

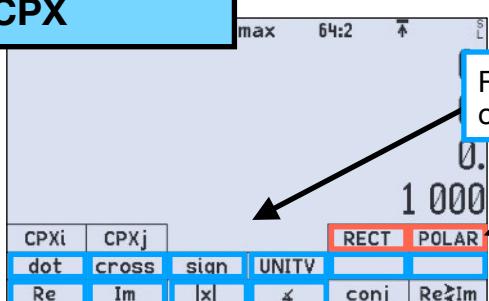
1. Menu re-arrangements
2. Added operational flags modes
3. Added BASE menu
4. Added x! function to PROB menu
5. Added ALPHA mode menu
6. Added two display modes: SIGFIG & UNITS
7. HOME MENU for LAYOUT 1 : Layout for real label WP43C
8. HOME MENU for LAYOUT 2 : Layout for unmodified DM4
9. Text changes
10. Calculator operation notes
11. Emulator Operation
12. WP43C Emulator photographs compared with other calculators
13. Keyboard overlay
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1. Menu re-arrangements

WP43C

WP43S

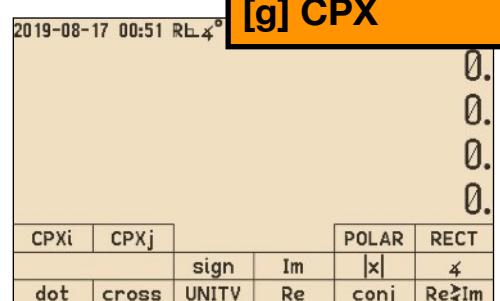
[g] CPX



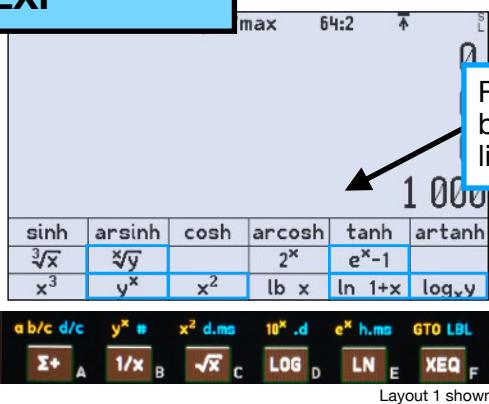
Re-arranged all complex functions

Swapped Rect/Polar around to align with MODE menu.

[g] CPX

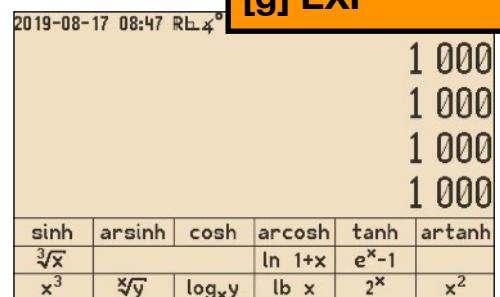


[g] EXP

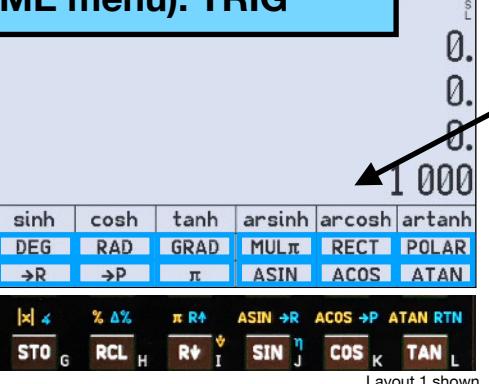


Re-arranged FN keys to better align with new top line keys

[g] EXP



(HOME menu): TRIG



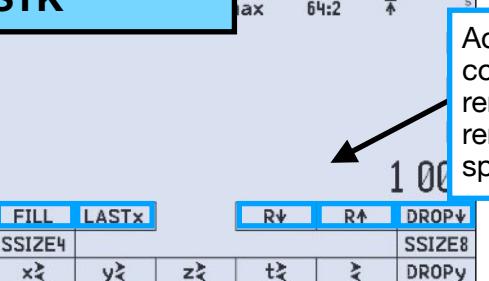
TRIG menu not on-key any more, as trig functions are on the keyboard.

