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DECUS NO.	8-169J
TITLE	PLOTCO
AUTHOR	C. K. Ross, R. Reiniger, A. B. Grant
COMPANY	Submitted by: Joann E. Gavan Atlantic Oceanography Laboratory Bedford Institute Dartmouth, Nova Scotia, Canada
DATE	
SOURCE LANGUAGE	

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1. IDENTIFICATION

- 1.1 Number: OCDA-8-11 (P-11-01)
- 1.2 Title: PLOTCO
- 1.3 Date: May 1968
- 1.4 Computer: PDP-8, Calcomp Plotter
- 1.5 Language: PAL III

2. ABSTRACT

The program plots plain XY co-ordinates from paper tape I/T by H.S. reader.

3. REQUIREMENTS

- 3.1 Storage: 200 - 377, 1600 - 1777
- 3.2 Subprograms and/or Subroutines: N/A
- 3.3 Equipment: H.S. paper tape reader and Calcomp plotter

4. USAGE

- 4.1 Loading: The Binary loader (Digital-8-2-U) is used to load the program.
- 4.2 Calling Sequence: N/A
- 4.3 Switch Settings: N/A
- 4.4 Start up and/or Entry: Load address 1600₈, program halts, set pen, press 'CONTINUE'.

5. RESTRICTIONS

The maximum size plot is 31 inches (width of plotter) by 40.96 in.

6. DESCRIPTION

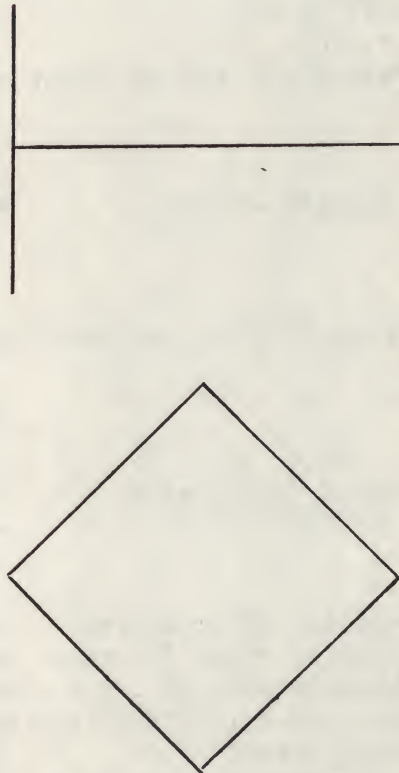
- 6.1 Discussion: The program plots plain XY co-ordinates from paper tape input by H.S. reader. No scaling or other functions are performed. The data tape must therefore be generated in the following form. Total co-ordinates (in increments of 1/100 inch) follow each other, separated by commas. No leader is required, e.g., 0, 0, 100, 100, 0, 0, would plot a diagonal line about an inch long and return to the point of beginning, all with the pen down, the co-ordinates representing x, y, x, y, x, y. "P" replacing a comma after the Y co-ordinate will cause the pen to move to the new position in the "up" state. "K" following "P" or "comma" will halt the program with the present position of the pen retained in the plotting subroutine. "J" or "#" used as above will initialize the plotter and halt. All other alphamerics are ignored.
- 6.2 Examples and/or Applications: Given in Fig. 1

7. METHODS

The program contains PLOTX subroutine as corrected by R. Richards.

INPUT TAPE: 0, 0, 400, 200P500, 300, 400, 400, 300, 300, 400, 200K
500, 450P500, 600, 500, 525P300, 525, 0, OP#

From origin, plots diamond, halts with co-ords in
storage, press CONTINUE, plots T, returns to origin,
initializes plotter, halts.



