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BDX-613-2611

**CMS Plotter Graphics
Training Manual**

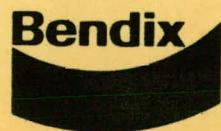
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By R. D. Cawby

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MASTER

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CMS Plotter Graphics Training Manual
By R. D. Cawby

Published March 1981

Topical Report
R. D. Cawby, Project Leader

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CMS PLOTTER GRAPHICS PROGRAMS

This manual includes explanations of several graphics programs that use a CMS terminal and a table-top plotter to produce a copy on bond paper or transparency film.

<u>Program</u>	<u>Access Code</u>
Mountain Chart	Chart Mount and Chartd Mount
Pie Chart	Chart Pie and Chartd Pie
Bar Chart	Chart Bar and Chartd Bar
Mulbar Chart	Chart Mulbar and Chartd Mulbar
Transparency	Chart Tranp and Chartd Tranp
Label	Chart Label and Chartd Label
Gantt	Chart Gantt and Chartd Gantt

GENERAL INSTRUCTIONS

Typing Information Into The Terminal

When you type information into the terminal, you need not use spaces between words; however, separate each instruction or piece of datum by a comma or blank.

Do You Want To Save Answers

This is an option that allows you to record your answers automatically as you type them and later edit your answers. It usually takes more than one try to plot the information exactly as you want it. With the information in a CMS file, you can make revisions, add, or delete data without starting over every time.

Enter Desired Filename and Filetype

If you answer **y** (yes) to "Do you want to save answers?", then the procedure will ask you to enter a filename and filetype to identify uniquely that set of answers in a CMS file. An example would be MOUNT DATA.

Do You Want To Plot Chart

If you are working on a CMS terminal that is connected to a table-top plotter and you want to plot your chart immediately, you would answer y (yes). However, if you do not want to plot your chart or you are working at a terminal that is not connected to a plotter, you would answer n (no). The program will run the same but it will not plot a chart. You may use this option to create a CMS file of the answers to be plotted later.

Do You Want a Different Chart

After you have entered all the information for your first chart, the program will ask you if you want another one. If you answer y (yes), the program will start over and you will enter the information for your second chart just as you did for your first one. If you don't want a different chart, type n (no).

Continuous Feed Plotter

A continuous feed plotter can plot on paper rolls to make a sheet size of up to 11 x 17", instead of plotting on single sheets of paper. The computer will ask, DO YOU WANT TO PLOT CHART, or, DO YOU WANT A DIFFERENT CHART, and it will request paper advance instructions. The plotter will advance the paper according to the instructions listed on the screen, after you plot the chart.

Chart Size

For the mountain chart, the bar chart, or the mulbar chart, the chart size question has five options. Options 1-3 are self-explanatory. Option number 4, HORIZONTAL SLIDE, plots the chart in the right proportion to fit a 35 mm slide when the chart is reduced. See Mountain Chart, Example 2. Option number 5, USER-DEFINED SIZE, lets you define the area (in inches) in which the chart will be plotted. You also may choose to frame the defined area. See Mountain Chart, Example 5. Sample sizes are given on page 38.

Suffix d

Use the suffix d to run the program with data from the CMS file. If you have created a file of options and answers and wish to use your file immediately, follow these steps to make one graph.

Chartd Mount

(Note that you typed chartd instead of chart.
The suffix d applies to each graphics program.)

The program will immediately respond with "Enter Desired Filename and Filetype."

CMS File

This is simply the file of answers that you saved, which you store by using the desired filename and filetype (Example: Mount Data).

Editing Your CMS File

When you have answered y (yes) to the question DO YOU WANT TO SAVE ANSWERS and you have entered the desired filename and filetype, and you have answered n (no) to the question DO YOU WANT A DIFFERENT CHART, the program will ask DO YOU WANT TO EDIT FILENAME AND FILETYPE. If you answer y (yes), the procedure will place your CMS file in the editor.

You then type TYPE* and the program lists all the information you have entered. The following lines are an example of what you will get when you type TYPE*.

```
N
1
1
Pie Charts
Cawby
Example Charts
3
4
3
'Item1',30
'Item2',25
'Item3',45
Pie One
3
'Item1',20
'Item2',45
'Item3',35
Pie Two
3
'Item1',10
'Item2',50
'Item3',40
Pie Three
N
```

At this point, you may edit your file. Consult the CMS Editor Manual for editor commands.

SAMPLE XMIN XMAX YMIN YMAX
FOR 'USER-DEFINED SIZE' OPTION

0 7.6 5.25 10.5	7.6 15.2 5.25 10.5
0 7.6 0 5.25	7.6 15.2 0 5.25

CHART PAPER

0 5.15 3.9 7.8	5.15 10.3 3.9 7.8
0 5.15 0 3.9	5.15 10.3 0 3.9

HORIZONTAL

0 7.8 5.25 10.5
0 7.8 0 5.25

0 5.15 0 7.8	5.15 10.3 0 7.8

VERTICAL

THE MOUNTAIN CHART PROGRAM

Five examples of the Mountain Chart Program are given for reference (pp 14-38). Each will produce a slightly different finished chart. The requests made and responses given by the computer appear all in upper-case letters. The questions on the chart examples appear in lower-case letters.

The plotted chart is on the page following the program. Most of the questions that you will be asked by the program are self-explanatory with the aid of the examples; however, some questions are not. Questions not self-explanatory are explained here.

logon,
chart mount

(To access the Mountain Chart Program.)

DO YOU WANT TO
PLOT CHART

Answer n (no) if you are at a terminal other than the plotter terminal. You can build your chart at a terminal that is not a plotter terminal, but you cannot plot your chart from it.

DO YOU WANT TO SAVE
ANSWERS
(Y or N)

(As a new user, you should answer y (yes). The program will automatically record the answers as you type them to create a file that you may revise later.)

ENTER DESIRED FILENAME
AND FILETYPE

Enter a unique filename--i.e., a filename that is distinctive from all other filenames, for the file you are creating.

CHART SIZE

(Enter a number 1 - 5.)

CHART TYPE

(Enter a number 1 or 2.)

ENTER CHART TITLE
(MAX 30 CHAR)

(Enter title.)

ENTER TITLE FOR Y AXIS
(MAX 20 CHAR)

(Enter Y axis title.)

ENTER MIN AND MAX FOR
Y AXIS

(Enter two numbers separated by a comma.)

ENTER NUMBER OF LINES
(MAX 25)
IF NEGATIVE, NO SHADING
WILL BE DONE

(The number of lines means the number of curves or lines you want to appear on your chart. If you enter a positive number, (Example: 2) you will get shading

ENTER THE NUMBER OF POINTS
PER LINE (MAX 60)
IF NEGATIVE, NO SUMMATION
WILL BE DONE.

between the lines as shown in
Example 1. If you enter a negative
number, you will not get shading
as shown in Example 2.)

(You enter the number of points
per line. If you enter a
positive number, you will get
summation. Summation means each
line will depict its own values or
points in addition to the values from
the preceding lines.
If there are 10 lines on your chart,
line number 10 will depict its own
values and the values from the other
nine lines. Summation is what gives
you the mountain chart effect. See
Example 1. If you enter a negative
number, you will have a line chart
in which each line depicts its
own values only. See Example 3,
p 26.)

X AXIS TYPE

(You type in a number 1 - 5, depending
on the type of axis you want.)

(user axis)
ENTER NUMBER OF TICK
MARKS ON X AXIS

(If you chose axis type number 1
[axis chosen by user], you enter
the number of tick marks (or
entries) that you want to appear
on your X axis. See Example 1.)

ENTER X AXIS LABELS
(2 lines)

(If you chose axis type number 1
[axis chosen by user], you space
over to each tick mark and type
in your label. See Example 1.)

(number axis)
ENTER MIN AND MAX FOR
X AXIS

(If you chose axis type number 2
[number axis], you enter the
minimum and maximum values for your
X axis. Separate the two values by
a comma. See Example 3.)

(month axis)
ENTER NUMBER OF TICK
MARKS ON X AXIS

(If you chose axis type number 3
[month axis], you enter the
number of tick marks (or
entries) that you want to appear
on your X axis. See Example 4.)

ENTER X AXIS LABELS
(2 LINES)

(If you chose axis type number 3
[month axis], you space over
to each tick mark and type in
your label. See Example 4.)

(fiscal year axis)
ENTER NUMBER OF YEARS
ON AXIS

(If you chose axis type number 4 [fiscal year axis], you type in the number of years you want shown on the X axis. See Example 2.)

ENTER LAST TWO DIGITS
OF YEAR TO START AXIS
WITH

(If you chose axis type number 4 [fiscal year axis], type in the two digits. See Example 2.)

ENTER QUARTER TO START
FIRST YEAR ON

(If you chose axis type number 4 [fiscal year axis], type in the quarter number. See Example 2.)

(day axis)
ENTER START DATE 'MMDDYY'

(If you chose axis type number 5, [day axis], enter a six-digit start date such as '050379'. See Example 5.)

ENTER NUMBER OF DAYS PER
TICK MARK

(If you chose the day axis, enter a number. See Example 5.)

ENTER NUMBER OF TICK MARKS

(For the day axis, enter a number. See Example 5.)

ENTER NUMBER OF TICK MARKS
PER DATE LABEL

(For the day axis, enter a number.)

TYPE OF DATE LABELS
ENTER 3 NUMBERS

(For the day axis, enter three numbers: 1 or 2, 3 or 4, and 5 or 6. See Example 5.)

- 1 MM/DD
- 2 MM/DD/YY
- 3 UNDER TICK MARKS
- 4 BETWEEN TICK MARKS
- 5 HORIZONTAL
- 6 VERTICAL

ENTER X AXIS TITLE
(MAX 30 CHAR)

(Enter X axis title.)

LEGEND TYPE

(Enter number 1 - 6 depending on your choice.)

ENTER LEGEND (MAX 10
CHAR) AND UP TO n Y
VALUES FOR LINE NUMBER 1
LEGEND MUST BE DELIMITED

(Type each legend between one of the special characters [Example: 'legend',] and place a comma after it. Separate each Y value by a comma. [Example: 'legend',3,2,1] The maximum number (n) of Y values will be equal to the number of points per line that

you entered previously. However, you may enter fewer data points than the maximum by typing/at the end of the line. If you are using shading or summation, the number of data points in each line must be equal. If you want a break in the line, (Example 5) make the Y value less than the minimum value of the Y axis. You will complete this step for as many lines as you have chosen for your graph.)

ENTER THE NUMBER OF
CONSTANT LINES (MAX 5)

(Enter number 1 - 5. A constant line will appear as a straight horizontal line across your chart. It can be used to show an average in relationship to your summation lines. See Staffing Line, Example 1. You enter the information for your constant line using the same format described for entering your legend.)

After you have typed in the information for your constant line(s), the plotter will begin drawing your chart.

DO YOU WANT A DIFFERENT
CHART

(If you answer y (yes), the program will start over again from the beginning. You enter all the information for your next chart exactly as you did for the first one.)

DO YOU WANT TO EDIT
Filename Filetype

(You get this question only if you answered n (no) to the question, DO YOU WANT A DIFFERENT CHART. This is a file of the answers that you saved. If you answer y (yes) to the question, DO YOU WANT TO EDIT filename filetype, the program will place in the CMS your file editor. You can then type TYPE* and the program will list all the lines of your answers. You may then edit your file.)

