SHARP®

POCKET AUTO DIALER

DIAL MASTER 100

MODEL
EL-6230

OPERATION MANUAL

CONTENTS

1 INTRODUCTION

Thank you for purchasing the SHARP EL-6230 Dial Master with Tone Dialing Function. This advanced, compact pocket auto dialer is designed to help you keep track of important names and telephone numbers. By simply placing the Dial Master speaker on the mouthpiece of a touch-tone phone* and pressing a key, stored local and long distance telephone numbers are dialed automatically. Telephone numbers can even be redialed automatically and charged to a registered telephone credit card number.

Handle the EL-6230 with care according to instructions for a long, trouble-free life. Please keep this manual for future reference.

* Although the EL-6230 auto dialing functions are designed for a touch-tone phone or rotary phone with touch-tone lines, it may not work with all makes of such phones if line conditions are poor or handsets are of unusual size or shape.

2 PRECAUTIONS

- Always handle the EL-6230 with care as the liquid crystal display is made of glass. Do not carry in the back pocket of slacks or trousers.
- Keep away from moisture, dust and extreme temperatures which may cause a malfunction. Do not leave exposed to direct sunlight in a car.
- Use a soft, dry cloth to clean the EL-6230. Never use a wet cloth or solvents.
- Do not place bank cards, credit cards or other magnetic based cards near the speaker. The speaker's magnet may alter the magnetism of the cards and make them unusable.
- If service is required, use only a SHARP Service dealer, SHARP approved service facility or SHARP repair service where available.

When abnormal conditions cause a malfunction

If the EL-6230 is subjected to strong, extraneous noises or shocks during use, an abnormal condition may occur in which no keys, including $\boxed{\text{C}}$, will respond. If this happens:

1. Press $\boxed{\text{ON}}$ and then the RESET switch on the back, then press $\boxed{\text{ENTER}}$. Refer to page 15.
2. Press the RESET switch again, then press $\boxed{\text{ENTER}}$.
   • In some instances, pressing $\boxed{\text{ENTER}}$ will clear all memory contents including the calculator memory.

3 MAIN FEATURES

1. TEL (Telephone) Mode Functions

In the TEL mode, it is possible to store, recall, correct, or delete telephone directory listings. It is also possible to store secret information, or make stored information secret. Telephone listings containing secret information can be recalled only after entry of the correct password.

2. CALC (Calculation) Mode Functions

In the CALC mode, the EL-6230 functions as a 10-digit calculator.

3. Dialing Functions

(1) Auto dial feature

The EL-6230 has an automatic dialing capability. Press the EL-6230's speaker grille against the mouthpiece of the handset on a touch-tone telephone, then press DIAL . The EL-6230 will generate dialing tones to call the number on the display.

- Local dial feature

  Dials only the local portion of a number (the area code is ignored).
- Slow dial feature

  Dials at approximately half the normal dialing speed.
- Redial feature

  Dials the last number dialed with just a single key.
- CARD/ANS feature

  Dials calls to be billed to a calling card. Also performs remote control for answering machines with the beeperless remote feature.

(2) Manual dial feature

Dials telephone numbers digit-by-digit using the keys on the EL-6230.

■ Secret Function

Confidential information can be stored and designated as secret. Secret listings can not be accessed without entering a specific password.

■ Auto Power Off
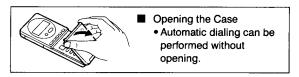
If there is no key operation for approximately 7 minutes, the EL-6230 automatically turns itself off to reduce battery consumption. To repower the EL-6230, press ON .
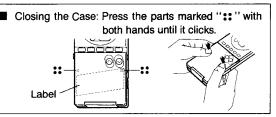
■ Memory Safeguard

Contents of the telephone and calculator memories are retained after the power is turned off either manually or automatically.

- Opening the Case
  • Automatic dialing can be performed without opening.

- Closing the Case: Press the parts marked "**::**" with both hands until it clicks.

Label

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The following descriptions explain the use of the major keys and functions.

CARD/ANS	**TEL mode:**	Dials calls to be billed to a calling card. Also performs remote control for answering machines with the beeperless remote feature. (see page 46).
DIAL	**TEL mode:**	Dials the telephone number on the display, or redials the last number (see page 41).
LOCAL	**TEL mode:**	If pressed before DIAL, dials only the local portion of the number on the display (see page 43).
SLOW	**TEL mode:**	Pressing SLOW DIAL reduces the dialing speed to half the normal speed (see page 43).
MANUAL	**TEL mode:**	Used for manual dialing (see page 58).
OFF		Turns the power OFF.
ON		Turns the power ON and selects the TEL mode.

MODE	Toggles the EL-6230 between the TEL and CALC modes (see page 17).
N↔A	**TEL mode:** Toggles the EL-6230 between Character Entry and Number Entry.
SECRET	**TEL mode:** Turns the Secret function on and off (see page 33).
SEARCH	**TEL mode:** Searches stored listings. $\boxed{\text{v}}$ searches listings in the forward order; $\boxed{\wedge}$ searches listings in the reverse order. For fast search, hold down the key for the desired order.
CM RM **M- M+**	**TEL mode:** During a correction, these keys move the cursor to the character or number to be corrected. $\boxed{\text{M-}}$ and $\boxed{\text{M+}}$ scroll unseen information (which is above or below the screen) into the display screen.
	CALC mode: These keys are used for memory operations.

