INTRODUCTION

Dear customer,

Congratulations on your purchase of this CASIO CG-1 Computerized Quartz. This is a revolutionary new product designed to serve the following three purposes: a clock with four alarms, a stopwatch and a calculator. Please read this manual carefully and thoroughly so that a longer machine life can be ensured.

INDEX
1. NOMENCLATURE .................................................. 1
2. MODE SELECTOR .................................................. 2
3. IMPORTANT NOTES ............................................... 3
4. POWER SOURCE .................................................. 4
5. USAGE .............................................................. 6
   DIGITAL CLOCK ................................................ 7
   HOW TO USE ALARM ......................................... 8
   STOPWATCH .................................................... 9
   CALCULATOR ................................................... 12
6. APPLICATIONS .................................................. 14
7. IF ANY SIGN OF MALFUNCTION IS NOTICED .............. 18
8. SPECIFICATIONS ............................................... 18

1) NOMENCLATURE

(1) READ-OUT
Shows the date, day, hours, minutes and AM/PM in the clock mode, the time measured in the stopwatch mode and all figures including entries and answers in the calculator mode.

(2) MODE SELECTOR
Allows the use of the unit in the three different modes of clock, stopwatch and calculator. It is also used to switch on and off the display and to set the clock and alarm.

(3) ELECTRONIC BUZZER
Sounds at a preset time with a high-frequency electronic tone.
(4) AC ADAPTOR SOCKET (JACK)
Used when connecting this unit to the AC outlet.

(5) KEYBOARD
Used to set the time, date and alarm time and also to perform calculations. It has numeral keys, [0-9], [□] and command keys: [□] [□] [□] and [□].

(6) TIME KEY
Allows the mode to be started with a time signal. When the clock is powered by battery, the key is used to display the time. In stop watch mode, it also serves as a start/stop key.

(7) LAP KEY
Used to check the lap times of a race, etc. in the stopwatch mode.

(8) ALARM KEY
Used to set the alarm or stop the electronic buzzer.

MODE SELECTOR
The mode selector allows the setting of the unit to a desired mode so it can perform different functions:
• With the mode selector in ST, the unit can serve as a stopwatch.
• When the unit is not in use, place the mode selector in OFF. In this case, the time display disappears but the clock keeps timing.

3 IMPORTANT NOTES
• Setting the mode selector in TIME permits use of the unit as a clock. When the unit is battery-powered, the time can be displayed by depressing the [□] key, and the time display continues only while the key is kept depressed.
• When the unit is connected to the AC adapter, it gives constant time display.
• When the mode selector is set in COMP, the unit can be used as a calculator.
• When the mode selector is placed in SET, the setting of the date, time and alarm time is possible.

Since the clock is operated by two silver oxide batteries (5-13), it continues timing regardless of the mode selector position.
• EACH TIME THE MODE SELECTOR IS OPERATED, BE SURE TO DEPRESS THE [□] KEY.

• Since the CD-1 contains precision electronic components, never attempt to disassemble it. Be careful not to drop or give the unit a hard shock. Avoid operating the keys roughly.
• Avoid using the CD-1 in an extremely dusty, hot or humid place. Never expose it to direct heat from a heater or to the direct sunshine for long periods, for instance, inside a car or on a terrace.
• To clean the exterior of the unit, use a dry, soft cloth or a cloth moistened with a neutral detergent. (The cloth should be squeezed hard after being dipped in the detergent.) Avoid using a lacquer thinner, benzine or alcohol.
• When the unit is not used for a long period or when it is operated by AC power, it is advisable to remove the AA-size dry battery.
• Do not remove the silver oxide batteries unless it is exhausted.

4 POWER SOURCE

The CO-1 is operated by two different types of batteries for the clock and display.

For clock: Two silver oxide batteries (6-13) (The batteries supply power for alarm, stopwatch and calculator functions.)
For display: One AA-size dry battery (UM-3, SUM-3 or AM-3), or AC power (The AA-size battery supplies power for display of time, calendar, entry, calculation result, etc.)