After you have finished editing your file, you type
file

You then type

chartd mount

The program will read the answers from your CMS file and then
plot the edited version of your chart.

MOUNTAIN CHART EXAMPLE 1

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

Y

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

2

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 1

Enter title for y axis(max 20 char)

HEADCOUNT

Enter min and max for y axis

0,25

Enter number of lines (max 25)
If negative, no shading will be done

6

Enter number of points per line (max 60)
If negative, no summation will be done

10

X axis type

- 1 - Axis chosen by user
- 2 - Number
- 3 - Month axis
- 4 - Fiscal year
- 5 - Day axis

1

Enter number of tick marks on x axis

9

Enter x axis labels (2 lines)

! ! ! ! ! ! ! ! !

1QTR 2QTR 3QTR 4QTR 1QTR 2QTR 3QTR 4QTR

FY78

FY79

Enter x axis title(max 30 char)

AXIS CHOSEN BY USER

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None
- 5 - Legend and symbols at each data point
- 6 - Legend and a symbol at the end of each line

1

Enter legend (max 10 char) and up to 10 y values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',5*1,5*2

Enter legend (max 10 char) and up to 10 y values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',2,2,2,3,3,3,4*4

Enter legend (max 10 char) and up to 10 y values for line 3
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 3',1,2,2,3,3,3,1,1,1,5

Enter legend (max 10 char) and up to 10 y values for line 4
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 4',2,3,3,3,2,1,2,3,3,2

Enter legend (max 10 char) and up to 10 y values for line 5
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 5',2,3,3,3,1,3,4,5,6,1

Enter legend (max 10 char) and up to 10 y values for line 6
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 6',1,4*2,5,4,3,4,5

Enter number of constant lines (max 5)

1

Enter label (max 16 char), value for constant line 1,
pen color(1-4), and line type(0-dash, 1-solid)
Legend must be delimited with quotation marks such as 'LEGEND'

'STAFFING LINE ', 15.

Do you want a different chart

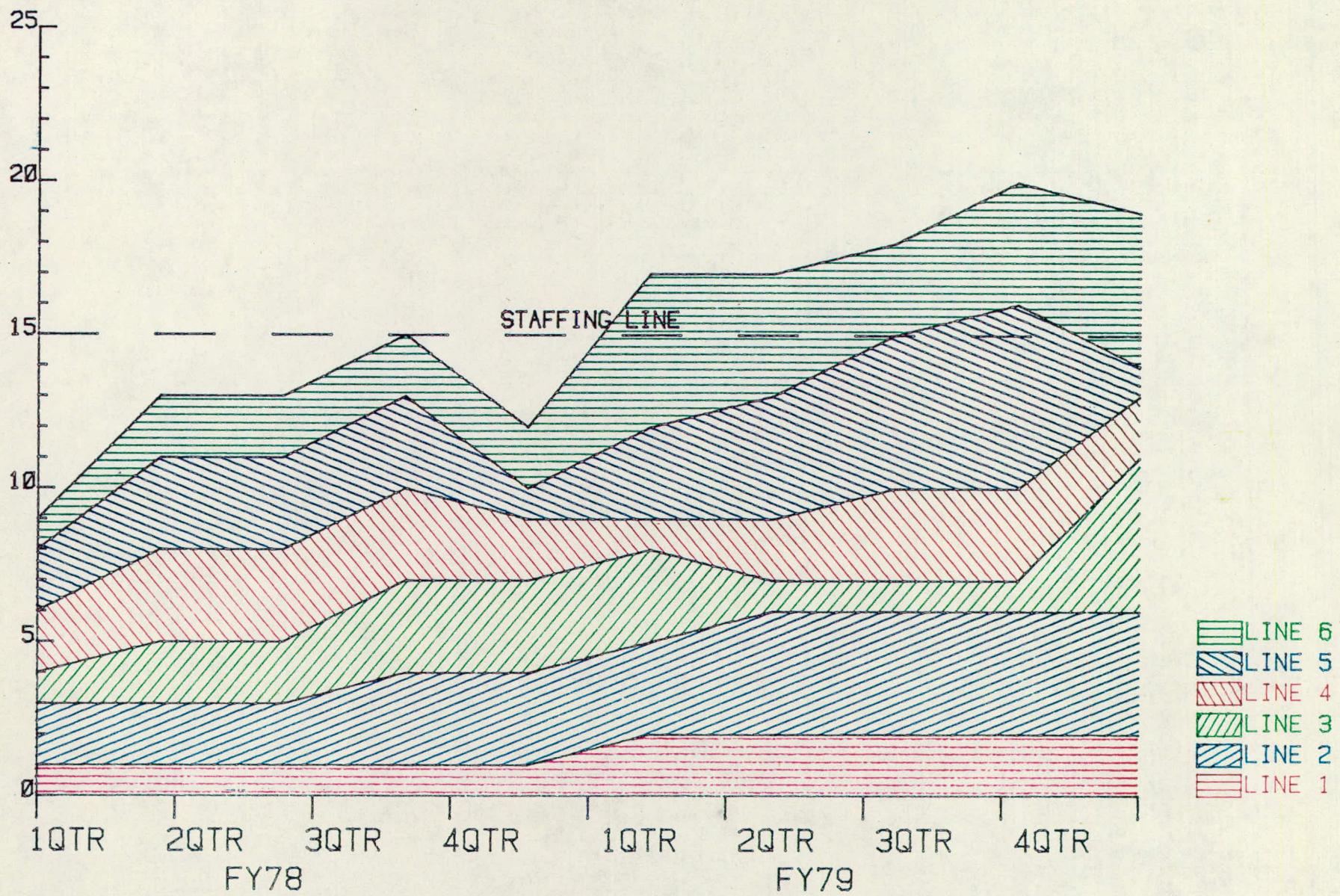
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL	--	Full page advance
Y HALF	--	Half page advance
Y	--	No page advance
N	--	No more charts

N

MOUNTAIN CHART EXAMPLE 1

HEADCOUNT



AXIS CHOSEN BY USER

MOUNTAIN CHART EXAMPLE 2

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

Y

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size.

4

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 2

Enter title for y axis(max 20 char)

HEADCOUNT

Enter min and max for y axis

0,25

Enter number of lines (max 25)
If negative, no shading will be done

-6

Enter number of points per line (max 60)
If negative, no summation will be done

10

X axis type

- 1 - Axis chosen by user
- 2 - Number
- 3 - Month axis
- 4 - Fiscal year
- 5 - Day axis

4

Enter number of years on axis

5

Enter last two digits of year to start axis with

78

Enter quarter to start first year on

2

Enter x axis title(max 30 char)

FISCAL YEAR

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None
- 5 - Legend and symbols at each data point
- 6 - Legend and a symbol at the end of each line

6

Enter legend (max 10 char) and up to 10 y values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',5*1,2/

Enter legend (max 10 char) and up to 10 y values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',2,2,2,3,3,3/

Enter legend (max 10 char) and up to 10 y values for line 3
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 3',1,2,2,3,3,3/

Enter legend (max 10 char) and up to 10 y values for line 4
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 4',2,3,3,3,2,1/

Enter legend (max 10 char) and up to 10 y values for line 5
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 5',2,3,3,3,1,3/

Enter legend (max 10 char) and up to 10 y values for line 6
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 6',1,4*2,5/

Enter number of constant lines (max 5)

1

Enter label (max 16 char), value for constant line 1,
pen color(1-4), and line type(0-dash, 1-solid)
Legend must be delimited with quotation marks such as 'LEGEND'

'STAFFING LINE ', 15.

Do you want a different chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

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MOUNTAIN CHART EXAMPLE 3

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

Y

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

2

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 3

Enter title for y axis(max 20 char)

ITEMS PRODUCED

Enter min and max for y axis

0,50

P
Enter number of lines (max 25)
If negative, no shading will be done

-10

Enter number of points per line (max 60)
If negative, no summation will be done

-10

X axis type

- 1 - Axis chosen by user
- 2 - Number
- 3 - Month axis
- 4 - Fiscal year
- 5 - Day axis

2

Enter min and max for x axis

10,30

Enter x axis title(max 30 char)

NUMBER AXIS

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None
- 5 - Legend and symbols at each data point
- 6 - Legend and a symbol at the end of each line

5

Enter legend (max 10 char) and up to 10 x,y pair values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',10,1,11,1,12,1,13,2,13,2,14,2/

Enter legend (max 10 char) and up to 10 x,y pair values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',10,2,11,2,12,2,13,3,14,3/

Enter legend (max 10 char) and up to 10 x,y pair values for line 3
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 3',10,4,11,4,12,3,13,4,14,4,15,5,16,4/

Enter legend (max 10 char) and up to 10 x,y pair values for line 4
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 4',10,5,11,6,12,5,13,6,14,6/

Enter legend (max 10 char) and up to 10 x,y pair values for line 5
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 5',10,6,11,8,12,7,13,8,14,8/

Enter legend (max 10 char) and up to 10 x,y pair values for line 6
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 6',10,8,11,9,12,9,13,10,14,11,15,13,16,15,17,20/

Enter legend (max 10 char) and up to 10 x,y pair values for line 7
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 7',10,11,11,12,12,13,13,15,14,16/

Enter legend (max 10 char) and up to 10 x,y pair values for line 8
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 8',10,15,11,20,12,21,13,22,14,20/

Enter legend (max 10 char) and up to 10 x,y pair values for line 9
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 9',10,20,11,30,12,35,13,38,14,40/

Enter legend (max 10 char) and up to 10 x,y pair values for line 10
Legend must be delimited with quotation marks such as 'LEGEND'
'LINE 10',10,25,11,35,12,36,13,40,14,45/

Enter number of constant lines (max 5) .