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C	**TEL mode:**	While storing an entry, clears the entry made up to that point.
	CALC mode:	Clears all calculations (except the contents of memory).
CE	**TEL mode:**	While storing an entry, clears the entry made up to that point. Pressing CE ENTER deletes a recalled listing (see page 30).
	CALC mode:	Clears the contents of an entry.
M·CK	**TEL mode:**	Checks the remaining memory space. When pressed, the number of characters which can be entered and the number of listings already stored appear on the display (see page 31).
	CALC mode:	This key is ineffective.
ENTER	**TEL mode:**	Stores the data entered on the display into internal memory. Only this key can be used to store listings.
	CALC mode:	Serves as an equals (=) key.
TARGET	**TEL mode:**	During a CARD memory entry, specifies the position for insertion of the target number to be called (see page 48).
	CALC mode:	Serves as the division operator key.

$\boxed{\text{PAUSE}}$	**TEL mode:** For a number entry, makes a pause in an auto dialing sequence. Each single entry ($\boxed{?}$ or $\mathcal{P}$ indicator) delays the dialing sequence approximately one second. Pressing $\boxed{\text{PAUSE}}$ $\boxed{}$ $\boxed{\text{PAUSE}}$ pauses the dialing sequence until $\boxed{\text{DIAL}}$ is pressed to resume dialing of the remaining digits (see page 44).

CALC mode: Serves as the multiplication operator key.

$\boxed{\text{SPACE}}$	**TEL mode:** Enters spaces during an entry or correction.

CALC mode: Serves as the addition operator key.

Note

Many of the keys on the EL-6230 have dual functions. In this Manual, they are represented by simplified symbols, for example:

$\boxed{\text{MODE} \atop \text{📇}}$ — $\boxed{\text{MODE}}$

$\boxed{\text{ABC} \atop 2}$ — $\boxed{\text{ABC} \atop 2}$

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RESET switch
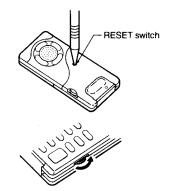
Press the RESET switch with a ball-point pen or similar object as shown in the figure. Do not use a sharp, pointed object with a breakable tip, such as a mechanical pencil or needle.

Contrast adjustment

Turn the dial in the direction of the arrow to darken the display. Turn in the opposite direction to lighten the display. Adjust the contrast so that the display is easy to read.

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The Display

The following symbols may appear in the display at certain times:

```
┌─────────────────────────┐
│ 🅰                      ↑ │
│ ☎                       │
│ ■━                     ↓ │
└─────────────────────────┘
```

↑   : Indicates the displayed listing continues above the display.
↓   : Indicates the displayed listing continues below the display.
🅰   : Indicates the Character Entry mode.
☎   : Indicates the TEL mode.
■━   : Indicates the Secret function is on and secret data can be entered or recalled.
__, ■ : Appears or blinks at where characters and numbers are to be entered.

Note

Japanese symbols " カナ " and " 英 " may appear faintly on the top left of the display.

16 These symbols do not affect any function or operation of the EL-6230.

The EL-6230 has two basic modes; the TEL and CALC modes. In the TEL mode, the telephone listings that have been entered are automatically sorted in alphabetic order.

• Mode Switching

MODE toggles the EL-6230 between the TEL and CALC modes each time it is pressed:
(1) When ON is pressed, the power is turned on and the TEL mode is selected.

```
█ N A M E ?
☎
```

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(2) Pressing MODE the first time changes to the CALC mode.

```
                                        0 .
```

(3) Pressing MODE again changes back to the TEL mode.

```
▣N A M E ?
☎
```

1. Entering Characters and Numbers

In the TEL mode, a NAME portion up to 12 alphanumeric characters (the upper line of the display) and NUMBERs up to 60 digits can be entered for each listing.

• Choose either the Character or Number Entry with N↔A:

When A is displayed, characters can be entered.

When A is cleared, numbers can be entered.

(1) Entering characters

Use 2ABC to 0QZ to enter alphabetic characters.

Example

Enter letter "B":

1 Press N↔A to display "A".

2 Press $\boxed{\substack{ABC \\ 2}}$ $\boxed{\substack{ABC \\ 2}}$ (twice), and the letter "B" will be displayed.
 • A, B, C can be entered in a cyclic sequence each time $\boxed{\substack{ABC \\ 2}}$ is pressed.

3 Press $\boxed{\overset{RM}{\blacktriangleright}}$. (Optional: It is not necessary to press $\boxed{\overset{RM}{\blacktriangleright}}$ except to enter another charac-
 ter with the same key.)
 • The cursor "__" moves to the next character position.

(2) Entering numbers
Use $\boxed{\substack{QZ \\ 0}}$ to $\boxed{\substack{WXY \\ 9}}$ to enter numbers.

1 Press $\boxed{\mathbb{N}\leftrightarrow\mathbb{A}}$ to clear "$\boxed{\mathbf{A}}$".

2 Enter the desired numbers with $\boxed{\substack{QZ \\ 0}}$ to $\boxed{\substack{WXY \\ 9}}$.

(3) Entering a hyphen (-), space, and dot (.)
Use $\boxed{\overset{-}{}}$, $\boxed{\substack{+ \\ SPACE}}$, and $\boxed{\overset{*}{}}$ to enter hyphens, spaces, and dots, respectively.

Note

The asterisk ($*$) is displayed as "$*$" in the upper line and "$-$" in the lower line.
20 The crosshatch (#) is displayed as " # " in the upper line and " $\vdots$ " in the lower line.

2. Storing a Telephone Listing

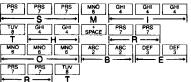Store Mr. Robert Smith's telephone number, 1- 212-555-1212.

Note

The family name should be entered first as the listing is sorted by the first letter.

