

IDENTIFICATION

PRODUCT CODE: DEC-Ø8-LBASA-A-LA  
PRODUCT NAME: LISTING OF BASIC-8  
DATE: FEBRUARY 10, 1972

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/BASIC,L8E

```

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/           MAYNARD, MASS. (01754)
/
/           WRITTEN BY JACK BURNES

```

```

/           THIS BASIC IS A COMBINATION OF LAB-8/E BASIC
/           AND BK-BASIC FOR THE PDP-8. TO CREATE IT
/           FOR THE LAB-8/E SET "MACHINE=1", TO CREATE IT FOR
/           THE PDP-8 SET "MACHINE=0".

```

```

0000      MACHINE=0

```

```

/           THIS CODE OVERLAYS THE BINARY LOADER IN FIELD
/           ONE TO MAKE LAB-8/E BASIC SELF STARTING.

```

```

IFNZRO  MACHINE=

```

```

FIELD  1

```

```

+7700

```

```

JMP I  UGETWD

```

```

+6000

```

```

DCA    UTEMP
YAD    INTHLT
DCA I  INTPLC
YAD    UTEMP
SZA
JMP I  INTPLC
CIF 0F 0

```

JMP I .+1  
START

INTHLT, HLT  
INTPLC, 7700

/BASIC4,52

0000

FIELD 0

/TO HELP BINARY LOADER IN CASE HE BLOWS IT.

```
/80000 +-----+
/      | SYSTEM |
/11000 +-----+
/      | ARRAY  |
/      | SPACE  |
/      +-----+
/      | FREE   |
/      +-----+
/      | COOIFIED|
/      | BASIC  |
/      +-----+
/      | SYMBOL |
/      | TABLE |
/      +-----+
/      | LINEBUF|
/      +-----+
/      | STACK  |
/      +-----+
/      | FORLIST|
/      +-----+
/      | GOLIST |
/17756 +-----+
/      | RIM    |
/      | LOADER |
/17777 +-----+
```

```
/4200 +
/4201 -
/4302 *
/4303 /
/4404 =
/4105 =
/4106 <
/4107 >
/4110 <=
```

```
/4110  =  
/4111  >  
/4111  >>  
/4111  >>>  
/4112  <>  
/4213  (UMINUS)  
/4014  (DONE)  
/4015  ,  
/4016  ;  
/4017  )  
/4021  TO  
/4022  STEP  
/4023  (  
/4024  FN  
/4025  COS  
/4026  TAN  
/4027  ATN  
/4030  LOG  
/4031  EXP  
/4032  SQRT  
/4033  ABS  
/4034  SIN  
/4035  INT  
/4036  RND  
/4037  SIN  
/6000  (CRLF)  
/6000  \  
/6001  END  
/6002  FOR  
/6003  GOSUB  
/6004  GOTO  
/6004  THEN  
/6005  IF  
/6006  INPUT  
/6007  LET  
/6010  NEXT  
/6011  PRINT  
/6012  RETURN  
/6013  STOP  
/6014  DIM  
/6015  RESTORE  
/6017  DEF  
/6020  READ  
/6021  DATA  
/6022  (EXIT)  
/6023  (EOF)
```

```
0000  FEXIT=0000  
0040  FSNE=0040  
0050  FSEQ=0050  
0100  FSCE=0100  
0110  FSLT=0110  
0140  FSGT=0140  
0150  FSLE=0150
```

1220 FJMP#1000  
1420 FJMPI#1400  
2220 FST#2000  
2420 FSTI#2400  
3020 FLD#3000  
3400 FLDI#3400  
4000 FAO#4000  
4400 FADI#4400  
5000 F30#5000  
5400 F30I#5400  
6000 FMP#6000  
6400 FMPI#6400  
7000 FQV#7000  
7400 FQVI#7400  
8200 FWO#200  
8600 BKWD#600

