**Notes on the User Menu**

The WP34S / WP34C on the DM42 makes heavy use of menus, to allow access to the huge range of keyboard functions available on the original calculator. Each menu has up to twelve functions (in practice, keys F5 and F6 are nearly always bound to “→” and “CPX”). This system is a virtue as well as a necessity: the program menu, for example, brings together lots of useful program-related commands.

Naturally, many commands remain buried away in catalogues. It isn’t practical to put every command into a menu, but a user-defined menu might be useful to some users.

The WP34S / WP34C now offers such a menu. The idea and much of the code is based on a feature of the WP34S code that, so far as I know, never saw the light of day – a user-defined catalogue. This generated a catalogue from the commands in a program (that had to be called CAT). The present code generates a menu rather than a catalogue, and the program used need not be called CAT!

**What it is**

You can have your own menus with up to 12 entries each. Menu entries can be catalogue items (e.g., LNBETA or STOPW), or things like STO 05 or XEQ’CAT’. You can enter your own labels or have the calculator generate them automatically. The automatically-generated labels may be too long; the calculator attempts to shorten them – e.g., XEQ’CAT’ would appear as XQ’CAT – but simply labelling this as CAT might be best. (Or DOG, if you prefer.)

**How to use it**

Simply write a program starting with a global label, with each step being a function that you want to appear in your menu. This might be something like

LBL’FUN’

CPXI

CPXJ

SSIZE4

SSIZE8

STOPW

NOP

END

Don’t run the program! Instead, press SHIFT SHIFT 2 (“2” has CUSTOM written above it) and select UMEN on F1. This invites you to enter a program name, so press F U N. This processes the program and creates the user menu. If there were more than six items in the program, there would be shifted functions too.

If you go to another menu, pressing SHIFT 2 (just one shift) returns you to your user menu.

What about NOP? NOP is a command in the P.FCN menu; it means “do nothing”. If you have a NOP in the F5 or F6 position in your program you get either “→ ” or “CPX” inserted automatically. You can also use NOP to leave blanks in your layout, if you don’t want things filled simply from left to right, bottom to top.

In the SHIFT SHIFT 2 menu, as well as UMEN there are UM1,…,UM6 (along with → and CPX). These keys run UMEN’UM1’, etc., giving you one-key access to six user-menu programs with these names.

Note that these user-menu programs can be in RAM or in the library memory, so they needn’t get in the way of normal calculator use.

**Functions with arguments**

Many functions have an argument that is part of the function name, rather than being taken from the stack. Examples are STO 17, SF 7, XEQ’CAT’. You can enter these into your program just as they are, and they will appear in your menu.

You may wish to have “SF” (set flag) in your menu as a command with no argument. If you have zero as the argument (STO 00, SF 0, XEQ 00) the argument is ignored and you can type in your own. This does mean that you can’t have STO 00 (etc.) in a user menu, but…well.

**Providing your own labels**

In the example above, suppose that we wanted to call STOPW “Timer” instead. To do this:

LBL’FUN’

CPXI

CPXJ

SSIZE4

SSIZE8

α ’Tim’

α ’er’

STOPW

NOP

END

To add the two lines starting with “α” to the program:

* Enter program mode and get SSIZE8 in the display.
* Press ALPHA (SHIFT ENTER) twice in program mode to enter ‘alpha group’ mode. α’ appears in the display.
* Press T SHIFT EXIT i m. (The SHIFT EXIT leads to lower-case alpha mode.)
* Press ALPHA again, type e r followed by ENTER to leave alpha-group mode and then ENTER again to leave alpha mode.
* Press EXIT to leave program mode, then run SHIFT SHIFT 2, UMEN again to rebuild the user menu.

(Note: alpha group mode is a standard part of the WP34S so you can read about it in the manual.)

The rules for labels are:

* At most two α-groups in a row (just one is fine). Each group can contain 1, 2, or 3 characters. With 6 characters, the final one doesn’t always fit!
* To help with this latter point if one of the characters is a space, I’ve arranged for h-EXIT to enter a thin space character. This character doesn’t seem to appear elsewhere on the keyboard or in the alpha catalogues, for some reason.
* If you have three α-groups in a row, the first two form a label for a NOP operation and the third one can label a future command.