ORIGIN +

Fig. 1

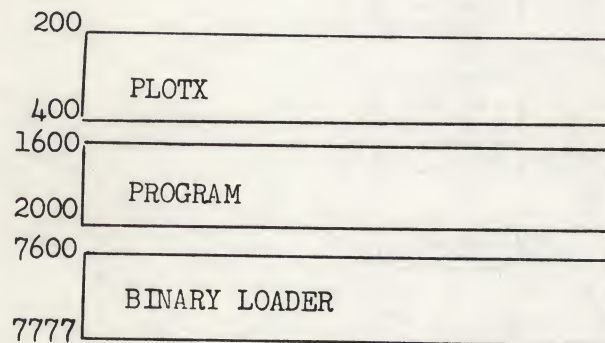
8. FORMAT

8.1 Input Data: See 6.1 and 6.2 for example

9. EXECUTION TIME N/A

10. PROGRAM

10.1 Core Map:



10.2 Dimension List: N/A

10.3 Marco, Parameter and Variable Lists: With program listing.

10.4 Program Listing: Attached at end of program write-up.

11. DIAGRAMS

11.1 Flow Chart: Shown in Fig. 2

12. REFERENCES

12.1 Other Library Programs

12.1.1 PLOTX (Digital 8-12-U)

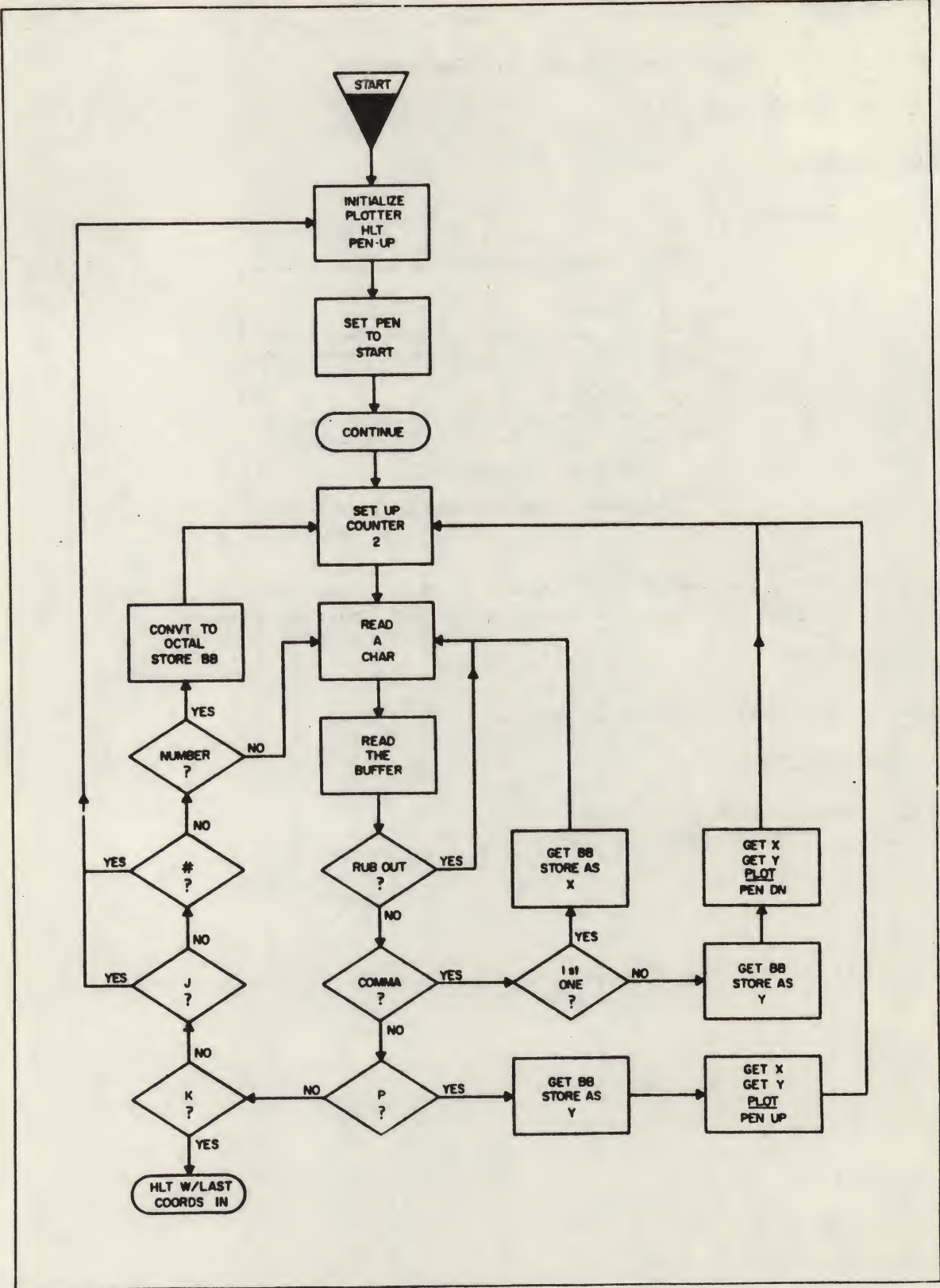


Figure 2

0222	3361	DCA PLOTPX	/ 0 TO X CO-ORDINATE
0223	3362	DCA PLOTNX	/0 TO Y CO-ORDINATE
0224	3363	DCA PLOTNY	
0225	4370	JMS PLOTWT	
0226	5600	JMP I PLOTX	
		8-12-U	
		ARGUMENTS	
0227	1362	TAD PLOTNX	/FETCH PREVIOUS X CO-ORDINATE
0230	7141	CIA CLL	
0231	1600	TAD I PLOTX	/FORM NX-NPX
0232	7420	SNL	/L=0 NX LESS THAN NPX
0233	7041	CIA	/ABSOLUTE VALUE OF DIFFERENCE
0234	3364	DCA PLOTDX	
0235	7004	RAL	/SAVE SIGN BIT
0236	3367	DCA PLOTMV	/SET NEW
0237	1600	TAD I PLOTX	/PREVIOUS X
0240	3362	DCA PLOTNX	/INCREMENT POINTER
0241	2200	ISZ PLOTX	/FETCH PREVIOUS Y CO-ORDINATE
0242	1363	TAD PLOTNY	
0243	7141	CIA CLL	
0244	1600	TAD I PLOTX	/FORM NY-NPY
0245	7420	SVL	/ LESS THAN =0 NPY LESS THAN NY
0246	7041	CIA	/ABSOLUTE VALUE OF DIFFERENCE
0247	3365	DCA PLOTDY	/SAVE SIGN BIT
0250	1367	TAD PLOTMV	/BIT 10(1)= DRUM-DOWN(POSITIVE)
