | -          |
| 102 | PGAIN2           | I   | -            | -      | -          |
| 103 | VR2              | O   | -            | -      | -          |
| 104 | A_GND            | I   | -            | -      | Fix        |
| 105 | D.VDD            | I   | Normal       | -      | -          |
| 106 | COM0             | O   | Active       | -      | Active     |
| 107 | COM1             | O   | Active       | -      | Active     |
| 108 | COM2             | O   | Active       | -      | Active     |
| 109 | COM3             | O   | Active       | -      | Active     |
| 110 | COM4             | O   | Active       | -      | Active     |
| 111 | COM5             | O   | Active       | -      | Active     |
| 112 | COM6             | O   | Active       | -      | Active     |
| 113 | COM7             | O   | Active       | -      | Active     |
| 114 | COM8             | O   | Active       | -      | Active     |
| 115 | COM9             | O   | Active       | -      | Active     |
| 116 | COM10            | O   | Active       | -      | Active     |
| 117 | COM11            | O   | Active       | -      | Active     |
| 118 | COM12            | O   | Active       | -      | Active     |
| 119 | COM13            | O   | Active       | -      | Active     |
| 120 | COM14            | O   | Active       | -      | Active     |
| 121 | COM15            | O   | Active       | -      | Active     |
| 122 | SEG0/KeyStrobe0  | O   | Active       | -      | Active     |
| 123 | SEG1/KeyStrobe1  | O   | Active       | -      | Active     |
| 124 | SEG2/KeyStrobe2  | O   | Active       | -      | Active     |
| 125 | SEG3/KeyStrobe3  | O   | Active       | -      | Active     |
| 126 | NC               | -   | -            | -      | -          |
| 127 | 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

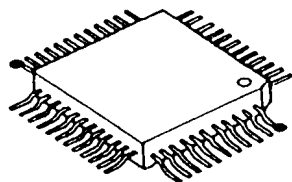
Recommended Flux: Specific Gravity → 0.82.

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

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

### 16.2. Procedure

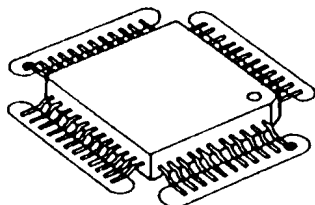
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



- - - - - - Temporary soldering point.

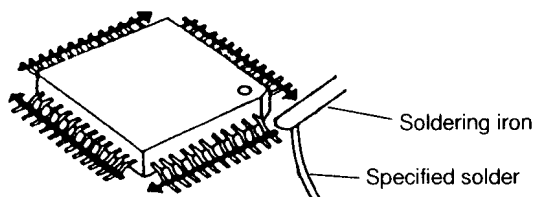
Be certain each pin is located over the correct pad on the PCB.

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



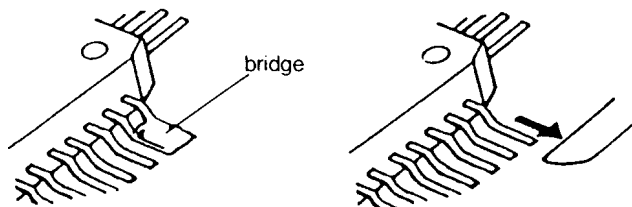
- - - - - - Flux

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.

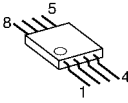
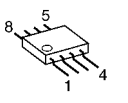
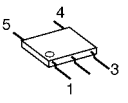
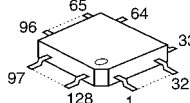
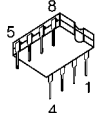
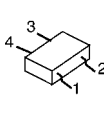
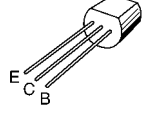
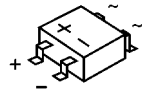
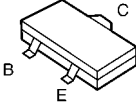
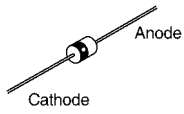
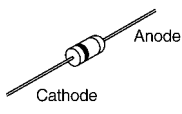
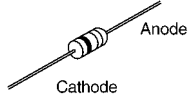
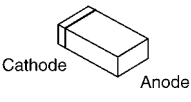