1 Press MODE to display "☎" and the name prompt:

MODE

```
☎ N A M E ?
☎
```

2 Enter the name, "SMITH ROBERT":

PRS 7	PRS 7	PRS 7	MNO 6	GHI 4	GHI 4	GHI 4
←— S ——→			M	←— I ——→		

| TUV 8 | GHI 4 | GHI 4 | + SPACE | PRS 7 | PRS 7 | |
| T | ←— H ——→ | | | ←— R ——→ | | |

| MNO 6 | MNO 6 | MNO 6 | ABC 2 | ABC 2 | DEF 3 | DEF 3 |
| ←————— O —————→ | | | ←— B ——→ | | ←— E ——→ | |

| PRS 7 | PRS 7 | TUV 8 |
| ←— R ——→ | | T |

```
█ S M I T H    R O B E R T
☎
```
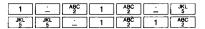
If you make a mistake, press [CM◄] to move the cursor to the error, then overwrite the correction.

3 Press [M+↓] ([RM►]) to move the cursor to the first position on the lower line.

[M+↓] ([RM►])

```
    S M I T H    R O B E R T
☎ _
```

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4 Enter the telephone number:

| 1 | - | ABC 2 | 1 | ABC 2 | - | JKL 5 |
| JKL 5 | JKL 5 | - | 1 | ABC 2 | 1 | ABC 2 |

```
1 - 2 1 2 - 5 5 5 - 1 2 ↑
☎ 1 2 _
```

- The arrows "↑" or "↓" indicate that more information (in this case "SMITH ROBERT") is above or below what is now on the display.

5 Press [ENTER] to store the entry.

[ENTER]

- The EL-6230 is now ready for a new entry.

```
☒ N A M E ?
☎
```

Example 2

Store two telephone numbers for Fred Jones, 1-212-456-7890 and 1-212-456-7891:

1 Display the name prompt in the TEL mode, then enter the name. (Refer to step 1 in Example 1.)

JKL 5	MNO 6	MNO 6	MNO 6	RM ▶	MNO 6	MNO 6
DEF 3	DEF 3	PRS 7	PRS 7	PRS 7	SPACE	DEF 3
DEF 3	DEF 3	PRS 7	PRS 7	DEF 3	DEF 3	RM ▶
DEF 3						

```
Ⓐ J O N E S    F R E D
☎
```

2 Press ⟨ M+̲ ⟩ to move the cursor to the first position on the lower line, then enter the first telephone number:

M+̲ ▼	1	–	ABC 2	1	ABC 2	–
GHI 4	JKL 5	MNO 6	–	PRS 7	TUV 8	WXY 9
QZ 0						

```
1 - 2 1 2 - 4 5 6 - 7 8 ↑
☎ 9 0 _
```

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3 Scroll to the first position of the next line:

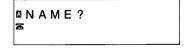| M+ |

```
  9 0                          ↑
☎ _
```

Note

To enter two or more telephone numbers for a listing, use separate lines. The EL-6230 recognizes the number by locating the end of the line and dials automatically.

4 Now enter the second telephone number:

| 1 | — | ABC 2 | 1 | ABC 2 | — | GHI 4 |
| JKL 5 | MNO 6 | — | PRS 7 | TUV 8 | WXY 9 | 1 |

```
  1 - 2 1 2 - 4 5 6 - 7 8 ↑
☎ 9 1 _
```

5 Press $\boxed{\overline{\text{ENTER}}}$ to store all the entry.

$\boxed{\overline{\text{ENTER}}}$

```
Ⓐ N A M E ?
☎
```

3. Recalling Telephone Directory

Telephone listings stored in the TEL mode are internally sorted in the following order:
Space, A to Z, 0 to 9, crosshatch (#), asterisk (✳), hyphen (-), dot (.).
There are two ways to search for a telephone listing, sequential and direct.

(1) Sequential search

Telephone listings can be recalled in the forward or reverse order:

$\boxed{\lor}$: Recalls the listings in the forward order.

$\boxed{\land}$: Recalls the listings in the reverse order.

If the desired listing is overrun during recall with $\boxed{\lor}$, go back to it with $\boxed{\land}$.

• For fast search, hold down $\boxed{\lor}$ or $\boxed{\land}$.

(2) Direct search
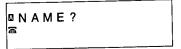It is possible to go directly to the desired listing by entering the first letter or letters of the name, then pressing $\boxed{\vee}$ or $\boxed{\wedge}$. If a name that begins with the specified letter is not found, "NOT FOUND!" is displayed and returns to the name prompt.

Example

Recall the telephone number for Mr. Smith Robert:

1 Press MODE to display "☎".

MODE

```
◰ N A M E ?
☎
```

[2a] Sequential: Press [v] until the listing for SMITH ROBERT is displayed:

[v]

[2b] Direct: Press [PRS 7] [PRS 7] [PRS 7] to display "S",
then press [v].

```
🅰 S M I T H   R O B E R T
☎ 1 - 2 1 2 - 5 5 5 - 1 2 ↓
```

[3] Press [M+] to scroll the remaining information into the display:

[M+]

```
🅰 1 - 2 1 2 - 5 5 5 - 1 2 ↑
☎ 1 2
```

Hint:
For frequently used numbers, try storing a space before the first letter of the name. Name
entries beginning with a space are recalled first during a sequential search for fast recall
even with the case closed.

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4. Correcting Entries

■ Correcting data during an entry

1. Use $\boxed{\text{CM}}$, $\boxed{\text{RM}}$, $\boxed{\text{M-}}$, or $\boxed{\text{M+}}$ to move the cursor to the character or number to be corrected.

2. Overwrite the correct character or number.

3. Press $\boxed{\text{ENTER}}$ when the entry is correct.

■ Correcting stored data

1. Use $\boxed{\lor}$ or $\boxed{\land}$ to recall the listing to be corrected.

2. Use $\boxed{\text{RM}}$ or $\boxed{\text{CM}}$ to move the cursor to the character to be corrected. (The cursor ($\_$ or ■) appears, or the character blinks.)

