

**Addition**

**to the**

**owner's manual for the calculators**

**HP-41 CW TURBO**

**and**

**HP-41 CY TURBO**

**(Please read carefully before initially operating the calculator!!)**

### 1) General comments:

By buying this product you have acquired a quality product by Hewlett-Packard, which was modified by us. The range of functions, the speed of the calculator as well as the memory capacity have been greatly improved by us. Since all these improvements are based on the basic model of the HP-41, all comments in the original owner's manual remain valid, except of course the conditions for the warranty. You should not concern yourself with these built-in modifications until you are familiar with the general operation of the calculator.

### 2) Warranty and Service

By modifying the original HP-calculator into an HP-41 CW or CY, the Hewlett-Packard warranty is lost completely! On the other hand W&W Software Products offers you a one-year warranty on the modified product. In case of a possible need for repairs, the modified calculator may only be sent to:

W&W Software Products GmbH  
Department of Customer Service  
Odenthalet Strasse 214  
D-5060 Bergisch Gladbach 2  
West Germany

It is not possible to have the CW or CY TURBO repaired or even checked in an HP-Service Center! *Opening the calculator will result in immediate loss of warranty!*

### 3) Functioning of the TURBO-switch

Compared to regular HP-41 calculators, the HP-41 TURBO is approximately twice as fast in calculating. This applies to all operations, without any restrictions. The TURBO-mode can be identified by the position of the switch (micro switch at the left side) or by executing the function BEEP. If the TURBO is on, the BEEP sound will be faster and higher than in the regular mode. The TURBO-switch may only be changed when the calculator is OFF!! The TURBO only has to be turned off for the writing on magnetic cards using the cardreader of the HP-41. If magnetic cards are taped while the TURBO is on, the cards will be unreadable afterwards!! Since the energy used is twice as high when the TURBO is turned on, the calculator should not be operated with an HP-accumulator, since its capacity is too little. Use one of our accumulators or high capacity, heavy duty batteries.

### 4) The built-in additional memory

The HP-41 CW and CY TURBO have a built-in 64k additional memory. You can store all your programs and data - similar to the X-memory (see HP-41 CX, i.e. X-Functions module manual). Contrary to the X-memory though, all programs can run their course in this added memory, without first having to be loaded back into the main memory of the calculator. This means the main memory of the calculator (319 registers) stays clear for data or other programs! Operation and function of this additional memory correspond to the way our RAMBOX works, with a few added extras. Therefore please scratch the following paragraphs in the RAMBOX own r's manual:

Page 5, second paragraph, up to and including page 7. The function description for PGSUM (p.28) is to be changed as follows: The display "INTACT" is not shown anymore when the checksums correspond. Instead, the error flag 25 is erased when the result "BROKEN" shows. This is helpful when testing a checksum during the course of a program. Concerning the function READPG (p.28):

Please do not use this function to read module files (that haven't been recorded with the function WRTPG-p.27) by tape. This may lead to a crashing of your calculator!!

All other instructions and comments in the RAMBOX manual also apply to the 64k added memory. Now please make yourself acquainted with the way the RAMBOX works by trying the examples and functions listed in the RAMBOX manual.

**CAUTION:** Please do not try to copy the HP-Advantage module into the added memory. This is not possible since this module also works with page-switching.

#### 5) Extra functions for the management of 64k RAM

As you know from reading the RAMBOX owner's manual, the HP-41 can only manage 32k module memories. In order to achieve more memory room, the memory has to be switched by way of "page-switching". Imagine yourself as having two plug-in modules, but only one free port left in your calculator. In order to run programs from the first module, you would have to remove the second module from the calculator and then insert the other one, and vice versa. Further imagine that both modules are built into the calculator and can be switched back and forth by software and already you understand the principle of "page-switching". In the built-in 64k RAMBOX all that takes place is the switching back and forth of two complete 32k RAMBOXes (for easier understanding simply called RAMBOX 0 and RAMBOX 1 from now on). In order for this to work, the following additional functions are integrated into the RAMBOX operating system:

**PG↔** (switch pages)

This function completely switches on the RAMBOX pages, whose operating system is currently turned off. For most of the uses it is sufficient to switch 32k-wise with the help of this function.

*Example:*

RAMBOX 0 contains part A of a program package 64k big, RAMBOX 1 holds part B. At this time RAMOX 0 is turned on. To execute this whole program package, the following steering program is written into the calculators main memory.

```
01 LBL "PARTA+B"  
02 XEQ "PART A"  
03 PG↔  
04 XEQ "PART B"  
05 END
```

**PG01** (switch pages : 0,1)

This function switches on the even pages (8,10,12,14) of the RAMBOX 0 and the odd pages (9,11,13,15) of the RAMBOX 1

**PG10** (switch pages: 1,0)

This function switches on the even pages (8,10,12,14) of the RAMBOX 1 and the odd pages (9,11,13,15) of the RAMBOX 0.

*Only execute the three above mentioned additional functions by keyboard or from the main memory of your calculator. If the functions are executed within a program which is in the RAMBOX, the calculator may crash due to erroneous switching, which may result in "MEMORY LOST".*

## 6) Errors that may occur

The calculator you have just bought was thoroughly checked by us before delivering it to you. Some conditions (such as empty batteries, reading a defective module file by tape, etc.) may lead to error functions, i.e. crashing of the calculator. In this case, the voluntary execution of "MEMORY LOST" enables you to return the calculator along with the attached RAMBOX II. To do this, you have to follow certain steps:

- a) remove the batteries from the calculator
- b) press the CLX key and keep it pressed down.
- c) insert batteries into the calculator
- d) press the ON key once
- e) release the CLX key.

Now the display will show "MEMORY LOST". Following this there will be a short sound and the calculator asks by way of the display "CLR RAMBOX?", if the part of the RAMBOX which is on should be erased. (The operating system on page 8 can not be erased!). Confirming this by using the keys "J" or "Y", a renewed safety display is shown "SURE ?" and deletion takes place. Now pages 9-15 have to be re-initialized (using INITPG). Confirming this using the key "N", the display will show "TEST RAMBOX?". If you wish to test the contents of the RAMBOX on their ability to function correctly, you should always use the key "J" or "Y" to confirm. After this, you should manually erase the last page at which the calculator didn't work anymore (using CLPG). If "MEMORY LOST" was brought about solely to erase the main memory rapidly, all the above questions may be confirmed with "N".

Using the key sequence 8 XEQ "PGSUM", you can check on your own if the RAMBOX operating system has become defective for one reason or another. Should the display show "PG08 BROKEN" after executing this key sequence, send your RAMBOX to us for repair immediately. Changes in the operating system can theoretically only occur due to the influence of strong electric fields or when having opened the calculator.

## 7) Working with extra modules and the magnetic card reader

Since the cardreader of the HP-41 uses the same XROM-No. as the RAMBOX operating system, functions of the cardreader can only be recalled when the RAMBOX operating system is turned OFF. This is done by plugging a 4 or 8k module (for instance mathematics module) into port 1 of the calculator. There are no restrictions for the reading and taping of programs, since no functions have to be executed, only the magnetic cards have to be inserted. The HP-41 CY TURBO can work with the following modules without any restrictions:

- 2 X-Memory Modules as well as
- 1 HP-IL Module as well as
- 1 Plug-in Printer Module

When working with the HP-41CW TURBO, the TIME-module can be used as well, also without any restrictions. All other modules occupy one or more pages of the RAMBOX, which are turned off automatically when a module is plugged in.

If possible, port 1 of the calculator should not hold a software-module, since this switches off the RAMBOX operating system!