### 16.3. Modification Procedure of Bridge

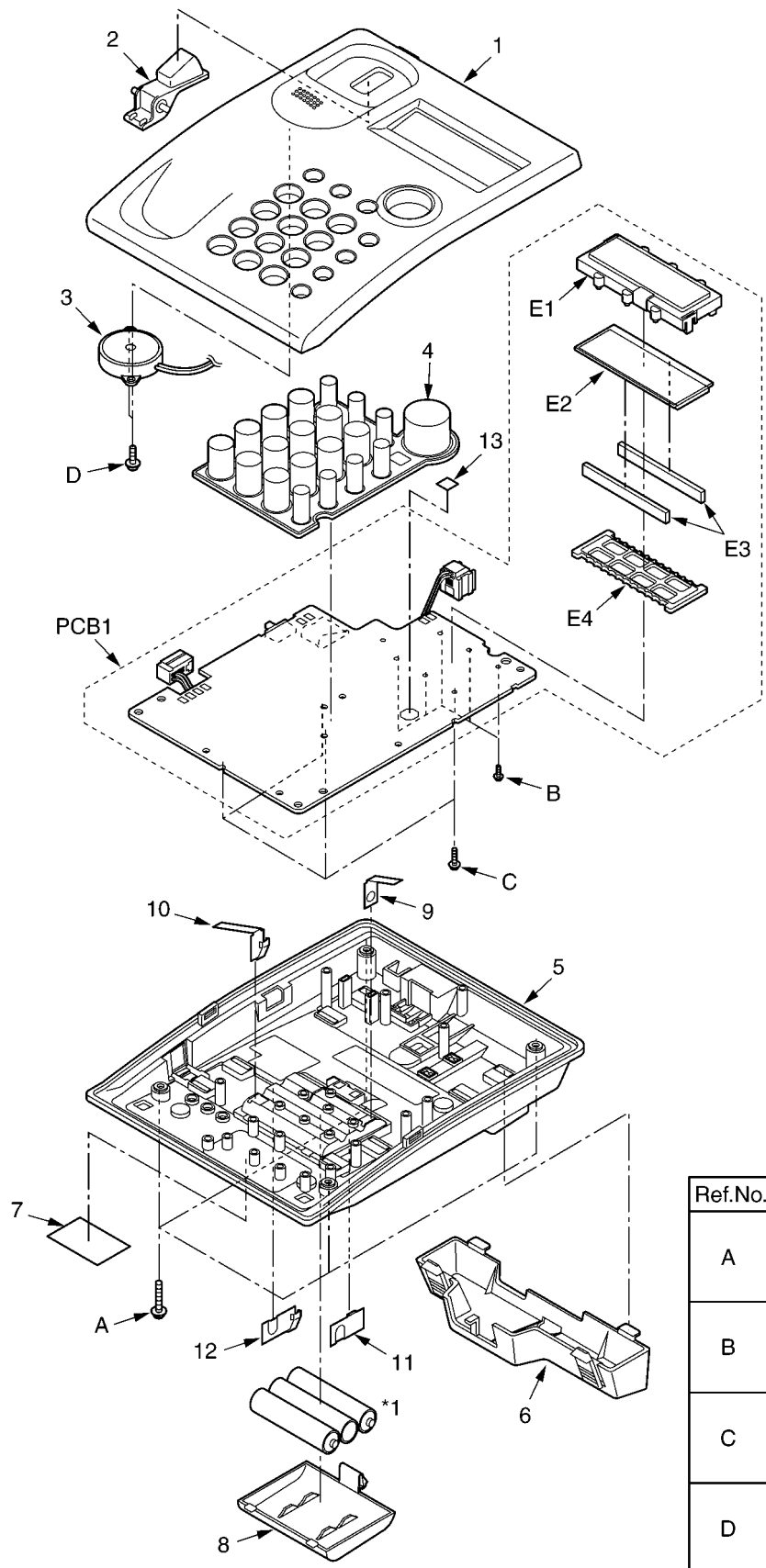
1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.

