

AD-A127 281

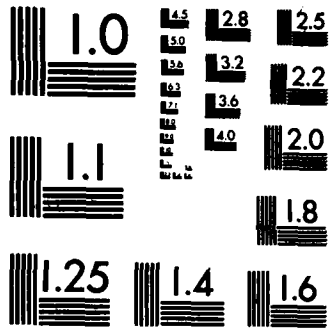
FLEET MOORING LEG DESIGN PROGRAM DOCUMENTATION VOLUME 2 1/1  
USER DOCUMENTATION(U) PRESEARCH INC ARLINGTON VA  
DEC 82 FPO-1-82-(33) N62477-81-C-0025

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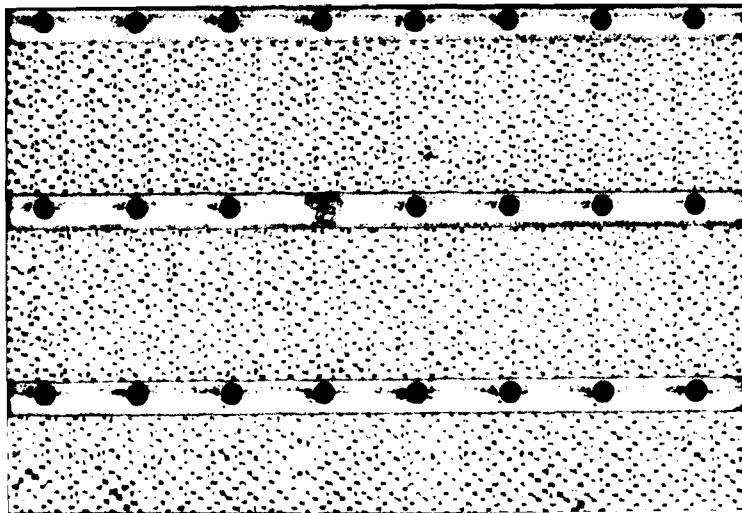
F/G 9/2

NL





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A



PRESEARCH INCORPORATED

①

FLEET MOORING LEG  
DESIGN PROGRAM DOCUMENTATION

Volume 2

USER DOCUMENTATION

FPO-1-82-(33)

December 1982

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PRESEARCH INCORPORATED

FLEET MOORING LEG  
DESIGN PROGRAM DOCUMENTATION

Volume 2

USER DOCUMENTATION

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Unannounced	<input type="checkbox"/>
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By _____	
Distribution/ _____	
Availability Codes	
Dist	Avail and/or Special
<b>A</b>	



## II USER DOCUMENTATION

### SYSTEM INITIALIZATION 1

	MOORΦ2	MOORΦ4	MOORΦ5		
			ELV	PLN	LDC
<b>SLACK SOLUTION</b>					
<i>Simple Leg</i>					
H, $\Phi_H$	2-7	26-28	17-22	23-25	29-31
$R_{TOT}$ , $\Phi_R$	8-12	*	*	*	*
$X_{TOT}$ , $Z_{TOT}$	13-16	*	*	*	*
<i>Spider Plate</i>					
H, $\Phi_H$	32-33	38	34-35	36-37	39-40
$R_{TOT}$ , $\Phi_R$	41-42	*	*	*	*
$X_{TOT}$ , $Z_{TOT}$	43-44	*	*	*	*
<i>Equalizer</i>					
H, $\Phi_H$	45-46	51	47-48	49-50	52-53
$R_{TOT}$ , $\Phi_R$	54-55	*	*	*	*
$X_{TOT}$ , $Z_{TOT}$	56-57	*	*	*	*

### TAUT SOLUTION

<i>Simple Leg</i>					
?(H, X)	58-62	*	63-64	65-66	*
?(A1, S3)	67-69	*	*	*	*
?(S1, C2)	70-72	*	*	*	*

### PROGRAM FLOWCHARTS

MOORΦ1	73	MOORΦ4	75
MOORΦ2	74	MOORΦ5	76

GOS Version 4 Level 02 (SMLRTL)

#SET DATE,H

DD-~~MM~~-YY

\*02-DEC-82

#SET TIME,H

HH-~~MM~~-SS

\*16-45-00

#SYSTAT

System Status of GOS Version 4 Level 02 (SMLRTL)

December 2, 1982 16:45:4

Devices: SYS\*,KB0,DC,JOY,DK0,DK1  
NUL,SYS(DK0),USR(DK1),GIN(JOY)

Character size 4, 64KB memory, GOSTOP - SEAA

#DIR DOC

Directory Structure of USR.DOC 2-Dec-82  
Directory Blocks: Available= 20, Used= 1

Files=0,Blocks=0,Free=980,Largest=980

#RUN MOOR02

Enter library name  
 DOC  
 Do you have a file of input values?  
 NO  
 Enter leg/riser title  
 DOCUMENTATION 1A  
 Enter solution type (unitless)  
 1 - four leg procedure  
 2 - select leg procedure  
 2  
 Enter type of leg (unitless):  
 1 - simple  
 2 - compound with equalizer  
 3 - compound with spider plate  
 1  
 Enter X-Coordinate of Point 1 (feet)  
 0  
 Enter Z-Coordinate of Point 1 (feet)  
 0  
 Enter D-Coordinate of Point 1 (feet)  
 100  
 Enter X-Coordinate of Point 2 (feet)  
 1  
 Enter Z-Coordinate of Point 2 (feet)  
 0  
 Enter D-Coordinate of Point 2 (feet)  
 101  
 Enter X-Coordinate of Point 3 (feet)  
 0  
 Enter Z-Coordinate of Point 3 (feet)  
 1  
 Enter D-Coordinate of Point 3 (feet)  
 101  
 Enter number of segments in branch A (unitless)  
 3  
 Enter length of first (lowest) segment of A (S1A) (feet)  
 300  
 Enter linear weight of first segment of A (W1A) (pounds/foot)  
 10  
 Enter weight of first sinter on A (C1A) (kips)  
 50  
 Enter length of second segment of A (S2A) (feet)  
 300  
 Enter linear weight of second segment of A (W2A) (pounds/foot)  
 20  
 Enter weight of second sinter on A (C2A) (kips)  
 40  
 Enter length of third segment of A (S3A) (feet)  
 400  
 Enter linear weight of third segment of A (W3A) (pounds/foot)  
 25

You must specify one of the following options.  
 1 Horizontal load magnitude and direction  
 2 Horizontal displacement and direction  
 3 Buoy X and Z coordinates  
 4 None (system solution)  
 The other values will be solved

Which option do you want to specify (1, 2, 3, or 4) (unitless)?

1 Enter magnitude of horizontal load (H) (kilopounds)

2 Enter angle from neutral direction to horizontal load vector (degrees)

3 Do you want to see parameter list again?  
YES



SOLUTION BEGUN AT 16 49 10  
SOLUTION COMPLETED AT 16 49 15



Do you want to save output for elevation views?

YES

Enter segment increment length (feet)

10

Do you want to save output for plan views?

YES

Do you want another run?

YES

Do you have a file of input values?

YES

Enter name of leg/riser file

RUN1A

Do you want to see parameter list again?

YES

10 553 82  
 41 60  
 99 9  
 Do you want to see parameter list again?  
 YES

TITLE DOCUMENTATION 1A  
 INPUT FILE DOC/RUN1A VAR  
 1 SOLUTION TYPE (-)  
 2 LEG TYPE (-)  
 3 \*\*\*\*\* ANCHOR SEPARATION (ft)  
 4 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
 5 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
 6 OCEAN FLOOR POINT 1 D-COORDINATE (ft)  
 7 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
 8 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
 9 OCEAN FLOOR POINT 2 D-COORDINATE (ft)  
 10 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
 11 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 12 OCEAN FLOOR POINT 3 D-COORDINATE (ft)  
 13 NUMBER OF SEGMENTS IN BRANCH A (-)  
 14 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
 15 S1A 300 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)  
 16 W1A 10 WEIGHT OF FIRST SINKER IN BRANCH A (kips)  
 17 C1A 50 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)  
 18 S2A 300 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)  
 19 W2A 20 WEIGHT OF SECOND SINKER IN BRANCH A (kips)  
 20 C2A 40 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)  
 21 S3A 400 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)  
 22 W3A 25 WEIGHT OF THIRD SINKER IN BRANCH A (kips)  
 23 NUMBER OF SEGMENTS IN BRANCH B (-)  
 24 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
 25 S1B \*\*\*\*\* LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (ft)  
 26 W1B \*\*\*\*\* WEIGHT OF FIRST SINKER IN BRANCH B (kips)  
 27 C1B \*\*\*\*\* LENGTH OF SECOND SEGMENT IN BRANCH B (ft)  
 28 S2B \*\*\*\*\* LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)  
 29 W2B \*\*\*\*\* WEIGHT OF SECOND SINKER IN BRANCH B (kips)  
 30 C2B \*\*\*\*\* LENGTH OF THIRD SEGMENT IN BRANCH B (ft)  
 31 S3B \*\*\*\*\* LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)  
 32 W3B \*\*\*\*\* WEIGHT OF THIRD SINKER IN BRANCH B (kips)  
 33 \*\*\*\*\* INITIAL SLIPPAGE ACROSS EQUALIZER (ft)  
 34 \*\*\*\*\* FRICTION COEFFICIENT (EQUALIZER) (-)  
 35 C3 \*\*\*\*\* WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)  
 36 S4 \*\*\*\*\* LENGTH OF SEGMENT ABOVE JUNCTION (ft)  
 37 W4 \*\*\*\*\* LINEAR WEIGHT OF SEGMENT (lbf/ft)  
 38 H 10 HORIZONTAL LOAD (kips)  
 39 60 HORIZONTAL LOAD DIRECTION (deg)  
 40 U ORIGIN-TO-BUOY DISTANCE (HORI70.TAL) (ft)  
 41 U BUOY DISPLACEMENT DIRECTION (deg)  
 42 U BUOY X-COORDINATE (ft)  
 43 U BUOY Z-COORDINATE (ft)  
 Do you want to change anything?  
 YES  
 Do you want to change the title?  
 YES  
 Enter new title  
 DOCUMENTATION 1B  
 For each input value to be changed, enter variable number, followed by new value on the same line,  
 with one new value per line to terminate new input, enter '99' followed by any dummy value  
 To continue when display is full, type CTRL-N five times, followed by CTRL-R  
 38 U  
 39 U

```

TITLE DOCUMENTATION IB
INPUT FILE DOC/RUN1A VAR
1 SOLUTION TYPE (-)
2 LEG TYPE (-)
3 *****
4 ANCHOR SEPARATION (ft)
5 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
6 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
7 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
8 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
9 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
10 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
11 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
12 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
13 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
14 NUMBER OF SEGMENTS IN BRANCH A (-)
15 S1A 300 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)
16 V1A 10 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)
17 C1A 50 WEIGHT OF FIRST SINKER IN BRANCH A (kips)
18 S2A 300 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)
19 W2A 20 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)
20 C2A 40 WEIGHT OF SECOND SINKER IN BRANCH A (kips)
21 S3A 400 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)
22 W3A 25 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)
23 * NUMBER OF SEGMENTS IN BRANCH B (-)
24 S1B ***** LENGTH OF FIRST SEGMENT IN BRANCH B (ft)
25 W1B ***** LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)
26 C1B ***** WEIGHT OF FIRST SINKER IN BRANCH B (kips)
27 S2B ***** LENGTH OF SECOND SEGMENT IN BRANCH B (ft)
28 W2B ***** LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)
29 C2B ***** WEIGHT OF SECOND SINKER IN BRANCH B (kips)
30 S3B ***** LENGTH OF THIRD SEGMENT IN BRANCH B (ft)
31 W3B ***** LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)
32 * INITIAL SLIPSPACE ACROSS EQUALIZER (ft)
33 ***** FRICTION COEFFICIENT (EQUALIZER) (-)
34 ***** WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)
35 C3 ***** LENGTH OF SEGMENT ABOVE JUNCTION (ft)
36 S4 ***** LINEAR WEIGHT OF SEGMENT (lbf/ft)
37 W4 *****
38 H U HORIZONTAL LOAD (kips)
39 U HORIZONTAL LOAD DIRECTION (deg)
40 553 82 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
41 60 BUOY DISPLACEMENT DIRECTION (deg)
42 U BUOY X-COORDINATE (ft)
43 U BUOY Z-COORDINATE (ft)
Do you want to change anything?
NO
Do you want to save parameters in a file?
YES
Enter name of output file
RUN1B

```

SOLUTION BEGUN AT 17 1 54  
SOLUTION COMPLETED AT 17 2 0

Date 2-Dec-82

SUMMARY

Time 17 2 0

# DOCUMENTATION 1B

## INPUT

Original Input From File DOC/RUNIA VAR

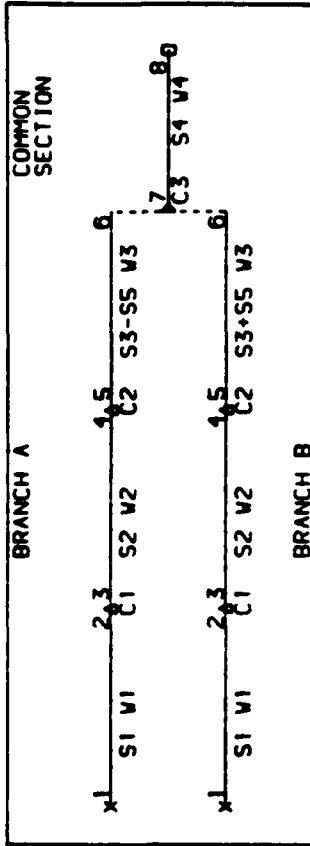
Revised to File DOC/RUNIB VAR

Units

Angles - Degrees  
 Distances - Feet  
 Linear Weights - Pounds/Foot  
 Weights - Kilopounds  
 Forces - Kilopounds

LEG Type simple

Anchor Separation 3 0 00  
 Segments in Branch 3 0 00  
 Angle to Bottom 300 00  
 Length of Segment 1 S1 10 00  
 Linear Weight of Segment 1 V1 50 00  
 Weight of Sinker 1 S2 300 00  
 Length of Segment 2 20 00  
 Linear Weight of Segment 2 V2 40 00  
 Weight of Sinker 2 C2 400 00  
 Start Length of Segment 3 S3 25 00  
 Linear Weight of Segment 3 V3  
 Friction Coefficient  
 Weight of Equalizer/Spider C3  
 Length of Segment 4 S4  
 Linear Weight of Segment 4 V4



## OCEAN BOTTOM

Floor Direction 45 00  
 Floor Slope -54 74

## OCEAN SURFACE

Point P1 0 00 100 00  
 Point P2 1 00 101 00  
 Point P3 0 00 101 00  
 Anchor A 0 00 0 00  
 Anchor B 0 00 0 00  
 Origin 0 00 0 00

Load Direction 60 00  
 Horizontal Load H 10 00  
 Projected Excursion 553 82  
 True Excursion 553 82

## OUTPUT

UNKNOWN INPUTS

10 00 - Horizontal Load Magnitude

HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Catenary Horizontal Angle V - Vertical Force T - Tension

--1A-- --2A-- --3A-- --4A-- --5A-- --6A-- --7A-- --8A-- --9A-- --10A--  
 HA 60 00  
 VA -53 79  
 C  
 L 300 00  
 H 10 00  
 X 0 00  
 Y 0 00  
 Z 0 00  
 A -53 79 -53 79 -25 27 7 30 76 38 78 97  
 V -42 35 -40 39 -4 72 1 28 41 28 51 28  
 T 52 48 50 06 11 06 10 08 42 47 52 25

276 91  
 100 00  
 479 62

Do you want to save output for elevation views?  
NO

Do you want to save output for plan views?  
NO

Do you want another run?  
YES

Do you have a file of input values?  
YES

Some input files before?  
YES

Do you want to see parameter list again?  
YES

42 276 91  
 43 479 62  
 99 9  
 Do you want to see parameter list again?  
 NO  
 Do you want to save parameters in a file?  
 NO

TITLE DOCUMENTATION 1A  
 INPUT FILE DOC/RUN1A VAR  
 1 SOLUTION TYPE (-)  
 2 LEC TYPE (-)  
 3 \*\*\*\*\* ANCHOR SEPARATION (ft)  
 4 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
 5 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
 6 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
 7 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
 8 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
 9 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 10 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 11 NUMBER OF SEGMENTS IN BRANCH A (-)  
 12 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
 13 WEIGHT OF FIRST SINKER IN BRANCH A (kips)  
 14 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)  
 15 WEIGHT OF SECOND SINKER IN BRANCH A (kips)  
 16 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)  
 17 WEIGHT OF THIRD SINKER IN BRANCH A (kips)  
 18 NUMBER OF SEGMENTS IN BRANCH B (-)  
 19 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
 20 WEIGHT OF FIRST SINKER IN BRANCH B (kips)  
 21 LENGTH OF SECOND SEGMENT IN BRANCH B (ft)  
 22 WEIGHT OF SECOND SINKER IN BRANCH B (kips)  
 23 LENGTH OF THIRD SEGMENT IN BRANCH B (ft)  
 24 WEIGHT OF THIRD SINKER IN BRANCH B (kips)  
 25 INITIAL SLIPSPACE ACROSS EQUALIZER (ft)  
 26 FRICTION COEFFICIENT (EQUALIZER) (-)  
 27 WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)  
 28 LENGTH OF SEGMENT ABOVE JUNCTION (ft)  
 29 LINEAR WEIGHT OF SEGMENT (lb/ft)  
 30 HORIZONTAL LOAD (kips)  
 31 HORIZONTAL LOAD DIRECTION (deg)  
 32 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)  
 33 BUOY DISPLACEMENT DIRECTION (deg)  
 34 BUOY X-COORDINATE (ft)  
 35 BUOY Z-COORDINATE (ft)  
 36 Do you want to change anything?  
 YES  
 37 Do you want to change the title?  
 YES  
 38 Enter new title  
 39 DOCUMENTATION 1C  
 40 For each input value to be changed, enter variable number, followed by new value on the same line,  
 41 with one new value per line. To terminate new input, enter '99' followed by any dummy value  
 42 To continue when display is full, type CTRL-N five times, followed by CTRL-R  
 43 38 U  
 44 39 U

