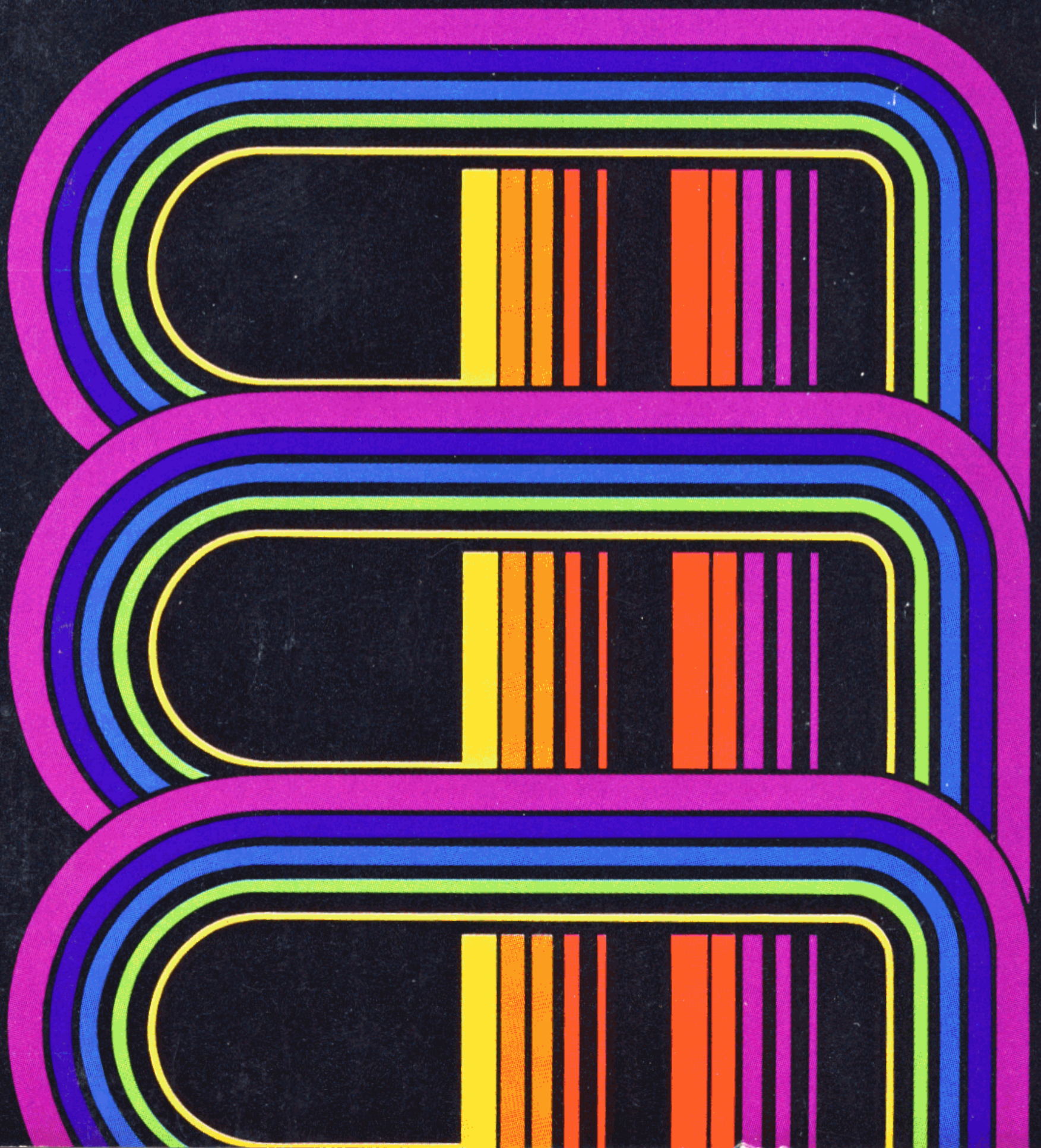
HEWLETT-PACKARD

GETTING THE MOST FROM CONTINUOUS MEMORY



GETTING THE MOST FROM CONTINUOUS MEMORY

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WHAT IS CONTINUOUS MEMORY?