Menu remains available from HOME, with additions to facilitate shift-less trig operation.

TRI



[g] STK



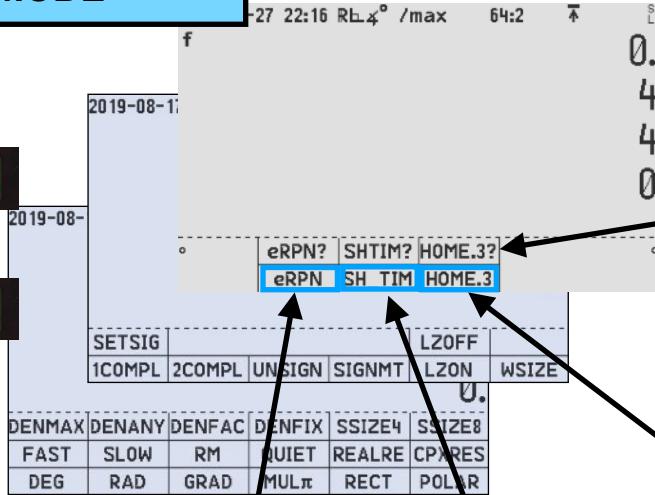
Added functions for convenience. FILL removed from key, and R^ removed from L2 due to no space available on keys.

[g] STK



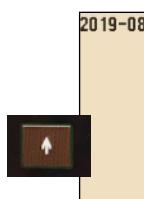
2. Added operational flags modes

[f] MODE



[g] MODE

Mode status. Puts 1/0 onto the stack as longint. Duplicated in the second INFO screen.



eRPN switch. When selected, ENTER does not

HOME.3 switch. When selected, a triple shift brings up the HOME menu. Another triple shift removes it. EXIT also removes it.

Shift Timer Cancelling switch. When selected, auto cancelling is active.

3. Added BASE menu

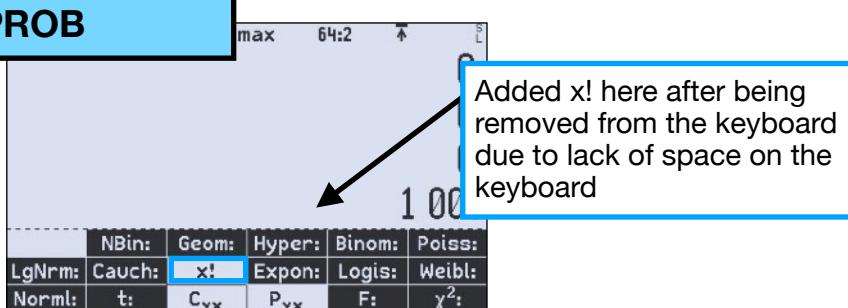
(HOME menu):[f] BASE



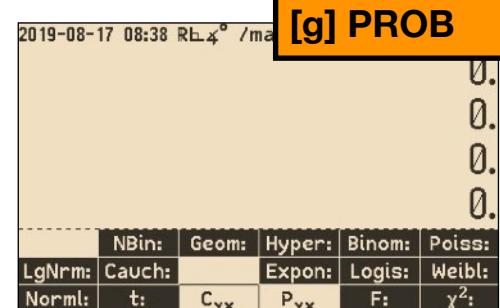
BASE menu added. On Layout 2 keyboard, [f] [4].

4. Added x! function to PROB menu

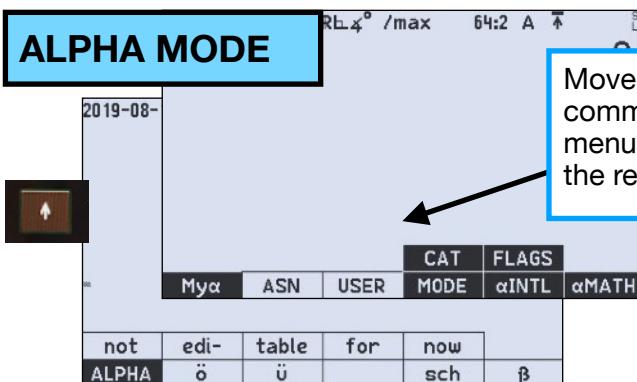
[f] PROB



[g] PROB



5. Added ALPHA mode menu



Moved all the alpha mode commands/menus into a menu due to congestion on the re-arranged alpha keys