3. Follow the correction procedure described under "Correcting data during an entry" above.

5. Deleting Entries

To create a space in memory for new listings by deleting old listings which are no longer needed.

1. Recall the listing to be deleted.
2. Press CE.

```
┌─────────────────────────┐
│ ▣ D E L E T E ⊱?⊰       │
│ ☎                       │
└─────────────────────────┘
```

3. Press ENTER.
   • The listing is now deleted.
   • To cancel the deletion, press any key other than ENTER.

6. Checking Memory Space

The Memory Check feature allows a check of the remaining space in the TEL memory:

1 Press MODE to select the TEL mode.

2 Press M-CK. Numbers will be displayed below CHARA and ITEM. The number below CHARA indicates the number of characters (bytes) that can be entered. The number below ITEM indicates the number of listings already stored.

• Up to 1808 characters (bytes) can be stored.

```
▣CHARA        ITEM
☎   1 7 5 2         2
```

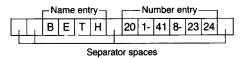3 To clear the Memory Check function, press any key other than [ON].

Reference:

One byte is required for one character in the name entry and one byte is required for two digits in the number entry. When an odd number of digits in a number entry is added, the leftover digit occupies one byte.

(Four bytes are required for separator spaces in one listing.)

• Data entries are stored into memory in the following format.

Example: BETH 201-418-2324

| | | | B | E | T | H | | 20 | 1- | 41 | 8- | 23 | 24 | |

Name entry — Number entry

Separator spaces

• In the example, the listing occupies a total of 14 bytes.

7 SECRET FUNCTION

To prevent others having access to the telephone directory, use the Secret function which only permits access by the use of a password.

When a password is registered:
- When "■─" is displayed, "secret" listings can be stored or recalled.
- When "■─" is not displayed, the Secret function is active, it is not possible to recall or store "secret" listings.

1. About the Password

- Only one password can be registered, but that password can make more than one listing secret.
- Up to six characters can be used in the password.
- When more than six characters are entered, only the first six characters are valid.

- A password may contain alphanumeric characters, spaces, and dots. Spaces are valid only if they are followed by alphanumeric characters.
- To clear the password, see the description under "8. CLEARING MEMORY CONTENTS" on page 38.

2. Registering a Password

Example

Register the password, "123456."

1 Press MODE to display "☎".

2 Press C to display the name prompt.

3 Press SECRET.

The prompt "PASSWORD?" appears and "▬▬" blinks. If "▬▬" does not appear after pressing SECRET, a password is already registered. To register a new password, the existing password has to be deleted. To delete the existing password, see the description under "8. CLEARING MEMORY CONTENTS" on page 38.

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4 Enter the password, "123456."

- To enable number entry, press $\boxed{\text{N}\leftrightarrow\text{A}}$ to clear " $\boxed{\text{A}}$ ". Then enter "123456."

5 Press $\boxed{\text{SECRET}}$.

- " ▬▬ "will stop blinking. The new password has been registered.
- If the password is forgotten, it will be necessary to clear the password and all secret information from memory. As a safeguard, make a written record of the password.

3. Displaying "▬▬ "

1 Press $\boxed{\text{MODE}}$ to display " ☎ ".

2 Press $\boxed{\text{SECRET}}$.

- "PASSWORD?" is displayed.

3 Enter the password.

- In the previous example, "123456" was entered as the password.

4 Press SECRET.

- " ▬▬ " appears, indicating that it is possible to store or recall secret listings.
- If " $\boxed{\substack{\text{□} \times \times \times \times \times \times \times \times \times \times \times \times \times \\ \text{□} 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0\ 0}}$ " is displayed when a password is entered, the password is incorrect. Enter the correct password.

4. Clearing " ▬▬ " from the Display

- Press SECRET once when secret listings are recalled, or twice when the name prompt is displayed.
- Or, press OFF to turn the power OFF.

5. Store/Recall/Correct/Delete Secret Information

When " ▬▬ " is displayed (not blinking), it is possible to store/recall/correct/delete secret listings in a similar manner to non-secret directory listings (see pages 19 to 30).

Difference between Secret and Non-Secret Listings

- If " ▬▬ " blinks when a listing is recalled, that listing is secret.
- Secret information is the first listing recalled.

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6. Changing the Password

To change the password which has been registered, follow the steps below:

1 Display "■→" and then the name prompt (see page 34).

2 Press SECRET.

   • The current password is displayed and "■→" blinks.

3 Press ▸RM◂.

   • The first digit of the password blinks.

4 Enter the new password.

5 Press SECRET.

   • "■→" will stop blinking, indicating that the password has been changed.

Note

The password cannot be changed to spaces. To delete the password and secret information, see the description under "8. CLEARING MEMORY CONTENTS" on page 38.

8 CLEARING MEMORY CONTENTS

To clear all of the memory contents (including calculator memory), use the RESET switch.

■ To Clear the Password and Secret Information

1 Press ON to turn the power on.

2 Press the RESET switch on the back (for more details, see "RESET switch" on page 15).
   • The confirmation prompt "ロ-n RESET OK?" is displayed to confirm that password and secret information are to be cleared.

3 To clear, press ENTER.

■ To Clear All Information When No Password is Registered

1 Press ON to turn the power on.

2 Press the RESET switch.
   • The confirmation prompt "RESET OK?" is displayed.

3 Press ENTER.

38   • The entire memory contents are cleared.

The EL-6230 is designed for a touch-tone phone or rotary phone with touch-tone line. (However, the ANS feature can also be used on a rotary phone without a touch-tone line, see page 57.)

Before using the dialing functions, carefully read the following instructions.