6530 ADCL#6530  
6531 ADLM#6531  
6532 ADST#6532  
6533 ADRB#6533  
6534 ADSK#6534  
6535 ADSE#6535  
6536 ADLE#6536  
6537 ADR8#6537  
6050 DILC#6050  
6051 DICO#6051  
6052 DI80#6052  
6053 DILX#6053  
6054 DILY#6054  
6055 DIXY#6055  
6056 DILE#6056  
6057 DIRE#6057  
6134 CLEN#6134  
6133 CLAB#6133  
6132 CLOE#6132  
6130 CLZE#6130  
6131 CLSK#6131  
6137 CLCA#6137  
6135 CLSA#6135  
6136 CLBA#6136

```

00000 2000      0
00001 5400      JMP I    .+1
00002 6420      INTER

00003 2000  ARRLOC, 0
00004 0000  CODELOC,0
00005 3000  PSYMTAB,0
00006 0000  NSYMTAB,0
00007 0215  O215,   215
00010 0212  O212,   212
00011 0260  O260,   260
00012 0000  OV,     0
00013 0000  INDEX1, 0
00014 0000  INDEX2, 0
00015 0000  DISAUTO,0
00016 0000  AC3,    0
00017 0000  AC2,    0
00020 0000  AC1,    0
00021 0000  OP3,    0
00022 0000  OP2,    7
00023 0000  OP1,    L
00024 0000  ACS,    0
00025 0000  ACE,    0
00026 0000  OPS,    0
00027 0177  O177,   177
00030 0000  OPE,    0
00031 0000  TMP,    0
00032 7201  PGETCH, GETCH
00033 0741  PPUTCH, PUTCH
00034 0000  DIMFLAG,0
         4435  FENTER=JMS I ,JFPT
00035 4200
00036 0000  PDL,     0
00037 7512  PLINBUF, LINBUF
00040 0266  MLINBUF, -LINBUF
00041 0135  MENOLIN, -ENDLIN
00042 0000  PRTEMP, 0
00043 0000  DECEXP, 0
00044 5335  PNUMBUF, NUMBUF
00045 0000  LOCCYR, 0
00046 0000  READLOC,0
00047 7363  PARGERR, ARGERR
00050 0000  WORD,    0
00051 0240  O240,   240
00052 0000  LINENO, 0
00053 0000  GOTEMP, 0
00054 7740  O7740,  7740
00055 7770  O7770,  7770
00056 0000  EPTR,    0
00057 0000  FPTR,    0
00060 0000  GPTR,    0
00061 0000  HPTR,    0
00062 0002  O2,     2
00063 0000  FORCT,  0

```

/INTERUPT ROUTINES,  
/UP, UP AND AWAY,

```

00064 0000 SNUMFLG,0
00065 2012 C12, 12
00066 2002 OLOOP, 0
00067 2020 ADDRESS,0
00070 2077 077, 77
00071 2377 0377, 377
00072 2007 07, 7
00073 0000 OPERAND,01010
00074 0000
00075 0000
00076 7501 PTEXT, XXTEXT
00077 4102 PERROR, ERROR
00100 6441 PSXERR, SXERR
00101 1004 PEVAL, EVAL
00102 1400 PGETADD,GETADDR
00103 0213 PEXECUT,EXECUTE
00104 2364 PPUSH, PUSH
00105 3551 PPOP, POP
00106 4744 PFIX, FIX
00107 1202 PGOTOPR,GJTOPR
00110 0472 PPASSCR,FASSCR
00111 1015 PGETOPR,GETOPR
00112 0341 PSTOVAR,STOVAR
00113 0311 PGETVAR,GETVAR
00114 3702 PPRINTX,PRINTXT
00115 1674 PGETBLK,GETBLK
00116 2707 PSLOOP, SLOOP
00117 5000 POUTNUM,OUTNUM
00120 2405 PEDIT, EDIT
00121 6430 PSTICKI,STICKIT
00122 3110 PNONBLN,NONBLNK
00123 3747 PPRINUM,PRINUM
00124 2603 PGETLIN,GETLIN
00125 7644 PPOLIST,POLIST
00126 0000 COLUMN, 0
00127 0000 INDEV, 0
00130 0000 OUTD2, 0
00131 0000 OUTDEV, 0
00132 0000 ODEV, 0
00133 0000 CNTLO, 0
00134 0000 NOINT, 0
00135 0000 RBSWCH, 0
00136 0000 DISB, 0
00137 7116 PRESET, RESET1
00140 7465 SPECINT,CCINTK
00141 7326 PCOMT, COMT
00142 7146 DELOUT, OUTDEL
00143 0360 CNCLR, CLRCNT
00144 6413 SPLEFT, RMLEFT
00145 0000 PTEN, TEN
00146 4600 PANORM, ANORM
00147 4402 PAR1, AR1
00150 4654 PAL1, AL1
00151 2014 ONE, 2014
00152 0000 ZERO, 01010