0

P
Do you want a different chart

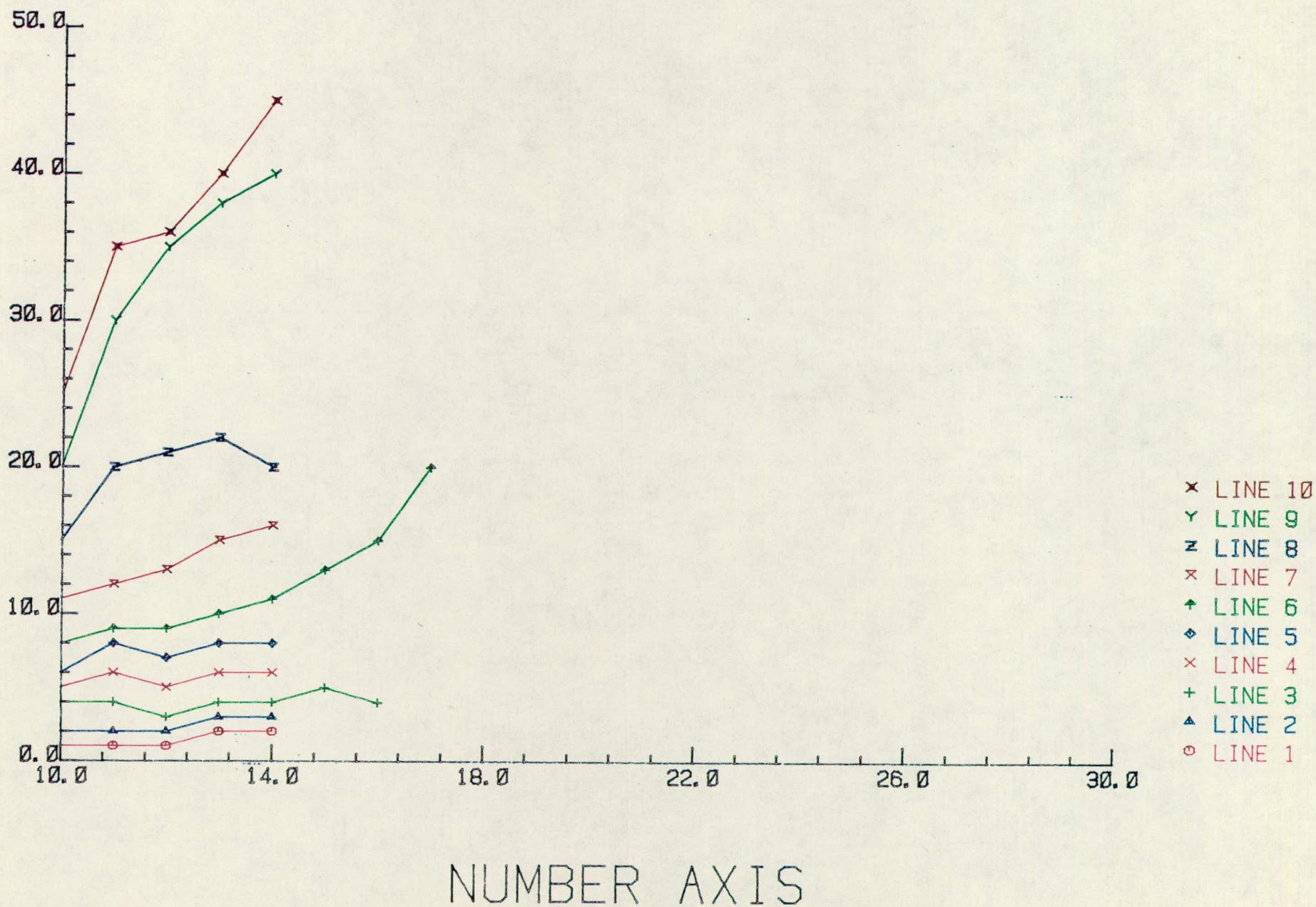
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

MOUNTAIN CHART EXAMPLE 3

ITEMS PRODUCED



MOUNTAIN CHART EXAMPLE 4

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

Y

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

2

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 4

Enter title for y axis(max 20 char)

HEADCOUNT

Enter min and max for y axis

0,25

Enter number of lines (max 25)
If negative, no shading will be done

-6

Enter number of points per line (max 60)
If negative, no summation will be done

10

X axis type

- 1 - Axis chosen by user
- 2 - Number
- 3 - Month axis
- 4 - Fiscal year
- 5 - Day axis

3

Enter number of tick marks on x axis

13

Enter number of month to start on first tick mark
If negative, month will be between tick marks

-1

Enter interval of month on axis

2

Enter number of characters of month to display

3

Enter x axis sub label

! ! ! ! ! ! ! ! ! ! ! ! !

FY78

FY79

Enter x axis title(max 30 char)

MONTH AXIS

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None
- 5 - Legend and symbols at each data point
- 6 - Legend and a symbol at the end of each line

3

Enter legend (max 10 char) and up to 10 y values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',5*1,2/

Enter legend (max 10 char) and up to 10 y values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',2,2,2,3,3,3/

Enter legend (max 10 char) and up to 10 y values for line 3
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 3',1,2,2,3,3,3/

Enter legend (max 10 char) and up to 10 y values for line 4
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 4',2,3,3,3,2,1/

Enter legend (max 10 char) and up to 10 y values for line 5
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 5',2,3,3,3,1,3/

Enter legend (max 10 char) and up to 10 y values for line 6
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 6',1,4*2,5/

Enter number of constant lines (max 5)

1

Enter label (max 16 char), value for constant line 1,
pen color(1-4), and line type(0-dash, 1-solid)
Legend must be delimited with quotation marks such as 'LEGEND'

'STAFFING LINE ', 25.

Do you want a different chart

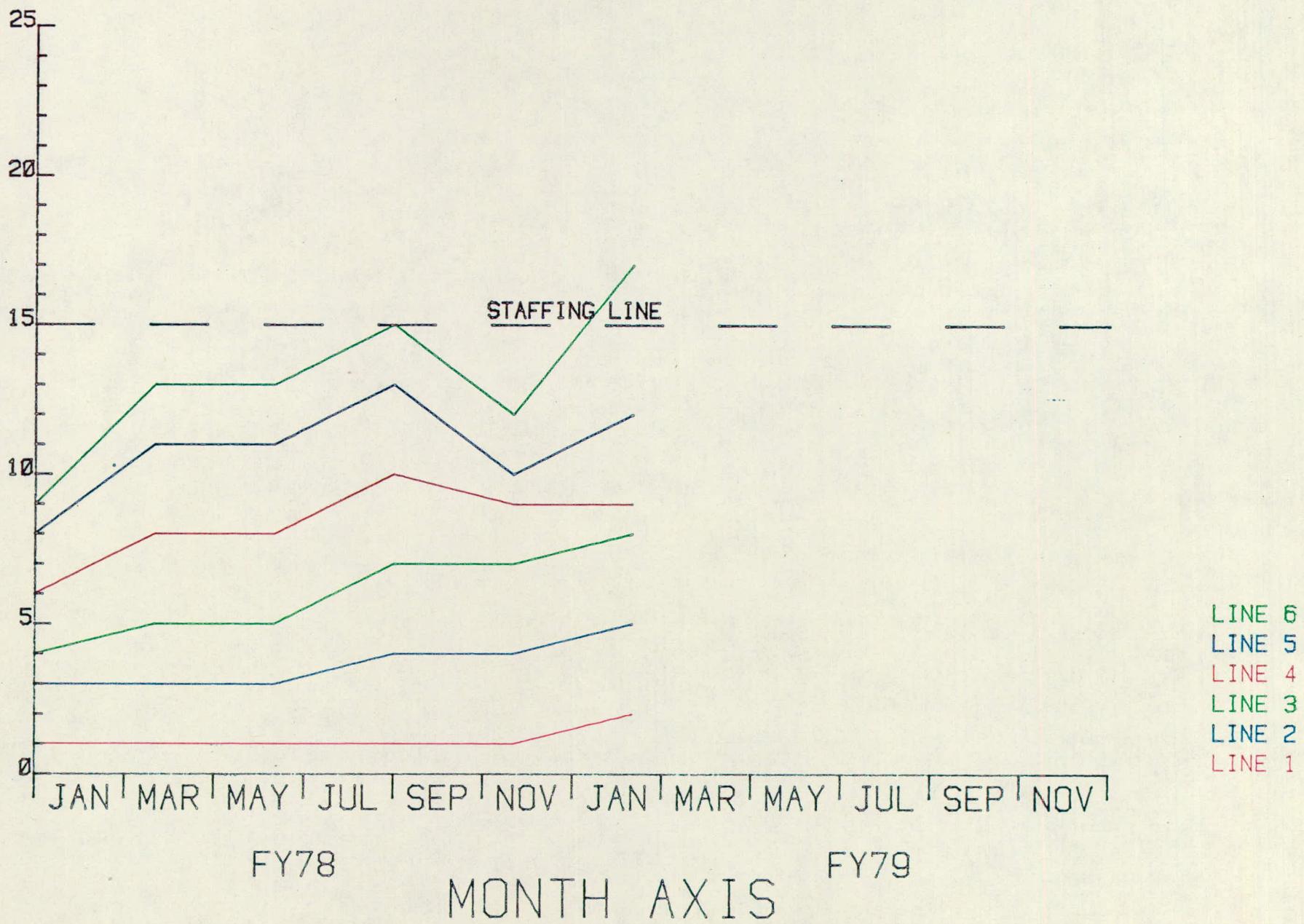
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

MTAINTAIN CHART EXAMPLE 4

HEADCOUNT



MOUNTAIN CHART EXAMPLE 5

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

- Y FULL -- Full page advance
- Y HALF -- Half page advance
- Y -- No page advance
- N -- No plot

Y

Do you want to save answers (Y or N)

N

Chart size

- 1 - 8.5 x 11. (vertical)
- 2 - 11. x 8.5 (horizontal)
- 3 - 16.5 x 11. (chart paper)
- 4 - 10. x 6.5 (horizontal slide)
- 5 - User-defined size

5

Enter xmin,xmax,ymin and ymax (inches)

0,5.15,0,7.2

Do you want to frame chart (Y or N)

Y

Chart type

- 1 - Bond paper
- 2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 5A

Enter title for y axis(max 20 char)

Y AXIS TITLE

Enter min and max for y axis

-10,10

Enter number of lines (max 25)

If negative, no shading will be done

-2

Enter number of points per line (max 60)

If negative, no summation will be done

-10

X axis type

- 1 - Axis chosen by user
- 2 - Number
- 3 - Month axis
- 4 - Fiscal year
- 5 - Day axis

5

Enter start date 'MMDDYY'

'050379'

Enter number of days per tick mark

2

Enter number of tick marks

10

Enter number of tick marks per date label

2

Type of date labels (enter 3 numbers)

1 - MM/DD
2 - MM/DD/YY

3 - Under tick marks
4 - Between tick marks

5 - Horizontal
6 - Vertical

1,3,5

Enter x axis title(max 30 char)

DAY AXIS

Legend type

1 - Shaded box and legend
2 - Shaded box
3 - Legend
4 - None
5 - Legend and symbols at each data point
6 - Legend and a symbol at the end of each line

5

Enter legend (max 10 char) and up to 10 y values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',0,1,0,-1,-11,-1,-.5,.5,2,3

Enter legend (max 10 char) and up to 10 y values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',0,-2,-4,-5,-11,-2,1,3,5,7

Enter number of constant lines (max 5)

1

Enter label (max 16 char), value for constant line 1,
pen color(1-4), and line type(0-dash, 1-solid)
Legend must be delimited with quotation marks such as 'LEGEND'

' ',0

Do you want a different chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

5

Enter xmin,xmax,ymin and ymax (inches)

5.15,10.3,0.0,7.2

Do you want to frame chart (Y or N)

Y

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title(max 30 char)

MOUNTAIN CHART EXAMPLE 5B

Enter title for y axis(max 20 char)

Y AXIS TITLE

Enter min and max for y axis

-10,10

Enter number of lines (max 25)

If negative, no shading will be done

-2

Enter number of points per line (max 60)

If negative, no summation will be done

-10

X axis type

1 - Axis chosen by user

2 - Number

3 - Month axis

4 - Fiscal year

5 - Day axis

5

Enter start date 'MMDDYY'

'050379'

Enter number of days per tick mark

2

Enter number of tick marks

10

Enter number of tick marks per date label

2

Type of date labels (enter 3 numbers)

1 - MM/DD

2 - MM/DD/YY

3 - Under tick marks

4 - Between tick marks

5 - Horizontal

6 - Vertical

1,3,5

Enter x axis title(max 30 char)

DAY AXIS

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None
- 5 - Legend and symbols at each data point
- 6 - Legend and a symbol at the end of each line

5

Enter legend (max 10 char) and up to 10 y values for line 1
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 1',0,1,0,-1,-11,-1,-.5,.5,2,3

Enter legend (max 10 char) and up to 10 y values for line 2
Legend must be delimited with quotation marks such as 'LEGEND'

'LINE 2',0,-2,-4,-5,-11,-2,1,3,5,7

Enter number of constant lines (max 5)