LOADING BATTERIES
1. Lightly press the portion marked OPEN on the battery box cover on the back of the unit with your finger, and push it in the direction of the arrow. Now the cover can be opened.
2. When it is opened, another small cover can be seen inside. It can be opened in a similar manner.

3. Put two silver oxide batteries (for the clock) into the smaller box, and replace the cover.
4. Put the AA-size dry battery (for display) into the larger box and replace the cover.
   * Take care not to reverse battery polarity.

BATTERY LIFE AND REPLACEMENT INTERVALS

• The two silver oxide batteries (for the clock) continue to operate for about one year.
• The AA-size dry battery (UM-3 for display) operates continuously for about 10 hours.
• When the battery voltage for display drops, the display begins to flash or grow dim.
• When the battery voltage for the clock drops, all functions will be stopped.
• If any sign of voltage drop is noticed, replace the batteries immediately.

OPERATION WITH AC POWER

AC connection automatically cuts off the battery, and the power source switches to AC power. (In this case, the battery for display may be removed.)
If the AC adaptor is used for a prolonged period, it will become slightly hot, but no adverse effect will be given to machine life or performance.
• When connecting to the AC adaptor, be sure to place the mode selector in OFF.
**CAUTION**
- If the unit is not used for a long period, it is advisable to remove the AA-size battery. Otherwise, the battery may leak, thus damaging component parts.
- Do not remove the silver oxide batteries unless it is exhausted.
- Don’t leave a dead battery in the battery box.
- If the electronic buzzer does not stop sounding or the stopwatch does not operate normally when new silver oxide batteries are loaded, then remove the batteries and put them back in after waiting one minute or so.

**5 USAGE**

PLEASE STICK THE LABEL ENCLOSED TO THE BACK OF THE UNIT FOR YOUR REFERENCE.

**DIGITAL CLOCK**
- Set the mode selector to TIME.
- Put two silver oxide batteries (G-13) for the clock into the battery box. The clock continues to operate for about one year.
- If the clock is set correctly, it will keep good time without being affected by any other operation (e.g., display battery replacement).

---

**READ OUT:**

<table>
<thead>
<tr>
<th>AM/PM</th>
<th>Day of the week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.5.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
</tr>
</tbody>
</table>

Day: 25th, Month: June, Year: 1977

1. **Setting the time**

As this clock maintains accuracy within ±15 seconds per month (under normal temperatures), it is advisable to lock the time display in anticipation of a time signal about one or two minutes ahead and wait. On hearing the time signal, depress the [1] key, and the clock will start. Since the calendar is permanently programmed, no date adjustment is required each month or in a leap year, but the entry of the year and month is necessary for setting of the time.

**Example:** Setting to 10:56 PM, (Sat., June 25, 1977)
- Place the mode selector in SET.
2. Adjusting the time

Once the time is set, the clock keeps good time, except when the batteries (G-13) are exhausted. If adjustment is necessary, follow the above key operation.

**HOW TO USE ALARM**

The alarm can be set in four alarm time positions (1, 2, 3 and 4) and at intervals of one minute or more. The command of AM and PM for each setting is possible. The electronic buzzer continues sounding for one minute at each preset alarm time.

1. Setting the alarm

Example: Setting Alarm 1 to 6:30 PM

<table>
<thead>
<tr>
<th>KEY OPERATION</th>
<th>READ-OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Entry of hours)</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>(Entry of minutes)</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>(Entry of PM)</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>(Entry of alarm No.)</td>
<td>1:00 PM</td>
</tr>
</tbody>
</table>

* After setting the time, place the mode selector in a desired position. At any mode position, the clock keeps timing.

* To correct a wrong numerical entry or command, depress the key and start the above key operation over again. When an operation error is made, an “E” sign appears, locking the unit. To release, repeat the same procedure.

* Day is automatically set with entry of date. Dots appear up to SAT, indicating it is Saturday.

* For entry of 10:00, depress 6 6 6.