SOLUTION BEGUN AT 17 7 6  
SOLUTION COMPLETED AT 17 7 12



Do you want to save output for elevation views?  
NO  
Do you want to save output for plan views?  
NO  
Do you want another run?  
NO  
Stop  
Exit  
#DIR DOC

Directory Structure of USR DOC 2-Dec-82  
Directory Blocks Available- 20, Used- 1

RUNIA	VAR	{3}	2-Dec-82	16	49
RUNIA	ELV	{7}	2-Dec-82	16	50
RUNIA	PLN	{1}	2-Dec-82	16	50
RUNIB	VAR	{3}	2-Dec-82	17	01

Files-1,Blocks-14,Free-966,Largest-963

#00000000  
RUN M00R05

Enter library name  
DOC  
Enter file name  
RUN1A  
Enter graph type  
1 - load displacement curve  
2 - elevation view  
3 - plan view  
2

### ELEVATION VIEW

output title DOCUMENTATION 1A  
date 2-Dec-82 time 16 49 15  
# of segments 2  
xmin -59 070 xmax 553 82  
ymin -322 76 ymax 1000 00

enter desired xmin  
-60  
enter desired xmax  
554  
enter desired ymin  
-323  
enter desired ymax  
101  
enter step size for x axis  
100  
enter scaling factor for x axis  
1  
enter step size for y axis  
100  
enter scaling factor for y axis  
1  
enter number of minor tick intervals per step for x axis  
10  
enter number of minor tick intervals per step for y axis  
10  
do you want a grid? (y or n)  
YES

Do you want to modify the graph options you have just selected?  
NO

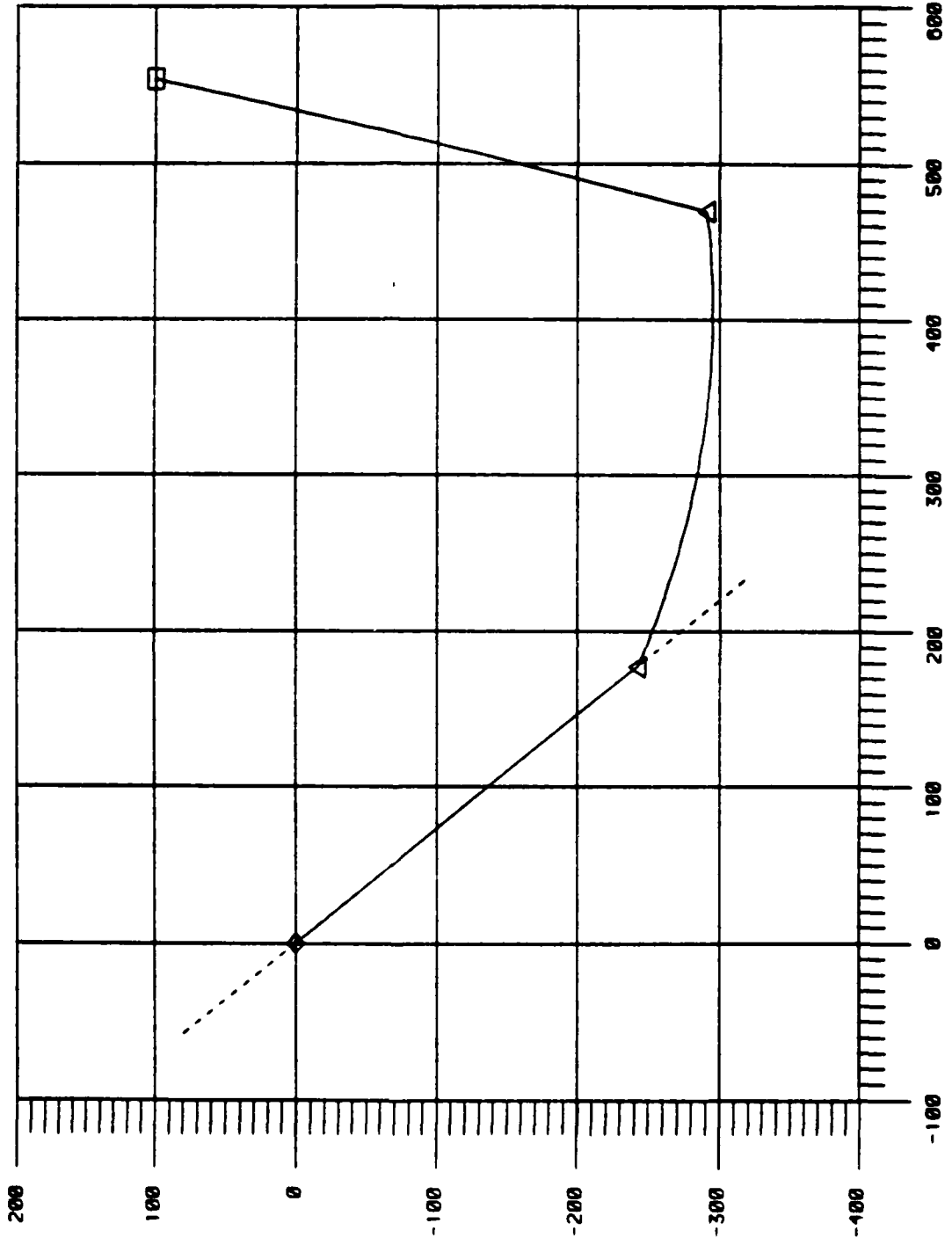
Date 2-Dec-02

ELEVATION VIEW

Time 16 49 15

DOCUMENTATION 1A

Vertical Axis y in feet divided by 1 | Horizontal Axis x in feet divided by 1 |



do you wish to plot this file again? (y or n)  
YES

### ELEVATION VIEW

output title DOCUMENTATION IA  
date 2-Dec-82 time 10 19 15  
# of segments 2  
xmin -59 070 xmax 553 82  
ymin -322 70 ymax 100 00

Do you want to use your previous selection of graph options?  
NO

enter desired xmin  
400

enter desired xmax  
500

enter desired ymin  
-300

enter desired ymax  
-200

enter step size for x axis  
10

enter scaling factor for x axis  
1

enter step size for y axis  
10

enter scaling factor for y axis  
1

enter number of minor tick intervals per step for x axis  
10

enter number of minor tick intervals per step for y axis  
10

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

Date 2-Dec-82

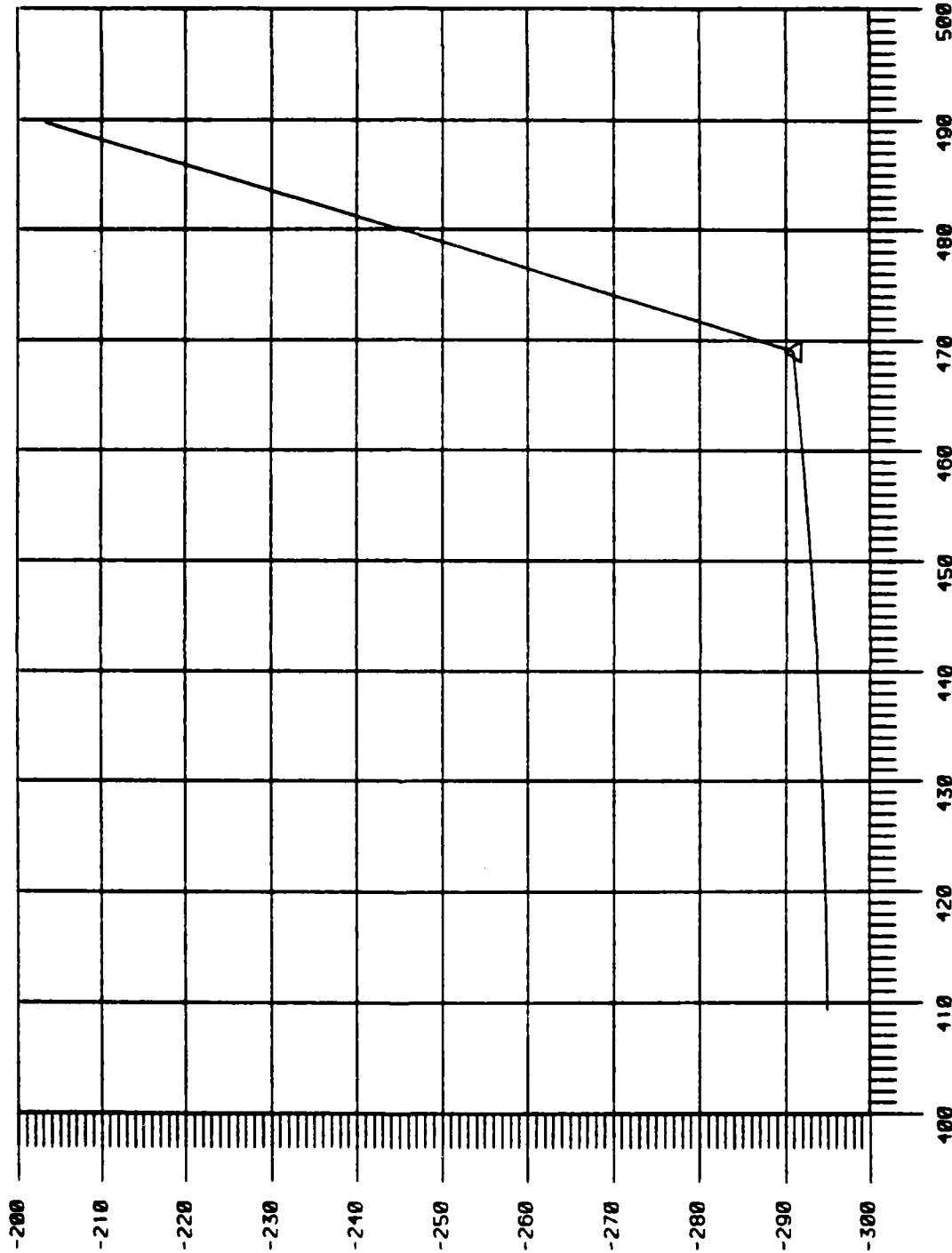
ELEVATION VIEW

Time 10 49 15

DOCUMENTATION 1A

Vertical Axis y in feet divided by 1

Horizontal Axis x in feet divided by 1



do you wish to plot this file again? (y or n)  
YES

### ELEVATION VIEW

output title DOCUMENTATION 1A  
date 2-Dec-82 time 16 49 15  
# of segments 2  
xmin -59 070 xmax 553 82  
ymin -322 76 ymax 100 00

Do you want to use your previous selection of graph options?  
NO

enter desired xmin

-1000

enter desired xmax

1000

enter desired ymin

-500

enter desired ymax

500

enter step size for x axis

100

enter scaling factor for x axis

10

enter step size for y axis

100

enter scaling factor for y axis

10

enter number of minor tick intervals per step for x axis

5

enter number of minor tick intervals per step for y axis

5

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

Date 2-Dec-82

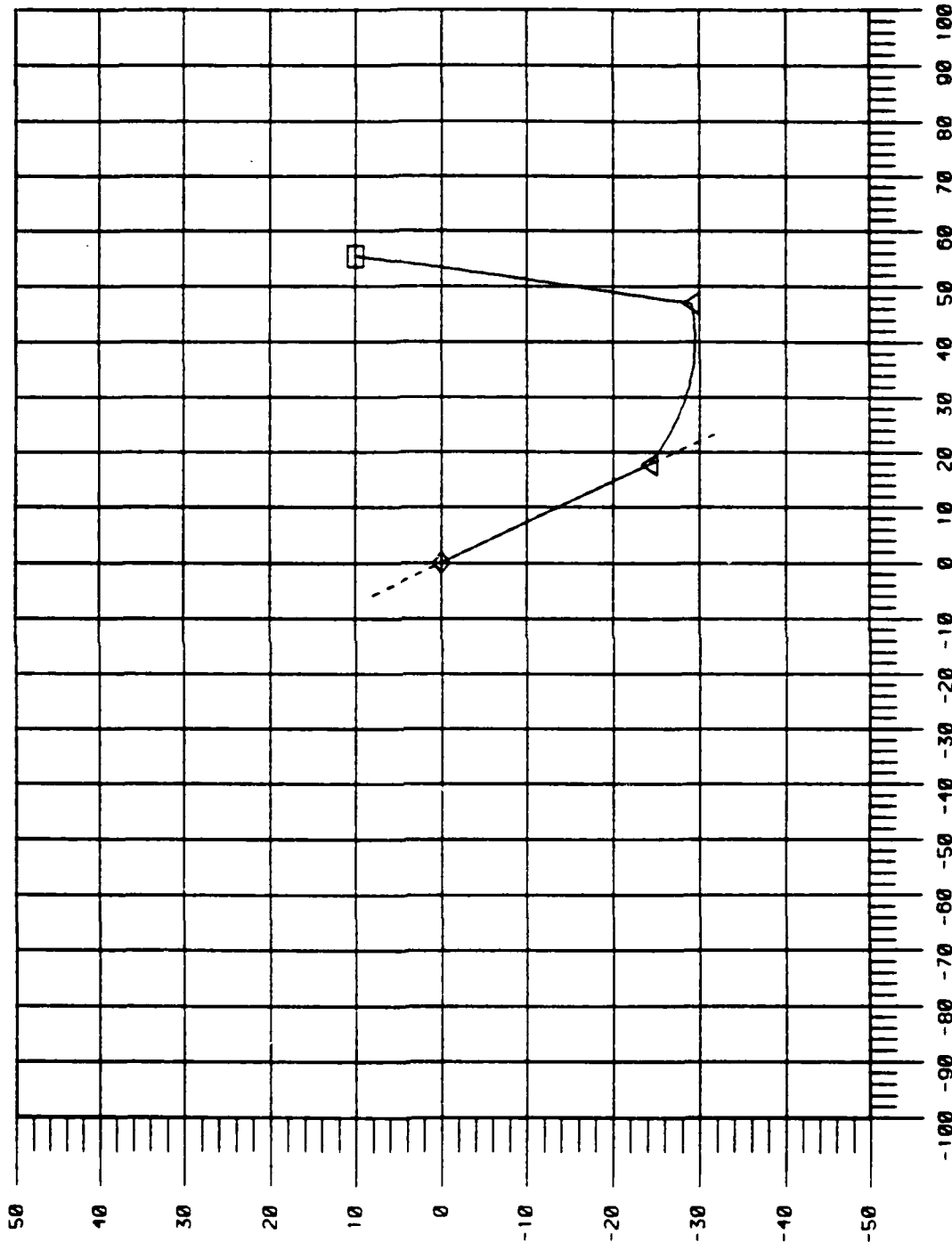
ELEVATION VIEW

Time 10 49 15

DOCUMENTATION 1A

Vertical Axis y in feet divided by 10

Horizontal Axis x in feet divided by 10



do you wish to plot this file again? (y or n)  
NO  
do you wish to plot another file? (y or n)  
YES  
Enter file name  
RUN1A  
Enter graph type  
1 - load displacement curve  
2 - elevation view  
3 - plan view  
3

### PLAN VIEW

output title DOCUMENTATION 1A  
date 2-Dec-82 time 17 26 35  
# of segments 2  
xmin 0 00000 xmax 276 91  
ymin 0 00000 ymax 479 63

Do you want to use your previous selection of graph options?  
NO

enter desired xmin  
-1  
enter desired xmax  
277  
enter desired ymin  
-1  
enter desired ymax  
480  
enter step size for x axis  
100  
enter scaling factor for x axis  
1  
enter step size for y axis  
100  
enter scaling factor for y axis  
1  
enter number of minor tick intervals per step for x axis  
10  
enter number of minor tick intervals per step for y axis  
10  
do you want a grid? (y or n)  
YES