1

Enter label (max 16 char), value for constant line 1,
pen color(1-4), and line type(0-dash, 1-solid)
Legend must be delimited with quotation marks such as 'LEGEND'

' ',0

Do you want a different chart

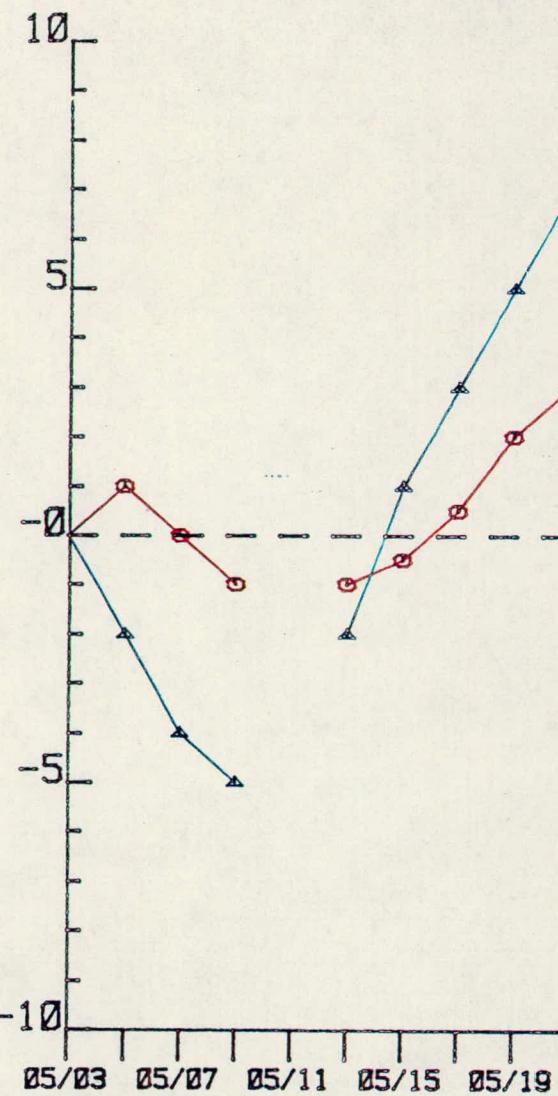
Select paper advance desired after completion
of chart on a continuous feed plotter

- Y FULL -- Full page advance
- Y HALF -- Half page advance
- Y -- No page advance
- N -- No plot

N

MOUNTAIN CHART EXAMPLE 5A

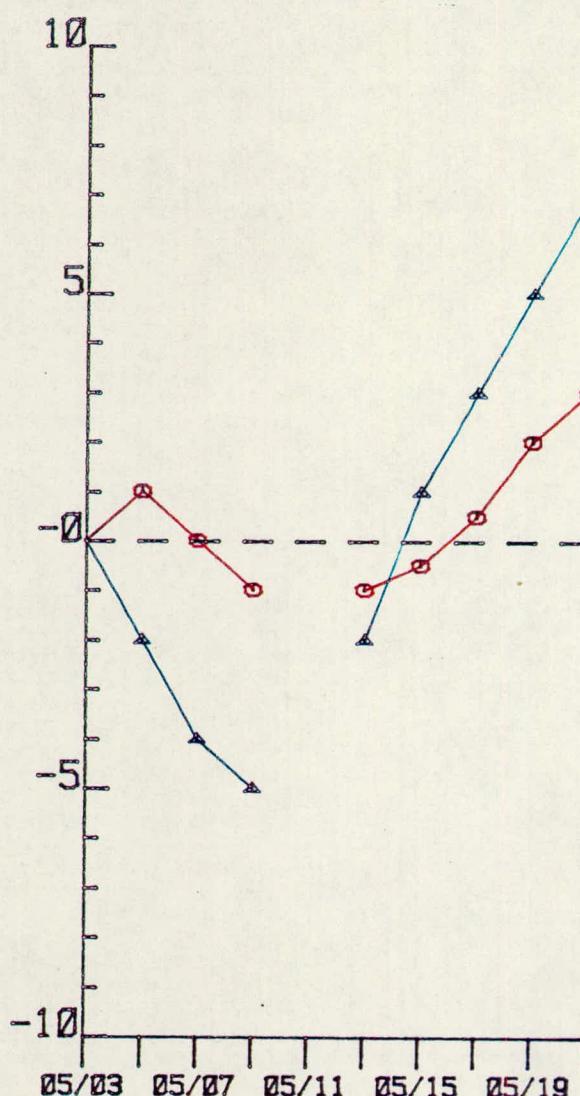
Y AXIS TITLE



DAY AXIS

MOUNTAIN CHART EXAMPLE 5B

Y AXIS TITLE



DAY AXIS

▲ LINE 2
● LINE 1

THE PIE CHART PROGRAM

The Pie Chart Program is simpler than the Mountain Chart Program because there are no axes. To access the Pie Chart Program you will type chart pie. It is advisable to save answers so you can edit, add, or delete data. You may have a maximum of six pie charts on a page. You simply enter the data as the program asks for it. The plotter pen begins each pie at the center right edge and moves counterclockwise. You may change the order in which you enter items (legend and percent) to achieve better label location.

After you have entered the TITLE for the last pie, the plotter will begin drawing your chart. To edit your file you will answer n (no) to the question DO YOU WANT A DIFFERENT CHART. If you answer y (yes) to DO YOU WANT A DIFFERENT CHART, you simply enter the information for your second chart just as you entered it for the first chart.

PIE CHART EXAMPLE

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y

Do you want to save answers (Y or N)

N

Chart size

1 - 11. x 8.5 (horizontal)
2 - 16. x 11. (chart paper)

1

Chart type

1 - Bond paper
2 - Transparency

1

Enter title of chart (max 40 char)

PIE CHARTS

Enter name or comment (max 20 char)

RICHARD CAWBY

Enter date or comment (max 20 char)

TEST CHARTS

Enter number of pie charts per page (max 6)

3

Shading line type

- 1 - Straight line
- 2 - Circular line
- 3 - Both
- 4 - None

4

Enter number of items (max 20) for pie 1

3

Enter legend (max 20 char) and percent of pie for item 1 on pie 1
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 1',30

Enter legend (max 20 char) and percent of pie for item 2 on pie 1
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 2',25

Enter legend (max 20 char) and percent of pie for item 3 on pie 1
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 3',45

Enter title for pie 1 (max 10 char)

PIE ONE

Enter number of items (max 20) for pie 2

3

Enter legend (max 20 char) and percent of pie for item 1 on pie 2
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 1 20%',20

Enter legend (max 20 char) and percent of pie for item 2 on pie 2
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 2 45%',45

Enter legend (max 20 char) and percent of pie for item 3 on pie 2
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 3 35%',35

Enter title for pie 2 (max 10 char)

PIE TWO

Enter number of items (max 20) for pie 3

3

Enter legend (max 20 char) and percent of pie for item 1 on pie 3
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 1',10

Enter legend (max 20 char) and percent of pie for item 2 on pie 3
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 2',50

Enter legend (max 20 char) and percent of pie for item 3 on pie 3
Legend must be delimited with quotation marks, such as 'LEGEND'

'ITEM 3',40

Enter title for pie 3 (max 10 char)

PIE THREE

Do you want a different chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance

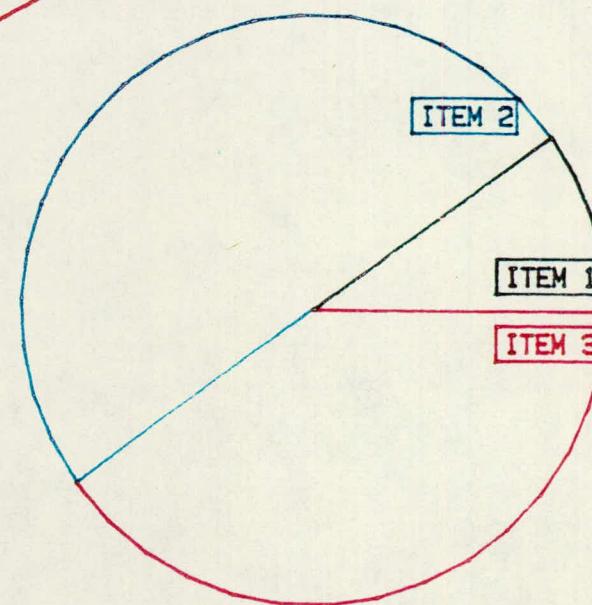
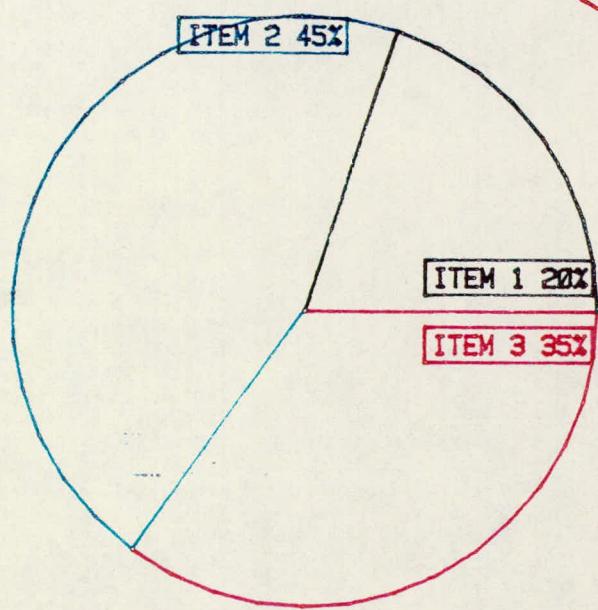
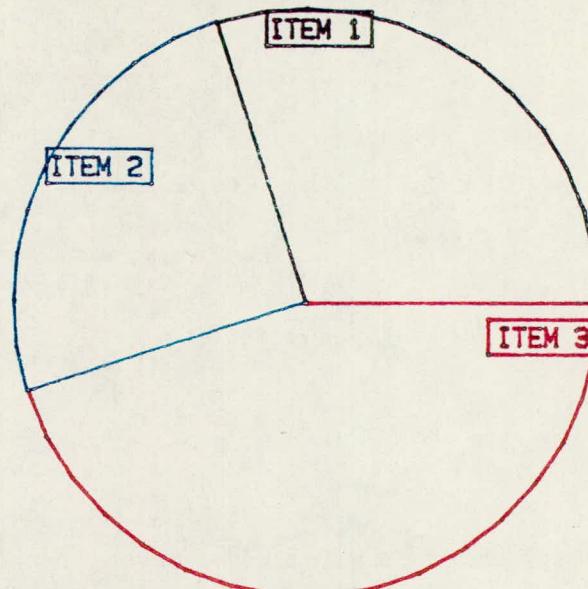
Y HALF -- Half page advance

Y -- No page advance

N -- No more charts

N

PIE CHARTS



THE BAR CHART PROGRAM

Type chart bar to access the Bar Chart Program. On the following pages are two examples of the Bar Chart Program. It is always advisable to save answers for editing. You type in the answers to the questions as they are asked by the program. After you type in the Y AXIS TITLE, you will be asked to ENTER MINIMUM AND MAXIMUM VALUES FOR Y AXIS. If you want an axis, you will enter the minimum and maximum values (Example 1). However, if you do not want an axis plotted, you enter (1,1). With this entry, your bar values will be in inches. If you enter (-1,-1) your bar values will be in centimeters (Example 2).