```

/THIS PREVENTS INTERRUPTS DURING CRITICAL TIMES.



```

00153 0000
00154 0000
00155 0200 0200, 200
00156 0000 FPFLAG, 0
00157 4035 POADD, OADD
00160 0004 04, 4
00161 2330 PLINFIX,LINFIX
00162 7745 07745, 7745
00163 6400 PCHKFIT,CHKFIT
00164 7725 PGOLIST,GOLIST
00165 0000 GSBPTR, 0
0001 GET#1
4566 ISIT#JMS I ,JXISIT/XGISIT
00166 4073
00167 4066
4570 MUSTBE#JMS I ,JXMUST/XGMUST
00170 7352
00171 7345
00172 7563 PLBEGIN,LOBEGIN
00173 0214 MLBEGIN,-LBEGIN-1
00174 0074 MLEND, -ENDPOL
00175 4104 PISITLI,ISITLIT
    
```

```

0200 PAGE
0177 *-1
    
```

```

00177 0000 GETWD, 0
00200 1445 TAD I LOCCTR
00201 3050 DCA WORD
00202 2045 ISZ LOCCTR
00203 5577 JMP I GETWD
00204 0209 PLETD, LETDO
00205 4570 LETDO, MUSTBE /'##'
00206 3673 3673
00207 4501 JMS I PEVAL
00210 4570 MUSTBE /'(CR) OR '\
00211 2000 2000
00212 4341 JMS STOVAR
00213 4177 EXECUTE,JMS GETWD
00214 1204 TAD PLETD
00215 3311 DCA GETVAR
00216 1450 TAD I WORD
00217 7510 SPA
00220 5231 JMP KEYWD
00221 7600 SZA CLA /IS IT A LINEND
00222 5313 JMP NOTKWD /NO
00223 1050 TAD WORD
    
```

00224	3052	DCA	LINENO	
00225	0177	JMS	GETWD	
00226	1450	TAD I	WORD	
00227	7722	SMA	CLA	
00230	5313	JMP	NOTKWD	
00231	7332	KEYWD,	CLA	ELL CML RTR
00232	1450	TAD I	WORD	
00233	7420	SNL		/IS IT A STATEMENT WORD
00234	5500	JMP I	PSXERR	/NO
00235	1240	TAD	SJUMP	
00236	3237	DCA	.*1	
00237	7402	HLT		
00240	5641	SJUMP,	JMP I	.*1
00241	0213		EXECUTE	
00242	2567		END	
00243	0413		FOR	
00244	0505		GOSUB	
00245	0517		GOTO	
00246	0375		IF	
00247	4007		INPUT	
00250	0312		LET	



```

00311 0000 GETVAR, 0
00312 4177 LET, JMS GETWD
00313 4570 NOTKWD, MUSTBE /A VARIABLE
00314 7000 7000
00315 1252 TAO WORD
00316 3343 OCA VAR
00317 3344 OCA SSONE
00320 3345 OCA SSTWO
00321 4567 GET+ISIT /('
00322 3755 3755
00323 5711 JMP I GETVAR /NO
00324 4501 JMS I PEVAL
00325 4506 JMS I PFIX
00326 3344 OCA SSONE
00327 4566 ISIT /', '
00330 3763 3763
00331 5335 JMP NOCOMMA /NO
00332 4501 JMS I PEVAL
00333 4506 JMS I PFIX
00334 3345 OCA SSTWO
00335 4570 NOCOMMA, MUSTBE /')'
00336 3761 3761
00337 4177 JMS GETWD
00340 5711 JMP I GETVAR
00341 0000 STOVAR, 0
00342 4502 JMS I PGETADDR
00343 0000 VAR, 0
00344 0000 SSONE, 0
00345 0000 SSTWO, 0
00346 4435 FENTER
00347 2467 FBTI ADDRESS
00350 0000 FEXIT
00351 5741 JMP I STOVAR
00352 4477 FNERR, JMS I PERROR
00353 0625 TEXT 'FUNCTION'
00354 1603
00355 2411
00356 1716
00357 0000
00360 0000 CLR CNT, 0 /ROUTINE WHICH CHECKS STATUS OF CONTROL C FLAG.
00361 7201 CLA IAC
00362 1134 TAO NOINT /WAS IT SET TO -1?
00363 7650 SNA CLA
00364 5767 JMP I PBOMB /YEP, GIVE STOP MESSAGE,
00365 3134 OCA NOINT /NOPE, RESET IT,
00366 5760 JMP I CLR CNT /AND EXIT

00367 6670 PBOMB, CNTLCR

00370 4477 SPACERR, JMS I PERROR
00371 2417 TEXT 'TOO-BIG'