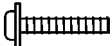
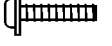
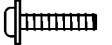


# 17 TERMINAL GUIDE OF THE ICs, TRANSISTORS AND DIODES

|                                                                                                                                                          |                                                                                                       |                                                                                                                                    |                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  <p>PQVINJU7014R</p>                                                    |  <p>PQWITSC11MXH</p> |  <p>C0CBABE00023<br/>PQVIPS3238NT</p>             |  <p>C2CBHG000155</p> |
|  <p>C1CA00000254</p>                                                    |  <p>PQVIPS3327UT</p> |  <p>PQVT2N6517CA<br/>B1AAJC000010<br/>2SA1625</p> |  <p>PQVDS1ZB60F1</p> |
|  <p>2SD1819A, UN5213, PQVTFB1A4M<br/>UN5113, PQVTDTC144TU, 2SB1218A</p> |                                                                                                       |  <p>MA723, MA165<br/>MA700A</p>                  |  <p>MA4180</p>       |
|  <p>MA4051</p>                                                         |  <p>MA111</p>       |                                                                                                                                    |                                                                                                         |

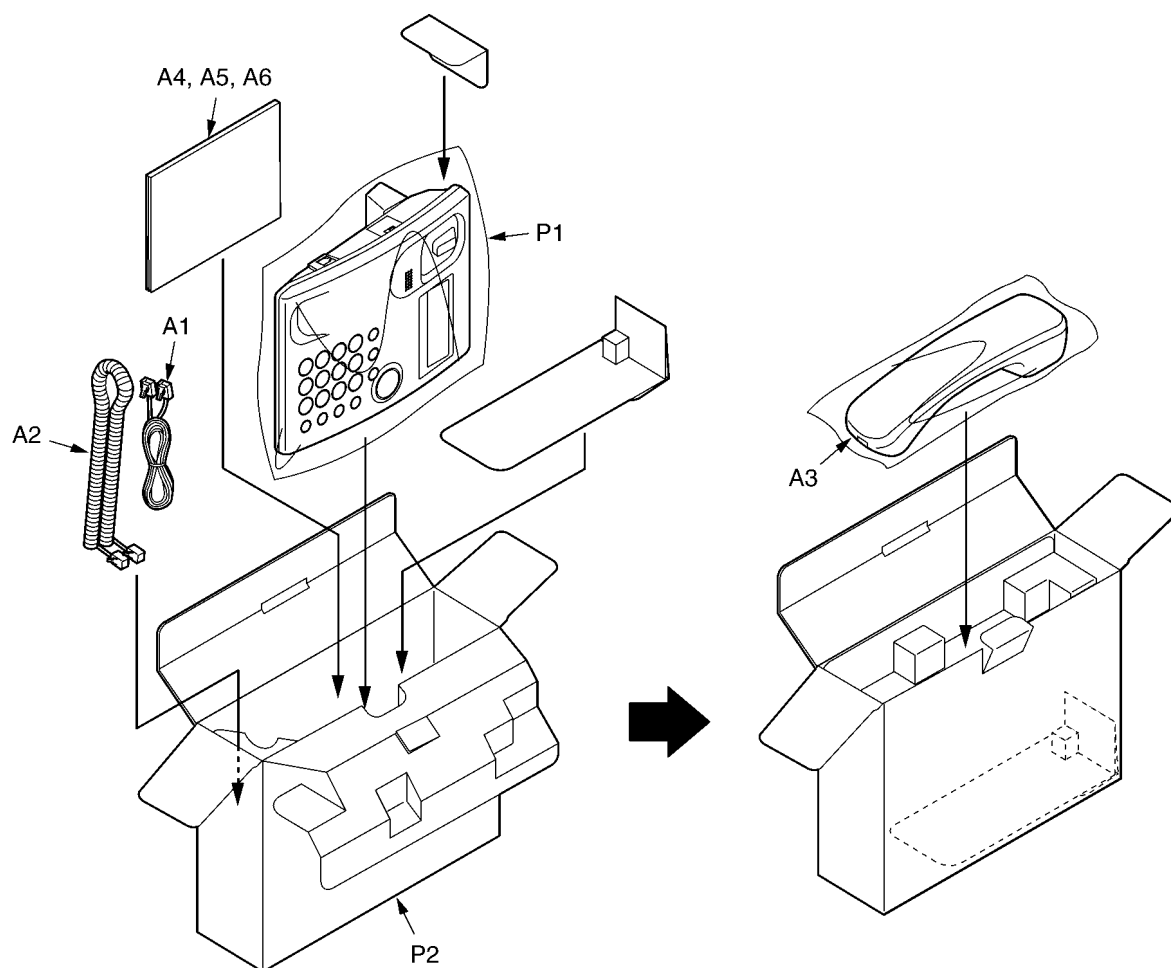
18 CABINET AND ELECTRICAL PARTS



| Ref.No. | Part No.  | Figure                                                                                               |
|---------|-----------|------------------------------------------------------------------------------------------------------|
| A       | XTW26+12P | <br>φ2.6 × 12mm |
| B       | XTN2+6G   | <br>φ2 × 6mm    |
| C       | XTW26+10P | <br>φ2.6 × 10mm |
| D       | XTW26+10P | <br>φ2.6 × 10mm |