Re-arranged the alpha keys to follow the HP42S sequence



6. Added two display modes: SIGFIG & UNITS

[f] DISP

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

2019-08-16 23:54 RE_L 4° /max 64:2
0.314
31.416
2 718.282
0.500

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

FIX 3

2019-08-16 23:58 RE_L 4° /max 64:2
0.314 159 265 358 979
31.415 926 535 897 93
2 718.281 828 459 045
0.5

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

ALL 3

2019-08-16 23:56 RE_L 4° /max 64:2
3.142·10⁻¹
3.142·10¹
2.718·10³
5.000·10⁻¹

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

SCI 3

2019-08-17 00:01 RE_L 4° /max 64:2
314.2 m
31.42
2.718 k
500.000 m

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

UNITS 3

2019-08-16 23:57 RE_L 4° /max 64:2
314.2·10⁻³
31.42
2.718·10³
500.000·10⁻³

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

ENG 3

2019-08-17 10:04 RE_L 4° /max 64:2
0.314 2
31.42
2.718
0.500 0

SDL	SDR	UNITS	SIGFIG	RDP	RSD
FIX	SCI	ENG	ALL	ROUND1	ROUND

SIGFIG 3

UNITS changes to ENG display mode and replaces the exponent with the appropriate metric unit prefix, i.e.

tera-	T
giga-	G
mega-	M
kilo-	k
milli-	m
micro-	μ
nano-	n
pico-	p
femto-	f

SIGFIG originates from a hpmuseum forum post by Bit and Nigel, implemented on the WP34S, WP31S & WP34C and operates like a variable FIX, automatically adjusting 'FIX level' to always maintain the number of significant digits as opposed to number of decimals. Examples below:

SIGFIG 4

3.141 6

31.416

314.16

3 141.6

31 416

314 160

3 141 600

31 416 000

3 141 600 000 000

3.1416 e 16

3.1416 e 17

UNITS 4

3.141 6

31.416

314.16

3 141.6

31 416

314 160

3 141 600

31 416 000

3 141 600 000 000

3.1416 M

31.416 M

SIGFIG 4

3.1416

314.16

31.416 m

31.416 m

314.16 m

31 416 m

314 16 m

3 141 6 x 10⁻⁵

31.416 μ

3.1416 x 10⁻⁶

3.1416 μ

UNITS 4

3.1416

314.16 m

31.416 m

314.16 m

31 416 m

314 16 m

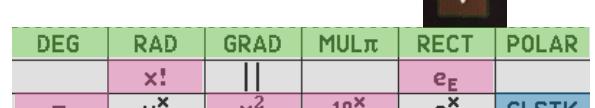
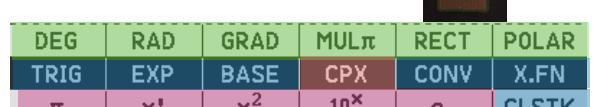
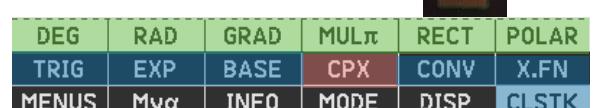
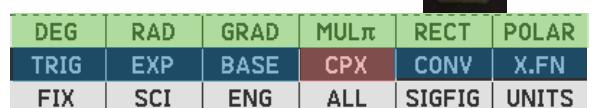
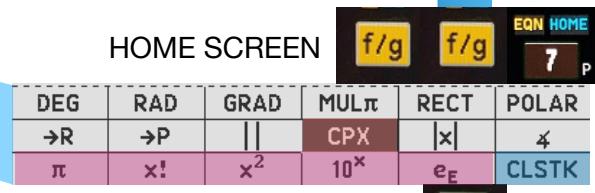
3 141 6 x 10⁻⁵