Next, you enter the BAR LABEL LOCATION, the ORIENTATION OF BAR LABELS, and the NUMBER OF BARS on your chart (Example 1).

Next, you enter the information for each bar. (The same procedure described for editing in the Mountain and Pie Chart Programs also applies to the Bar Chart Program.)

For the special effects that appear on Example 1, you simply manipulate your BAR VALUE (MINIMUM) and SHADING HEIGHT (MAXIMUM) options.

For instance, bar 6 (Example 1) floats above the X axis. This effect was achieved by making the BAR VALUE (MINIMUM) 1 rather than 0.

To leave spaces between bars or groups of bars (Example 2), you enter 0,0, as shown on the program for bar number 5.

BAR CHART EXAMPLE 1

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

N

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

1

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title (max 30 char)

BAR CHART EXAMPLE 1

Enter title for x axis (max 30 char)

X AXIS TITLE

Enter title for y axis (max 30 char)

Y AXIS TITLE

Enter min and max values for y axis
If you do not want an axis plotted
enter "1,1" (bar values will be in inches)
or
enter "-1,-1" (bar values will be in centimeters)

0,10

Bar label location

- 1 - Top
- 2 - Bottom of bar
- 3 - Both
- 4 - None
- 5 - Bottom of chart
- 6 - Both with the bottom label at bottom of chart

3

Orientation of bar labels

1 - Top-vertical	Bottom-vertical
2 - Top-vertical	Bottom-horizontal
3 - Top-horizontal	Bottom-horizontal
4 - Top-horizontal	Bottom-vertical

1

Enter number of bars

8

Bar items

Bar labels - Separated by commas or blanks (max 20 char)
must be delimited with quotation marks
such as 'LABEL'

Bar value(max)- (Ymin to Ymax), inches or centimeters

Pen color - 0-4

Shading - 1 - No shading
2 - Left to right
3 - right to left
4 - Both

Shading height- (Ymin to Ymax), inches or centimeters

Bar value(min)- (Ymin to Ymax), inches or centimeters

(The only item that must be entered is the bar value(max)
the bar labels will default to blanks, pen color
and shading will default to 1, shading height
will equal bar value and bar value(min) will be Ymin)

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 1

'TOP LABEL 1','B LABEL 1',4/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 2

'TOP LABEL 2','B LABEL 2',2,2,2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 3

'TOP LABEL 3','B LABEL 3',3,3,3,1/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 4

'TOP LABEL 4' 'B LABEL 4',4,4,4,2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 5

'TOP LABEL 5','B LABEL 5',2,2,4/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 6

'TOP LABEL 6','B LABEL 6',3.5,3,2,2,1

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 7

'TOP LABEL 7','B LABEL 7',4,1,2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 8

'TOP LABEL 8','B LABEL 8',2,3,4,2,1

Do you want a different chart

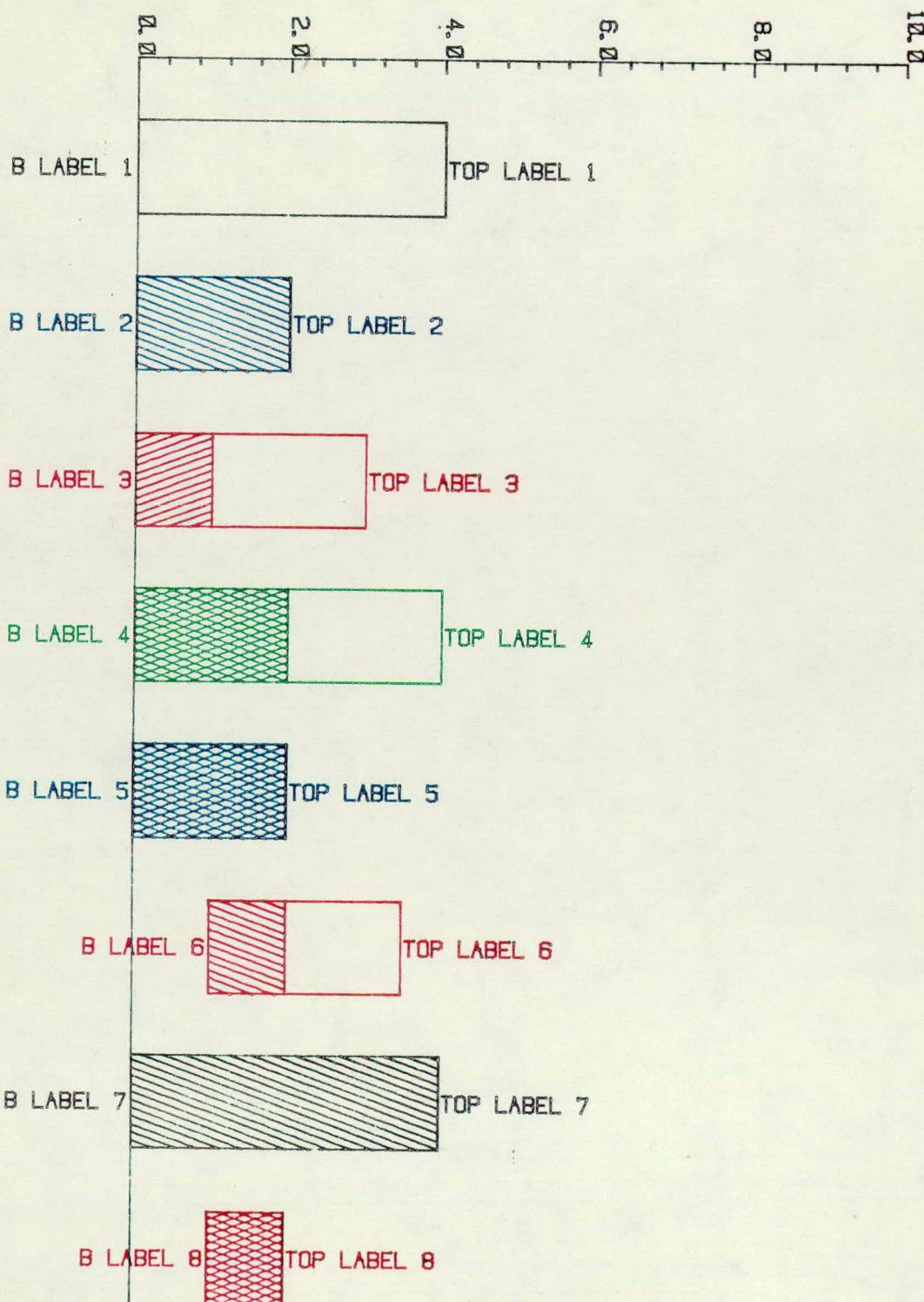
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

X AXIS TITLE

BAR CHART EXAMPLE 1



BAR CHART EXAMPLE 2

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

- Y FULL -- Full page advance
- Y HALF -- Half page advance
- Y -- No page advance
- N -- No plot

Y HALF

Do you want to save answers (Y or N)

N

Chart size

- 1 - 8.5 x 11. (vertical)
- 2 - 11. x 8.5 (horizontal)
- 3 - 16.5 x 11. (chart paper)
- 4 - 10. x 6.5 (horizontal slide)
- 5 - User-defined size

2

Chart type

- 1 - Bond paper
- 2 - Transparency

1

Enter chart title (max 30 char)

BAR CHART EXAMPLE 2

Enter title for x axis (max 30 char)

X AXIS TITLE

Enter title for y axis (max 30 char)

Y AXIS TITLE

Enter min and max values for y axis
If you do not want an axis plotted
enter "1,1" (bar values will be in inches)
or
enter "-1,-1" (bar values will be in centimeters)

1,1

Bar label location

- 1 - Top
- 2 - Bottom of bar
- 3 - Both
- 4 - None
- 5 - Bottom of chart
- 6 - Both with the bottom label at bottom of chart

3

Orientation of bar labels

1 - Top-vertical	Bottom-vertical
2 - Top-vertical	Bottom-horizontal
3 - Top-horizontal	Bottom-horizontal
4 - Top-horizontal	Bottom-vertical

3

Enter number of bars

9

Bar items

Bar labels - Separated by commas or blanks (max 20 char)
must be delimited with quotation marks
such as 'LABEL'

Bar value(max) - (Ymin to Ymax), inches or centimeters

Pen color - 0-4

Shading - 1 - No shading
2 - Left to right
3 - right to left
4 - Both

Shading height - (Ymin to Ymax), inches or centimeters

Bar value(min) - (Ymin to Ymax), inches or centimeters

(The only item that must be entered is the bar value(max)
the bar labels will default to blanks, pen color
and shading will default to 1, shading height
will equal bar value and bar value(min) will be Ymin)

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 1

'LABEL','FY79',2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 2

'LABEL','FY79',1.5,2,2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 3

'LABEL','FY79',.5,3,3/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 4

'LABEL','FY79',2,4,4/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 5

' ',' ',0,0/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 6

'LABEL','FY80',1.2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 7

'LABEL','FY80',2,2,2/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 8

'LABEL','FY80',1,3,3/

Enter top and bottom bar label ,enter bar value(max), pen color, shading, shading height and bar value(min) for bar 9

'LABEL','FY80',1.5,4,4/

Do you want a different chart

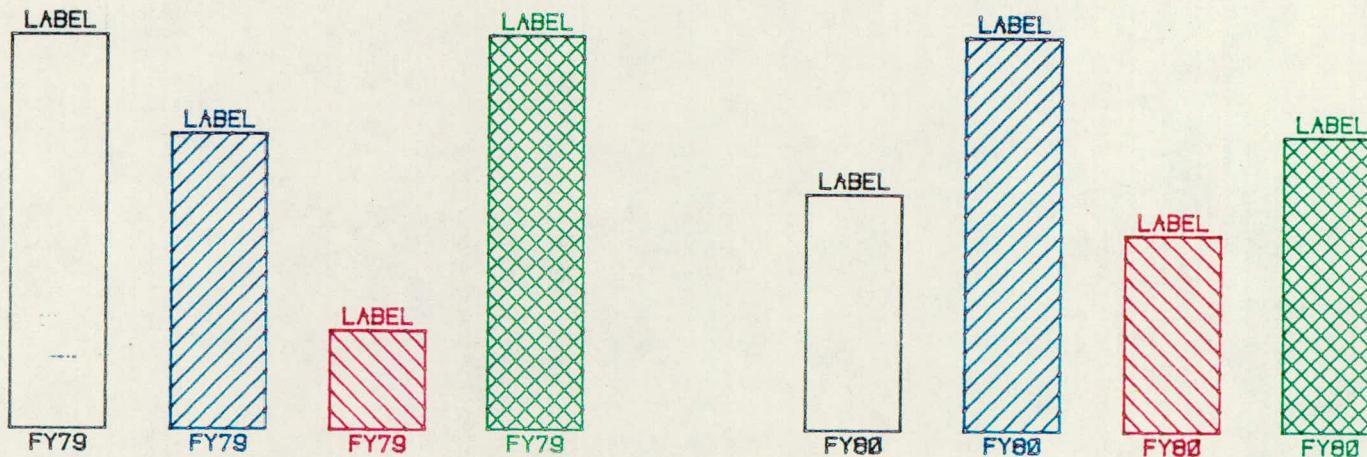
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

BAR CHART EXAMPLE 2

Y AXIS TITLE



THE MULBAR CHART PROGRAM

Type chart mulbar to access the Mulbar Chart Program. When you are using the Mulbar Chart Program, you enter the CHART SIZE, the CHART TYPE, the CHART TITLE, the MINIMUM AND MAXIMUM VALUES FOR THE Y AXIS, and the TITLE FOR THE X AXIS exactly the same as for the regular BAR CHART PROGRAM. The only difference between the two programs is how you enter the data for the NUMBER OF SUB BARS, and the SUB BAR VALUES. The NUMBER OF SUB BARS means simply how many levels each bar will contain (vertically). The NUMBER OF BARS means how many bars will appear on the X axis (horizontally).

