

TX-0 COMPUTER  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
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M-5001-25

PRINT II - A Routine for Printing Numerical Output from TX-0

PRINT II is an expanded version of PRINT I and will be here treated as if the reader were familiar with PRINT I (Memo M-5001-18).

The two routines are almost identical except that PRINT II allows for the order

pfp (=460000). print floating point

Floating point numbers are printed out in blocks, as desired. The exact type of normalized floating point numbers which the program will handle is described in memo M-5001-20.

All of the orders available in PRINT I are also available in PRINT II. pcm n, where n is less than 5, must be used at some time preceding pfp. The psf n order specifies the number of figures typed in the fractional part of the numbers. It is meaningless to let n be greater than 6. If the psf order is not given, n is assumed to be 6.

Remembering that each floating point number requires 2 registers for storage, the orders

pcm	10
pno	4000
to	4005
pcm	4
pfp	4000
to	4004

Yields

4000	240000	3	300000	2	300000	3
4000	.500017 1		.300020 1		.600015 1	

The above numbers are interpreted:

$.500017 \times 10^1$  or 5.00017 or 5.0 when rounded off.

The other numbers are, accordingly, 3 and 6. The printout program has been adjusted so that the numbers printed out will be slightly greater than their stored values. This makes intergers appear as intergers. For example, 4.0 is printed .400016 1 rather than .399985 1. The program has been tested over a wide range of numbers and has been found quite reliable to four significant figures after round-off.

PRINT II will handle normalized numbers of any size, + or - . Zero is printed .000000 n where n is unspecified; that is, the exponent is meaningless in this case. On occasion, one less digit than specified is printed. For example, .89825 6 is read 898.250, and may be printed even if a psf 6 order were given. This occurs because of an initial zero suppression built into the program.

PRINT II is available on binary tape only, occupying registers 1400<sub>8</sub> to 2560<sub>8</sub> inclusive. The user, when converting, must define pit = 1400. The other definitions are all available in English on the "Print I define" tape and are also available on a binary tape for FLIT. The "Print I Binary Define" tape will not work with Macro because of an unaddressed transfer order in the Macro instruction "print".

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