Do you want to modify the graph options you have just selected?  
NO

Date 2-Dec-82

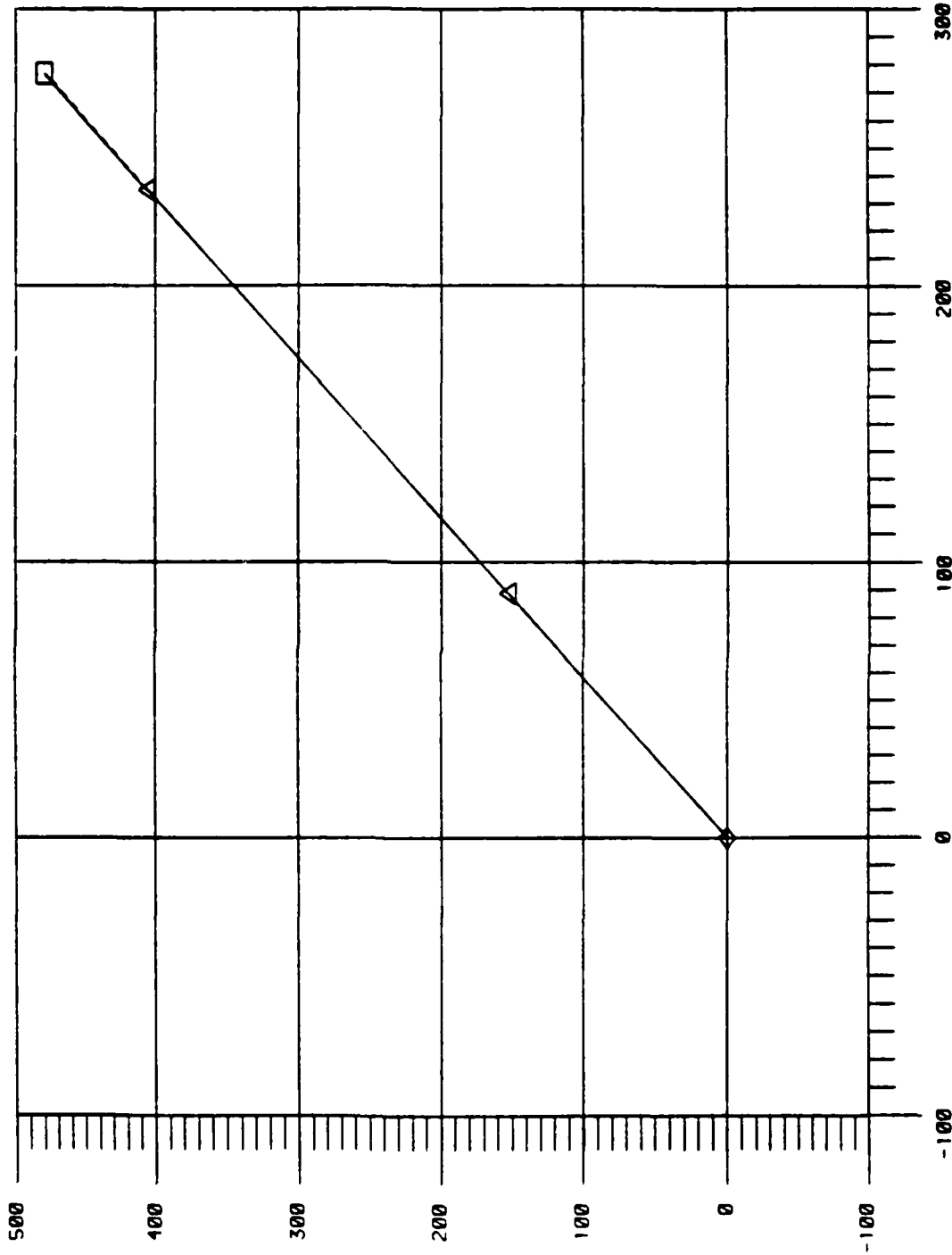
PLAN VIEW

Time 17 20 35

DOCUMENTATION 1A

Vertical Axis z in feet divided by 1

Horizontal Axis x in feet divided by 1



do you wish to plot this file again? (y or n)  
NO  
do you wish to plot another file? (y or n)  
NO  
Stop  
Exit  
#DIR DOC

Directory Structure of USR DOC      2-Dec-82  
Directory Blocks: Available- 20, Used- 1  
RUNIA VAR [3]      2-Dec-82 16 49  
RUNIA ELV [7]      2-Dec-82 16 50  
RUNIA PLN [1]      2-Dec-82 16 50  
RUNIB VAR [3]      2-Dec-82 17 01

Files-4 ;Blocks-14 ;Free-966 ;Largest-966

#RUN MOOR04

Enter library name  
DOC  
Enter name of leg/riser file  
RUNIA  
Do you want to see parameter list again?  
NO

Enter minimum value of H (kips)  
0  
Enter maximum value of H (kips)  
500  
Enter value of H for reference point  
35  
Enter number of points to be plotted  
251

JUST COMPLETED POINT 1000  
JUST COMPLETED POINT 2000

Do you want to compute another curve?  
NO

Stop  
Exit  
#DIR DOC

Directory Structure of USR DOC 2-Dec-82  
Directory Blocks Available- 20, Used- 1

RUNIA VAR (3)	2-Dec-82	16	49
RUNIA ELV (7)	2-Dec-82	16	50
RUNIA PLN (1)	2-Dec-82	16	50
RUNIB VAR (3)	2-Dec-82	17	01
RUNIA LOC (21)	2-Dec-82	17	41

Files-5,Blocks-35,Free-945,Largest-944

#RUN MOOR05

Enter library name

DOC

Enter file name

RUN1A

Enter graph type

1 - load displacement curve

2 - elevation view

3 - plan view

1

### LOAD DEFLECTION CURVE

output title DOCUMENTATION 1A  
date 2-Dec-82 time 17 41 59

# of segments 1

xmin 294.22 xmax 991.44

ymin 0.000000 ymax 500.00

enter desired xmin

293

enter desired xmax

992

enter desired ymin

-1

enter desired ymax

501

enter step size for x axis

100

enter scaling factor for x axis

1

enter step size for y axis

100

enter scaling factor for y axis

1

enter number of minor tick intervals per step for x axis

10

enter number of minor tick intervals per step for y axis

10

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

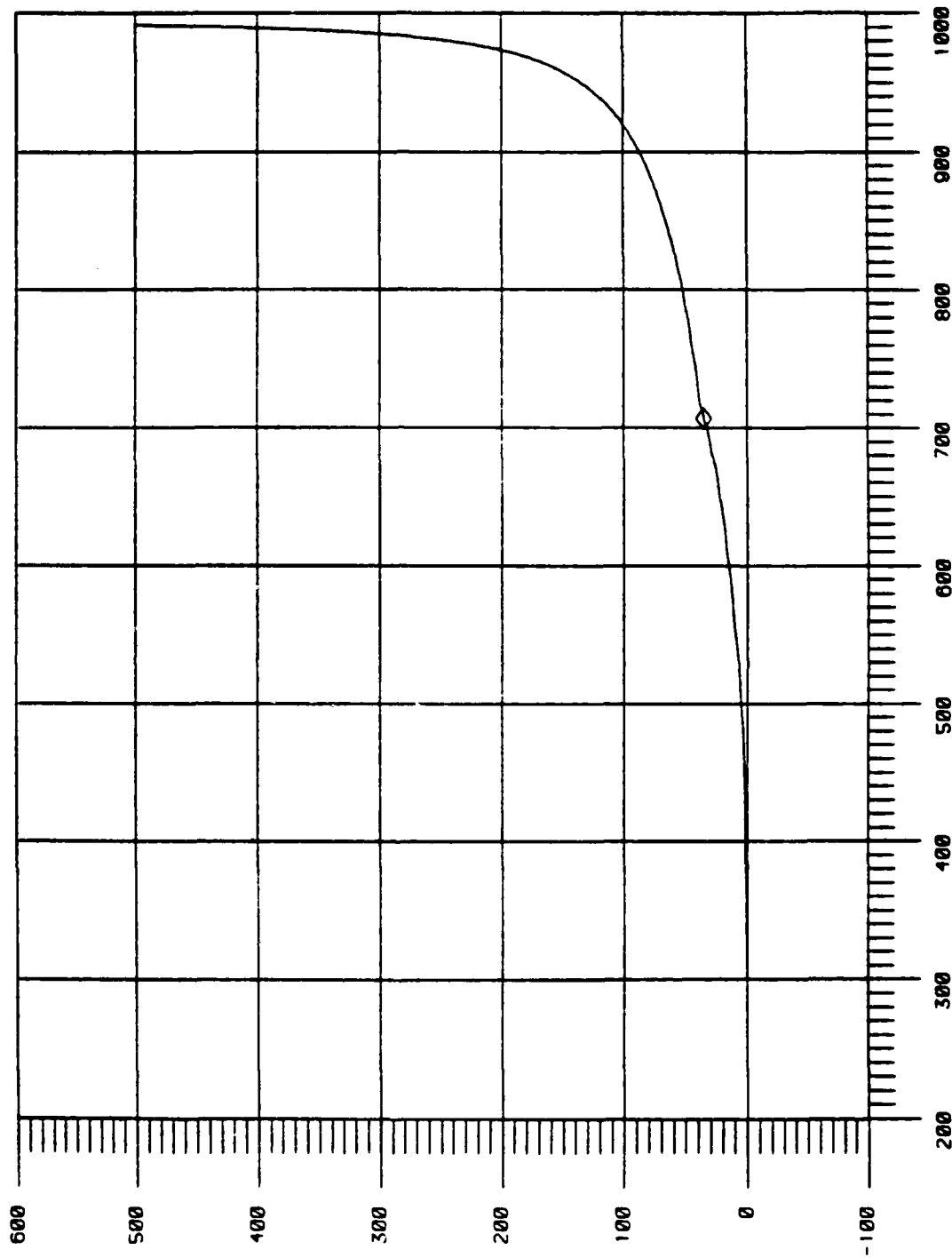
Date 2-Dec-82

LOAD DEFLECTION CURVE

Time 17.41.59

DOCUMENTATION 1A

Vertical Axis  $P$  in kips divided by 1      Horizontal Axis  $x$  in feet divided by 1



do you wish to plot this file again? (y or n)  
NO  
do you wish to plot another file? (y or n)  
NO  
Stop  
Exit  
#

TITLE DOCUMENTATION 2A

INPUT FILE DOC/RUN2A.VAR

1 SOLUTION TYPE (-)  
 2 LEG TYPE (-)  
 3 ANCHOR SEPARATION (ft)  
 4 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
 5 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
 6 OCEAN FLOOR POINT 1 D-COORDINATE (ft)  
 7 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
 8 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
 9 OCEAN FLOOR POINT 2 D-COORDINATE (ft)  
 10 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
 11 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 12 OCEAN FLOOR POINT 3 D-COORDINATE (ft)  
 13 NUMBER OF SEGMENTS IN BRANCH A (-)  
 14 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
 15 S1A LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)  
 16 V1A WEIGHT OF FIRST SINKER IN BRANCH A (kips)  
 17 C1A LENGTH OF SECOND SEGMENT IN BRANCH A (ft)  
 18 S2A LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)  
 19 V2A WEIGHT OF SECOND SINKER IN BRANCH A (kips)  
 20 C2A LENGTH OF THIRD SEGMENT IN BRANCH A (ft)  
 21 S3A LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)  
 22 V3A WEIGHT OF THIRD SINKER IN BRANCH A (kips)  
 23 NUMBER OF SEGMENTS IN BRANCH B (-)  
 24 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
 25 S1B LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)  
 26 V1B WEIGHT OF FIRST SINKER IN BRANCH B (kips)  
 27 C1B LENGTH OF SECOND SEGMENT IN BRANCH B (ft)  
 28 S2B LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)  
 29 V2B WEIGHT OF SECOND SINKER IN BRANCH B (kips)  
 30 C2B LENGTH OF THIRD SEGMENT IN BRANCH B (ft)  
 31 S3B LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)  
 32 V3B WEIGHT OF THIRD SINKER IN BRANCH B (kips)  
 33 \*\*\*\*\* INITIAL SLIPPAGE ACROSS EQUALIZER (ft)  
 34 C3 \*\*\*\*\* FRICTION COEFFICIENT (EQUALIZER) (-)  
 35 S4 \*\*\*\*\* WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)  
 36 S4 \*\*\*\*\* LENGTH OF SEGMENT ABOVE JUNCTION (ft)  
 37 V4 \*\*\*\*\* LINEAR WEIGHT OF SEGMENT (lbf/ft)

38 H HORIZONTAL LOAD (kips)  
 39 H HORIZONTAL LOAD DIRECTION (deg)

40 U ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)  
 41 U BUOY DISPLACEMENT DIRECTION (deg)

42 U BUOY X-COORDINATE (ft)  
 43 U BUOY Z-COORDINATE (ft)

Do you want to change anything?  
 NO

Date 2-Dec-82

SUMMARY

Time 20 19 59

# DOCUMENTATION 2A

## INPUT

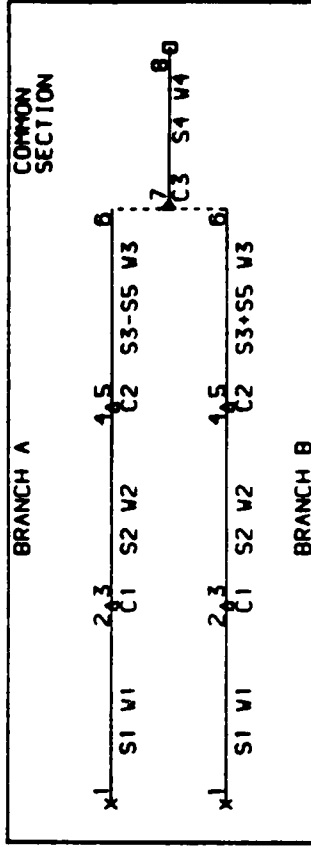
Original Input From File DOC/RUN2A VAR

Revised to File DOC/RUN2A VAR

Units

Angles - Degrees  
 Distances - Feet  
 Linear Weights - Pounds/Foot  
 Weights - Kilopounds

LEG Type compound - spider plate ---A---B---  
 Anchor Separation 3 0 00 30 00 3  
 Segments in Branch 0 00 0 00 0 00  
 Angle to Bottom 200 00 200 00 38 00  
 Length of Segment 1 S1 S1 15 00 15 00  
 Weight of Segment 1 C1 C1 15 00 15 00  
 Length of Segment 2 S2 S2 15 00 15 00  
 Weight of Segment 2 C2 C2 15 00 15 00  
 Length of Segment 3 S3 S3 165 00 165 00  
 Weight of Segment 3 C3 C3 68 00 68 00  
 Friction Coefficient 2 50 2 50  
 Weight of Equalizer/Spider C3 0 50  
 Length of Segment 4 S4 S4 45 00  
 Weight of Segment 4 C4 C4 100 00



OCEAN SURFACE

Floor Slope -45 00  
 Floor Direction -8 05  
 Depth -Z---  
 Point P1 0 00 90 00 0 00  
 Point P2 1 00 90 10 0 00  
 Point P3 0 00 89 90 1 00  
 Anchor A 0 00 88 50 15 00  
 Anchor B 0 00 91 50 -15 00  
 Origin 0 00 90 00 0 00

OCEAN BOTTOM

Floor Slope -45 00  
 Floor Direction -8 05  
 Depth -Z---  
 Point P1 0 00 90 00 0 00  
 Point P2 1 00 90 10 0 00  
 Point P3 0 00 89 90 1 00  
 Anchor A 0 00 88 50 15 00  
 Anchor B 0 00 91 50 -15 00  
 Origin 0 00 90 00 0 00

Load Direction 25 00  
 Horizontal Load H 20 00  
 Projected Excursion 385 58  
 True Excursion 385 65

## OUTPUT

UNKNOWN INPUTS

385 58 - Buoy Excursion

HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Catenary Horizontal Angle V - Vertical Force T - Tension

	--1A--	--2A--	--3A--	--4A--	--5A--	--6A--	--1B--	--2B--	--3B--	--4B--	--5B--	--6B--	--7B--	--8B--
HA	21 60						26 00							
VA	-3 21						-2 63							
C			0 00										0 00	20 00
L	258 10						215 00							
H	4 56						15 45							
X	0 00	185 67			199 59		0 00		179 50		193 03		326 15	352 51
Y	1 50	-9 71			-10 56		-1 50		-10 60		-11 38		55 69	90 00
Z	15 00	88 50			94 01		-15 00		72 60		79 17		144 11	158 40
A	-3 21	-3 21	-3 21	-3 21	-3 21	60 41	-2 63	-2 63	-2 63	-2 63	0 03	39 76	46 92	52 31
V	-0 35	-0 32	-0 28	-0 27	-0 27	8 03	-0 76	-0 75	-0 71	-0 71	1 63	12 85	21 38	25 00
T	6 20	5 77	4 93	4 87	4 73	9 24	16 56	16 21	15 52	15 47	15 53	20 09	29 28	32 71

