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PROGRAM LIBRARY

DECUS NO.	FOCAL8-129
TITLE	FOCAL READABLE PUNCH
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SOURCE LANGUAGE	FOCAL 5/69 (DECUS NO. FOCAL8-52)

FOCAL READABLE PUNCH

DECUS Program Library Write-up

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ABSTRACT

The operating program consisting of groups 1 and 2 will punch tape-high readable characters using the low speed punch. Groups 3, 4, 5, constitute the fundamental program which was used to build group 2, and which may be used to change or completely rebuilt it.

LIMITATIONS

This program will operate only in FOCAL 5/69 (DECUS NO. FOCAL8-52) since it requires input and output of single characters as well as calculated line numbers. The extended functions must be deleted to operate all of group 2 in 4K.

TO RUN THE EXISTING PROGRAM

Load groups 1, 2 (at least); type GO and CARRIAGE RETURN. Follow the instructions that appear on the TTY page. Strike the appropriate keytops and allow the L. S. punch to outline the character.

CAUTION

Striking a key or key combination that has not been coded will result in an error message as line 1.04 attempts to do a non-exist. line and halts the program. *Error message is 02.45*

TO LOOK AT THE CHARACTERS AVAILABLE IN GROUP 2:

Type option C;DO 2 and CARRIAGE RETURN. (With the punch on!)

TO BUILD A NEW GROUP 2

Lay out required hole patterns using 1/10 inch graph paper or section of "RUBOUT" tape. Assign the appropriate decimal ASCII code to the pattern for each readable character. Load groups 3, 4, 5, and GOTO 3.05. Answer with the octal value of each row of holes required to form the readable character, terminating each with the space (or C. R. or comma) ((Notice that the keyboard echo and colon-on-ask are suppressed)). For example, 1,1,377,1,1,0,0,400 will code a "T" with a two socket hole space for character separation. The octal value 400 concludes one readable character and begins the next. >>> Caution, any code which causes a carriage return will also cause FOCAL to echo a line feed code. It is best to avoid the CR unless you can use the LF.

Characters will be called in the order of decimal ASCII 160 (space) thru 223 (back arrow) and the line numbering will also be constructed based on this code. In this way, the line-finding calculation of line 1.04 will correspond to the line-building calculation.

It should be emphasized that running groups 3, 4, 5 will only generate a group 2 on tape. This tape must be loaded into core before it can be used by group 1. While the tape will load and run in a straightforward manner, considerable storage is used for non-essential symbols and extraneous spaces. This storage may be regained by erasing the unused lines and rubbing out the unnecessary spaces using the modify operation in the usual way.

The codes finally listed in group 2 are decimal. Since the program input was octal, it is obvious that the base conversion is accomplished by the program - - - and not too rapidly!

Since the keyboard echo is suppressed, and the usual indications are not available to the operator, care must be exercised to ensure that the conversion and printout have been accomplished before keying in the next octal code to prevent input buffer overflow. The pattern will soon become evident, and the visible record on the TTY is sufficient to guide the operator.

ADDENDUM

45 Laurel Road
Chestnut Hill, Mass. 02167
10 June 1970

Mr. Thomas J. Ford
White Mountains Regional High School
Whitefield, New Hampshire 03598

Dear Mr. Ford:

I have been receiving a great deal of feedback with regard to Focal 5/69, and I am pleased that you have found it useful. Your character punch program is the best demonstration I have seen of some of the features of Focal 5/69.

Whether you realized it or not, you uncovered a bug in my program. When a carriage return is output in character mode, Focal should not automatically insert a line feed after it. The purpose of character mode is to allow the output of any 8-bit ASCII character without the system doing any sort of formatting.

There are two ways to fix this.

1) The only code that has this problem is 215 (octal), or 141 (decimal). Any code generated by $256*n + 141$, where n is any integer besides zero, will cause the same pattern to be punched but will fool the output routine into thinking it is not a carriage return.

2) You can also fix this within Focal itself by changing the contents of location 3376 from 4512 to 4537. (In PAL-D, this is equivalent to changing the instruction at COUTPT+3 from PRINTC to JMS I OUTDEV). I am certain this will work, though I have no way of checking it because I no longer have access to a PDP-8/1 (having graduated to a PDP-10 at Harvard!).

Thank you again for your interest.

Sincerely yours,

Edward A. Taft, III