1. Dialing Tips

For correct transmission of dial tones from the EL-6230 to the telephone handset mouthpiece, the speaker grille must be pressed correctly against the mouthpiece. When dialing, observe the following instructions:

1. Place the speaker grille on the center of the telephone handset mouthpiece and hold the handset and the EL-6230 **vertically** (See Figure).

2. While dialing, do not move the EL-6230.

If dialing is not successful although these instructions are correctly observed, this may be due to one of the following reasons:

Condition: If the handset contains a carbon microphone, it may not reproduce the dial tone accurately.

Remedy: Shake the handset back and forth several times or tap the mouthpiece several times to loosen the carbon particles. Hold the handset and the EL-6230 in a vertical position, as shown in Figures ① and ② below, and try redialing.

Condition: Loud, ambient noise may interfere with the successful transmission of dial tones.

Remedy: Redial the number when the noise has subsided or in a quieter area.

Condition: Non-standard size or shape handsets may not transmit tones properly. (e.g.: The mouthpiece is curved so the speaker cannot rest flush against it.)

Remedy: Use the EL-6230 with a different type of telephone.

Condition: The Secret function prevents access to the CARD/ANS memory.

Remedy: Clear the Secret function (see page 36) and redial.

9 DIALING FUNCTION

The EL-6230 is designed for a touch-tone phone or rotary phone with touch-tone line. (However, the ANS feature can also be used on a rotary phone without a touch-tone line, see page 57.)

Before using the dialing functions, carefully read the following instructions.

1. Dialing Tips

For correct transmission of dial tones from the EL-6230 to the telephone handset mouthpiece, the speaker grille must be pressed correctly against the mouthpiece. When dialing, observe the following instructions:

1. Place the speaker grille on the center of the telephone handset mouthpiece and hold the handset and the EL-6230 **vertically** (See Figure).

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Condition: Loud, ambient noise may interfere with the successful transmission of dial tones.

Remedy: Redial the number when the noise has subsided or in a quieter area.

Condition: Non-standard size or shape handsets may not transmit tones properly. (e.g.: The mouthpiece is curved so the speaker cannot rest flush against it.)

Remedy: Use the EL-6230 with a different type of telephone.

Condition: The Secret function prevents access to the CARD/ANS memory.

Remedy: Clear the Secret function (see page 36) and redial.

2. Auto Dialing

1. Using the EL-6230 as an Auto Dialer

1 Select the TEL mode and recall the number to be dialed.

2 Hold the EL-6230's rear speaker grille firmly against the handset mouthpiece.
   • Be sure to position the speaker grille in the center of the mouthpiece. For more details, see "Dialing Tips" on page 39.

3 Press DIAL.
  - The EL-6230 will generate tones to dial the number.
  - The number will shift to the left of the display as each digit is automatically dialed, and a dial tone can be heard from the speaker as each digit is dialed.

■ **When more than one number is registered for a single listing**

When dialing according to the above procedure, the first telephone number recalled is dialed. The EL-6230 dials the number currently displayed.

To dial other numbers in the same listing, simply scroll the desired number into the display before using auto dialing:

1 Select the TEL mode and recall the desired telephone listing.

2 Press ▼ to scroll the number to be dialed into the lower line.

3 Now follow steps 2 and 3 in 1. to automatically dial the second or subsequent number in the listing.

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(1) Local dialing

Recall the number to be dialed, and press `LOCAL` and then `DIAL`. The EL-6230 will dial only the last two blocks in the number, which are separated by a hyphen.

• "LOCAL DIAL" is displayed in the upper line.
• Local dialing is cleared by pressing `LOCAL` twice or after dialing is complete.

(2) Slow dialing

Depending on the line conditions, it may not be possible to dial the called party. In such a case, to ensure correct dialing, it is possible after recalling the number to be dialed to reduce the dialing speed to half the normal speed by pressing `SLOW` before `DIAL`.

• "SLOW DIAL" is displayed in the upper line.
• Slow dialing is cleared by pressing `SLOW` twice or after dialing is complete.
• Press `LOCAL` `SLOW` (or `SLOW` `LOCAL`) and then `DIAL` to automatically dial the local number at half the normal dialing speed.

(3) Redialing

The EL-6230 has a redial capability which allows it to redial the last number called with a single key.

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The redial feature "remembers" the last number even if the EL-6230 is switched off by ⌊OFF⌋, or turned off by the Auto Power Off feature. Turn the power on and redial the last number called by pressing ⌊DIAL⌋.

(4) Pause features
Entering ⌊PAUSE⌋ or ⌊PAUSE⌋ ⌊−⌋ ⌊PAUSE⌋ in the number entry allows the EL-6230 to delay the dialing sequence each time the pause appears during dialing.
The Pause and Wait features can make a pause of either a specified or an indefinite length during dialing.

• Pause

Example

To insert a brief timed pause until a dial tone returns after dialing "7" for an outside line on a business phone.

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The Pause feature allows insertion of a pause of approximately one second duration in the digit position where $\boxed{\text{PAUSE}}$ is pressed. The EL-6230 then resumes dialing for the remaining portion of the number.

To insert a pause of about three seconds, press $\boxed{\text{PAUSE}}$ three times ($\boxed{\text{PAUSE}}$ $\boxed{\text{PAUSE}}$ $\boxed{\text{PAUSE}}$) at the digit position requiring the pause. (The pause indicator is displayed as "$\boxed{P}$" in the upper line and " P " in the lower line.)

• Wait

Example

Using the Wait feature to pause until you press $\boxed{\text{DIAL}}$ again to perform the Calling Card Dial Service, to receive a computer service or to perform remote control of answering machines during dialing.