Next, the program will ask if you want to PRINT THE VALUES OF EACH SUB BAR. You will enter a number 1-3. If you decide to PRINT THE VALUES OF EACH SUB BAR and you are using shading, the values will be printed at the left of the bar. If you are not using shading, the values will be printed inside the bar. See MULBAR CHART EXAMPLE 2, page 64.

After you select the LEGEND TYPE, you will be asked to enter the BAR STARTING VALUES. The starting value will usually be the same as the Y AXIS MINIMUM; however, you may enter as many different values as there are bars on your chart. You separate each value with a comma. Next, you will enter the LEGEND and SUB BAR VALUES for each bar. Remember, the SUB BAR VALUES will appear HORIZONTALLY.

For instance, on the MULBAR EXAMPLE 1 printout, page 56, you will notice that the values for SUB BAR NUMBER 1 appear horizontally on the first level in blue on the MULBAR CHART EXAMPLE 1, page 59. You will enter as many SUB BAR VALUES as there are total bars on the chart; however, if you wish to leave out a level on a particular bar(s), you will enter a 0 for that data point.

For example, if you look at bars 3 and 4 on MULBAR CHART EXAMPLE 1, you will notice that there is no red level. This was accomplished by entering a 0 as the third and fourth data points for SUB BAR NUMBER 2. See printout example, page 57.

Next, you will ENTER THE NUMBER OF CONSTANT LINES. If you decide to LABEL EACH BAR, you will enter the BAR LABEL LOCATION, the ORIENTATION OF BAR LABELS, and finally the BAR LABEL and PEN COLOR for each bar label. See printout example, page 57.

MULBAR EXAMPLE 1

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y HALF

Do you want to save answers (Y or N)

N

Chart size

1 - 8.5 x 11. (vertical)
2 - 11. x 8.5 (horizontal)
3 - 16.5 x 11. (chart paper)
4 - 10. x 6.5 (horizontal slide)
5 - User-defined size

2

Chart type

1 - Bond paper
2 - Transparency

1

Enter chart title (max 30 char)

MULBAR EXAMPLE 1

Enter title for y axis (max 20 char)

Y AXIS

Enter min and max for y axis

0,25

Do you want an axis plotted (Y or N)

Y

Enter title for x axis (max 20 char)

X AXIS

Enter number of sub bars (max 25)

If negative, no shading will be done

4

Enter number of bars (max 60)

If negative, no summation will be done

7

Print the values of each sub bar

- 1 - No
- 2 - Horizontal
- 3 - Vertical

If you are using shading, the values will be printed at the left of the bar. If you are not using shading, the values will be printed inside the bar.

Note: If the value will not fit inside the bar, it will be plotted outside.

1

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None

1

Enter bar starting values for up to 7 bars

7*0

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 1
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 1',10,9,5,8,2,1,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 2
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 2',4,3,0,0,1,3,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 3
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 3',5,4,6,3,6,0,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 4
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 4',1,2,1,2,3,3,3

Enter number of constant lines (max 5)

0

Do you want to label each bar (Y or N)

Y

Bar label location

- 1 - Top
- 2 - Bottom of bar
- 3 - Both
- 4 - Bottom of chart
- 5 - Both with the bottom label at bottom of chart

2

Orientation of bar labels

1 - Top-vertical	Bottom-vertical
2 - Top-vertical	Bottom-horizontal
3 - Top-horizontal	Bottom-horizontal
4 - Top-horizontal	Bottom-vertical

2

Enter bottom bar label and pen color for bar 1
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 1',1

Enter bottom bar label and pen color for bar 2
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 2',1

Enter bottom bar label and pen color for bar 3
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 3',1

Enter bottom bar label and pen color for bar 4
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 4',1

Enter bottom bar label and pen color for bar 5
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 5',1

Enter bottom bar label and pen color for bar 6
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 6',1

Enter bottom bar label and pen color for bar 7
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 7',1

Do you want a different chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL	--	Full page advance
Y HALF	--	Half page advance
Y	--	No page advance
N	--	No more charts

N

MULBAR EXAMPLE 1

Y AXIS

25
20
15
10
5
0

BAR 1

BAR 2

BAR 3

BAR 4

BAR 5

BAR 6

BAR 7

X AXIS

SUB BAR 4
SUB BAR 3
SUB BAR 2
SUB BAR 1

MULBAR EXAMPLE 2

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

- Y FULL -- Full page advance
- Y HALF -- Half page advance
- Y -- No page advance
- N -- No plot

Y HALF

Do you want to save answers (Y or N)

N

Chart size

- 1 - 8.5 x 11. (vertical)
- 2 - 11. x 8.5 (horizontal)
- 3 - 16.5 x 11. (chart paper)
- 4 - 10. x 6.5 (horizontal slide)
- 5 - User-defined size

2

Chart type

- 1 - Bond paper
- 2 - Transparency

1

Enter chart title (max 30 char)

MULBAR EXAMPLE 2

Enter title for y axis (max 20 char)

Y AXIS

Enter min and max for y axis

0,25

Do you want an axis plotted (Y or N)

Y

Enter title for x axis (max 20 char)

X AXIS

Enter number of sub bars (max 25)
If negative, no shading will be done

-4

Enter number of bars (max 60)
If negative, no summation will be done

7

Print the values of each sub bar

- 1 - No
- 2 - Horizontal
- 3 - Vertical

If you are using shading, the values will be printed
at the left of the bar. If you are not using shading,
the values will be printed inside the bar.

Note: If the value will not fit inside the bar,
it will be plotted outside.

2

Legend type

- 1 - Shaded box and legend
- 2 - Shaded box
- 3 - Legend
- 4 - None

3

Enter bar starting values for up to 7 bars

7*0

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 1
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 1',10,9,5,8,2,1,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 2
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 2',4,3,0,0,1,3,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 3
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 3',5,4,6,3,6,0,1

Enter legend (max 10 char) and up to 7 sub bar values for sub bar 4
Legend must be delimited with quotation marks such as 'LEGEND'

'SUB BAR 4',1,2,1,2,3,3,3,

Enter number of constant lines (max 5)

0

Do you want to label each bar (Y or N)

Y

Bar label location

- 1 - Top
- 2 - Bottom of bar
- 3 - Both
- 4 - Bottom of chart
- 5 - Both with the bottom label at bottom of chart

2

Orientation of bar labels

1 - Top-vertical	Bottom-vertical
2 - Top-vertical	Bottom-horizontal
3 - Top-horizontal	Bottom-horizontal
4 - Top-horizontal	Bottom-vertical

2

Enter bottom bar label and pen color for bar 1
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 1',1

Enter bottom bar label and pen color for bar 2
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 2',1

Enter bottom bar label and pen color for bar 3
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 3',1

Enter bottom bar label and pen color for bar 4
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 4',1

Enter bottom bar label and pen color for bar 5
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 5',1

Enter bottom bar label and pen color for bar 6
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 6',1

Enter bottom bar label and pen color for bar 7
Labels must be delimited with quotation marks such as 'LABEL'

'BAR 7',1

Do you want a different chart

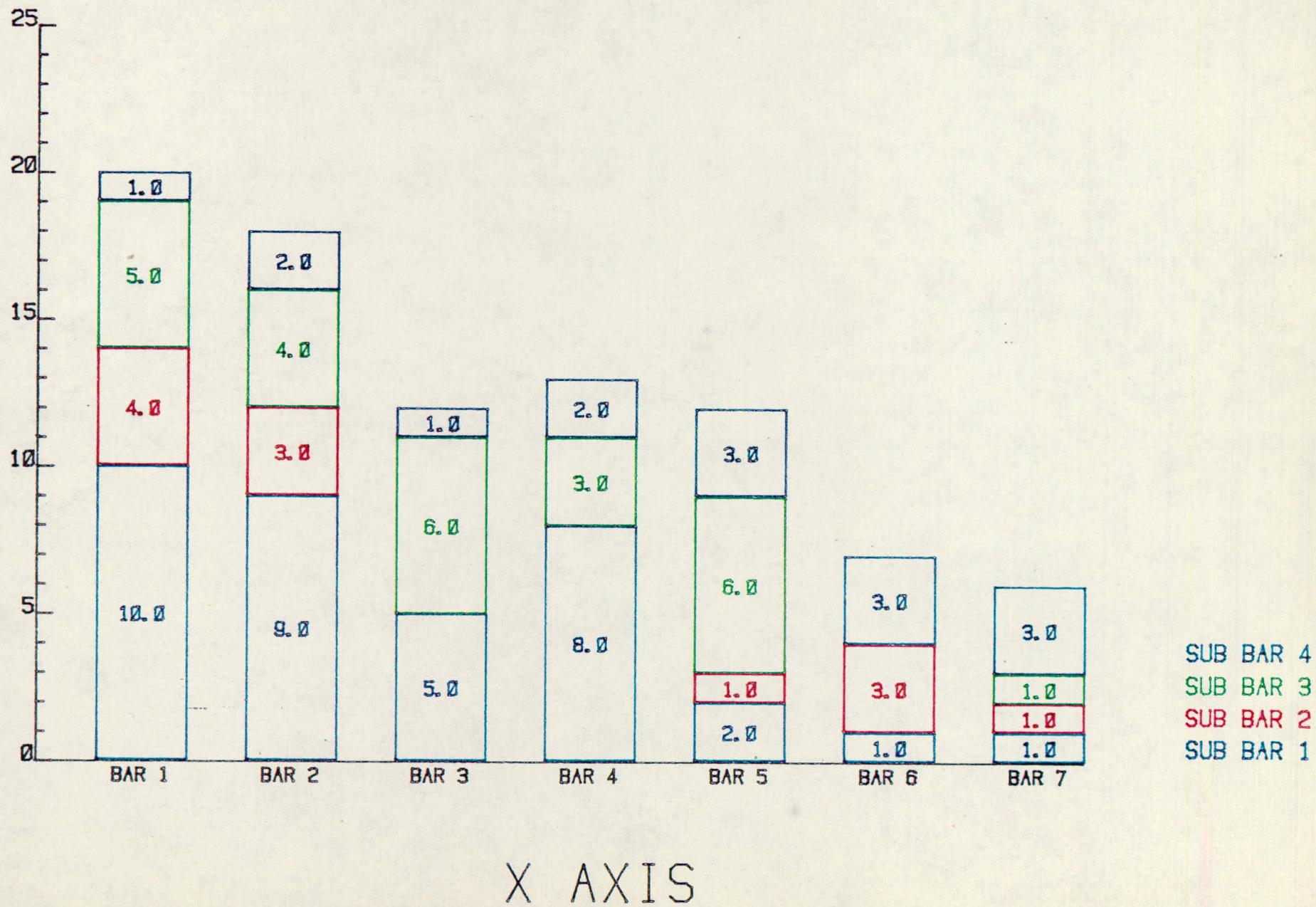
Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No more charts

N

MULBAR EXAMPLE 2

Y AXIS



THE TRANSPARENCY PROGRAM

To access the Transparency Program, type chart trancp. You then answer the questions as they appear on the screen. You choose the NUMBER OF LINES, the CHARACTER HEIGHT, and then you type contents. See the TABLE OF CHARACTER HEIGHT AND LINE LENGTH. The larger your characters, the fewer will fit on one line. Write out your message on a piece of scratch paper, count the number of characters in each line, and look at the table to determine the character height. Below is the first entry in the table.