0251	7004	RAL	/BIT 11(1)=PEN-LEFT (POSITIVE)
0252	3367	DCA PLOTMV	/SET NEW
0253	1600	TAD I PLOTX	/PREVIOUS Y
0254	3363	DCA PLOTNY	/INCREMENT POINTER
0255	2200	ISZ PLOTX	
0256	1364	TAD PLOTDX	
0257	7141	CIA CLL	
0260	1365	TAD PLOTDY	/L=0 DELTA Y LESS THAN DELTA X
0261	7620	SVL CLA	
0262	5275	JMP PLOT2	/REVERSE NUMBERS
0263	1364	TAD PLOTDX	
0264	3366	DCA PLOTNA	
0265	1365	TAD PLOTDY	
0266	3354	DCA PLOTDX	
0267	1366	TAD PLOTNA	
0270	3365	DCA PLOTDY	
0271	7001	IAC	/SET MAJOR MOTION

/INSTRUCTION

0272	0367	AND PLOTMV
0273	1342	TAD PLOTTI
0274	5300	J4P .+4
		3-12-U
		/DIGITAL
		/PAGE 3
		PLOT2,
0275	1367	TAD PLOTMV
0276	7110	CLL RAR
0277	1345	TAD PLOTT2
0300	3355	DCA PLOTNA
0301	1766	TAD I PLOTVA
0302	3340	DCA PLOT4
0303	1365	TAD PLOTDY
0304	7640	SZA CLA
0305	5310	JMP .+3
0306	1766	TAD I PLOTNA
0307	5314	J4P .+5
0310	1367	TAD PLOTMV
0311	1350	TAD PLOTT3
0312	3367	DCA PLOTMV
0313	1767	TAD I PLOTMV
0314	3334	DCA PLOTDR
0315	1365	TAD PLOTDY
0316	7041	CIA
0317	3355	DCA PLOTDY
0320	1364	TAD PLOTDX
0321	7040	CMA
0322	3367	DCA PLOTMV
0323	1364	TAD PLOTDX
0324	7110	CLL RAR
0325	2367	ISZ PLOTMV
0326	7410	SKP I PLOTX
0327	5600	J4P I PLOTX
0330	7100	CLL
0331	1355	TAD PLOTDY
0332	7430	SZL
0333	5340	JMP PLOT4
0334	0000	C
0335	1364	TAD PLOTDX
0336	4370	J4S PLOTWT
0337	5325	J4P PLOT3
0340	0000	C
0341	5336	JMP .-3
0342	0343	.+1