The Wait feature pauses dialing at the digit position where $\boxed{\text{PAUSE}}$ $\boxed{}$ $\boxed{\text{PAUSE}}$ (display: P - P or $\boxed{P}$ — $\boxed{P}$) was entered. Resume dialing the remaining portion of the number by pressing $\boxed{\text{DIAL}}$.

(5) CARD/ANS features

The CARD feature requires that you use the Calling Card Dial Service from your telephone company. With this service it is possible to bill calls made outside the home to the home telephone. Also the ANS feature provides remote control for answering machines with the beeperless remote feature.

- Three memories are provided for the CARD feature and one memory for the ANS feature. Choose one of these memories in a cyclic sequence with CARD/ANS:

```
  ┌→ CARD 1: CO.? → CARD 2: CO.? ┐
  └── ANS: ?   ← CARD 3: CO.? ←┘
```

- If a password is already entered, the contents of the CARD/ANS memories automatically becomes secret information.

1. Calling Card Dial Service Sequence

To use Calling Card Dial Service from individual companies, dial the following sequences.

■ AT & T

0-XXX-XXX-XXXX	(computer tone)	XXX-XXX-XXXX-XXXX
(1)	(2)	(3)
The number to be dialed with a zero prefix (TARGET).	Enter a Wait pause (P - P).	Calling card authorization number.

Note

It is not necessary to enter the computer access number.

■ MC¹

1-800-950-1022 (computer tone) 0-XXX-XXX-XXXX (computer tone) XXX-XXX-XXXX-XXXX

(1)	(2)	(3)	(4)	(5)
Computer access number.	Enter a Wait pause (P - P).	The number to be dialed with a zero prefix (TARGET).	Enter a Wait pause (P - P).	Calling card authorization number.

■ US SPRINT

1-800-877-8000 (computer tone) 0-XXX-XXX-XXXX (computer tone) XXX-XXX-XXXX-XXXX

(1)	(2)	(3)	(4)	(5)
Computer access number.	Enter a Wait pause (P - P).	The number to be dialed with a zero prefix (TARGET).	Enter a Wait pause (P - P).	Calling card authorization number.

Storing calling card dial numbers

The below is an example. Key in according to the sequence your calling card requires.

1 Select the TEL mode, then press CARD/ANS :

MODE CARD/ANS

• If the password is registered and "■─" is cleared, "PASSWORD?" is displayed. In this case, enter the password and press SECRET to display "■─". Then press CARD/ANS.
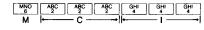
```
ⒶCARD1:CO.?
☎
```
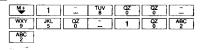
2 Enter the telephone company name (in this case "MCI"):

| MNO 6 | ABC 2 | ABC 2 | ABC 2 | GHI 4 | GHI 4 | GHI 4 |

M |←——— C ———→||←——— I ———→|

```
🅰 M C I
☎
```

3 Move the cursor to the lower line, and enter the computer access number:

| M+ | 1 | − | TUV 8 | QZ 0 | QZ 0 | − |
| WXY 9 | JKL 5 | QZ 0 | − | 1 | QZ 0 | ABC 2 |
| ABC 2 |

```
1 - 8 0 0 - 9 5 0 - 1 0↑
☎ 2 2 _
```
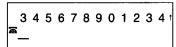
4 Enter a Wait pause (P - P) to wait for the computer tone during dialing:
(Enter 0 before the number to be dialed.)

| × PAUSE | − | × PAUSE | QZ 0 |

```
1 - 8 0 0 - 9 5 0 - 1 0↑
☎ 2 2  P - P  0 _
```

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5. Press $\boxed{\text{TARGET}}$ to specify the location in the sequence (⌐⌐) where you want to enter the number to be dialed:

$\boxed{\text{TARGET}}$

• During auto dialing, the EL-6230 automatically dials the number of the person you are calling here.

```
1 - 8 0 0 - 9 5 0 - 1 0 ↑
☎ 2 2   P - P   0 ⌐ _
```

6. Following the space, insert another Wait pause (🄿 — 🄿) to wait for the second computer tone. Finally, enter the calling card authorization number:

$\boxed{\text{PAUSE}}$	$\boxed{-}$	$\boxed{\text{PAUSE}}$	$\boxed{1}$	$\boxed{\text{ABC} \atop 2}$	$\boxed{\text{DEF} \atop 3}$	$\boxed{\text{GHI} \atop 4}$
$\boxed{\text{JKL} \atop 5}$	$\boxed{\text{MNO} \atop 6}$	$\boxed{\text{PRS} \atop 7}$	$\boxed{\text{TUV} \atop 8}$	$\boxed{\text{WXY} \atop 9}$	$\boxed{\text{QZ} \atop 0}$	$\boxed{1}$
$\boxed{\text{ABC} \atop 2}$	$\boxed{\text{DEF} \atop 3}$	$\boxed{\text{GHI} \atop 4}$				

```
3 4 5 6 7 8 9 0 1 2 3 4 ↑
☎ _
```

7. Press $\boxed{\text{ENTER}}$ to store the entry.

■ Correcting the CARD/ANS memory

To correct the CARD/ANS memory, recall the CARD/ANS memory which requires correction, enter the new data and then press ⌊ENTER⌋.

If the correction is only minor, use the correction procedure in the TEL mode.

Note

Use this procedure only when correction is required.

■ Making a call on a calling card dial service

Example

Call Mr. Robert Smith on MCI's calling card dial (your sequence may vary) service:

1 Recall Robert Smith's telephone number:

| PRS 7 | PRS 7 | PRS 7 | V |

```
🄰 S M I T H   R O B E R T
☎ 1 - 2 1 2 - 5 5 5 - 1 2 ↲
```

2 Recall the CARD memory:

CARD/ANS

* If "PASSWORD?" is displayed, enter the password and press SECRET to display "■━". Then press CARD/ANS.

```
ⓐ M C I
☎ 1 - 8 0 0 - 9 5 0 - 1 0 ↵
```

3 Press DIAL to dial the MCI computer.

4 Wait for the computer tone, then press DIAL again. The EL-6230 automatically dials Smith's number with a "0" prefix (the "1" is skipped).