31.416 μ

3.1416 x 10⁻⁶

3.1416 μ

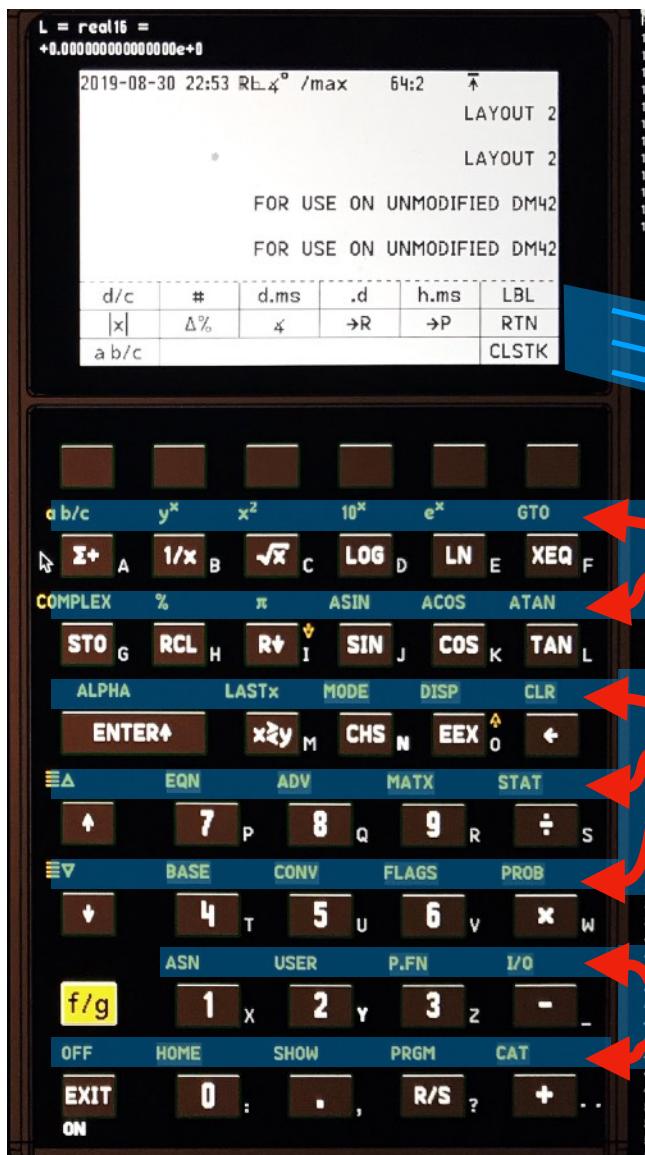
7. HOME MENU for LAYOUT 1A : Layout for real label WP43C



Notes:

1. HOME screen gets activated by **f/g f/g f/g** or **f/g f/g 7**.
2. Same sequence, or **EXIT** to remove the HOME screen.
3. General modes. 4 screens with various useful menus items from various different menus screens combined.
4. **↓ ↑** wrap around to the top screen as well, in both directions.

8. HOME MENU for LAYOUT 2 : Layout for unmodified DM42



Notes:

1. HOME screen gets activated by **f/g f/g f/g** or **f/g 0**.
2. Same sequence, or **EXIT** to remove the HOME screen.
3. Blue labels: Press **↓** to get 3 screens showing the blue labels, as the red arrows indicate. The menu shows in the actual sequence on the keyboard, so a sequence can be seen and remembered. The 3 screens are in a way active help to show where the blue commands are.
4. General modes. 4 screens with various useful menus items from various different menus screens combined.
5. **↓** **↑** wrap around to the top screen as well, in both directions.

9. Text changes

NEW

The following labels have changed. When using the WP43S documentation, ensure you use the correct text!