H(IN)	L HOR/VERT
2.	4/3

If you choose a 2-inch-high character, you may have 4 characters per line on a horizontal transparency or 3 characters per line on a vertical transparency. For readable transparencies, use type no smaller than .2. Divide your information among as many transparencies as you need. Don't pack too much information on each one. When you finish typing in the characters for your last line, the plotter will begin drawing your transparency. Vertical centering is done by the plotter automatically. You must center your characters horizontally by spacing. You may save answers and edit them.

Remember, you will need transparency film and special pens for the table-top plotter to make viewgraphs. The transparency film and pens are available at stationery stores. The pens are available in both wide and narrow line. These materials are usually at the plotter.

TRANSPARENCY EXAMPLE

Do you want to save answers (Y or N)

N

This program will allow the user to make view graphs
on the HP plotter.

Answer questions as they are displayed on the terminal.

This is a table of character height and line length.

H(IN)	1 HOR/VERT	H(IN)	1 HOR/VERT	H(IN)	1 HOR/VERT
2.	4 / 3	.5	19/15	.17	58/45
1.	9 / 7	.4	25/29	.14	71/55
.8	12 / 9	.3	33/25	.1	100/77
.6	16 / 12	.2	50/38		

Chart size

1 - 10.5 x 8.5 (horizontal)
2 - 8.5 x 10.5 (vertical)

2

Do you want a title (Y or N)

Enter number of lines for title

2

Enter title letter height

.400

Enter title line 1 (max of 19 characters)

- TRANSPARENCY

Enter title line 2 (max of 19 characters)

- EXAMPLE

Enter number of body lines to plot

11

Enter body letter height

.300

Enter body line 1 (max of 25 characters)

-

Enter body line 2 (max of 25 characters)

- THIS PROGRAM WILL

Enter body line 3 (max of 25 characters)

- MAKE TRANSPARENCIES

Enter body line 4 (max of 25 characters)

- ON THE HP PLOTTER.

Enter body line 5 (max of 25 characters)

-

Enter body line 6 (max of 25 characters)

- THERE ARE SPECIAL

Enter body line 7 (max of 25 characters)

- PENS TO USE ON THE

Enter body line 8 (max of 25 characters)

- TRANSPARENCY FILM

Enter body line 9 (max of 25 characters)

- IN BOTH WIDE AND

Enter body line 10 (max of 25 characters)

- NARROW LINE

Enter body line 11 (max of 25 characters)

-

Do you want a different chart (Y or N)

N

TRANSPARENCY EXAMPLE

THIS PROGRAM WILL
MAKE TRANSPARENCIES
ON THE HP PLOTTER.

THERE ARE SPECIAL
PENS TO USE ON THE
TRANSPARENCY FILM
IN BOTH WIDE AND
NARROW LINE

THE LABEL PROGRAM

To access the Label Program, you type chart label. You will want to save answers. You enter the number for the TYPE OF PLOT. Next, you enter the TEXT VALUES. You position the pen and push the ENTER button on the plotter.

This program was designed to add labels to existing plots. It allows you to insert text lines or symbols manually at any position on the plot.

After the plotter has drawn your label, the TYPE OF PLOT message will come up again. You will then enter the information for your next plot or type number 5 to STOP.

When you type number 4 (library symbol) for TYPE OF PLOT, this includes the general figures, the electrical symbols, the flow chart symbols, and the logic gates symbols shown in the examples. You simply type in the symbol name (no delimiters), the factor, (character height), and a number (in degrees) for the amount of rotation, if you want rotation.

For any one of the four types of plots, you may enter the default values to get the normal height, no slant, no rotation, and the normal character cell ratio. The default values are given on the following printout example.

The origin values (1-9) shown in the text example show you exactly where the label will be placed relative to where you position your pen. See page 74.

LABEL EXAMPLE

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y

Do you want to save answers (Y or N)

N

Type of plot

1 - Text
2 - Line
3 - Shaded box
4 - Library symbol
5 - Stop

1

Enter text values

Legend - Max 50 characters and must be delimited with
quotation marks, such as 'LEGEND'

Height - Character height

Label origin - (1 to 9), specifies how labels are placed
relative to the initial pen position
Default=1.

Slant - Angle at which the characters of the legend
will be slanted. Default=0.

Character
cell ratio - Ratio of character height to character width.
Default=.6

Rotation - Angle at which the legend will be plotted.
Default=0.

Enter legend

'LEGEND' /

Enter height, label origin, slant,
character cell ratio, and rotation

.2,3 /

Position pen and push "ENTER" button on plotter

Type of plot

1 - Text
2 - Line
3 - Shaded box

3

Enter shaded box values

Legend - Max 20 characters
must be delimited with quotation marks
such as 'LEGEND'

Height - Height of box, legend character height will
be 1/2 of box height

Type of box - 1 - No shading

Type of plot

1 - Text
2 - Line
3 - Shaded box
4 - Library symbol
5 - Stop

4

Enter symbol name, factor, rotation

Symbol name must not be delimited with any special characters

RECT1

Enter pen and push "ENTER" button on plotter

Type of plot

- 1 - Text
- 2 - Line
- 3 - Shaded box
- 4 - Library symbol
- 5 - Stop

5

Do you want a different chart

Select paper advance desired after completion
of chart on a continuous feed plotter

- Y FULL -- Full page advance
- Y HALF -- Half page advance
- Y -- No page advance
- N -- No more charts

N

TEXT EXAMPLES

ENDING POINT (NOT PLOTTED)
+ STARTING POINT (NOT PLOTTED)