Solution Type Junction elevated, tension on both legs

Enter library name

DOC

Enter file name

RUN2A

Enter graph type

1 - load displacement curve

2 - elevation view

3 - plan view

2

### ELEVATION VIEW

output title DOCUMENTATION 2A  
date 2-Dec-82 time 20 19 59  
# of segments 5  
xmin -44 290 xmax 385 58  
ymin -15 100 ymax 90 000

enter desired xmin

-45

enter desired xmax

386

enter desired ymin

-16

enter desired ymax

91

enter step size for x axis

100

enter scaling factor for x axis

1

enter step size for y axis

10

enter scaling factor for y axis

1

enter number of minor tick intervals per step for x axis

10

enter number of minor tick intervals per step for y axis

10

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

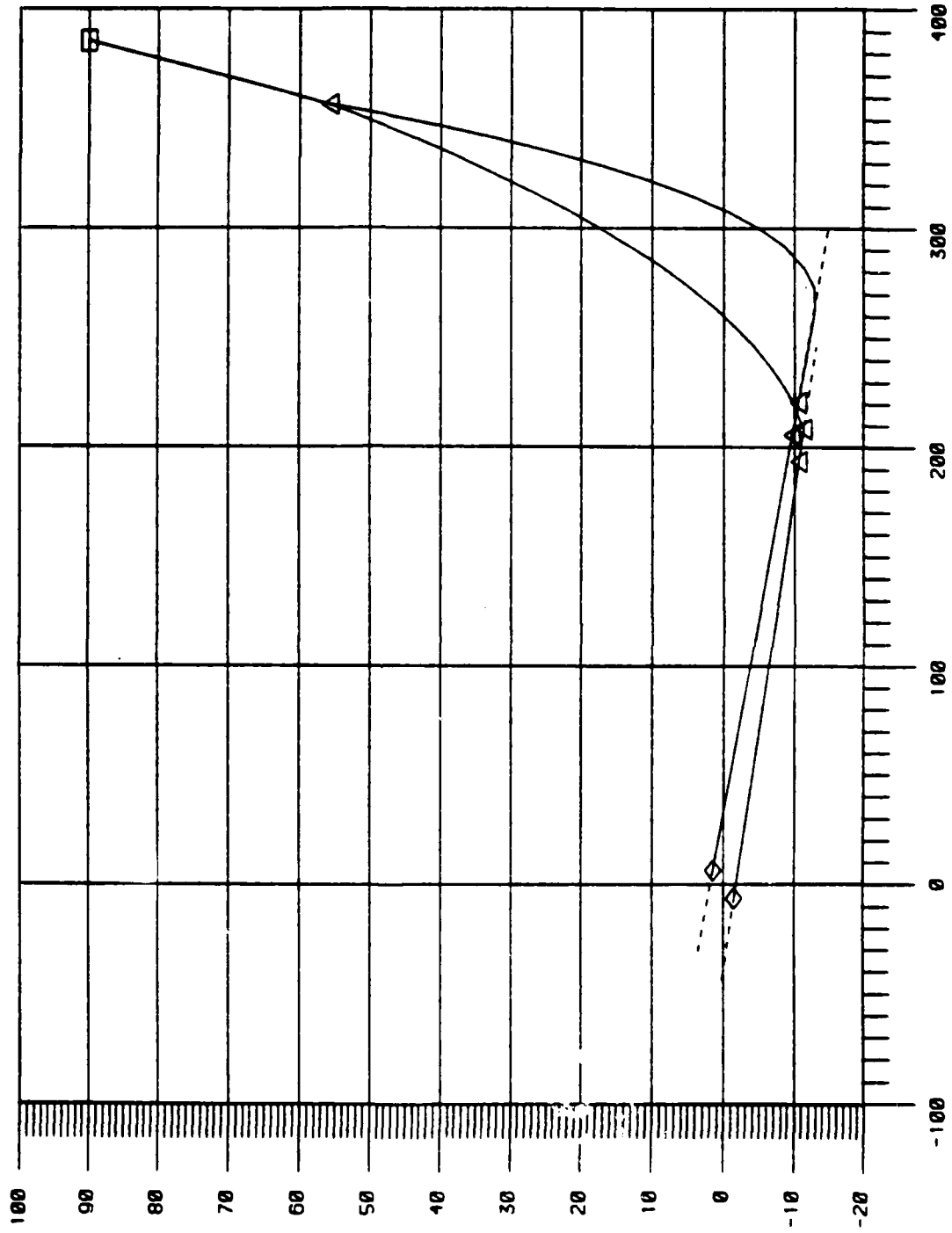
Date 2-Dec-82

ELEVATION VIEW

Time 20 19 59

DOCUMENTATION 2A

Vertical Axis y in feet divided by 1 Horizontal Axis x in feet divided by 1



do you wish to plot this file again? (y or n)

N

do you wish to plot another file? (y or n)

Y

Enter file name

RUN2A

Enter graph type

1 - load displacement curve

2 - elevation view

3 - plan view

3

PLAN VIEW

```

output title DOCUMENTATION 2A
date 2-Dec-82 time 20 19 59
# of segments 4
xmin 0 xmax 352 51
ymin -15 ymax 156 40

```

Do you want to use your previous selection of graph options?

NO

enter desired xmin

-1

enter desired xmax

353

enter desired ymin

-16

enter desired ymax

157

enter step size for x axis

100

enter scaling factor for x axis

1

enter step size for y axis

10

enter scaling factor for y axis

1

enter number of minor tick intervals per step for x axis

10

enter number of minor tick intervals per step for y axis

5

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

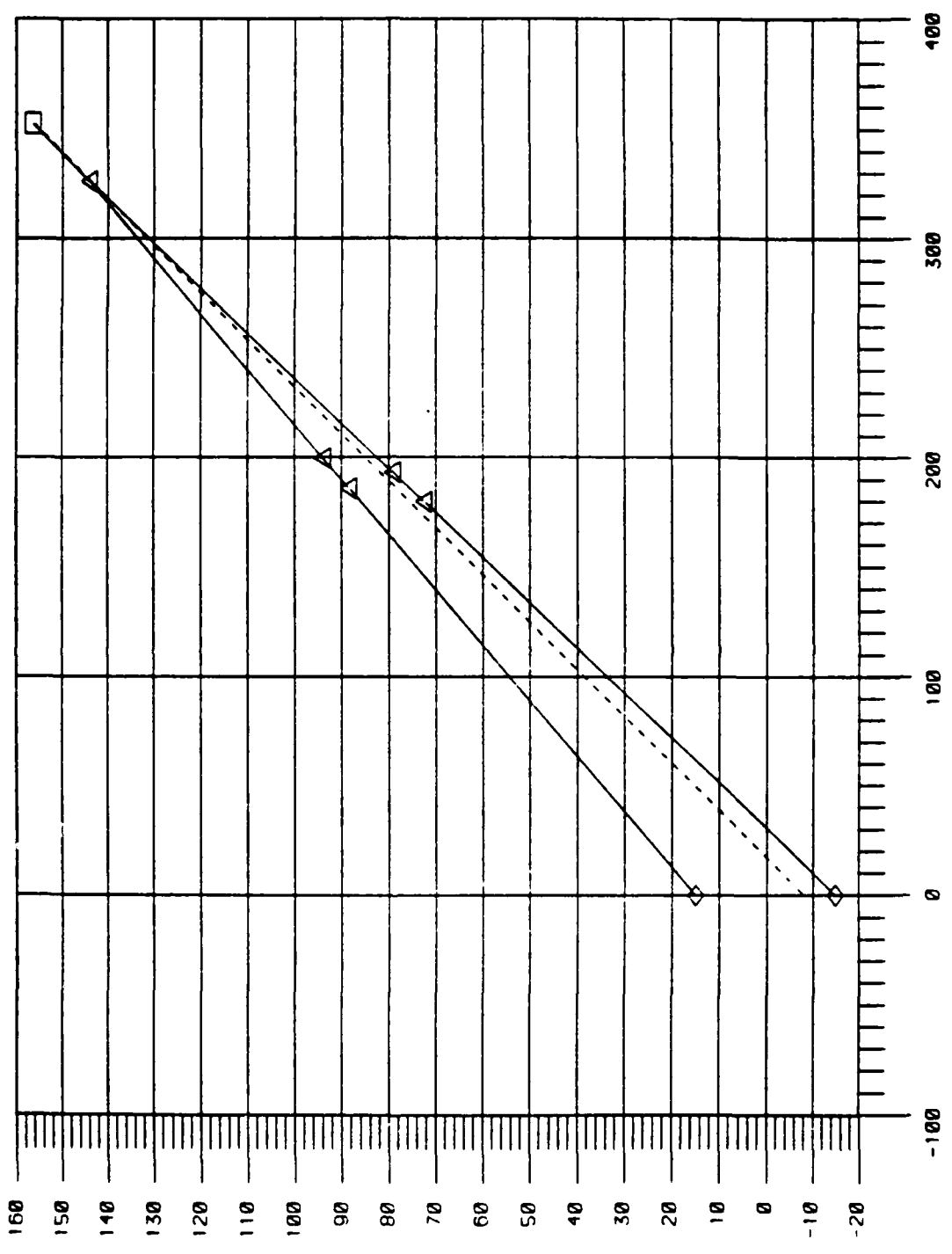
NO

Date 2-Dec-82

Time 20:19:59

PLAN VIEW  
DOCUMENTATION 2A

Vertical Axis z in feet divided by 1  
Horizontal Axis x in feet divided by 1



Enter minimum value of H (kips)  
0  
Enter maximum value of H (kips)  
100  
Enter value of H for reference point  
20  
Enter number of points to be plotted  
51

3

Enter library name

DOC

Enter file name

RUN2A

Enter graph type

1 - load displacement curve

2 - elevation view

3 - plan view

1

### LOAD DEFLECTION CURVE

output file DOCUMENTATION 2A

date 2-Dec-82 time 20.41 6

# of segments 1

xmin 311.50 xmax 402.09

ymin 0.00000 ymax 100.00

enter desired xmin

311

enter desired xmax

403

enter desired ymin

-1

enter desired ymax

101

enter step size for x axis

10

enter scaling factor for x axis

1

enter step size for y axis

10

enter scaling factor for y axis

1

enter number of minor tick intervals per step for x axis

10

enter number of minor tick intervals per step for y axis

10

do you want a  $\bar{a}$   $\bar{r}$ ? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

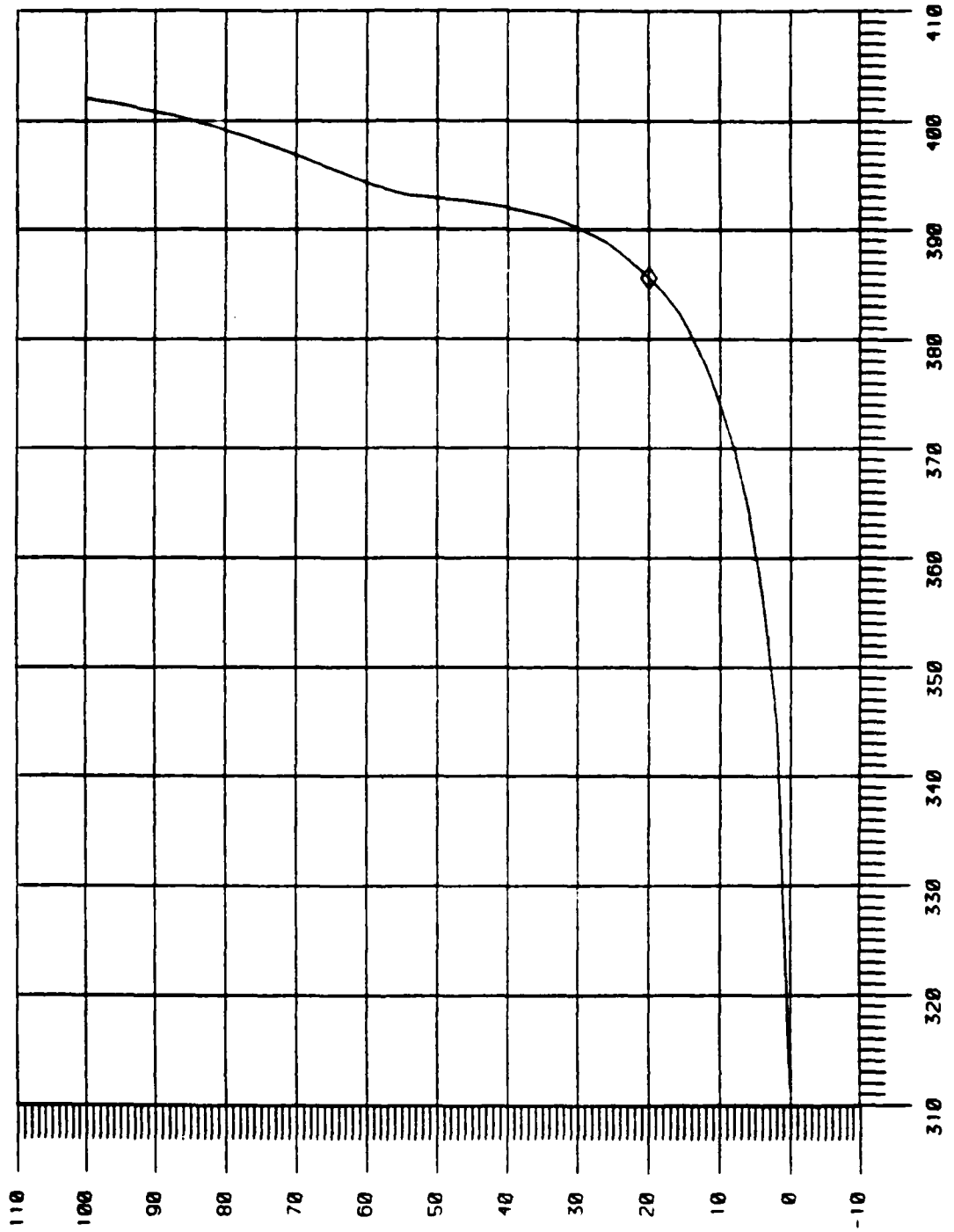
Date 2-Dec-82

LOAD DEFLECTION CURVE

Time 20 41 6

DOCUMENTATION 2A

Vertical Axis h in kips divided by 1 Horizontal Axis x in feet divided by 1



TITLE DOCUMENTATION 28  
INPUT FILE DOC/RUN2A VAR

1 SOLUTION TYPE (-)  
2 LEG TYPE (-)  
3 ANCHOR SEPARATION (ft)  
4 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
5 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
6 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
7 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
8 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
9 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
10 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
11 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
12 NUMBER OF SEGMENTS IN BRANCH A (-)  
13 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
14 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lb/ft)  
15 SIA 200  
16 W1A 38  
17 C1A 15  
18 S2A 15  
19 W2A 68  
20 C2A 2.5  
21 S3A 165  
22 W3A 68  
23 NUMBER OF SEGMENTS IN BRANCH B (-)  
24 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
25 S1B 200  
26 W1B 38  
27 C1B 15  
28 S2B 15  
29 W2B 68  
30 C2B 2.5  
31 S3B 165  
32 W3B 68  
33 \*\*\*\*\* INITIAL SLIPPAGE ACROSS EQUALIZER (ft)  
34 \*\*\*\*\* FRICTION COEFFICIENT (EQUALIZER) (-)  
35 C3 5  
36 S4 45  
37 W4 100  
38 H U  
39 HORIZONTAL LOAD (kips)  
HORIZONTAL LOAD DIRECTION (deg)  
40 385 58  
41 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)  
BUOY DISPLACEMENT DIRECTION (deg)  
42 U  
43 BUOY X-COORDINATE (ft)  
BUOY Z-COORDINATE (ft)  
Do you want to change anything?  
NO  
Do you want to save parameters in file?  
YES  
Enter name of output file  
RUN2B



TITLE DOCUMENTATION 2C

```

INPUT FILE DOC/RUN2A VAR
1
2 SOLUTION TYPE (-)
3
4 ANCHOR SEPARATION (ft)
5 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
6 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
7 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
8 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
9 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
10 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
11 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
12 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
13 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
14 NUMBER OF SEGMENTS IN BRANCH A (1-)
15 SIA 200
16 WIA 38
17 CIA 15
18 S2A 15
19 W2A 68
20 C2A 2 5
21 S3A 165
22 W3A 68
23
24 S1B 200
25 W1B 38
26 C1B 15
27 S2B 15
28 W2B 68
29 C2B 2 5
30 S3B 165
31 W3B 68
32
33 ***** INITIAL SLIPPAGE ACROSS EQUALIZER (ft)
34 ***** FRICTION COEFFICIENT (EQUALIZER) (-)
35 C3 5
36 S4 45
37 W4 100
38 H U HORIZONTAL LOAD (kips)
39 U U HORIZONTAL LOAD DIRECTION (deg)
40 U U ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
41 U U BUOY DISPLACEMENT DIRECTION (deg)
42 352 51 BUOY X-COORDINATE (ft)
43 156 40 BUOY Z-COORDINATE (ft)
Do you want to change anything?
NO
Do you want to save parameters in a file?
YES
Enter name of output file
RUN2C

```

SUMMARY  
DOCUMENTATION 2C

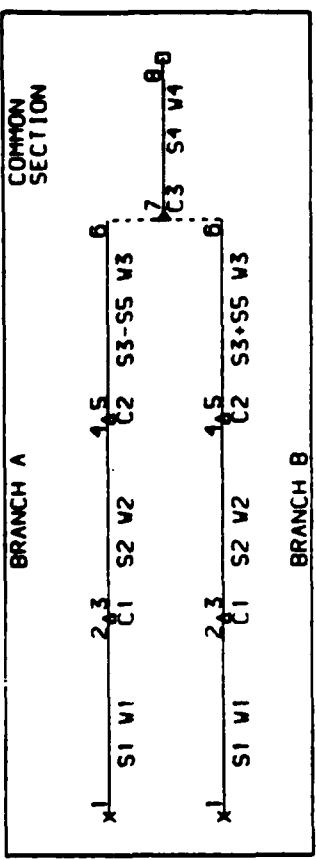
INPUT

Original Input From File DOC/RUN2A VAR  
Revised to File DOC/RUN2C VAR

Units  
 - Degrees  
 - Feet  
 - Pounds/Foot  
 - Kilopounds  
 - Kilopounds

LEG Type compound - spider plate  
 Anchor Separation  
 Segments in Branch  
 Angle to Bottom  
 Linear Weight of Segment 1  
 Weight of Sinker 1  
 Length of Segment 2  
 Linear Weight of Segment 2  
 Weight of Sinker 2  
 Start Length of Segment 3  
 Linear Weight of Segment 3  
 Friction Coefficient  
 Weight of Equalizer/Spider  
 Length of Segment 4  
 Linear Weight of Segment 4

---A---  
 3 0 0 3  
 0 0 0 0  
 200 00 200 00  
 38 00 38 00  
 15 00 15 00  
 68 00 68 00  
 2 50 2 50  
 165 00 165 00  
 68 00 68 00  
 0 50  
 45 00  
 100 00



OCEAN BOTTOM

Floor Direction  
 Floor Slope  
 Point P1  
 Point P2  
 Point P3  
 Anchor A  
 Anchor B  
 Origin