5 Wait for the computer tone, then press DIAL again. The EL-6230 automatically dials the authorization number to complete the sequence.

Note

Calling Card Dial Service uses the same dialing procedure for long distance and local calls. So it is not necessary to press LOCAL when dialing a local number using the Calling Card Dial Service.

2. Remote Control of Answering Machines with the Beeperless Remote Feature

Remote control of answering machines differs depending on the telephone set used.

Example

1-234-567-8901	(answer-back message)	#130 #	(wait for about 3 sec.)	1 #
(1)	(2)	*(3)	*(4)	*(5)
Answering machine number	Enter a Wait pause (P - P).	Password number	Enter another Wait pause (P - P).	Playback code

Note

Dialing of blocks *(3), *(4), and *(5) differs between answering machines.
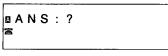
■ Storing Remote Control Code for Answering Machines

The following is an example. Key in according to the sequence your answering machine requires.
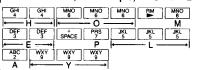
1. Select the TEL mode, then press `CARD/ANS` until the prompt "ANS:?" is displayed:

`CARD/ANS` (Press several times.)
- If "PASSWORD?" is displayed, enter the password and press `SECRET` to display "━━". Then press `CARD/ANS` several times.

```
🄰 A N S : ?
☎
```

2. Enter the name, for example, "HOME PLAY":

GHI 4	GHI 4	MNO 6	MNO 6	MNO 6	RM	MNO 6
←── H ──→	←── O ──→	M
DEF 3	DEF 3	+ SPACE	PRS 7	JKL 5	JKL 5	JKL 5
←── E ──→	P	←──── L ────→
ABC 2	WXY 9	WXY 9	WXY 9
A	←── Y ──→

```
🄰 H O M E    P L A Y
☎
```

3. Move the cursor to the lower line and enter the answering machine's number:

M+ ▼	1	-	ABC 2	DEF 3	GHI 4	-
JKL 5	MNO 6	PRS 7	-	TUV 8	WXY 9	QZ 0
1

```
  1 - 2 3 4 - 5 6 7 - 8 9 ↑
☎ 0 1 _
```

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4. Insert a Wait pause (p - p) to wait for the answerback message from the answering machine:

| PAUSE | – | PAUSE |

```
1 - 2 3 4 - 5 6 7 - 8 9 ↑
☎ 0 1  p - p  _
```

5. Enter the password number, three pauses, and the playback code:

| % | 1 | DEF 3 | QZ 0 | % | PAUSE | PAUSE |
| PAUSE | 1 | % |

```
0 1 P - P # 1 3 0 # P P ↑
☎ p 1 :  _
```

6. Press ENTER to store the entry.

■ Dialing Remote Control Codes for Answering Machines

Your sequence may vary.

1. Recall the information stored in the ANS memory:

   [CARD/ANS] (Press several times.)
   - If "PASSWORD?" is displayed, enter the password and press [SECRET] to display "➥". Then press [CARD/ANS] several times.

   ```
   ◨HOME   PLAY
   ☎1 - 2 3 4 - 5 6 7 - 8 9↓
   ```

2. Press [DIAL] to dial the machine's number.
   - To dial the local number, press [LOCAL] before [DIAL].

3. Wait for the outgoing message, then press [DIAL] again.
   - In this case, the playback code is stored. To access other codes besides playback, use MANUAL dialing (see page 58).

- Remote control of answering machines can be performed using a rotary phone.

1. Press $\boxed{\text{CARD/ANS}}$ to recall the information stored in the ANS memory:

   $\boxed{\text{CARD/ANS}}$ (Press several times.)

   ```
   ▣HOME  PLAY
   ☎1 - 2 3 4 - 5 6 7 - 8 9 ↓
   ```

2. Press $\boxed{\text{DIAL}}$ once without placing the EL-6230 against the mouthpiece. (Leave the handset on the telephone.)

3. Pick up the handset and dial the answering machine number manually on the rotary phone.

4. After the answer-back message is heard, place the speaker grille to the handset mouthpiece and press $\boxed{\text{DIAL}}$. Remember to allow for the 3-second pause between the password number and the playback code.

3. Manual dialing

To dial manually (digit-by-digit) with the EL-6230 (as with a touch-tone telephone), press MANUAL and dial the number using the numeric, ✳ and # keys for the called number.

• When manual dialing is complete, the number dialed remains on the display. Pressing DIAL at this point automatically dials that number.

• Pressing C clears manual dialing.

10 CALCULATION MODE

Calculator Function (CALC mode)
Press MODE to select the calculator mode.

MODE

0 .

1. Calculation Examples

Press ⌐ C ⌐ prior to beginning any calculation. If nothing appears in the display during calculation, do not continue making entries.

+ − × ÷	12 × 3 + 5 =	12 [×] 3 [+] 5 [=]	41.
	(− 24 + 2) ÷ 4 =	[C] [−] 24 [+] 2 [÷] 4 [=] *1	− 5.5
Constant calculations*2	34 + 57 = 45 + 57 =	34 [+] 57 [=] (Constant addend) 45 [=]	91. 102.
	48 − 23 = 14 − 23 =	48 [−] 23 [=] (Constant subtrahend) 14 [=]	25. − 9.