* Time signal of 58 min.

* To correct a wrong numerical entry or command, depress the key and start the above key operation over again. When an operation error is made, an “E” sign appears, locking the unit. To release, repeat the same procedure.

* Day is automatically set with entry of date. Dots appear up to SAT, indicating it is Saturday.

* For entry of 10:00, depress 6 6 6.

* Time signal of 58 min.
Next, set Alarm 2 to 9:00 AM and Alarm 3 to 3:05 PM. Alarm 4 is not used. Proceed as follows:

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>READ-OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>014-5-02</td>
<td>2 9-00</td>
</tr>
<tr>
<td>014-5-03</td>
<td>3 3-05</td>
</tr>
<tr>
<td>014-5-04</td>
<td>4 0-00</td>
</tr>
</tbody>
</table>

With this key operation, the setting of the alarm is complete, and the alarm will sound at the preset time.

The electronic buzzer gives different tones for each alarm.

Alarm 1

Alarm 2

Alarm 3

Alarm 4

After setting the alarm, place the mode selector in a position other than SET.

The alarm Nos can be set in any order.

If an error is made in key operation, depress the key and start the operation all over again.

The clock will not be affected by alarm time setting.

When powered by battery, the alarm time can be checked by placing the mode selector in TIME.

When the buzzer stops sounding, the display of alarm time disappears. (No time is displayed except when the mode selector is in TIME.)

2. Checking the alarm time
   To check the alarm time, set the mode selector to COMP and proceed as follows:

<table>
<thead>
<tr>
<th>KEY OPERATION</th>
<th>READ OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6-30</td>
</tr>
<tr>
<td>2</td>
<td>9-00</td>
</tr>
<tr>
<td>3</td>
<td>3-05</td>
</tr>
<tr>
<td>4</td>
<td>0-00</td>
</tr>
</tbody>
</table>

3. Changing or clearing the alarm time setting
   Change: The alarm time can be changed by simply setting a new alarm time.
   Clear: Depress the key, key, and numeral key (1, 2, 3 or 4), in that order.

   Example: Clearing Alarm 2.

4. Stopping the buzzer
   The electronic buzzer sounds at a preset time for one minute, regardless of the mode selector position.
To stop the buzzer, depress the key.
If the mode selector is in OFF, the buzzer cannot be stopped by depressing the key. To stop the buzzer, change the mode selector position and depress key.

**STOPWATCH**
- Set the mode selector to ST.
- The stopwatch can measure time up to 9 hours 59 minutes 59 seconds and 9/10ths of a second. The moment that the time accumulated reaches 10 hours, the stopwatch reverts to "0" and restarts timing.

**Read-out**
- Hour Min Sec 1/10th of a second
- The time is 9 hours 59 minutes 59 seconds 9/10ths of a second.
- In the stopwatch mode, the following three keys, (start/stop), (lap) and (reset), are used.

1. Normal time measurement
   - **START** --- **STOP**
   - **START** --- **STOP**
   - **START** --- **STOP**
   - Example: Timing a 100-meter race

   **KEY OPERATION**:
   - (Reset)
   - (Start)
   - (Stop)
   - Check (recording of time)

   **0-00 138**
   - (13.8 sec.)
   - (Reset)

2. Net time measurement (Excluding loss time)
   - **START** --- **STOP**
   - **START** --- **STOP**
   - **START** --- **STOP**
   - Example: Soccer game

   **KEY OPERATION**:
   - Start of game
   - Time-out
   - Start of Half game
   - Net time
   - 45 min.
   - **0-45 000**
   - (Reset)

3. Lap time measurement
   - **START** --- **STOP**
   - **START** --- **STOP**
   - **START** --- **STOP**
   - Example: Measuring lap times of a 1500-meter swimming race

   **KEY OPERATION**:
   - Start > 100 m
   - 200 m
   - 1500 m
   - Goal
   - (Reset)
   - (Start)
   - (Stop)
   - (Check)
   - (Unlock)
   - (Unlock)
   - (Reset)