-45 00  
 -8 05  
 0 00  
 1 00  
 0 00  
 0 00  
 0 00  
 0 00

OCEAN SURFACE

Load Direction  
 Horizontal Load H  
 Projected Excursion  
 True Excursion

25 00  
 20 00  
 385 58  
 385 65

OUTPUT

UNKNOWN INPUTS

20 00 - Horizontal Load Magnitude 25 00 - Horizontal Load Direction

HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Catenary Horizontal Angle V - Vertical Force T - Tension

HA	21 60	26 00	0 00	199 59	179 50	103 03	328 15	352 51
VA	-3 21	-2 63	0 00	-10 56	-10 69	-11 38	55 69	90 00
C				94 01	72 60	79 17	144 11	156 40
L	258 10							
H	4 56							
X	0 00	185 07	199 59					
Y	1 50	-9 71	-10 56					
Z	15 00	88 50	94 01					
A	-3 21	-3 21	-3 21	60 41	-2 63	-2 63	39 76	46 92
V	-0 35	-0 28	-0 27	8 03	-0 71	1 63	12 85	21 38
T	6 20	5 77	4 93	4 73	15 52	15 53	20 09	29 28

Solution Type Junction elevated, tension on both legs

TITLE DOCUMENTATION 3A

INPUT FILE DOC/RUN2A VAR  
 1 2 SOLUTION TYPE (-)  
 2 LEG TYPE (-)  
 3 30 ANCHOR SEPARATION (ft)  
 4 0 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
 5 0 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
 6 90 OCEAN FLOOR POINT 1 D-COORDINATE (ft)  
 7 1 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
 8 0 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
 9 90 1 OCEAN FLOOR POINT 2 D-COORDINATE (ft)  
 10 0 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
 11 1 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 12 89 9 OCEAN FLOOR POINT 3 D-COORDINATE (ft)  
 13 3 NUMBER OF SEGMENTS IN BRANCH A (-)  
 14 S1A 200 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
 15 W1A 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)  
 16 C1A 15 WEIGHT OF FIRST SINKER IN BRANCH A (kips)  
 17 S2A 15 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)  
 18 W2A 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)  
 19 C2A 2 5 WEIGHT OF SECOND SINKER IN BRANCH A (kips)  
 20 S3A 165 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)  
 21 W3A 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)  
 22 C3A 3 WEIGHT OF THIRD SINKER IN BRANCH A (kips)  
 23 S1B 200 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
 24 W1B 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)  
 25 C1B 15 WEIGHT OF FIRST SINKER IN BRANCH B (kips)  
 26 S2B 15 LENGTH OF SECOND SEGMENT IN BRANCH B (ft)  
 27 W2B 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)  
 28 C2B 2 5 WEIGHT OF SECOND SINKER IN BRANCH B (kips)  
 29 S3B 165 LENGTH OF THIRD SEGMENT IN BRANCH B (ft)  
 30 W3B 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)  
 31 C3B 0 INITIAL SLIPPAGE ACROSS EQUALIZER (ft)  
 32 S1 0 FRICTION COEFFICIENT (EQUALIZER) (-)  
 33 C1 5 WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)  
 34 S4 45 LENGTH OF SEGMENT ABOVE JUNCTION (ft)  
 35 W4 100 LINEAR WEIGHT OF SEGMENT (lbf/ft)  
 36 H 20 HORIZONTAL LOAD (kips)  
 37 D 25 HORIZONTAL LOAD DIRECTION (deg)  
 38 U 40 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)  
 39 U 41 BUOY DISPLACEMENT DIRECTION (deg)  
 42 U 42 BUOY X-COORDINATE (ft)  
 43 U 43 BUOY Z-COORDINATE (ft)  
 NO Do you want to change anything?  
 YES Do you want to save parameters in a file?  
 Enter name of output file  
 RUN3A



Enter library name  
000  
Enter file name  
RUN3A  
Enter graph type  
1 - load displacement curve  
2 - elevation view  
3 - plan view  
2

### ELEVATION VIEW

output title DOCUMENTATION 3A  
date 2-Dec-82 time 21 6 9  
# of segments 5  
xmin -44 700 xmax 388 29  
ymin -12 980 ymax 90 000

enter desired xmin  
-45  
enter desired xmax  
389  
enter desired ymin  
-13  
enter desired ymax  
91  
enter step size for x axis  
100  
enter scaling factor for x axis  
1  
enter step size for y axis  
10  
enter scaling factor for y axis  
1  
enter number of minor tick intervals per step for x axis  
10  
enter number of minor tick intervals per step for y axis  
10  
do you want a grid? (y or n)  
YES

Do you want to modify the graph options you have just selected?  
NO

Date 2-Dec-82

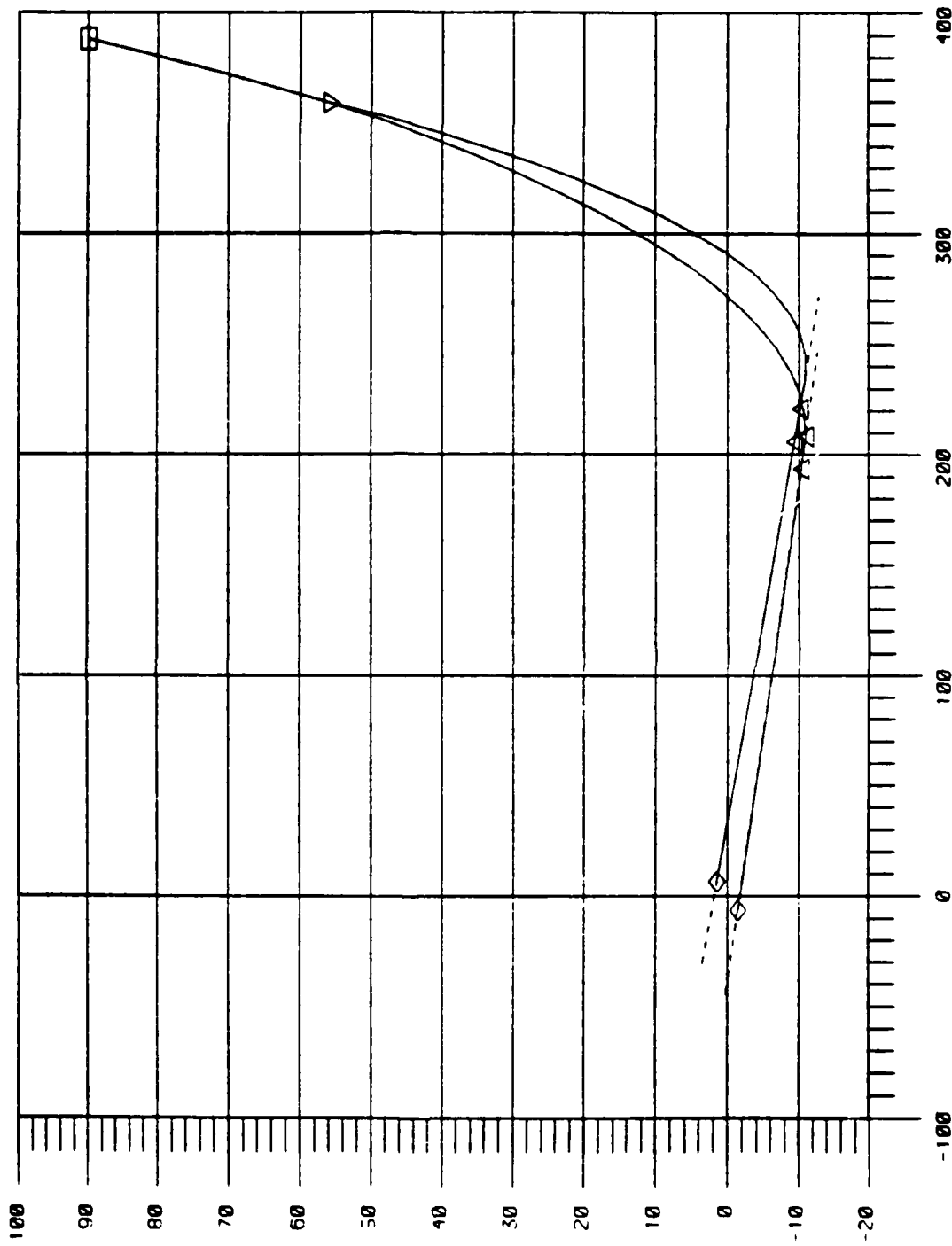
ELEVATION VIEW

Time 21 0 9

DOCUMENTATION 3A

Vertical Axis y in feet divided by 1

Horizontal Axis x in feet divided by 1



do you wish to plot this file again? (y or n)  
NO  
do you wish to plot another file? (y or n)  
yfs  
Enter file name  
RUN3A  
Enter graph type  
1 - load displacement curve  
2 - elevation view  
3 - plan view  
3

### PLAN VIEW

output title DOCUMENTATION 3A  
date 2-Dec-82 time 21 6 9  
# of segments 4 xmax 353 06  
xmin -15 000 ymax 161 63

Do you want to use your previous selection of graph options?  
NO

enter desired xmin  
-1  
enter desired xmax  
354  
enter desired ymin  
-16  
enter desired ymax  
162  
enter step size for x axis  
100  
enter scaling factor for x axis  
1  
enter step size for y axis  
10  
enter scaling factor for y axis  
1  
enter number of minor tick intervals per step for x axis  
10  
enter number of minor tick intervals per step for y axis  
5  
do you want a grid? (y or n)  
YES

Do you want to modify the graph options you have just selected?  
NO

Date 2-Dec-82

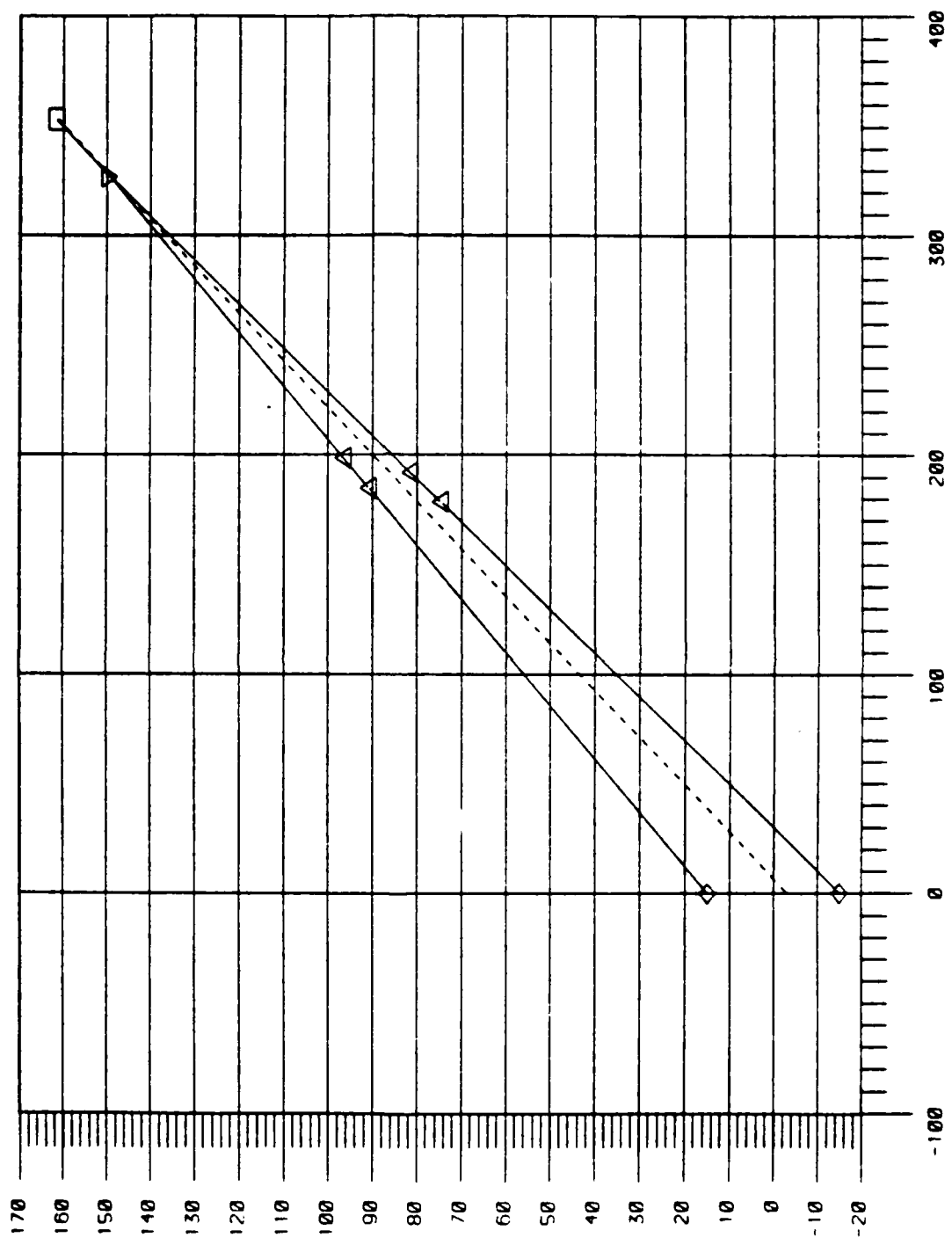
PLAN VIEW

Time 21 0 9

DOCUMENTATION 3A

Vertical Axis z in feet divided by 1

Horizontal Axis x in feet divided by 1



Enter minimum value of H (kips)  
0  
Enter maximum value of H (kips)  
50  
Enter value of H for reference point  
20  
Enter number of points to be plotted  
6

Enter library name

DOC

Enter file name

RUN3A

Enter graph type

1 - load displacement curve

2 - elevation view

3 - plan view

1

### LOAD DEFLECTION CURVE

output title DOCUMENTATION 3A

date 2-Dec-82 time 21 16 51

# of segments 1

xmin 311 50 xmax 398 20

ymin 0 00000 ymax 50 000

enter desired xmin

310

enter desired xmax

399

enter desired ymin

-1

enter desired ymax

51

enter step size for x axis

10

enter scaling factor for x axis

1

enter step size for y axis

10

enter scaling factor for y axis

1

enter number of minor tick intervals per step for x axis

10

enter number of minor tick intervals per step for y axis

10

do you want a grid? (y or n)

YES

Do you want to modify the graph options you have just selected?

