TITLE: HP 9825 BLOCK DIAGRAM PROGRAM

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HP 9825 BLOCK DIAGRAM PROGRAM

James R. Coe

General

A program has been written to utilize the HP 9825 calculator and the 9862 HP plotter to help prepare block diagrams, flow charts and view graphs. This program plots the various symbols shown on the attached diagram. The symbol size and location are selected by the user. Titles and labels can be conveniently added and lines drawn to interconnect the symbols.

Operation

The maximum plotting area is 10" x 15". Any suitable paper could be used. Using mylar material with 0.1" grid helps in constructing the diagram. Errors also can be readily corrected on this material.

Turn the HP 9825 calculator ON.

Insert the tape labeled "Block Diagram Program".

Press LOAD 1 and then EXECUTE.

After the tape has stopped driving press RUN.

The calculator displays "Set Up Plotter" and loads the special function keys from file 0. Put the paper on the plotter. Set the lower left and upper right limits on the plotter.

When the display shows "Horizontal Scale?", enter the horizontal length of the plot in units of 0.1 inch, i.e., 10 inches enter 100. Then enter the number of 0.1 inch units in the vertical height of the plot.

The calculator displays "Select Operation".

Using the special function keys, select the symbol type, label or line required. The program prompts, on the display, guide you through most of the operations.

When the calculator displays "Here?" to verify a location prior to plotting a symbol, you can push YES or 1 and CONTINUE. If the plotter is not at the right location, press CONTINUE.
When the operation "Draw" is selected, the keys (as shown below) move the plotter pen in the direction indicated by the key position.

```
4  5  6
1  3
0  . 1
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Pressing key \( \text{2} \) causes the pen to go down. By releasing key \( \text{2} \) after one of the other keys is depressed allows you to draw a line. The pen does not stay down going to the left for some unknown reason. The horizontal and vertical locations are displayed with 0.01 inch resolution. Pressing key \( \text{9} \) returns to "Select Operation".

When the operation "Label" is selected, the display is CHARACTER SIZE? The number entered determines the height of the characters as a percentage of the total vertical height of the plot. Enter a number, generally in the 1 to 2 range. Then press CONTINUE.

Next it displays "Label? 15 Characters Max". Enter the desired label and press CONTINUE. The program then moves the pen to the last location used and offsets the pen to the left one-half the label length and down one-half the character height and displays "Here?". If you want the label started here, press YES or 1 and CONTINUE. If you want to move the label just press CONTINUE and the horizontal and vertical positions will be displayed and the numeric key pad allows you to move the pen. When you locate the pen at the point you want the label centered, press numeric key \( \text{8} \). The pen will offset to the starting position for the label and the display will be "Here?". Proceed as outlined above. The label or character size need not be re-entered if no changes are required.

You can also use the "PTYP" mode of labeling with the plotter in the typewriter mode. The keys

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← → ↑ ↓
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will move the pen with a resolution of one character space and will plot any character you type. Type slow or you will lose characters.

If you decide not to use a symbol after you have selected it, press STOP. Then select a new operation. If all else fails, press STOP and RUN. You then will have to re-enter the scale factors.

It takes two to three hours to make and label a detailed block diagram, but at least it is legible when you finish.