   **0-16 589**
   - (16 min. 58.9 sec.)
   - (Reset)
**EXAMPLE**

<table>
<thead>
<tr>
<th>Constant calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>$23 \times 22 = 75.9$</td>
</tr>
<tr>
<td>$116 \times 33 = 3828$</td>
</tr>
<tr>
<td>$983 \div 12 = 80.25$</td>
</tr>
<tr>
<td>$2580 \div 12 = 215$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time calculations (Entry of 0 is necessary for 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hr. 25 min. $+\ 2$ hr. 54 sec. $= 3\ 25\ 54$</td>
</tr>
<tr>
<td>3 hr. 25 min. $+\ 54$ sec. $= 3\ 25\ 54$</td>
</tr>
<tr>
<td>$(2$ hr. 18 min.) $\times 3 = 6$ hr. 54 min. $= 6\ 54\ 00$</td>
</tr>
</tbody>
</table>

* For the other two basic functions, the first entry is set as a constant in the same way as in the above operation.

* No calculation can be done without re-entering the time displayed in the clock or stopwatch.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Read Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>$(12 + 3 - 45.6) \times 39 \div 7 =$</td>
<td>$1234568 + 3978 - 3890571$</td>
</tr>
<tr>
<td>$1234568 + 3978 - 3890571$</td>
<td>$-3890571$</td>
</tr>
</tbody>
</table>

**CALCULATOR**

- Set the mode selector to COMP.
- By operating the keys, time and date calculations are possible in addition to the basic four functions and constant calculations. As the calendar is programmed from 1901 to 2099 inclusive, any day of the week can be found instantly and the number of days for a certain period of time can be calculated.
- Calculations are possible up to 8 digits and in the algebraic logic sequence.

**Overflow check**

If an error (e.g., $\div 0 =$, time calculation of more than 99 hours, or date calculations beyond the programmed calendar range) occurs in calculations, or if an answer exceeds an 8-digit integer, an "E" sign appears in the first column, making further calculation impossible.

The overflow check can be released by depressing the $+\!+$ key.
## EXAMPLE

<table>
<thead>
<tr>
<th>Date calculations (1901 to 2099 inclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will the day of the week be on Jan. 1, 1977?</td>
</tr>
<tr>
<td>77 2 1 1 7 7 - 0 1 - 0 1</td>
</tr>
<tr>
<td>(Saturday) &lt;–– &gt;</td>
</tr>
<tr>
<td>What will the day of the week be on Dec. 31, 2051?</td>
</tr>
<tr>
<td>2001 12 31 0 1 1 2 3 1</td>
</tr>
<tr>
<td>–– &gt; (Monday)</td>
</tr>
<tr>
<td>How many days are there from Feb. 1, to Mar. 31, 1977?</td>
</tr>
<tr>
<td>77 3 3 1 7 7 - 0 3 - 3 1</td>
</tr>
<tr>
<td>77 2 1 1 0 8 5 6</td>
</tr>
<tr>
<td>What day and day of the week will the 100th day from Apr. 15, 1977 be?</td>
</tr>
<tr>
<td>100 7 7 - 0 4 - 1 5</td>
</tr>
<tr>
<td>77 4 1 5 7 7 - 0 7 - 2 4</td>
</tr>
<tr>
<td>77 2 1 1 0 8 10 0</td>
</tr>
</tbody>
</table>

- Constant calculations are possible for time and date calculations.
- To clear a wrong entry in calculations, depress the CLEAR key, and make the right entry so you can continue further calculations. To correct a wrong entry in date or time calculations, depress the CLEAR key and all the entry of date or time factors can be cleared.

Then restart with the year or hours.