NO

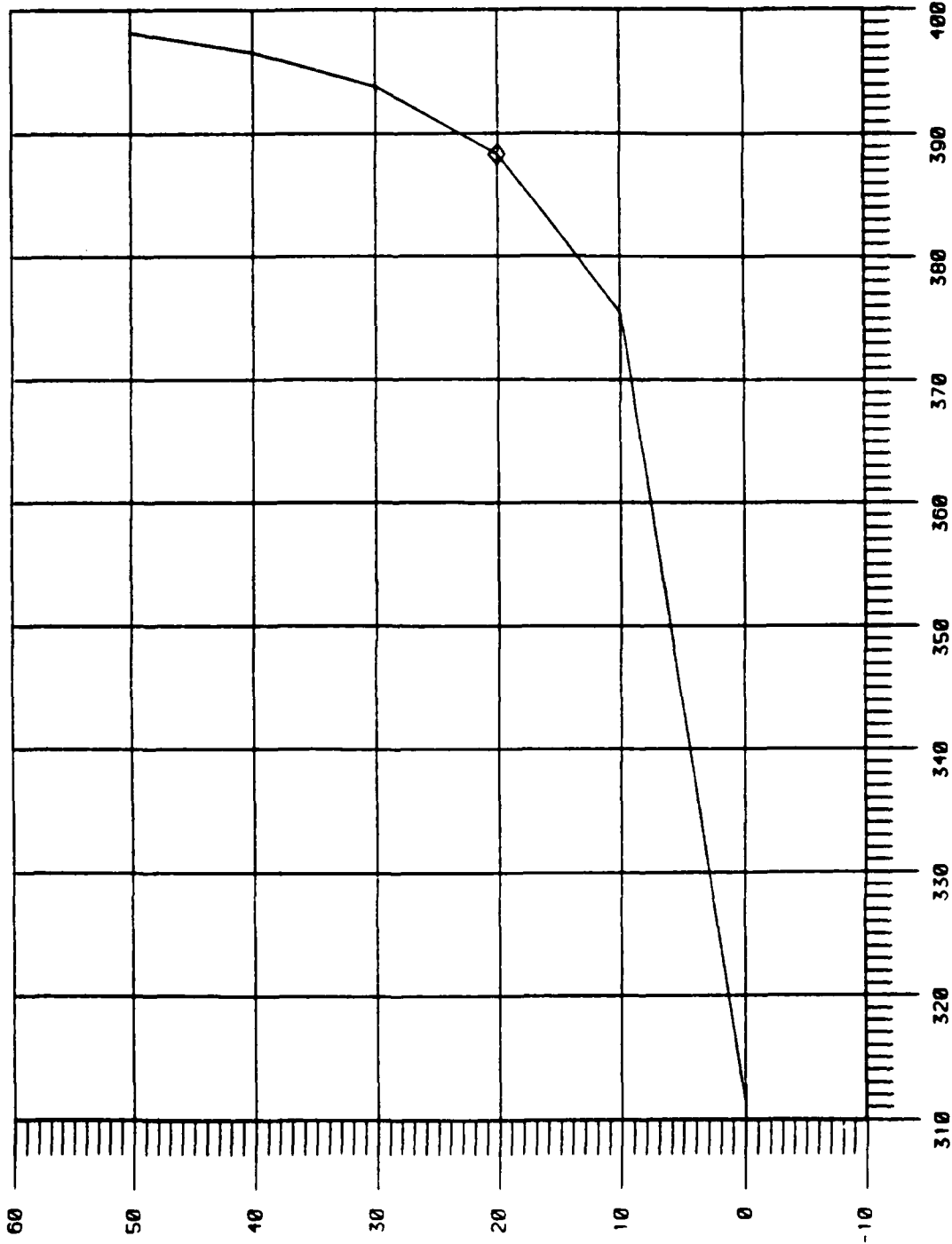
Date 2-Dec-82

Time 21:16:51

LOAD DEFLECTION CURVE

DOCUMENTATION 3A

Vertical Axis h in kips divided by 1 Horizontal Axis x in feet divided by 1



```

TITLE DOCUMENTATION 38
INPUT FILE DOC/RUN3A VAR
  1 2 SOLUTION TYPE (-)
  2 3 LEG TYPE (-)
  3 30 ANCHOR SEPARATION (ft)
  4 0 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
  5 0 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
  6 90 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
  7 1 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
  8 0 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
  9 0 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
 10 0 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
 11 1 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
 12 89 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
 13 3 NUMBER OF SEGMENTS IN BRANCH A (-)
 14 S1A 200 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)
 15 W1A 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)
 16 C1A 15 WEIGHT OF FIRST SINKER IN BRANCH A (lps)
 17 S2A 15 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)
 18 W2A 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)
 19 C2A 2 5 WEIGHT OF SECOND SINKER IN BRANCH A (lps)
 20 S3A 165 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)
 21 W3A 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)
 22 C3A 3 NUMBER OF SEGMENTS IN BRANCH B (-)
 23 S1B 200 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)
 24 W1B 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)
 25 C1B 15 WEIGHT OF FIRST SINKER IN BRANCH B (lps)
 26 S2B 15 LENGTH OF SECOND SEGMENT IN BRANCH B (ft)
 27 W2B 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)
 28 C2B 2 5 WEIGHT OF SECOND SINKER IN BRANCH B (lps)
 29 S3B 165 LENGTH OF THIRD SEGMENT IN BRANCH B (ft)
 30 W3B 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)
 31 C3B 0 1 INITIAL SLIPPAGE ACROSS EQUALIZER (-)
 32 C3 0 1 FRICTION COEFFICIENT (EQUALIZER) (-)
 33 C3 S WEIGHT OF EQUALIZER OR SPIDER PLATE (lps)
 34 S4 45 LENGTH OF SEGMENT ABOVE JUNCTION (ft)
 35 W4 100 LINEAR WEIGHT OF SEGMENT ABOVE JUNCTION (lbf/ft)
 36 H U HORIZONTAL LOAD (lps)
 37 U HORIZONTAL LOAD DIRECTION (deg)
 38 388 29 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
 39 25 BUOY DISPLACEMENT DIRECTION (deg)
 40 U BUOY X-COORDINATE (ft)
 41 U BUOY Z-COORDINATE (ft)
 42 Do you want to change anything?
 43 Do you want to save parameters in a file?
 44 YES
 45 Enter name of output file
 46 RUN3B

```

Date 2-Dec-82

SUMMARY

Time 21:30:58

# DOCUMENTATION 3B

INPUT

Original Input From File DOC/RUN3A VAR

Revised to File DOC/RUN3B VAR

Units

Angles - Degrees

Distances - Feet

Linear Weights - Pounds/Foot

Weights - Kilopounds

Forces - Kilopounds

LEG Type compound - equalizer ---A---8---

Anchor Separation 3 30 00 3

Segments in Branch 0 00 0 00

Angle to Bottom 200 00 200 00

Linear Weight of Segment 1 S1 38 00 38 00

Weight of Sinker 1 C1 15 00 15 00

Linear Weight of Segment 2 S2 68 00 68 00

Weight of Sinker 2 C2 2 50 2 50

Linear Weight of Segment 3 S3 165 00 165 00

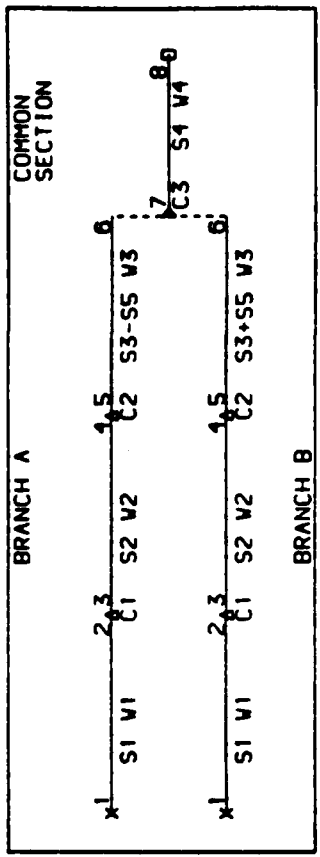
Weight of Sinker 3 C3 68 00 68 00

Friction Coefficient 0 10 0 10

Weight of Equalizer/Spider C3 0 50 0 50

Length of Segment 4 S4 45 00 45 00

Linear Weight of Segment 4 S4 100 00 100 00



OCEAN BOTTOM

Floor Direction -45 00

Floor Slope -8 05

Point P1 0 00 0 00

Point P2 1 00 90 10

Point P3 0 70 89 90

Anchor A 0 70 88 50

Anchor B 0 70 91 50

Origin 0 00 90 00

OCEAN SURFACE

Load Direction 25 00

Horizontal Load H 20 00

Projected Excursion 388 29

True Excursion 388 30

## OUTPUT

UNKNOWN INPUTS

4 20 - Final Slippage S5 20 00 - Horizontal Load Magnitude

HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom

H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate

A - Catenary Horizontal Angle V - Vertical Force T - Tension

--1A--	--2A--	--3A--	--4A--	--5A--	--6A--	--18--	--28--	--38--	--48--	--58--	--68--	--7--	--8--
HA	22 35					26 70							
VA	-3 12					-2 54							
C				0 00						0 00			
L	228 71					215 00							
H	7 84					12 17							
X	0 00	184 70		198 55		0 00		178 49		191 80		326 78	353 00
Y	1 50	-9 37		-10 19		-1 50		-10 37		-11 03		55 61	90 00
Z	15 00	90 95		96 65		-15 00		74 79		81 52		149 38	101 63
A	-3 12	-3 12		-3 12		-2 54		-2 54		-0 31		43 22	47 09
V	-0 51	-0 48		-0 44		-0 59		-0 55		-0 07		11 44	21 51
T	9 32	8 91		7 90		13 32		12 32		12 17		16 70	29 37

Solution Type Junction elevated, tension on both legs

```

TITLE DOCUMENTATION 3C
INPUT FILE DOC/RUN3A VAR
1 2 SOLUTION TYPE (-)
2 LEG TYPE (-)
3 30 ANCHOR SEPARATION (ft)
4 0 0 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
5 0 0 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
6 90 0 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
7 1 0 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
8 0 0 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
9 90 1 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
10 0 0 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
11 1 0 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
12 89 9 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
13 3 NUMBER OF SEGMENTS IN BRANCH A (-)
15 S1A 200 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)
16 V1A 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lb/ft)
17 C1A 15 WEIGHT OF FIRST SINKER IN BRANCH A (kips)
18 S2A 15 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)
19 W2A 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lb/ft)
20 C2A 2 5 WEIGHT OF SECOND SINKER IN BRANCH A (kips)
21 S3A 165 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)
22 W3A 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lb/ft)
23 3 NUMBER OF SEGMENTS IN BRANCH B (-)
25 S1B 200 LENGTH OF FIRST SEGMENT IN BRANCH B (ft)
26 W1B 38 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lb/ft)
27 C1B 15 WEIGHT OF FIRST SINKER IN BRANCH B (kips)
28 S2B 15 LENGTH OF SECOND SEGMENT IN BRANCH B (ft)
29 W2B 68 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lb/ft)
30 C2B 2 5 WEIGHT OF SECOND SINKER IN BRANCH B (kips)
31 S3B 165 LENGTH OF THIRD SEGMENT IN BRANCH B (ft)
32 W3B 68 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lb/ft)
33 INITIAL SLIPPAGE ACROSS EQUALIZER (ft)
34 0 1 FRICTION COEFFICIENT (EQUALIZER) (-)
35 C3 5 WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)
36 S4 45 LENGTH OF SEGMENT ABOVE JUNCTION (ft)
37 W4 100 LINEAR WEIGHT OF SEGMENT (lb/ft)
38 H U HORIZONTAL LOAD (kips)
39 U HORIZONTAL LOAD DIRECTION (deg)
40 U ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
41 U BUOY DISPLACEMENT DIRECTION (deg)
42 353 06 BUOY X-COORDINATE (ft)
43 161 63 BUOY Z-COORDINATE (ft)
Do you want to change anything?
NO
Do you want to save parameters in a file?
YES
Enter name of output file
RUN3C

```

Date 2-Dec-82

SUMMARY

Time 21 45 46

# DOCUMENTATION 3C

## INPUT

Original Input From File DOC/RUN3A VAR

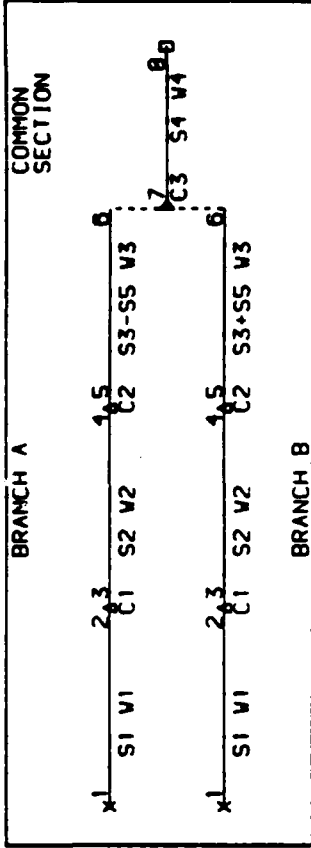
Revised to File DOC/RUN3C VAR

LEC Type compound - equalizer  
 Anchor Separation  
 Segments in Branch  
 Angle to Bottom  
 Length of Segment 1  
 Linear Weight of Segment 1  
 Length of Segment 2  
 Linear Weight of Segment 2  
 Weight of Sinker 2  
 Start Length of Segment 3  
 Linear Weight of Segment 3  
 Friction Coefficient  
 Weight of Equalizer/Spider  
 Length of Segment 4  
 Linear Weight of Segment 4

Units  
 - Degrees  
 - Feet  
 - Pounds/Foot  
 - Kilopounds  
 - Kilopounds

---A---B---  
 3 30 00 3  
 0 00 0 00  
 200 00 200 00  
 38 00 38 00  
 15 00 15 00  
 15 00 15 00  
 68 00 68 00  
 2 50 2 50  
 165 00 165 00  
 68 00  
 0 10  
 0 50  
 45 00  
 100 00

S1  
 V1  
 C1  
 S2  
 V2  
 C2  
 S3  
 V3  
 C3  
 S4  
 V4



OCEAN SURFACE

Floor Slope -45 00  
 Floor Direction -8 05  
 Depth -Z-  
 Point P1 0 00 90 00 0 00  
 Point P2 1 00 90 10 0 00  
 Point P3 0 00 80 90 1 00  
 Anchor A 0 00 88 50 15 00  
 Anchor B 0 00 91 50 -15 00  
 Origin 0 00 90 00 0 00

Load Direction 25 00  
 Horizontal Load H 19 99  
 Projected Excursion 388 29  
 True Excursion 388 30

## OUTPUT

UNKNOWN INPUTS

4 20 - Final Slippage SS 19 99 - Horizontal Load Magnitude 25 00 - Horizontal Load Direction  
 HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Cotenary Horizontal Angle V - Vertical Force T - Tension

HA	22 35	26 70	0 00	178 49	191 88	326 78	353 00
VA	-3 12	-2 54	0 00	-10 37	-11 03	55 00	90 00
C	0 00	0 00	0 00	74 70	81 52	149 38	161 03
L	228 72	215 00	215 00	0 00	0 00	0 00	0 00
H	7 84	12 17	12 17	0 00	0 00	0 00	0 00
X	0 00	184 70	198 55	0 00	0 00	0 00	0 00
Y	1 50	-9 37	-10 19	-1 50	-11 03	326 78	353 00
Z	15 00	90 95	96 65	-15 00	81 52	55 00	90 00
A	-3 12	-3 12	-3 12	-2 54	-2 54	-0 31	43 22
V	-0 51	-0 48	-0 44	-0 58	-0 54	-0 07	11 44
T	9 32	8 91	8 03	12 98	12 27	12 17	16 70

Solution Type Junction elevated, tension on both legs

Enter library name

UOC  
Do you have a file of input values?  
NO

Enter leg/riser title  
DOCUMENTATION 4A

Enter solution type (unitless)  
1 - four leg procedure  
2 - stack leg procedure

- 1 Enter X-Coordinate of Point 1 (feet)
- 0
- Enter Z-Coordinate of Point 1 (feet)
- 0
- Enter D-Coordinate of Point 1 (feet)
- 27
- Enter X-Coordinate of Point 2 (feet)
- 1
- Enter Z-Coordinate of Point 2 (feet)
- 0
- Enter D-Coordinate of Point 2 (feet)
- 27
- Enter X-Coordinate of Point 3 (feet)
- 0
- Enter Z-Coordinate of Point 3 (feet)
- 1
- Enter D-Coordinate of Point 3 (feet)
- 27

Specify two of the remaining variables  
(other than number of segments or load direction)  
as unknown by entering the code U

- Enter number of segments in branch A (unitless)
- 3
- Enter slope of chain at anchor A (A1A) (degrees)
- 3
- Enter length of first (lowest) segment of A (S1A) (feet)
- 22.5
- Enter linear weight of first segment of A (W1A) (pounds/foot)
- 8.216
- Enter weight of first sinker on A (C1A) (kips)
- 1.7
- Enter length of second segment of A (S2A) (feet)
- 36
- Enter linear weight of second segment of A (W2A) (pounds/foot)
- 1.609
- Enter weight of second sinker on A (C2A) (kips)
- 1.83
- Enter length of third segment of A (S3A) (feet)
- 250
- Enter linear weight of third segment of A (W3A) (pounds/foot)
- 0.1
- Enter magnitude of horizontal load (H) (kilopounds)
- U
- Enter angle from neutral direction to horizontal load vector (degrees)
- 60

Enter horizontal distance from origin to buoy (feet)

U

Do you want to see parameter list again?

YES

TITLE DOCUMENTATION 4A

INPUT FILE NONE

1 1 SOLUTION TYPE (-)  
 2 1 LEC TYPE (-)  
 3 \*\*\*\*\* ANCHOR SEPARATION (ft)  
 4 0 OCEAN FLOOR POINT 1 X-COORDINATE (ft)  
 5 0 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)  
 6 27 OCEAN FLOOR POINT 1 D-COORDINATE (ft)  
 7 1 OCEAN FLOOR POINT 2 X-COORDINATE (ft)  
 8 0 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)  
 9 27 OCEAN FLOOR POINT 2 D-COORDINATE (ft)  
 10 0 OCEAN FLOOR POINT 3 X-COORDINATE (ft)  
 11 1 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)  
 12 27 OCEAN FLOOR POINT 3 D-COORDINATE (ft)  
 13 3 NUMBER OF SEGMENTS IN BRANCH A (-)  
 14 A1A 3 ANGLE FROM OCEAN FLOOR TO CHAIN AT ANCHOR A (deg)  
 15 S1A 22 5 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)  
 16 W1A 8 216 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)  
 17 C1A 1 7 WEIGHT OF FIRST SINKER IN BRANCH A (kips)  
 18 S2A 38 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)  
 19 W2A 1 609 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)  
 20 C2A -1 83 WEIGHT OF SECOND SINKER IN BRANCH A (kips)  
 21 S3A 250 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)  
 22 W3A 0 1 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)  
 23 \* NUMBER OF SEGMENTS IN BRANCH B (-)  
 25 S1B \*\*\*\*\* LENGTH OF FIRST SEGMENT IN BRANCH B (ft)  
 26 W1B \*\*\*\*\* LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)  
 27 C1B \*\*\*\*\* WEIGHT OF FIRST SINKER IN BRANCH B (kips)  
 28 S2B \*\*\*\*\* LENGTH OF SECOND SEGMENT IN BRANCH B (ft)  
 29 W2B \*\*\*\*\* LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)  
 30 C2B \*\*\*\*\* WEIGHT OF SECOND SINKER IN BRANCH B (kips)  
 31 S3B \*\*\*\*\* LENGTH OF THIRD SEGMENT IN BRANCH B (ft)  
 32 W3B \*\*\*\*\* LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)  
 33 \*\*\*\*\* INITIAL SLIPPAGE ACROSS EQUALIZER (ft)  
 34 \*\*\*\*\* FRICTION COEFFICIENT (EQUALIZER) (-)  
 35 C3 \*\*\*\*\* WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)  
 36 S4 \*\*\*\*\* LENGTH OF SEGMENT ABOVE JUNCTION (ft)  
 37 W4 \*\*\*\*\* LINEAR WEIGHT OF SEGMENT (lbf/ft)

38 H U HORIZONTAL LOAD (kips)  
 39 -60 HORIZONTAL LOAD DIRECTION (deg)

40 U ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)

NO Do you want to change anything?

YES Do you want to save parameters in a file?