WP43S	WP43C	WP43C location. Comment.
/	Divide	Primary key. Change in emulator only, not on DM42.
sin	SIN	Primary key. As per DM42.
cos	COS	Primary key. As per DM42.
tan	TAN	Primary key. As per DM42.
arcsin	ASIN	Primary key. As per DM42.
arccos	ACOS	Primary key. As per DM42.
arctan	ATAN	Primary key. As per DM42.
α.FN	αSTR	Yellow label: [f] [4]. Switch to alphanumeric mode.
E	EEX	Primary key. Change in emulator only, not on DM42.
In	LN	Primary key. As per DM42.
lg	LOG	Primary key. As per DM42.
R ←	→ R	Blue label: [g] SIN. Changed arrow direction due to location.
P/R	PRGM	Yellow label: [f] [R/S]
RBR	REGS	Blue label: g[Up]. Register viewer
STATUS	FLAG.V	Blue label: g[Dn]. Global flag viewer
TRI	TRIG	Not on keyboard anymore, only on menu.
U →	UNIT	Blue label: [g] [5]. Unit conversions.
L →	CONV	Yellow label: [f] [5]. DEG/RAD/... conversions.
+/-	CHS	Primary key. Change in emulator only, not on DM42.
CATALOG	CAT	Yellow label: [f] [+].
CC	COMPLEX	Yellow label on [f] [ENTER]. To compose and decompose complex numbers.
	eRPN	Additional mode setting. Menu item.
	eRPN?	Additional mode setting confirmation. Menu item.
	HOME.3	Additional mode setting. Menu item.
	HOME.3?	Additional mods setting confirmation. Menu item.
	HOME	Additional menu system. Menu.
	UNITS	Additional display mode (k, M, G). Menu item.
	SIGFIG	Additional display mode floating decimal point. Menu item.
	ALPHA	Additional alpha entry mode menu.
	BASE	Additional shortcut menu to change to bases. Menu.
	→ BIN	Additional shortcut for conversion to base. Menu item.
	→ OCT	Additional shortcut for conversion to base. Menu item.
	→ DEC	Additional shortcut for conversion to base. Menu item.
	→ HEX	Additional shortcut for conversion to base. Menu item.
	8-BIT	Additional shortcut in BASE to set WS. Menu item.
	16-BIT	Additional shortcut in BASE to set WS. Menu item.
	32-BIT	Additional shortcut in BASE to set WS. Menu item.
	64-BIT	Additional shortcut in BASE to set WS. Menu item.



10. Calculator operation notes

1. HOME menu: Use **f/g f/g 7** or **f/g 0** to pop up HOME menu.

f/g f/g 7 is available in Layout 1
f/g 0 is available in Layout 2.

DEG	RAD	GRAD	MULπ	RECT	POLAR
→R	→P		CPX	x	↖
π	x!	x ²	10 ^x	e _E	CLSTK

2. **f/g f/g f/g** is a shortcut to popup the HOME menu. This can be disabled in a MODE option.

The same sequence, or **EXIT** pops off the HOME screen to reveal the previous menu.

Currently, there is a 4 second shift clear, i.e. after 4 seconds [f] and [g] will cancel, so if you pressed f, and needed no f, waiting 4 seconds will cancel the f.

3. Additional HOME menus in Layout 2 offer access to [g] keys on an unmodified DM42.

4. DROP: A new function auto DROP is offered. A backspace pressed twice in rapid succession () does a DROP. Key repeat must be within 500 ms.

NEW

5. Shift operation: WP43C has one shift key.

Use **f/g** to access gold [f] shifts.

Use **f/g f/g** to access blue [g] shifts.

6. The BASE menu (**f/g 4** in Layout 2) is not yet available in Layout 1, except on a menu.

7. eRPN: Entry RPN is a MODE option. eRPN is “no ENTER stack lift”, as it is done in RPL.

See Richard J Nelson in "HP RPN Evolves",

<http://h20331.www2.hp.com/hspsub/downloads/S07%20HP%20RPN%20Evolves%20V5b.pdf>

f/g MODE EXIT CHS N [eRPN] toggles the setting true or false.

8. Shift indicators: Gold [f] and blue [g] softmenu indicators for shift selection:



- 9.