Congratulations! You've just made a wise investment. Your HP-25C is another professional-quality scientific calculator from Hewlett-Packard—a pocket calculator designed to save you time today, next week, and next year.

Your HP-25C contains Continuous Memory—one of the newest, most advanced memory systems available in a pocket scientific calculator. Continuous Memory means the program memory and storage registers stay "on" when your calculator is turned off. You can store your favorite program (or two) for days or weeks!

Continuous Memory is especially convenient when you want to retain data, save battery life, or customize your calculator (i.e., if you use 20% of your programs to solve 80% of your problems). You save considerable time because you don't have to key in those common programs again and again—they are stored in your calculator. Continuous Memory reduces human entry errors, too; fewer keystrokes mean fewer chances of making inadvertent errors.

BENEFITS OF CONTINUOUS MEMORY

Perhaps the most important advantage of Continuous Memory is that it enables you to customize or personalize your calculator. The easiest way to customize your HP-25C is to make a list of the problems you encounter most frequently, rate them in order of priority, then write and save the specialized programs to solve those problems. Whenever you encounter a repetitive problem set, you just write the program once then use it at different times.

- For example, if you are house-hunting for two or three days, store the mortgage program on page 37 of the *HP-25 Applications Programs Book*. As you inspect various-priced homes, you can quickly calculate your monthly mortgage payment.

- Hyperbolics, statistical functions, octal-decimal conversions, degrees-minutes-seconds addition—store whatever programs you use daily in your work. The *HP-25 Applications Programs*

Book contains these and other common engineering, math and statistical programs.

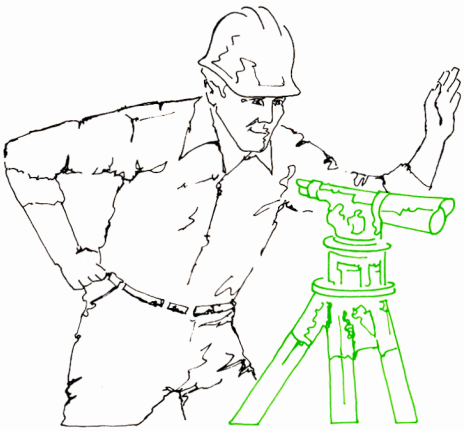
- Students working on a particular problem set find the HP-25C cuts down homework time. For example, if you are studying vectors, key in the 24-step vector cross product program and the 20-step dot product program before tackling the evening's (semester's?) homework problems.

Besides saving programs, Continuous Memory lets you store data in the eight general-purpose storage registers. Constants, accumulations, and intermediate answers can be retrieved whenever you need them.

- Engineers can store metric or other conversion constants to use over and over again.
- A surveyor can calculate a closure in the field by saving intermediate bearings or field angles. Or a statistician can retain sums of statistical data while taking samples in the field.
- It can even be something as simple as a checkbook balance, tallying golf scores, or a running total of your groceries.

Continuous Memory also helps save battery life in many situations. If your HP-25C is left off, Continuous Memory can store your program for 1½ months or longer. When you do use your calculator, keying in fewer programs means less time that the display is on—hence, less battery drain.

- When your work is interrupted for a few minutes, a weekend, or a two-week vacation, your program will be saved.
- Navigators, aviators, surveyors, and car rally enthusiasts can write their programs before taking off. . .and retain them for weeks of short use periods. (Take along spare battery packs for even longer use.)
- If you're taking a long exam where calculators are permitted, preprogram your HP-25C before the test. Be assured that the information will be there when you need it. Your HP-25C will last through the exam (even if you don't).



USING CONTINUOUS MEMORY

When you turn off your HP-25C, the calculator retains information stored in the:

- 49-step program memory,
- 8 addressable storage registers,
- LAST X register.

Regardless of where you stopped in the program, the HP-25C reverts to step 00 (top of program memory) when you turn it on again.

Numbers in the stack are not saved. However, if you wish to save the number in the display (X-register), simply press [+] or [−] before switching your calculator off. When you turn your HP-25C on again, press [f] [LAST X] to recall that number to the display.

As a general practice, it is wise to use storage registers R_0 thru R_2 first to preserve data. When the [Σ+] key is used, the HP-25C requires registers R_3 thru R_7 to store statistical data related to your problem.