```

00372 1755  
 00373 0211  
 00374 2700

```

00375 4501 IF, JMS I PEVAL
00376 4435 FINITER
00377 2873 FJT OPERAND
00400 0000 FEXIT
00401 4570 MUSTBE /*THEN*/
00402 1774 1774
00403 1073 TAD OPERAND
00404 7750 SPA SNA CLA
00405 5267 JMP SKIPIT
00406 4567 GET+18IT /*A LINENO
00407 0000 0000
00410 5612 JMP I XEXECU
00411 5320 JMP GOTO+1
00412 0214 XEXECU, EXECUTE+1
00413 4571 FOR, GET+MUSTBE /*A VARIABLE
00414 7000 7000
00415 4357 JMS FINDIT
00416 5235 JMP NOTHERE
00417 7201 CLA IAC
00420 1013 TAD INDEX1
00421 3014 DCA INDEX2
00422 7240 CLA CMA
00423 1013 TAD INDEX1
00424 3013 DCA INDEX1
00425 5232 JMP INLUFF
00426 1414 LUFF, TAD I INDEX2
00427 3013 DCA I INDEX1
00430 1414 TAD I INDEX2
00431 3413 DCA I INDEX1
00432 2053 INLUFF, ISZ GOTEMP
00433 5226 JMP LUFF
00434 2063 ISZ FORCT
00435 1063 NOTHERE, TAD FORCT
00436 1304 TAD OII
00437 7750 SPA SNA CLA /*CAN'T FIT 9 IN FORLIST
00440 5301 JMP FORERR
    
```

00441	1250		TAD	WORD	
00442	7041		CIA		
00443	3413		DCA I	INDEX1	
00444	1250		TAD	WORD	
00445	3252		DCA	FORVAR	
00446	4571		GET* <del>MUSTBE</del>		/'*'
00447	3673				
00450	4501		JMS I	PEVAL	
00451	4502		JMS I	PGETADDR	
00452	2000	FORVAR, 0			
00453	2000				
00454	2000				
00455	4435		FENTER		
00456	2467		FSTI	ADDRESS	
00457	0000		FEXIT		
00460	4570		MUSTBE		/'*O'
00461	3757				
00462	1045		TAD	LOCCTR	
00463	3413		DCA I	INDEX1	
00464	7240		CLA CMA		
00465	1063		TAD	FORCT	
00466	3063		DCA	FORCT	
00467	4671	SKIPIT, JMS I	PIGNORE		/LOOK FOR "\ " OR C.R.
00470	5503	JMP I	PEXECUTE		/AND EXECUTE THE NEXT STATEMENT.
00471	2115	PIGNORE, IGNORE			
00472	2000	PASSCR, 0			/THIS LOOKS FOR A REAL C.R.
00473	4671	JMS I	PIGNORE		/LOOK FOR "\ " OR C.R.
00474	2050	ISZ	WORD		
00475	4566	ISIT			
00476	4100				/A REAL C.R. ?
00477	5273	JMP	,=4		/NOPE, A SLASH.
00500	5672	JMP I	PASSCR		/AND RETURN TO CALLER.

```

00501 4477 FORERR, JMS I  PERROR
00502 0617          TEXT 'FOR'
00503 2200
00504 0011 011,    11
00505 4177 GOSUB,  JMS      GETWD
00506 4332          JMS      GOBOTH
00507 1165          TAD      GSBPTR
00510 1325          TAD      MG8BEND
00511 7650          SNA  CLA
00512 5326          JMP      DEEPERR
00513 1045          TAD      LOCCTR
00514 3565          DCA  I   GSBPTR
00515 2165          ISZ      GSBPTR
00516 5321          JMP      GOTO+2
00517 4177 GOTO,   JMS      GETWD
00520 4332          JMS      GOBOTH
00521 2053          ISZ      GOTEMP
00522 1453          TAD  I   GOTEMP
00523 3045          DCA      LOCCTR
00524 5503          JMP  I   PEXECUTE
00525 0023 MG8BEND, =G8BEND
00526 4477 DEEPERR, JMS I  PERROR
00527 0717          TEXT 'GOSUB'
00530 2325
00531 0200
00532 0000 GOBOTH, 0
00533 4570          MUSTBE          /A LINENO
00534 0000          0000
00535 1050          TAD      WORD
00536 3053          DCA      GOTEMP
00537 2050          ISZ      WORD
00540 4566          ISIT          /DEFINED
00541 0000          0000
00542 5350          JMP      ISITDF
00543 4477          JMS  I   PERROR
00544 1411          TEXT 'LINENO'
00545 1605
00546 1617
00547 0000
00550 4571 ISITDF, GET+MUSTBE  /(CR) OR '\
00551 2000          2000
00552 5732          JMP  I   GOBOTH
00553 0000 VARTEMP, 07010
00554 0000
00555 0000
00556 7704 PXFORLI, FORLIST-1
00557 0000 FINDIT, 0
00560 1063          TAD      FORCT
00561 3053          DCA      GOTEMP
00562 1356          TAD      PXFORLIST
00563 3013          DCA      INDEX1
00564 5372          JMP      INLOOP
00565 1413 FINDLUP, TAD I   INDEX1
00566 1050          TAD      WORD