**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  $\Delta$  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 ( $\Omega$ ) K=1000 $\Omega$ , M=1000k $\Omega$

All capacitors are in MICRO FARADS ( $\mu$ F) P= $\mu$ F

\*Type & Wattage of Resistor

#### Type

|                                      |                                                     |                                                          |
|--------------------------------------|-----------------------------------------------------|----------------------------------------------------------|
| ERC:Solid<br>ERDS:Carbon<br>ERJ:Chip | ERX:Metal Film<br>ERG:Metal Oxide<br>ERO:Metal Film | PQ4R:Chip<br>ERS:Fusible Resistor<br>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<br>ECQS:Styrol<br>ECUV,PQCUV,ECUE:Chip<br>ECQMS:Mica | ECCD,ECKD,ECBT,F1K,ECUV: Ceramic<br>ECQE,ECQV,ECQG:Polyester<br>ECEA,ECST,EEE:Electlytic<br>ECQP:Polypropylene |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|

#### Voltage

| ECQ Type                                | ECQG<br>ECQV Type          | ECSZ Type                               | Others                                      |                                             |  |
|-----------------------------------------|----------------------------|-----------------------------------------|---------------------------------------------|---------------------------------------------|--|
| 1H:50V<br>2A:100V<br>2E:250V<br>2H:500V | 05:50V<br>1:100V<br>2:200V | 0F:3.15V<br>1A:10V<br>1V:35V<br>0J:6.3V | 0J :6.3V<br>1A :10V<br>1C :16V<br>1E,25:25V | 1V :35V<br>50,1H:50V<br>1J :16V<br>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    | PQVIP3238NT   | IC                         | S       |
| IC302    | C0CBABE00023  | IC                         |         |
| IC501    | PQVINJU7014R  | IC                         |         |
| IC502    | C2CBHG000155  | IC                         |         |
| IC802    | PQWITSC11MXH  | IC                         |         |
| IC803    | PQVIP3327UT   | IC                         |         |
|          |               | (TRANSISTORS)              |         |
| Q102     | 2SA1625       | TRANSISTOR (SI)            | S       |
| Q104     | PQVT2N6517CA  | TRANSISTOR (SI)            | S       |
| Q105     | 2SD1819A      | TRANSISTOR (SI)            |         |
| Q108     | B1AAJTC000010 | 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     | ERJ3GEYJ103  | 10K                     |         |
| 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                      |         |

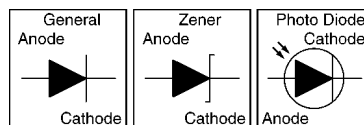
| Ref. No. | Part No.     | Part Name & Description   | Remarks |
|----------|--------------|---------------------------|---------|
| C410     | ECEA1HKS4R7  | 4.7                       |         |
| C421     | ECUV1C223KBV | 0.022                     |         |
| C422     | ECUV1H103KBV | 0.01                      |         |
| 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       | L5ACAH000008 | LIQUID CRYSTAL DISPLAY    |         |
| E3       | PQJE10110Z   | CONNECTOR, ZEBRA          |         |
| E4       | PQHR10937Z   | SPACER, LCD               |         |
| PC1      | 0N3181       | PHOTO COUPLER             | S       |
| SA101    | PQVDDSS301L  | VARIATOR (SURGE ABSORBER) | S       |
| X801     | PQVCL3276N6Z | CRYSTAL OSCILLATOR        | S       |
| POS101   | PFRT002      | THERMISTOR                | S       |

