

APPENDIX 7. CDC 250 PLOT PACKAGE

This appendix describes the plotting routines used by the Three-Dimensional Ray Tracing Program. The information was taken from "User's Guide to Cathode Ray Plotter Subroutines," ESSA Technical Memorandum ERLTM-ORSS 5, by L. David Lewis, January, 1970, and is printed with the permission of the author.

If you have access to a plotter, you may obtain plots by converting the following plotting commands to comparable commands on your system.

The CDC-250 Microfilm Recorder, under control of the NOAA Boulder CDC-3800 computer, plots data on the face of a high resolution cathode ray tube, which is photographed onto standard sized perforated, 35 mm film.

The plotting area, called a frame, is a square. Plotting positions are described in rectangular coordinates. Coordinate values are integers in the range 0 - 1023; (0, 0) is the "lower left hand corner".

Plotting specifications are transmitted to the plot routines via the following COMMON.

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COMMON /DD/ IN, IOR, IT, IS, IC, ICC, IX, IY
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The usage of each of the eight variables is listed below, followed by an explanation of the subroutine calls.

IN	Intensity. IN=0 specifies normal intensity. IN=1 specifies high intensity.
IOR	Orientation. IOR=0 specifies upright orientation. IOR=1 specifies rotated orientation (90° counter-clockwise).
IT	Italics (Font). IT=0 specifies non-Italic (Roman) symbols. IT=1 specifies Italic symbols.

IS Symbol size.
 IS=0 specifies miniature size.
 IS=1 specifies small size.
 IS=2 specifies medium size.
 IS=3 specifies large size.

IC Symbol case.
 IC=0 specifies upper case.
 IC=1 specifies lower case.

ICC Character code, 0-63 (R1 format).
 ICC and IC together specify the symbol plotted.

IX X-coordinate, 0-1023.

IY Y-coordinate, 0-1023.

CALL DDINIT (N, ID) is required to initialize the plotting process.

CALL DDBP defines a vector origin at position IX, IY.

CALL DDVC plots a vector (straight line), with intensity IN, from the vector origin defined by the previous DDBP or DDVC call, to the vector end position at IX, IY. A single call to DDBP followed by successive calls to DDVC (with changing IX and IY) plots connected vectors.

CALL DDTAB initializes tabular plotting.

CALL DDTEXT (N, NT) plots a given array in a tabular mode, after initiating tabular plotting via DDTAB, as described above. NT is an array of length N, containing "text" for tabular plotting. Text consists of character codes, packed 8 per word (A8 Format). Text characters are plotted as tabular symbols until the command character \neq (octal code 14, card code 4, 8, or the alphabetic shift counterpart of the = on the keypunch) occurs. The command character is not plotted. DDTEXT interprets the next character as a command; and after the command is processed, tabular plotting resumes until \neq is again encountered.
 \neq . means end of text: DDTEXT returns to the calling routine.

CALL DDFR causes a frame advance operation. Plotting on the current frame is completed, and the film advances to the next frame.