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Constant calculations*2	$\underline{68} \times 25 =$ $\underline{68} \times 40 =$	68 [×] 25 [=] (Constant multiplicand) 40 [=]	1700. 2720.
	$35 \div \underline{14} =$ $98 \div \underline{14} =$	35 [÷] 14 [=] (Constant divisor) 98 [=]	2.5 7.
Percent calculations	$200 \times 10\% =$	200 [×] 10 [%]	20.
	$9 \div 36 = (\%)$	9 [÷] 36 [%]	25.
Add-on/ discount calculations	$200 + (200 \times 10\%) =$	200 [+] 10 [%] (or 200 [×] 10 [%] [+] [=])	220.
	$500 - (500 \times 20\%) =$	500 [−] 20 [%] (or 500 [×] 20 [%] [−] [=])	400.
$A^6 = (A^3)^2$	$4^6 = (4^3)^2 =$	4 [×] [=] [=] [×] [=]	4096.

Reciprocal calculaiton	1/8 =	8 $\div$ =	0.125
Memory calculations*3	25 × 5 = (1) −) 84 ÷ 3 = (2) +) 68 + 17 = (3) Total = (4)	CM 25 × 5 M+ 84 ÷ 3 M− 68 + 17 M+ RM	M 125. (1)*4 M 28. (2) M 85. (3) M 182. (4)
	(14 − 3 × 2) × (52 − 35) =	CM 14 M+ 3 × 2 M− 52 − 35 × RM =	M 6. M 136.
	(Constant) 135 × (12 + 14) = (12 + 14) ÷ 5 =	CM 12 + 14 M+ 135 × RM = RM ÷ 5 =	M 26. M 3510. M 5.2

*1 Calculations with a negative number can only be performed when the negative number is the first entered by pressing C −.

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*2 This calculator has a built-in constant feature for repeat calculations using the same number.

*3 Before beginning, press $\boxed{\text{CM}}$ to clear the contents of the memory register. $\boxed{\text{M+}}$ and $\boxed{\text{M-}}$ work as equals ($\boxed{=}$) keys.

*4 " M " will appear when a number is stored in memory.

2. Error Conditions

There are situations that will cause an overflow or an error condition. When this occurs, "E" will appear. $\boxed{\text{C}}$ must be pressed to resume calculation. (The contents of the calculator memory are retained.)

Situations that will cause overflow or error conditions:

1. When any number is divided by zero. (e.g., 5 $\boxed{\text{TARGET}}$ 0 $\boxed{=}$)
2. When the integer part of a result or memory exceeds 10 digits. (e.g., 9000000000 $\boxed{+}$ 15 $\boxed{\%}$ or $\boxed{\text{CM}}$ 9999999999 $\boxed{\text{M+}}$ 1 $\boxed{\text{M+}}$)

11 BATTERY REPLACEMENT

The EL-6230 uses three batteries (LR44 alkaline manganese).
When replacing batteries, the entire memory contents are cleared. Make a written record of the important information before replacing batteries.
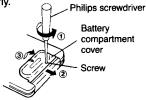
When to Replace Batteries:
• If the display is hard to read even when adjusted for maximum contrast.
• Worn batteries cause the memory to function improperly.

How to Replace the Batteries
1. Turn the power off.
2. Remove the screw and then the battery compartment cover. (Fig. 1.)
3. Take out the old batteries. (Fig. 2.)

Fig. 1.

4 Carefully clean the three new batteries with a dry cloth and insert them so that their plus and minus indicators match those in the battery compartment. (Plus side up) (Fig. 2.)

5 Attach the battery compartment cover and replace the screw.

6 Turn the power on, press the RESET switch, check to see that "RESET OK?" is displayed and press any key other than $\boxed{\text{ENTER}}$. If "RESET OK?" is not displayed, remove the batteries and try inserting them again.

(Plus side up)

Fig. 2.

1. Be sure to replace all batteries at the same time.
2. Do not mix new and used batteries.
3. Make sure the new batteries are the correct type.
4. Make sure the plus and minus indicators match those in the battery compartment.

Precautions
- Keep batteries out of the reach of children.
- The batteries in the EL-6230 were inserted at the factory, they may expire before the time noted in the specifications.
- If worn batteries are left in the EL-6230, they may leak and damage the EL-6230.
- Do not throw batteries into a fire, they may explode.

12 SPECIFICATIONS

Model	EL-6230
Display	12-digit, 2-line liquid crystal display

TEL Mode

Dial functions	Store, recall and change names and numbers, tone dialing, secret, search (sequential and direct)
Memory capacity	Approx. 2K bytes System area: 240 bytes User area: 1808 bytes

Telephone numbers for approximately 110 people can be entered (with an average of 6 characters for the name entry and 12 digits for the number entry.)

Display digits	10
Mathematical functions	Basic arithmetic calculations, constant calculations, powers, reciprocals, percentages, memory

Power supply	4.5V⎓ (DC) (3 LR44 alkaline manganese batteries)
Power consumption	0.05 W
Components used	LSI devices, etc.
Operating temperature range	0° to 40°C (32° to 104°F)

Operating time	Approx. 12 months based on the example "SMITH JOHN 212-555-1212" displayed at an ambient temperature of 20°C (68°F), with the following daily use:
	30 minutes display
	3 minutes operation
	20 calls dialed
	(Varies depending on the type of batteries and use conditions.)
Dimensions	66 (W) × 139 (D) × 11.4 (H) mm (excluding speaker)
	2-19/32″(W) × 5-15/32″(D) × 7/16″(H)
Weight	93 g (0.21 lb.) with batteries
Accessories	3 alkaline manganese batteries (installed), operation manual and quick guide

SERVICE CENTER ADDRESS

SHARP ELECTRONICS CORPORATION
SHARP SERVICE CENTER
1300 Naperville Drive
Romeoville, Illinois 60441
(312) 759-8555