## 20.2. Accessories and Packing Materials

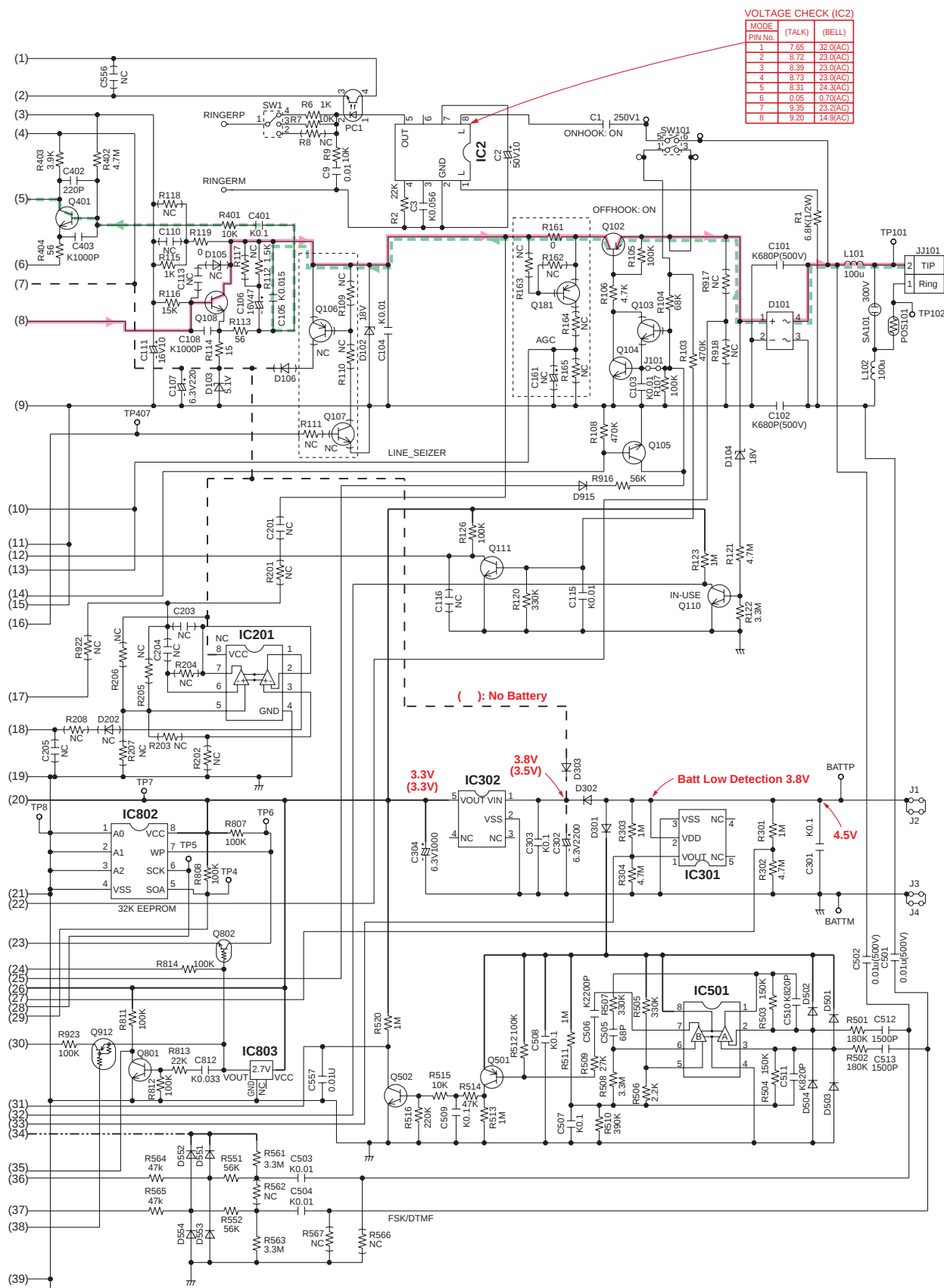
| Ref. No. | Part No.   | Part Name & Description         | Remarks |
|----------|------------|---------------------------------|---------|
| A1       | PQJA10075Z | CORD, TELEPHONE                 |         |
| A2       | PQJA212N   | CORD, HANDSET (for KX-TSC11MXB) |         |
| A2       | PQJA212M   | 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 shaded 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.**







NC: No Components

KX-TSC11MXB/MXW SCHEMATIC DIAGRAM

## 22.1. Memo

### 23.1. Component View

