

February 21, 1981

Mr. Albert W. Smith
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Dear Mr. Smith:

I am enclosing a listing from my HP-97, where I attempted to write the program that you are trying to convert from the 25C to the 67. I cannot be sure, since I no longer have my 25C, but I think this is a working version that you can add your own bells and whistles to.

My version works like this:

Use the label 'f, e' to start the game with a new seed stored automatically. (The display, when press- 'f, e' will be stored as a fractional seed. If you input a number that has no fraction, the 67 will stop immediately and display: Error).

The remainder of the program works in the manner described in the instructions for the 25C program given in the PPC Journal, with the exception that you don't have to manually store all the values in the registers. (That is, only steps 4 onward are to be followed. The program takes care of steps 1, 2, and 3).

If you still want to try and write your own, here is what I'm guessing your problems were. (The version I wrote can be greatly improved...I just threw it together to see how the program worked. Bear in mind, that I am not sure just what type of logic the original author was using in the game, so I didn't change too much of the original, or I might have totally changed the game operation).

On the HP-67/97, when the function \bar{x} (the mean) is executed, the mean for both the x AND y values are used, and are loaded into the x and y-registers respectively. On the HP-25/25C, \bar{x} will only fill the x-register with a value, leaving the y-register untouched. Thus, if the 'mean' function is executed on the 67/97, two stack registers are effected.

Another problem you could encounter is the fact that registers R₃ thru R₇ are the summation registers on the 25, while the secondary registers R₈ thru R₉ are used on the 67. Thus, if you used the same registers the author used in his 25 program on the 67, you would end up getting nothing when the 'mean' function was executed on the 67.

The final area I can see problems occurring in is the 25 prgm. steps 35 & 36. By the use of the 25/25C direct line jumping ability, the author is able to jump to either 35 and generate an eleven in the display, or jump to line 36 and just get a one in the display. One way around this is my use of the labels 4 & 6 in my version.

In this latter case, when an eleven is desired for the score, the program flows through the line numbers 44 & 45 (giving the '11') and then jumps to label 6. The program will jump from line 41 to 47 (where LBL 4 is) and a 1 will be inserted. This will assure that the right number is stored for the score. (NOTE: as I look over the listing, I now question the use of the command 'CLx' just after the 'LBL 4'. You might just want to delete that step and see how the program works).

The register allocation for the Sigma functions on either machine are:

	<u>25/25C</u>	<u>67/97</u>
now of summations	R ₃	R _{s9}
sums of the 'x'	R ₇	R _{s4}
sums of the 'x ² '	R ₆	R _{s5}
sums of the 'y'	R ₄	R _{s6}
sums of the 'y ² '	not avail.	R _{s7}
sums of the 'xy'	R ₅	R _{s8}

Finally, the way around the ' \bar{x} ' function, if you are using the same registers as the 25C program listing is to simply call up the contents of 7 (sums of the 'x') and register 3 and divide. This will produce the same answer as 'x-bar' or the mean.

In the final program, you can use the digit entry flag for the way to tell the program you are finished entering guesses instead of using a test for zero. I'm sure you can also use a method by which only one answer can be input (as an 8 digit number) and have the prgm work out the seperate 2-digit guesses.

Anyway, if you need more help, just let me know. Hopefully this will get you started on your way. Good to hear from another PPC member. Write again soon and happy computing. Remaining

Yours sincerely,

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USER INSTRUCTIONS

1. Reload card. (On-Run).
2. Key in decimal seed, press f e.
3. Go to step #4 of instructions on V4 N6 P42.
4. For a new game, go to step #2.

MASTERMIND 4x6

001	*LBL e
002	FRC
003	1/X
004	LSTX
005	ST07
006	CLX
007	*LBL E
008	1
009	ST06
010	*LBL A
011	GSB0
012	ST01
013	GSB0
014	ST02
015	GSB0
016	ST04
017	GSB0
018	ST05
019	*LBL 1
020	RCL6
021	ST07
022	RCL0
023	0
024	ST00
025	*LBL 2
026	R/S
027	X=0?
028	GT01
029	ST03
030	RCL1
031	X=Y?
032	GT03
033	RCL7
034	RCL3
035	=
036	FRC
037	X=0?
038	ST05
039	ST04

038	*07
039	ST05
040	ST07
041	GT04
042	*LBL3
043	ST÷7
044	1
045	1
046	ST06
047	*LBL4
048	CLX
049	1
050	*LBL6
051	ST+0
052	*LBL5
053	RCL1
054	ST03
055	RCL2
056	ST01
057	RCL4
058	ST02
059	RCL5
060	ST04
061	RCL3
062	ST05
063	0
064	GT02
065	*LBL0
066	RCL7
067	FRC
068	6
069	X
070	1
071	+
072	ST07
073	INT
074	6
075	X
076	1
077	+
078	ST×6
079	RTN
080	R/S