/SET COMBINED MOTION

/ALL DONE

/SINGLE MOTION
/COMBINED MOTION

1616	3350	DCA CC	/LOC OF START LIST REJECTS
1617	1371	TAD MROLO	
1620	3354	DCA CHAR	
1621	7000	NOP	
1622	7000	NOP	
1623	1350	TAD CC	
1624	1754	TAD I CHAR	
1625	7650	SVA CLA	
1626	5207	JMP RED	
1627	7000	NOP	/IT IT A REJECT
1630	7000	NOP	
1631	7000	NOP	
1632	7000	NOP	
1633	7000	NOP	
1634	1350	TAD CC	
1635	1363	TAD MCOM	
1636	7650	SVA CLA	
1637	5305	JMP X	/IS IT CONMA
1640	1350	TAD CC	/YES
1641	1364	TAD MP	/NO
1642	7650	SVA CLA	
1643	5330	JMP XP	/IS IT P
1644	1350	TAD CC	/YES
1645	1365	TAD MK	/NO
1646	7650	SVA CLA	
1647	5345	JMP END	/IS IT K
1650	1350	TAD CC	//YES
1651	1366	TAD MJ	
1652	7650	SVA CLA	
1653	5201	JMP PLOTCO+1	/IS IT J
1654	1350	TAD CC	/YES
1655	1367	TAD MEP	
1656	7650	SVA CLA	
1657	5201	JMP PLOTCO+1	/IS IT EPT
1660	1350	TAD CC	/YES ENDPLOT
1661	1360	TAD M250	/0
1662	7510	SPA	/IS IT 0 OR MORE
1663	5207	JMP RED	
1664	1361	TAD MHI	
1665	7650	SVA CLA	/ IS IT 9 OR LESS
1666	5207	JMP RED	/YES IT IS A NUMBER
1667	5270	JMP MY	/CONVERT TO OCTAL
1670	7300	CLA CLL	

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 7200
 4770
 7000
 7000
 5204
 7000
 1347
 3352
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 1351
 3342
 1352
 3343
 7201
 4770
 7000
 7000

X,

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X2,
 Y2,
 XP,

XI,
 YI,

/STORE X

/STORE Y

/PLOT PEN DN

/PLOT PEN UP

TAD CC
 AND NUM
 DCA CC
 TAD BB
 RTL
 RAL
 NOP
 TAD BR
 TAD BR
 TAD CC
 DCA BR
 JMP RED
 ISZ MTR
 JMP +2
 JMP XX
 TAD BR
 DCA STORI
 DCA BR
 JMP RED
 TAD BR
 DCA STOR2
 DCA BR
 TAD STORI
 DCA X2
 TAD STOR2
 DCA Y2
 CLA
 JMS I PLOT
 NOP
 NOP
 JMP SETA
 NOP
 TAD BR
 DCA STOR2
 DCA BR
 TAD STORI
 DCA XI
 TAD STOR2
 DCA YI
 CLA IAC
 JMS I PLOT
 NOP
 NOP

Address	Instruction	Offset	Label
1744	JMP	5204	SETA
1745	HLT	7402	
1746	AA,	0000	
1747	RR,	0000	
1750	CC,	0000	
1751	STOR1,	0000	
1752	STOR2,	0000	
1753	MTR,	0000	
1754	CHAR,	0000	
1755	CNTCHR,	0000	
1756	MINS,	7773	
1757	MI,	7776	
1760	M260,	7520	
1761	MHI,	7766	
1762	NJM,	0017	
1763	MCOM,	7524	
1764	MD,	7460	
1765	MK,	7465	
1766	MJ,	7466	
1767	MEP,	7535	
1770	PLOT,	0200	
1771	MPOLO,	1772	
1772	MP0,	7401	
1773	MCR,	7563	
1774	MLF,	7566	
1775	MRL,	7571	
1776	MSP,	7540	

AA	1746
AB	1747
CC	1750
CHAR	1754
CVTCHR	1755
COM	1634
END	1745
M4	1757
M26C	1760
MHL	1775
MCOM	1763
MCR	1773
MEP	1767
MHI	1761
MINS	1756
MJ	1766
MK	1765
MLF	1774
MP	1764
MROLO	1771
MRO	1772
MSP	1776
MTR	1751
MY	1670
NUM	1762
NXT	1623
PLOT1	0227
PLOT2	0275
PLOT3	0325
PLOT4	0340
PLOTA	0220
PLOTCO	1500
PLOIDR	0334
PLOIDX	0364
PLOIDY	0365
PLOIMV	0367
PLOINA	0366
PLOINX	0362
PLOINY	0363
PLOIPN	0361
PLOT	1770
PLOTT1	0342
PLOTT2	0345

PLOTT3	0350
PLOTWT	0370
PLOTX	0200
READ	1613
RED	1607
SETA	1604
STOR1	1751
STOR2	1752
X1	1742
X2	1725
XP	1730
X	1705
XX	1714
Y1	1743
Y2	1726