## APPLICATIONS

From Idea to Planned Use

1. To make effective use of the alarm with 4 settings
   1) Set the alarm in four time positions at intervals of 2 or 3 minutes so you can use it as an alarm clock.
   2) Set it at the time to leave for school, office and shopping, in that time sequence, so all your family will be on time.
   3) Set it at the time to stop playing cards, start homework and go to bed, so you can instill good discipline in your children.
   4) Set it at the time to give milk to your baby, take medicine and do other important things so you won't need to watch the clock all the time.
   5) Set it at the time for an appointment, important telephone call, meeting, etc., during office hours, so you are sure to be punctual for your appointment and in doing your office work.

2. What can you do with the calculator?
   1) Checking of answers to arithmetical and mathematic problems, and calculations on household accounts and food calories.
   2) Orienteering, rallies, and other events.
   3) Calculations of bank interest using date calculation function.

3. Try using the stopwatch for sports or something else
   1) Record your time in a race or in other sports.
2) Measure CM time length.
3) Measure the time required to solve mathematical problems.

IF ANY SIGN OF MALFUNCTION IS NOTICED
Should any sign of malfunction be noticed, consult the table below before taking the unit to a nearby dealer. If not remedied, the unit should be taken to the dealer for service.

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>POSSIBLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO DISPLAY APPEARS.</td>
<td>Check battery connections.</td>
</tr>
<tr>
<td>DISPLAY FLASHS OR GROWS DIM.</td>
<td>Check the charged state of battery.</td>
</tr>
<tr>
<td>DISPLAY DISAPPEARS SUDDENLY.</td>
<td>Check AC adaptor connections.</td>
</tr>
<tr>
<td>DATE IS ONE DAY OFF.</td>
<td>Check for wrong entry of AM/PM.</td>
</tr>
<tr>
<td>ALARM DOES NOT SOUND AT SET TIME.</td>
<td>Check if alarm is reset.</td>
</tr>
<tr>
<td>ALARM DOES NOT STOP WHEN [ ] KEY IS DEPRESSED.</td>
<td>Check if mode selector is in OFF.</td>
</tr>
</tbody>
</table>

SPECIFICATIONS

CLOCK
- Crystal oscillator frequency: 32,768 Hz
- Accuracy: Within ±15 sec. per month (Normal temp.)
- Read-out: Digital display of date, day, hour, minute, and AM/PM
- Calendar: Days, longer and shorter months, and leap years from 1901 to 2099 inclusive are programmed.
- Alarm: 4 alarm time settings, 4 different tones (electronic buzzer). Minimum of 1 minute intervals between alarm setting.
- Time setting: Direct setting by key operation

STOPWATCH
- Timing capacity: 9 hours 59 minutes 59 seconds 9/10ths of a second
- Timing unit: 1/10th of a second
- Timing modes: Normal, net time and lap time
- Read-out: Digital display of hours, minutes, seconds and tenths or hundredths of a second
CALCULATOR

Functions
- Basic functions, constant calculations, time calculations, date calculations and mixed calculations

Capacity
- Four basic functions .................................. 8 digits
- Time calculations ...................................... Up to 99 hours
- Date calculations .................................... January 1, 1901 – December 31, 2099

Keypad
- Easy and accurate with unnecessary zeros suppressed

Decimal point
- Full-floating decimal system with underflow

Overflow check
- Indicated by the “E-” sign in first column, locking the calculator

COMMON SECTION

Main components
- One chip LSI, C-MOS-LSI, crystal oscillator (fork type)

Display tube
- 8-digit Digitron tube

Power source
- AC and DC
  - AC: 100, 117, 220 or 240V (±10V), 50/60Hz, with applicable AC Adaptor.
  - DC: Clock – 2 silver oxide batteries (G-13)
  - Display – 1 AA-size dry battery (UM-3, SUM-3, or AM-3)

Battery life:
- Clock – G-13: one year or more

Display — UM-3: about 10 hours in case of continuous use

Usable temperature
- 0°C - 40°C (32°F - 104°F)

Power consumption
- 0.15 W

Dimensions
- 33 (l) x 144 (w) x 64 (d) mm
  - (1-3/8” l x 5-5/8” w x 2-1/2” d)

Weight
- 148 g (5.2 oz) including batteries