NEW

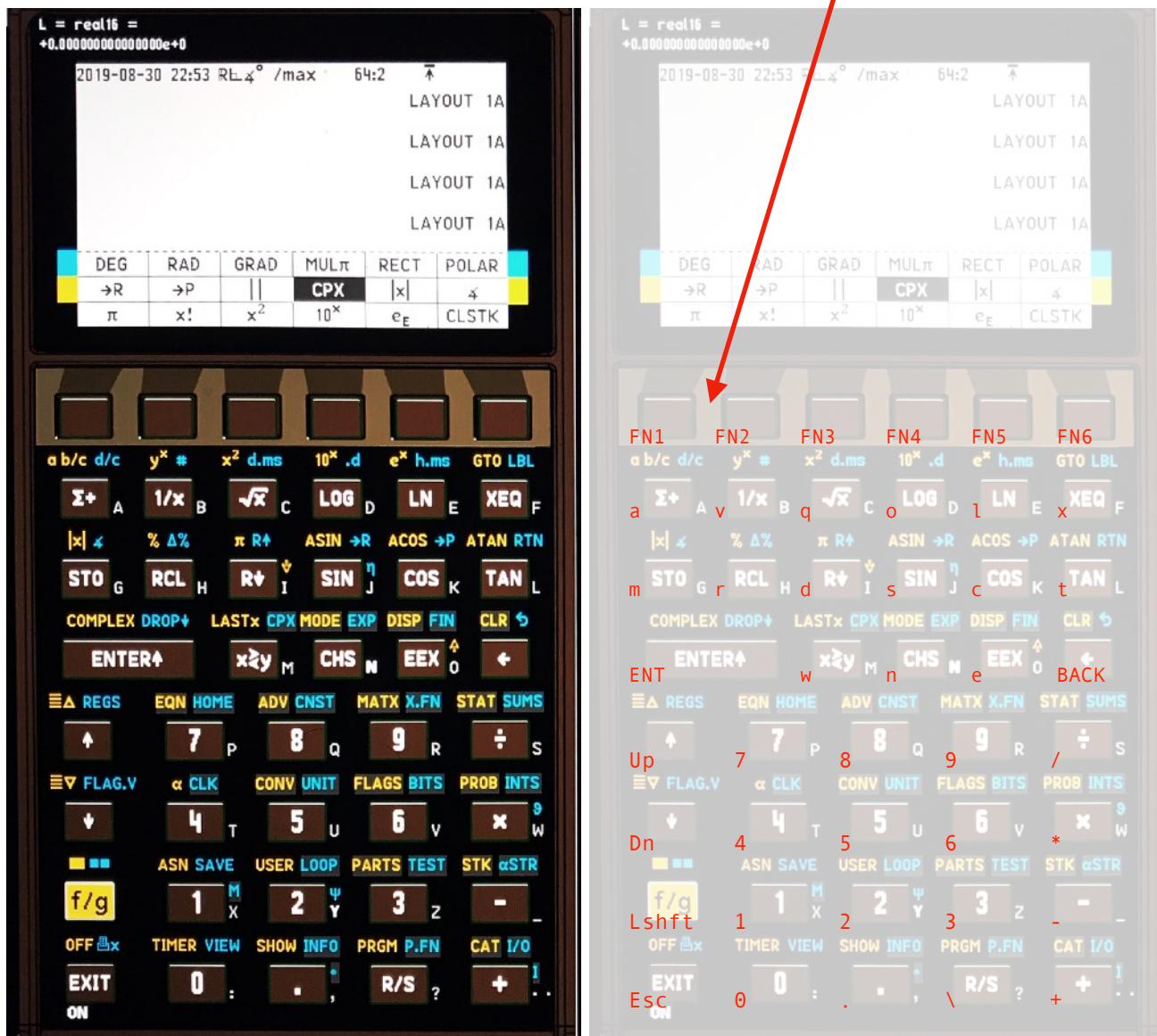
11. Emulator Operation

The following keys operate the emulator:

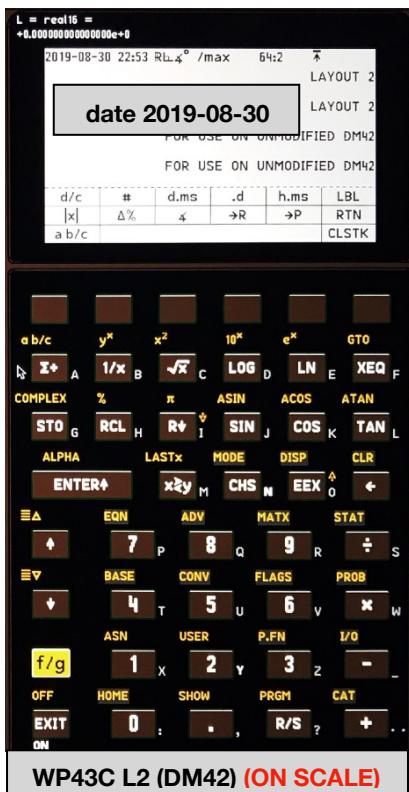
FN1	FN2	FN3	FN4	FN5	FN6
add	inv	sqrt	log	ln	xeq
mem	rcl	down	sin	cos	tan
ENTER	w	neg	eex	BACK	
Up	7	8	9	/	
Dn	4	5	6	*	
Lshft	1	2	3	-	
Esc	0	.	\	+	