Continuous Memory requires that the *batteries be kept in the calculator*. If the low power signal appears in the display, turn your HP-25C off immediately, and connect it to an ac outlet or insert a new battery pack.

To retain the memory while changing batteries, first turn your calculator off, then follow the instructions under "Battery Pack Replacement," page 104 of the *HP-25 Owner's Handbook*. A small capacitor provides temporary standby power to the memory for approximately 5 seconds to 2 minutes while you change batteries.

Initializing Continuous Memory

Whenever power to the HP-25C is completely disrupted, information in program memory and in the data storage registers may be lost or altered. If you use your calculator with this altered information in the memory, the display may go blank or exhibit other erratic behavior. Therefore, when power is reapplied, your HP-25C should be initialized before proceeding with any calculations.

Power disruptions can occur if you:

- Let the batteries discharge completely. *(Note: this may already be the case when you receive your calculator since batteries will discharge on their own over time.)*
- Take over 5 seconds when changing batteries.
- Drop or otherwise physically shock your calculator while it is operating.

If any of the above occur, it is recommended that you use the following initialization procedure:

1. Switch to RUN mode. Then clear the X-register by pressing CL x and clear the storage registers by pressing f REG.
2. Switch to PRGM mode. Then clear program memory by pressing f PRGM.

Should the display go blank when switching from RUN mode to PRGM mode, continue below:

3. Switch back to RUN mode and press CL x.
4. Go to a new step in program memory by pressing GTO followed by a two-digit step number (e.g., GTO 2 3).
5. Switch back to PRGM mode. If the display is still blank in PRGM mode, repeat the above procedure starting at step 3 using a different two-digit step number.
6. Clear program memory by pressing f PRGM.

A power disruption will sometimes affect only a few of the steps in program memory. If desired, these program steps can be corrected without clearing out the entire program memory by following the instructions on "Changing One Instruction," page 94 of the *HP-25 Owner's Handbook*. Switch to RUN mode and press CL x first if the display has gone blank while single-stepping (SST) through the program.

CMOS, THE SECRET OF CONTINUOUS MEMORY

The innovation of CMOS (complementary metal oxide semiconductor) technology makes this superior memory possible. And Hewlett-Packard is a leader in offering a CMOS scientific pocket calculator.

Hewlett-Packard calculators contain hundreds of functions and circuits packed on small semiconductor chips. A single chip may contain as many as 500 logic gates and 2000 transistors. Hence, you get tremendous computational power in a small-sized instrument.

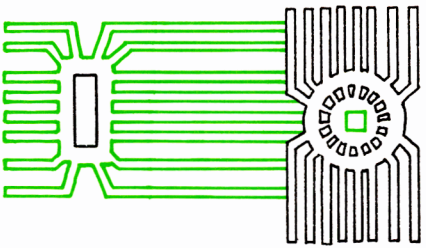
Until now, chips have been either PMOS (positive metal oxide semiconductor) or NMOS (negative metal oxide semiconductor), depending on the polarity of the charge required by the primary carrier of current within the device. PMOS devices, with positive-charged carriers, are the present industry standard. NMOS devices, with negative-charged carriers, are faster but more difficult to produce.

Now Hewlett-Packard offers a combination of PMOS and NMOS circuits. This innovative process is called

CMOS (complementary MOS). The two data storage CMOS chips in your HP-25C incorporate positive and negative MOS circuits in a complementary manner that reduces power requirements to a bare minimum.

The secret of Continuous Memory is the low power needed to store data. The two CMOS chips use only 5 μW of standby power, as opposed to 400 mW of battery power consumed by the HP-25C when the calculator is turned on and operating. Because they require 1/80,000 of the normal operating power, these storage chips can stay "on" when the calculator is turned off. (That's why the battery *must* remain in the calculator.)

CMOS is an extremely complex process—therefore, more expensive—but the advantages and convenience of Continuous Memory are well worth it. Obviously, the best way to appreciate Continuous Memory—and the time it saves—is to use it. After reading the *HP-25 Owner's Handbook* and *HP-25 Applications Programs Book,* go ahead and explore the capabilities of your HP-25C. . .the more you use it, the more your calculator will do for you.



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