Enter name of output file

RUN4A

SOLUTION BEGUN AT 21 50 58  
Enter two initial guesses for H  
1  
2 SOLUTION COMPLETED AT 21 51 16

Date 2-Dec-82

SUMMARY

Time 21:51:10

# DOCUMENTATION 4A

## INPUT

Original Input From File NONE

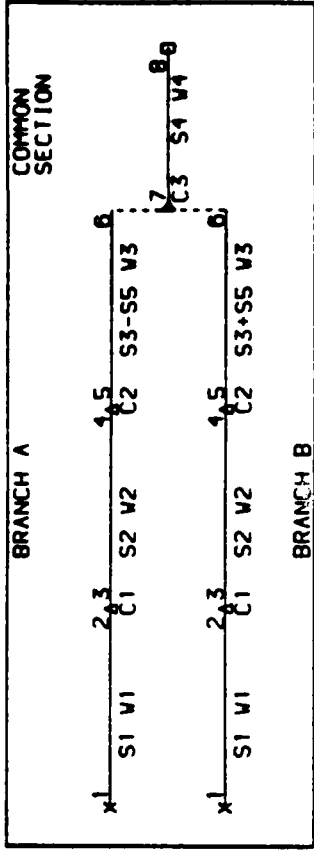
Revised to File DOC/RUN4A VAR

Units

Angles - Degrees  
 Distances - Feet  
 Linear Weights - Pounds/Foot  
 Weights - Kilopounds  
 Forces - Kilopounds

LEC Type simple

Anchor Separation  
 Segments in Branch  
 Angle to Bottom  
 Length of Segment 1 S1 3 00  
 Length of Segment 2 S2 3 00  
 Linear Weight of Segment 1 V1 22 50  
 Linear Weight of Segment 2 V2 8 22  
 Weight of Sinker 1 C1 1 70  
 Weight of Sinker 2 C2 36 00  
 Linear Weight of Segment 3 V3 1 61  
 Weight of Sinker 3 C3 -1 83  
 Start Length of Segment 3 S3 250 00  
 Linear Weight of Segment 4 V4 0 10  
 Friction Coefficient  
 Weight of Equalizer/Spider C3  
 Length of Segment 4 S4  
 Linear Weight of Segment 4 V4



OCEAN BOTTOM  
 Floor Direction 90 00  
 Floor Slope 0 00  
 Point P1 0 00  
 Point P2 1 00  
 Point P3 0 00  
 Anchor A 0 00  
 Anchor B 0 00  
 Origin 0 00

OCEAN SURFACE  
 Load Direction -00 00  
 Horizontal Load H 9 15  
 Projected Excursion 306 74  
 True Excursion 306 74

## OUTPUT

UNKNOWN INPUTS

9 15 - Horizontal Load Magnitude 306 74 - Buoy Excursion

HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Centenary Horizontal Angle V - Vertical Force T - Tension

--1A-- --2A-- --3A-- --4A-- --5A-- --6A-- --1B-- --2B-- --3B-- --4B-- --5B-- --6B-- --7B-- --8B--  
 HA -60 00  
 VA 0 00  
 C  
 L 0 00  
 H 9 15  
 X 11 23  
 Y 1 40  
 Z -19 45  
 A 3 00  
 V 0 18  
 T 9 16  
 4 15  
 14 49  
 2 36  
 9 45  
 14 83  
 2 42  
 9 47  
 3 70  
 0 59  
 9 17  
 3 86  
 0 62  
 9 17  
 28 64  
 10 51  
 -49 61  
 306 74  
 306 74  
 153 37  
 27 00  
 -265 64

Enter library name  
DOC  
Enter file name  
RUN4A  
Enter graph type  
1 - load displacement curve  
2 - elevation view  
3 - plan view  
2

ELEVATION VIEW

output title DOCUMENTATION 4A  
date 2-Dec-82 time 21 51 16  
# of segments 2  
xmin -30.850 xmax 306.74  
ymin 0.000000 ymax 27.000

enter desired xmin  
-31  
enter desired xmax  
307  
enter desired ymin  
-1  
enter desired ymax  
28  
enter step size for x axis  
100  
enter scaling factor for x axis  
1  
enter step size for y axis  
10  
enter scaling factor for y axis  
1  
enter number of minor tick intervals per step for x axis  
10  
enter number of minor tick intervals per step for y axis  
10  
do you want a grid? (y or n)  
YES

Do you want to modify the graph options you have just selected?  
NO

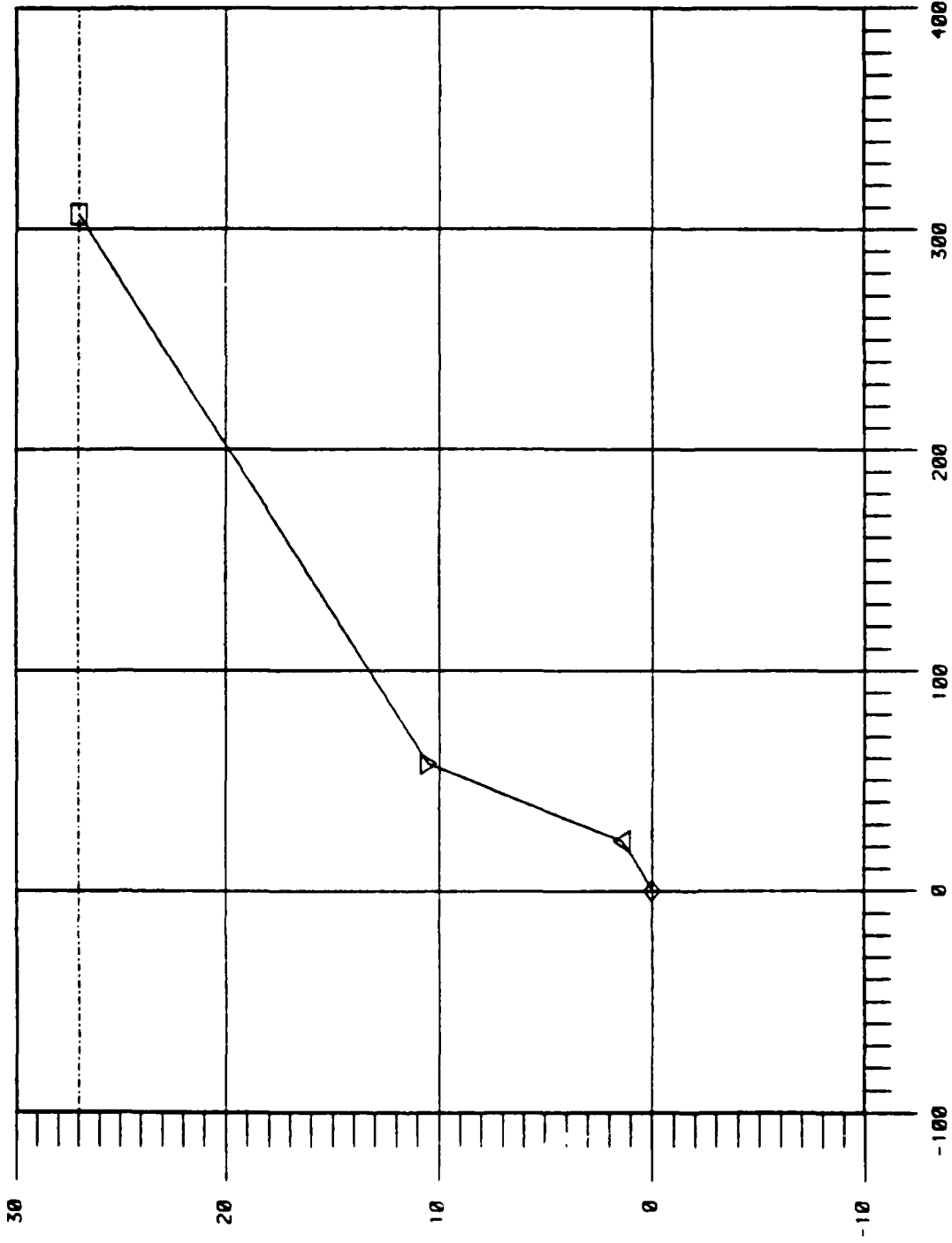
Date 2-Dec-82

ELEVATION VIEW

Time 21 51 16

DOCUMENTATION 4A

Vertical Axis y in feet divided by 1 Horizontal Axis x in feet divided by 1



do you wish to plot this file again? (y or n)  
 NO  
 do you wish to plot another file? (y or n)  
 YES  
 Enter file name  
 RUK3A  
 Enter graph type  
 1 - flood displacement curve  
 2 - elevation view  
 3 - plan view  
 3

### PLAN VIEW

```

output title DOCUMENTATION 4A
date 2-Dec-82 time 21 51 16
# of segments 2 xmax 153 37
xmin 0 00000 ymax 15 000
ymin -265 64
  
```

Do you want to use your previous selection of graph options?  
 NO

```

enter desired xmin -1
enter desired xmax 154
enter desired ymin -266
enter desired ymax 16
enter step size for x axis 10
enter scaling factor for x axis 1
enter step size for y axis 10
enter scaling factor for y axis 1
enter number of minor tick intervals per step for x axis 5
enter number of minor tick intervals per step for y axis 2
do you want a grid? (y or n)
YES
  
```

Do you want to modify the graph options you have just selected?  
 NO

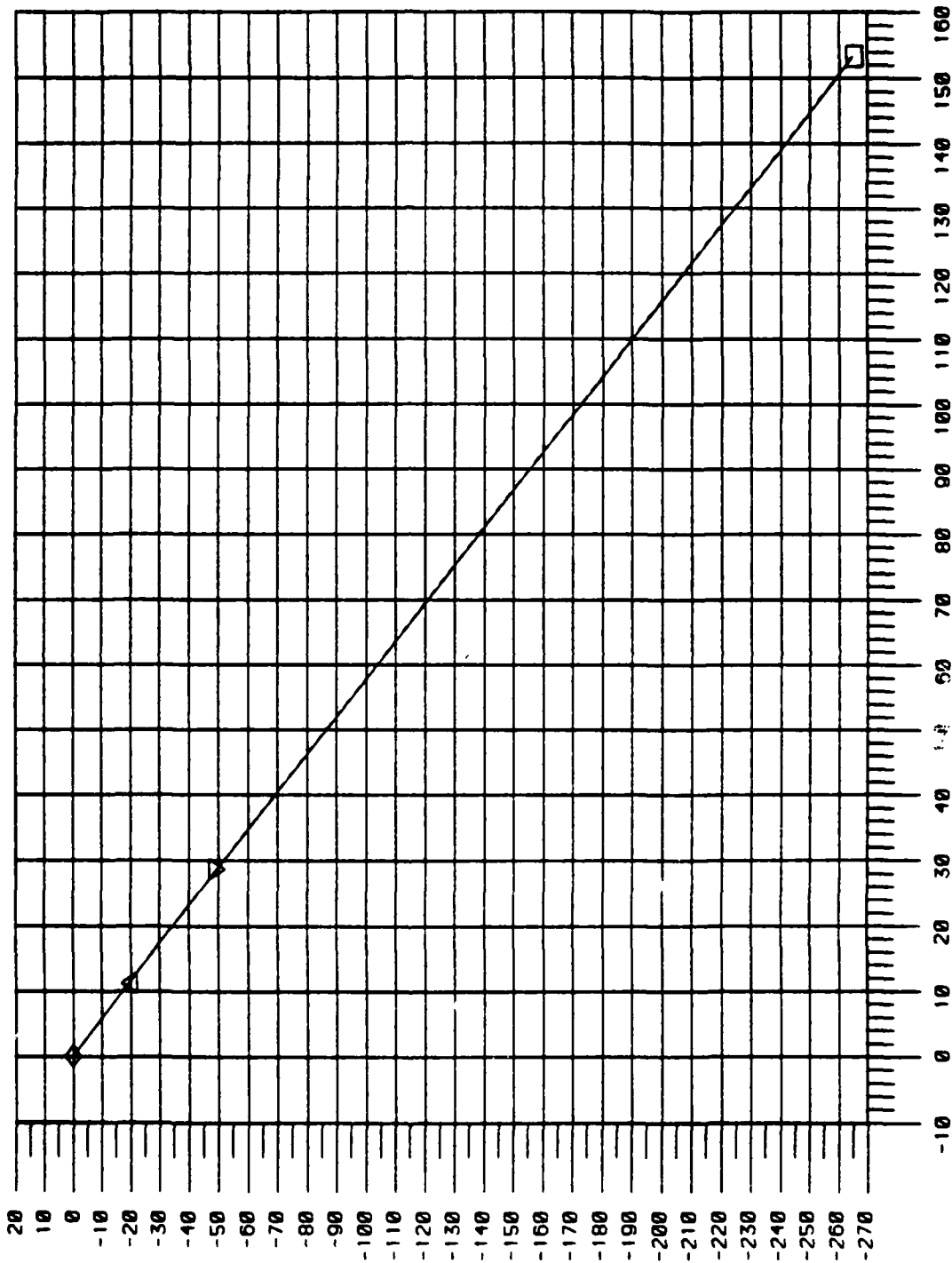
Date 2-Dec-82

PLAN VIEW

Time 21 51 16

DOCUMENTATION 4A

Vertical Axis z in feet divided by 1 Horizontal Axis x in feet divided by 1



```

TITLE DOCUMENTATION 4B
INPUT FILE DOC/RUN4A VAR
1 SOLUTION TYPE (-)
2 LEG TYPE (-)
3 *****
4 ANCHOR SEPARATION (ft)
5 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
6 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
7 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
8 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
9 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
10 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
11 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
12 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
13 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
14 NUMBER OF SEGMENTS IN BRANCH A (-)
15 ANGLE FROM OCEAN FLOOR TO CHAIN AT ANCHOR A (deg)
16 A1A U
17 S1A 22 5
18 S1A 22 5
19 V1A 8 216
17 C1A 1 7
18 S2A 36
19 V2A 1 609
20 C2A -1 83
21 S3A U
22 V3A 0 1
23 W3A *
25 S1B *****
26 V1B *****
27 C1B *****
28 S2B *****
29 V2B *****
30 C2B *****
31 S3B *****
32 W3B *****
33 *****
34 *****
35 C3 *****
36 S4 *****
37 W4 *****
38 H 9 15
39 *****
HORIZONTAL LOAD (kips)
HORIZONTAL LOAD DIRECTION (deg)
40 306 74 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
Do you want to change anything?
NO
Do you want to save parameters in a file?
YES
Enter name of output file
RUN4B

```

SOLUTION BEGUN AT 21 58 34  
 Enter initial guess for A1  
 5  
 Enter initial guess for S3  
 300  
 SOLUTION COMPLETED AT 21 58 54

Date 2-Dec-82

Time 21:58:54

SUMMARY  
DOCUMENTATION 4B

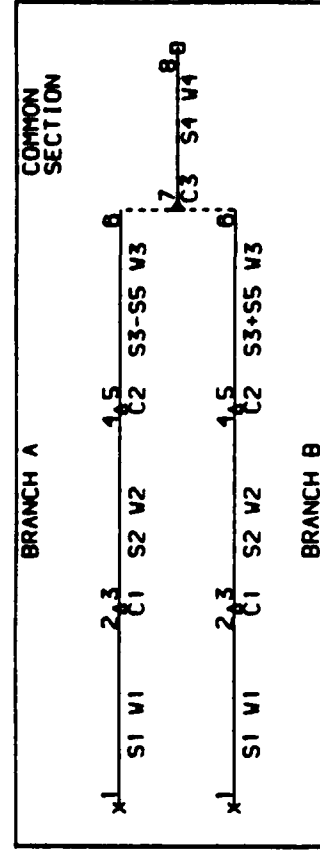
INPUT

Original Input From File DOC/RUN4A VAR

Revised to File DOC/RUN4B VAR

Units  
 Angles - Degrees  
 Distances - Feet  
 Linear Weights - Pounds/Foot  
 Weights - Kilopounds  
 Forces

LEG Type simple  
 Anchor Separation  
 Segments in Branch  
 Angle to Bottom  
 Length of Segment 1 S1  
 Linear Weight of Segment 1 S1  
 Weight of Sinker 1 C1  
 Length of Segment 2 S2  
 Linear Weight of Segment 2 S2  
 Weight of Sinker 2 C2  
 Start Length of Segment 3 S3  
 Linear Weight of Segment 3 S3  
 Friction Coefficient  
 Weight of Equalizer/Spider C3  
 Length of Segment 4 S4  
 Linear Weight of Segment 4 S4



OCEAN SURFACE  
 Floor Direction 90 00  
 Floor Slope 0 00  
 Point P1 0 00  
 Point P2 1 00  
 Point P3 0 00  
 Anchor A 0 00  
 Anchor B 0 00  
 Origin 0 00 0 00  
 Load Direction -00 00  
 Horizontal Load H -00 00  
 Projected Excursion 306 74  
 True Excursion 306 74

OUTPUT

UNKNOWN INPUTS

3 00 - Angle to Bottom 250 00 - Length of Segment 3  
 HA - Floor Horizontal Angle VA - Floor Vertical Angle C - Chain Coiled on Bottom L - Length Along Bottom  
 H - Horizontal Force X - X Coordinate Y - Y Coordinate Z - Z Coordinate  
 A - Catenary Horizontal Angle V - Vertical Force T - Tension