SLANT=-30

SLANT=-15

SLANT=45

SLANT=20

HEIGHT=.3

HEIGHT=.2

HEIGHT=.1

ORIGIN=1 #

ORIGIN=2 #

ORIGIN=3 #

ORIGIN=4 #

ORIGIN=5 #

ORIGIN=6 #

ORIGIN=7 #

ORIGIN=8 #

ORIGIN=9 #

ROTATION=-20

ROTATION=45

ROTATION=20

RATIO=1.2

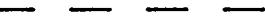
RATIO=.8

RATIO=.3

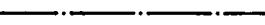
LINE-TYPE EXAMPLES

LINE=1 

LINE=2 

LINE=3 

LINE=4 

LINE=5 

LINE=6 

LINE=7 

LINE=8 

SHADED BOX EXAMPLES

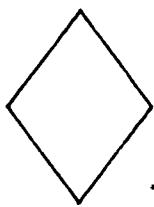
 HEIGHT=.5 TYPE=1

 HEIGHT=.4 TYPE=2

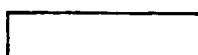
 HEIGHT=.3 TYPE=3

 HEIGHT=.2 TYPE=4

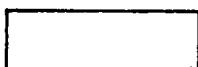
GENERAL FIGURES



DIAMOND



RECT5



RECT4



RECT3

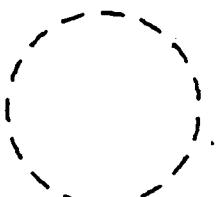


RECT2

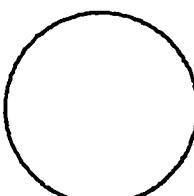


RECT1

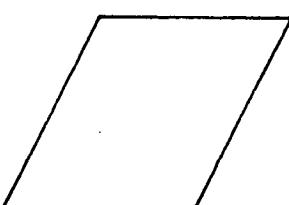
BENDIX



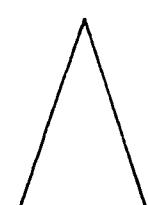
CIRCLE2



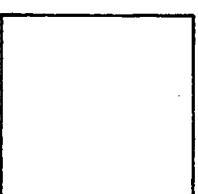
CIRCLE1



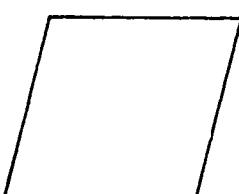
PARGRA2



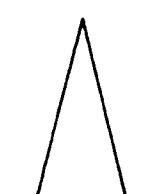
ARROW2



SQUARE



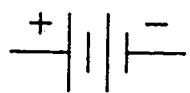
PARGRA1



ARROW1

ELECTRICAL

SYMBOLS



BATTERY

•



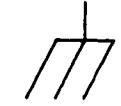
CAPVAR



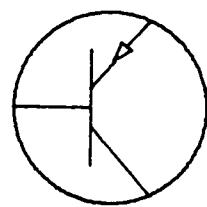
GNDEAR2



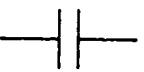
CAPFIX2



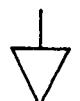
GNDEAR1



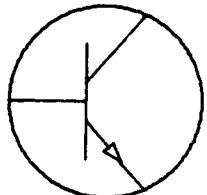
TRANPNP



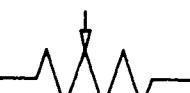
CAPFIX1



GNDLOG



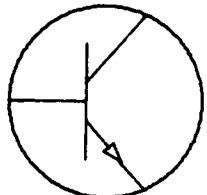
TRANNPN



RESVAR2



DIODE3



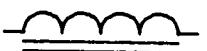
TRANNPN



RESVAR1



DIODE2



IND2



RESFIX

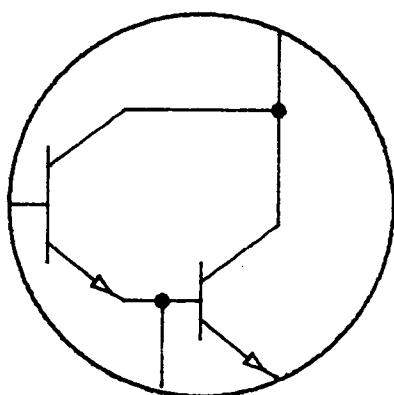


DIODE1

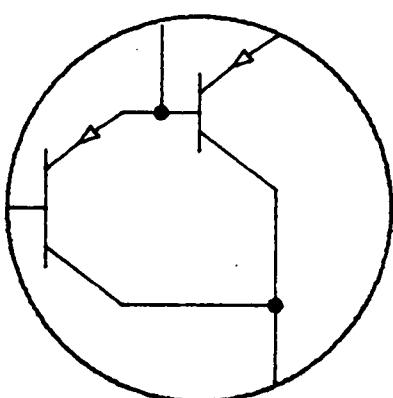


IND1

ELECTRICAL SYMBOLS

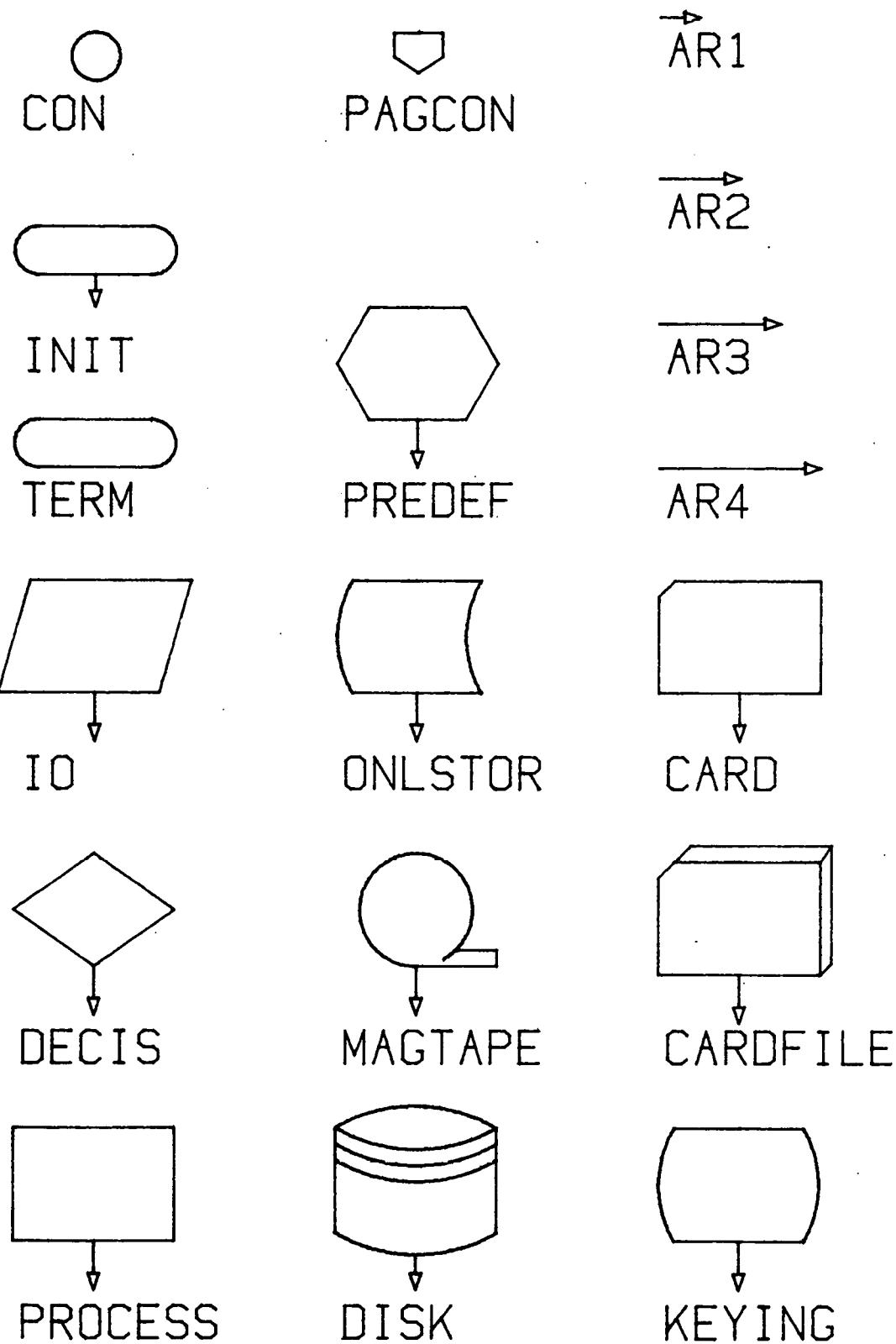


NPNDAR



PNPDAR

FLOW CHART SYMBOLS



LOGIC GATES



ROM



DEL



INV



NOR



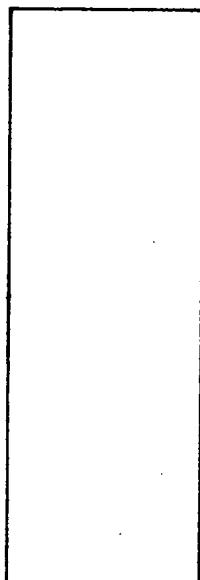
OR



NAN



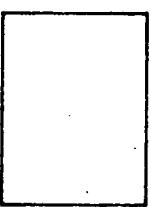
AND



BOX3



BOX2



BOX1



TGA

II

SCH

THE GANTT CHART PROGRAM

To access the Gantt Chart Program, type chart gantt. This program was designed to produce a GANTT chart on the table-top plotter with a minimum of user effort. The computer will sort the items (unless inhibited) by the earliest date given for a time line. The order of dates for a time line is irrelevant.

If any item to be charted is only partly (or not at all) in the time frame given for a chart, only that part that occurs within the time span will be plotted. If the beginning and ending dates for an item are the same, this item is an event and a Δ will be drawn for this item. If either the beginning or ending date for an item is missing, the item is considered an event. If both dates are missing, the computer will pick the missing dates to be used.

All scaling is done automatically on the plot as a function of the paper size, the time span, and the number of items.

The Gantt Chart Program can have up to 10 time lines for one title. This program may also be run from a data file that you can create interactively.

<u>FORTRAN Label</u>	<u>Card Columns</u>	<u>Format</u>	<u>Description</u>
Plot Info Card			
NAME	1-10	A10	Author of Plot
INFO	11	I1	Optional, will plot chart classification 0 or blank none 1 unclassified 2 confidential 3 secret
IAT	12	I1	Axis Type 0 - Month-Year 1 - Day-Month 2 - Day-Month (7-day increments)
Title Card			
IMO	1-2	A2	Starting month for chart. January would be "01" and May would be "05".
IDAY	3-4	A2	Starting day for chart.
IYR	5-6	A2	Starting year for chart (last two digits).
JMO	7-8	A2	Final month for chart.
JDAY	9-10	A2	Final day for chart.
JYR	11-12	A2	Final year for chart.
ITITLE	13-72	6A10	Title of the chart.
SIZEX	73-76	F4.0	Horizontal size (width) of chart. If the size is negative, no sorting of item cards will be done.
SIZEY	77-80	F4.0	Vertical size (height) of chart.

<u>FORTRAN Label</u>	<u>Cards Columns</u>	<u>Format</u>	<u>Description</u>
Item Cards:			
IMODAY	1-4	A4	Beginning month and day of time line item.
IYEAR	5-6	A2	Beginning year of time line item.
JMODAY	7-10	A4	Ending month and day of time line item.
JYEAR	11-12	A2	Ending year of time line item.
IDESCR	13-72	6A10	Time line label.

If the time line label is 'SAME', the time line will be plotted on the last item with a label. Up to 10 time lines or events can be plotted on one line. To do more than one chart, repeat the above sequence of title card and item cards as often as desired.

ERROR MESSAGES

TOO MANY ITEMS FOR height INCHES.

title

THIS CHART WILL NOT BE PLOTTED.

A lettering height to fit this many times in the chosen height would not be legible. Increase the vertical size of the chart or decrease the number of items.

FROM mmddyy TO mmddyy IS TOO LARGE A TIME SPAN FOR width INCHES.

TITLE

THIS CHART WILL NOT BE PLOTTED.

The month increment would have to be greater than 10 years to fit the time span in the chosen width for the chart.

Decrease the time span or increase the horizontal size of the chart.

RESTRICTIONS

If the chart size has less than 25 square inches of area, the plotter will use 8.5 x 11 paper. The lettering height will be between 0.04 inch and 0.1 inch. The maximum time span between tick marks is 10 years.

GANTT CHART EXAMPLE

Do you want to plot chart

Select paper advance desired after completion
of chart on a continuous feed plotter

Y FULL -- Full page advance
Y HALF -- Half page advance
Y -- No page advance
N -- No plot

Y

Do you want to save answers (Y or N)

N

Enter your first initial and last name, no periods

CAWBY

Enter classification

0 or blank none
1 - Unclassified
2 - Confidential
3 - Secret

0

Axis type

0 - Month-year
1 - Day-month
2 - Day-month (with 7 day increments)

0

Enter title...will be preceded by -PROJECT SCHEDULE FOR-

GANTT CHART TITLE

Enter project start date

('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

'JUN' 01,1979

Enter project finish date

('JAN' 01,1987 ... 1,1,1987 ... 1,1,87)

or duration of project in days, weeks, months or years

('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'Y' 1 /

Chart size

1 - Vertical (8.5 x 11.)

2 - Horizontal (11. x 8.5)

3 - Chart paper (16. x 10.5)

4 - User enter

Do you want the order of events sorted
in order of increasing starting date?

Y or N

N

*

* You will now enter data for each event. Each event
* is entered in three parts: title, starting date and
* finish date.

*

* Title - Max of 60 characters.

*

* If title is left blank and starting and finish date are equal,
* nothing will be plotted for the event.

*

* If the title is 'same', the event will be combined with
* the preceeding event. You can combine up to 10 events.

Enter the title of event 1
(60 characters maximum)

If done, enter C

ITEM 1

Enter starting date for event 1

('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

'JUN' 01,1979

Enter finish date for event 1
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'JUL',15,79

Enter the title of event 2
(60 characters maximum)
If done, enter C

ITEM 2

Enter starting date for event 2
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

6,15,79

Enter finish date for event 2
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'D' 10 /

Enter the title of event 3
(60 characters maximum)
If done, enter C

ITEM 3

Enter starting date for event 3
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

7 30 79

Enter finish date for event 3
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'M' 1 /

Enter the title of event 4
(60 characters maximum)
If done, enter C

ITEM 4

Enter starting date for event 4
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

SAME

Enter finish date for event 4
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

1 10 79

Enter the title of event 5
(60 characters maximum)
If done, enter C

SAME

Enter starting date for event 5
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

1 10 79

Enter finish date for event 5
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'M' 2 /

Enter the title of event 6
(60 characters maximum)
If done, enter C

ITEM 4

Enter starting date for event 6
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

'AUG' 10 7979

Enter finish date for event 6
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'D' 0 /

Enter the title of event 7
(60 characters maximum)
If done, enter C

Enter starting date for event 7
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

5 10 79

Enter finish date for event 7
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'D' 0 /

Enter the title of event 8
(60 characters maximum)
If done, enter C

ITEM 5

Enter starting date for event 8
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

1 1 79

Enter finish date for event 8
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'M' 2 /

Enter the title of event 9
(60 characters maximum)
If done, enter C

SAME

Enter starting date for event 9
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

1 1 80

Enter finish date for event 9
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'Y' 1 /

Enter the title of event 10
(60 characters maximum)
If done, enter C

C

Do you want to change events (Y or N)

Y

Enter event number you want to change

2

Enter the title of event 2
(60 characters maximum)
If done, enter C

ITEM 2

Enter starting date for event 2
('JUL' 07,1977 ... 7,7,1977 ... 7,7,77)

6 15 79

Enter finish date for event 2
('JAN' 01,1980 ... 1,1,1980 ... 1,1,80)
or duration of event in days, weeks, months or years
('D' 10/ 'W' 2/ 'M' 3/ 'Y' 1/)

'D' 10 /

Do you want to change events (Y or N)

N

Do you want another chart (Y or N)

N

PROJECT SCHEDULE FOR GANTT CHART TITLE

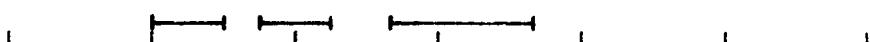
ITEM 1



ITEM 2



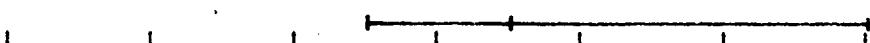
ITEM 3



ITEM 4



ITEM 5



6-79 8-79 10-79 12-79 2-80 4-80 6-80

BDX-613-2611

CMS PLOTTER GRAPHICS TRAINING MANUAL,
R. D. Cawby, Topical, March 1981.

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SPECIAL PROJECTS: CMS Plotter Graphics

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