Keypresses

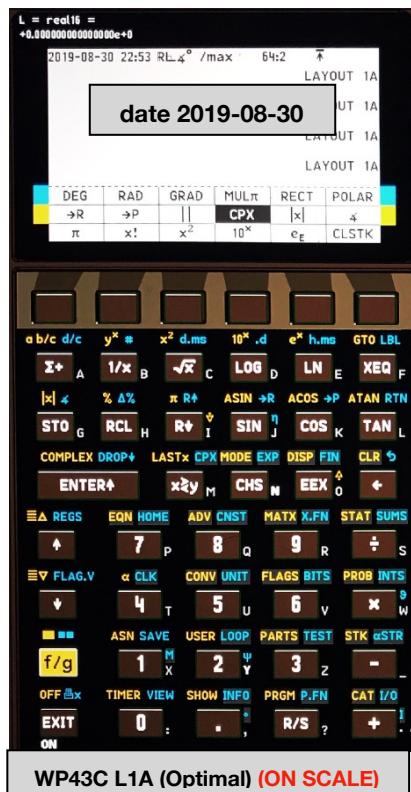
h to “hardcopy” screen to clipboard.



12. WP43C Emulator photographs compared with other calculators



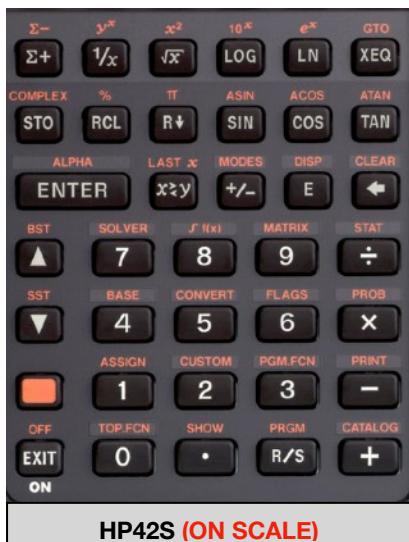
WP43C L2 (DM42) (ON SCALE)



WP43C L1A (Optimal) (ON SCALE)



ALPHA MODE (ON SCALE)



HP42S (ON SCALE)



DM42 (ON SCALE)



HP32SII (ON SCALE)



WP43C overlay (ON SCAI F)



HP48SX (not to scale)



HP35s (ON SCALE)

NEW

13. Keyboard overlay



A keyboard overlay design is in process of being g designed. Inautilus is driving this effort. The latest mockups are being circulated for comment.

Note that these designs are also NOT close to finalisation and currently stands at layout and fonts selection tests.

14. Resources and references

NEW

New: Source code is published on: <https://gitlab.com/Jaymos/wp43c>

Note the main project WP43S links below:

- Main WP43S project page: <https://sourceforge.net/projects/wp43s/>
- Major news thread on this forum: "43S News": <https://forum.swissmicros.com/viewtopic.php?f=2&t=1816&sid=3958904447cb1b55095fdb53a9650290>
- 43S assistance request: <https://www.hpmuseum.org/forum/thread-12889.html?highlight=43s>
- WP43S code on Gitlab: https://gitlab.com/Over_score/wp43s
- WP43C code on Gitlab: <https://gitlab.com/Jaymos/wp43c>
- I installed the dev system on my Mac after the post from John Boyden on 6 May 2019: <https://forum.swissmicros.com/viewtopic.php?f=2&t=1816&p=10655&hlit=Xcode#p10655>
- Keyboard comparisons: http://cocoon-creations.com/download/2019-08-19_HP_keypad_COMPARISON.pdf
- Keyboard comparisons: <http://pahhc.org/2010/Articles/HHC2000%20A%20Survey%20of%20HP%20Numeric%20Keypads.pdf>
- Keyboard comparisons: <http://pahhc.org/2010/Articles/HHC2000%20HP%20Numeric%20Keypads%20Slides.pdf>
- eRPN discussion: <http://h20331.www2.hp.com/hpsub/downloads/S07%20HP%20RPN%20Evolves%20V5b.pdf>