--1A-- --2A-- --3A-- --4A-- --5A-- --6A-- --8A-- --18-- --28-- --38-- --48-- --58-- --68-- --78--  
 HA -60 00  
 VA 0 00  
 C  
 L 0 00  
 H 9 15  
 X 0 00  
 Y 0 00  
 Z 0 00  
 A 3 00  
 V 0 48  
 T 9 16  
 11 23  
 1 40  
 -19 45  
 1 15  
 1 40  
 2 30  
 9 17  
 14 40  
 14 83  
 2 42  
 9 47  
 28 04  
 10 51  
 -49 01  
 3 70  
 0 59  
 9 17  
 3 86  
 0 62  
 9 17  
 153 37  
 27 00  
 -265 04

```

TITLE DOCUMENTATION 4C
INPUT FILE DOC/RUN4A VAR
1 1 SOLUTION TYPE (-)
2 1 LEG TYPE (-)
3 ***** ANCHOR SEPARATION (ft)
4 0 OCEAN FLOOR POINT 1 X-COORDINATE (ft)
5 0 OCEAN FLOOR POINT 1 Z-COORDINATE (ft)
6 27 OCEAN FLOOR POINT 1 D-COORDINATE (ft)
7 1 OCEAN FLOOR POINT 2 X-COORDINATE (ft)
8 0 OCEAN FLOOR POINT 2 Z-COORDINATE (ft)
9 27 OCEAN FLOOR POINT 2 D-COORDINATE (ft)
10 0 OCEAN FLOOR POINT 3 X-COORDINATE (ft)
11 1 OCEAN FLOOR POINT 3 Z-COORDINATE (ft)
12 27 OCEAN FLOOR POINT 3 D-COORDINATE (ft)
13 3 NUMBER OF SEGMENTS IN BRANCH A (-)
14 A1A 3 ANGLE FROM OCEAN FLOOR TO CHAIN AT ANCHOR A (deg)
15 S1A U 8 216 LENGTH OF FIRST SEGMENT IN BRANCH A (ft)
16 W1A 8 216 LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH A (lbf/ft)
17 C1A 1 7 WEIGHT OF FIRST SINKER IN BRANCH A (kips)
18 S2A 36 LENGTH OF SECOND SEGMENT IN BRANCH A (ft)
19 W2A 1 689 LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH A (lbf/ft)
20 C2A U WEIGHT OF SECOND SINKER IN BRANCH A (kips)
21 S3A 250 LENGTH OF THIRD SEGMENT IN BRANCH A (ft)
22 W3A 0 1 LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH A (lbf/ft)
23 X NUMBER OF SEGMENTS IN BRANCH B (-)
25 S1B ***** LENGTH OF FIRST SEGMENT IN BRANCH B (ft)
26 W1B ***** LINEAR WEIGHT OF FIRST SEGMENT IN BRANCH B (lbf/ft)
27 C1B ***** WEIGHT OF FIRST SINKER IN BRANCH B (kips)
28 S2B ***** LENGTH OF SECOND SEGMENT IN BRANCH B (ft)
29 W2B ***** LINEAR WEIGHT OF SECOND SEGMENT IN BRANCH B (lbf/ft)
30 C2B ***** WEIGHT OF SECOND SINKER IN BRANCH B (kips)
31 S3B ***** LENGTH OF THIRD SEGMENT IN BRANCH B (ft)
32 W3B ***** LINEAR WEIGHT OF THIRD SEGMENT IN BRANCH B (lbf/ft)
33 ***** INITIAL SLIPPAGE ACROSS EQUALIZER (ft)
34 ***** FRICTION COEFFICIENT (EQUALIZER) (-)
35 C3 ***** WEIGHT OF EQUALIZER OR SPIDER PLATE (kips)
36 S4 ***** LENGTH OF SEGMENT ABOVE JUNCTION (ft)
37 W4 ***** LINEAR WEIGHT OF SEGMENT (lbf/ft)
38 H 9 16 HORIZONTAL LOAD (kips)
39 -60 HORIZONTAL LOAD DIRECTION (deg)
40 306 74 ORIGIN-TO-BUOY DISTANCE (HORIZONTAL) (ft)
NO Do you want to change anything?
NO Do you want to save parameters in a file?
YES
Enter name of output file
RUN4C

```

SOLUTION BEGUN AT 22: 1 50  
Enter initial guess for S1  
50  
Enter initial guess for C2  
3  
SOLUTION COMPLETED AT 22: 2: 3



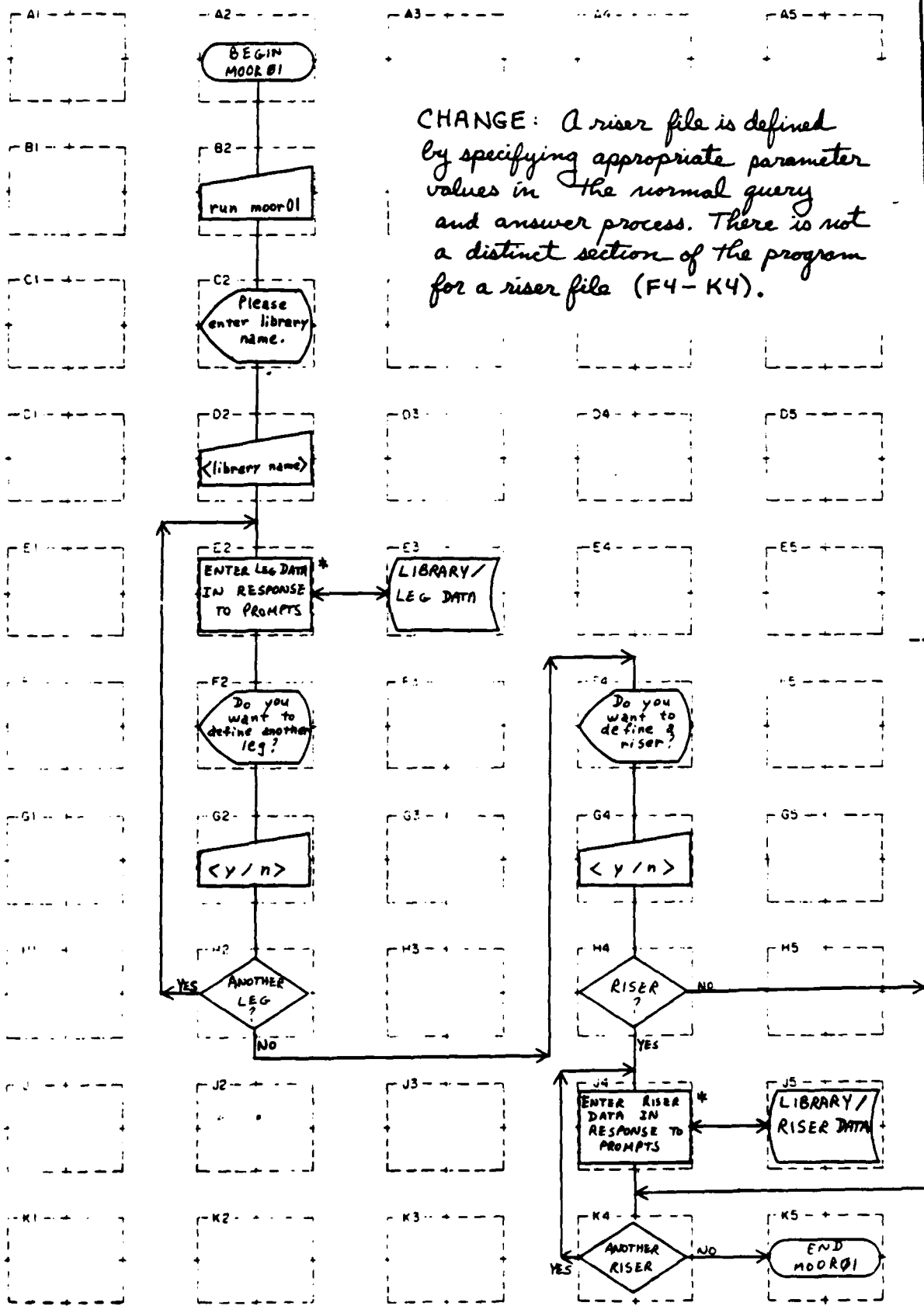
# IBM Flowcharting Worksheet

Printed in U.S.A.  
GX20-8821-2 U/M 050  
Reprinted 8/75

Programmer: DAVID R. BENBENICK, SR Program No.: MOOR01 Date: 22 MAR 82 Page: 1  
 Chart ID: \_\_\_\_\_ Chart Name: LEG/RISER DATA INPUT Program Name: \_\_\_\_\_

↑ Add to here

↑ Fold under as desired lines



CHANGE: A riser file is defined by specifying appropriate parameter values in the normal query and answer process. There is not a distinct section of the program for a riser file (F4-K4).

\* QUERY/ECHO SUBSYSTEMS

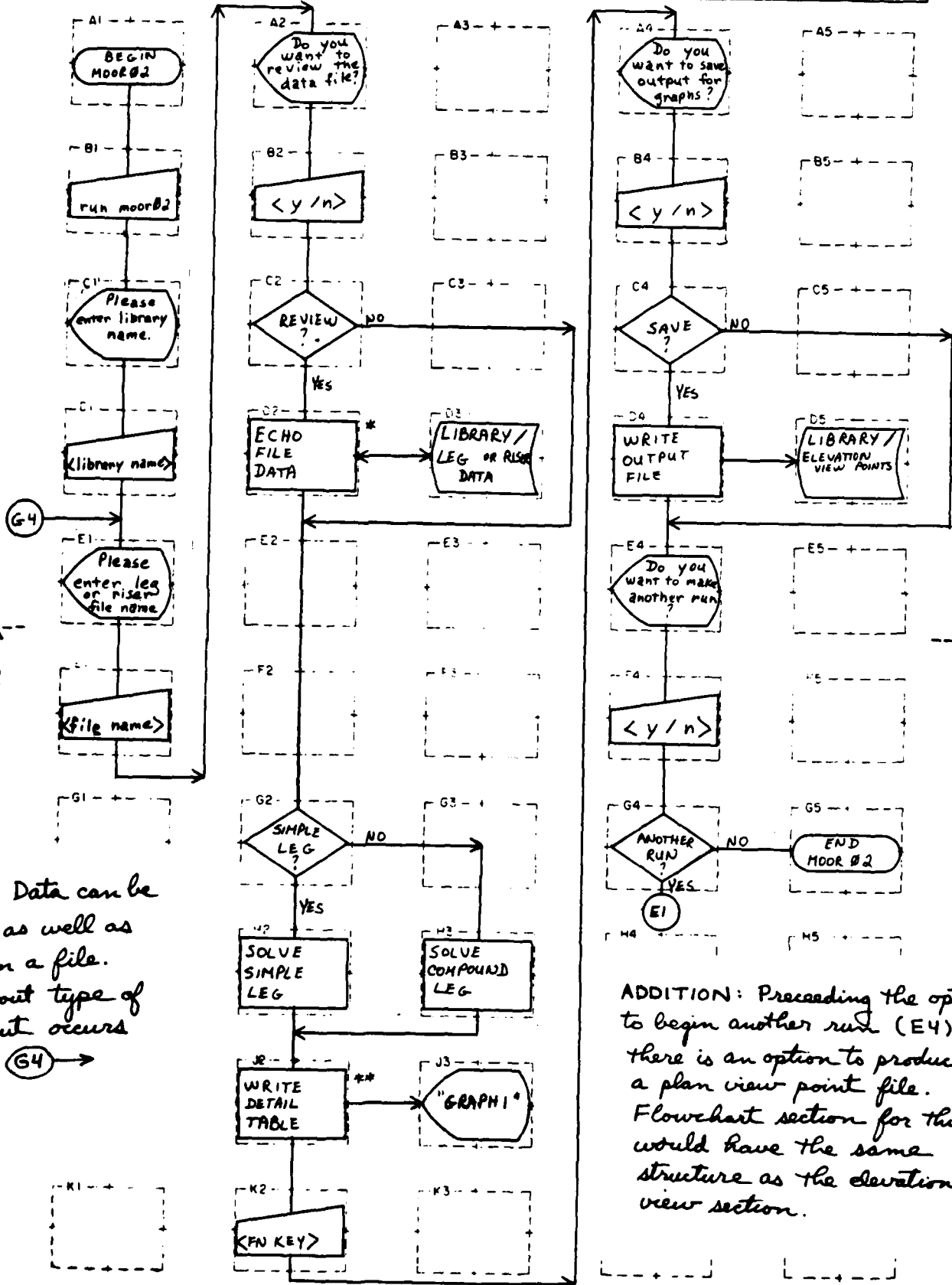
# IBM Flowcharting Worksheet

Printed in U.S.A.  
GX20-0021-3 U/M 080  
Reprinted 5/75

Programmer: DAVID R. BENBENICK, SR. Program No.: MOOR #2 Date: 22 MAR 82 Page: 2  
Chart ID: \_\_\_\_\_ Chart Name: SINGLE LEG SOLUTION Program Name: \_\_\_\_\_

↑  
Fold to here

↑  
Fold under or across lines.



ADDITION: Data can be keyed in, as well as read from a file. Query about type of data input occurs between G4 and E1.

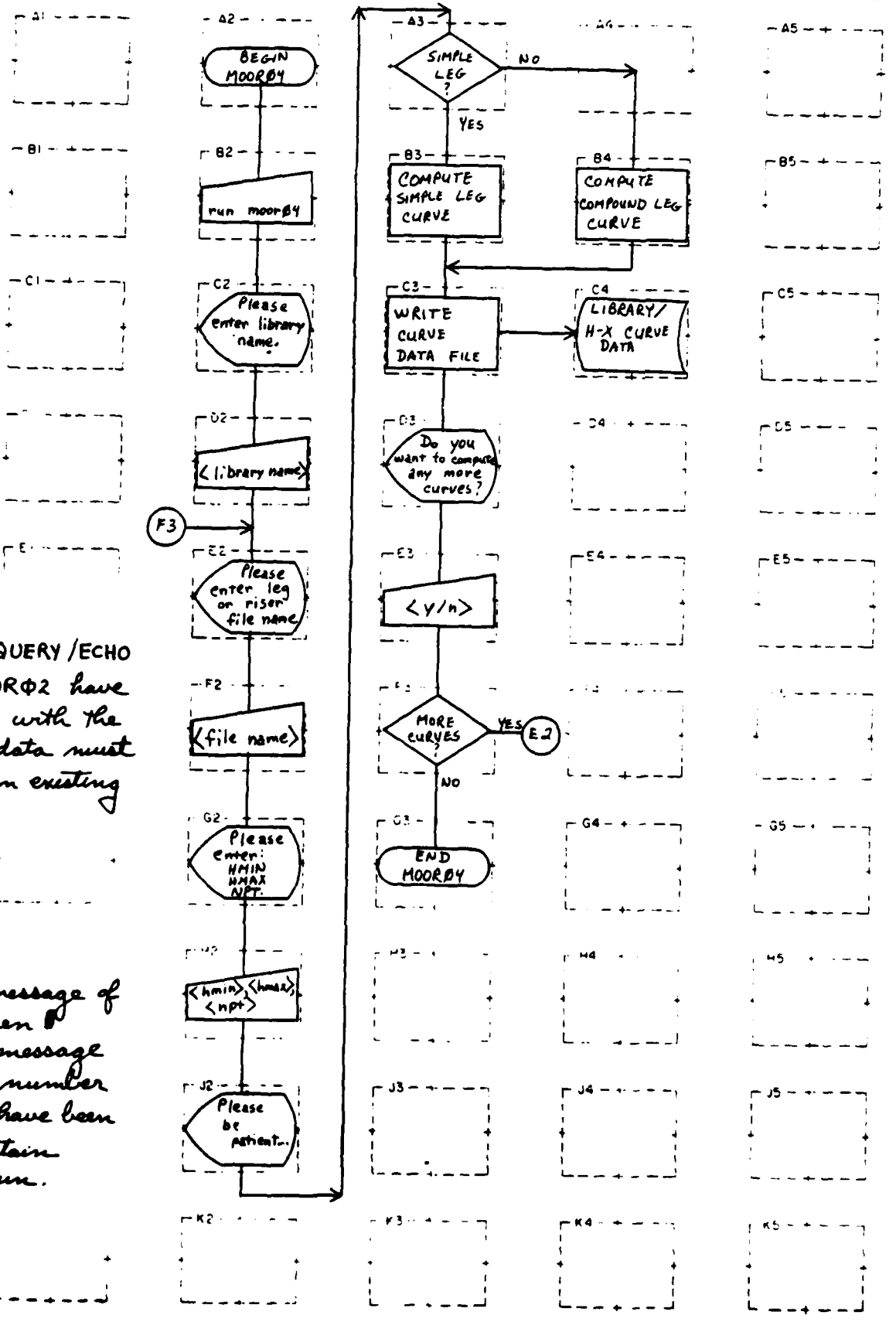
ADDITION: Preceding the opt to begin another run (E4) there is an option to produce a plan view point file. Flowchart section for this would have the same structure as the elevation view section.

\* ECHO SUBSYSTEM  
\*\* LOCAL COORDINATE SYSTEM

# IBM Flowcharting Worksheet

Printed in U.S.A.  
GX20-0021-2 U/M C80  
Reprinted 5/75

Programmer: DAVID R. BENBENICK, SR. Program No.: MOOR04 Date: 22 MAR 82 Page: 4  
 Chart ID: \_\_\_\_\_ Chart Name: LOAD-DEFLECTION CURVE SOLUTION Program Name: \_\_\_\_\_



ADDITION: All QUERY/ECHO capabilities of MOOR02 have been included, with the exception that data must be read from an existing file.

CHANGE: The message of block J2 has been replaced by a message indicating the number of points that have been produced at certain stages of the run.



**END**

**FILMED**

**5-83**

**DTIC**