```

00567	7650		SMA CLA	
00570	5375		JMP	FOUND
00571	2213		ISZ	INDEX1
00572	2253	INLOOP,	ISZ	GOTEMP
00573	5365		JMP	FINDLUP
00574	5757		JMP I	FINDIT
00575	2357	FOUND,	ISZ	FINDIT
00576	5757		JMP I	FINDIT
	2600		PAGE	
00600	4571	NEXT,	GET+MUSTBE	/A VARIABLE
00601	7000		7000	
00602	4672		JMS I	PFINDIT
00603	5273		JMP	NEXTERR
00604	1050		TAD	WORD
00605	3237		DCA	NEXTVAR
00606	4571		GET+MUSTBE	/(CR) OR '\'
00607	2000		2000	
00610	1045		TAD	LOCCTR
00611	3271		DCA	LOCTEMP
00612	1413		TAD I	INDEX1
00613	3045		DCA	LOCCTR
00614	4901		JMS I	PEVAL
00615	4435		FENTER	
00616	2303		FST+FWD+FORLIM=.	
00617	0000		FEXIT	
00620	4566		ISIT	/(CR) OR '\'
00621	2000		2000	
00622	5226		JMP	TRYPSTEP /NO
00623	4435		FENTER	
00624	3151		FLD	ONE
00625	1207		FJMP+FWD+GOTSTEP=.	
00626	4570	TRYPSTEP,	MUSTBE	/'STEP'
00627	3756		3756	
00630	4501		JMS I	PEVAL
00631	4570		MUSTBE	/(CR) OR '\'
00632	2000		2000	
00633	4435		FENTER	
00634	2270	GOTSTEP,	FST+FWD+FORSTEP=.	
00635	0000		FEXIT	
00636	4502		JMS I	PGETADDR
00637	0000	NEXTVAR,	0	
00640	0000		0	
00641	0000		0	
00642	4435		FENTER	
00643	3467		FLDI	ADDRESS
00644	4260		FAO+FWD+FORSTEP=.	
00645	2672		FST+BKWD+.=VARTEMP	
00646	5253		FSB+FWD+FORLIM=.	
00647	0000		FEXIT	
00650	1024		TAD	ACS
00651	1324		TAD	FORSTEP
00652	7700		SMA CLA	
00653	1020		TAD	AC1



```

02654 7640          SZA CLA
02655 5263          JMP      FORDONE
02656 4435          FENTER
02657 3724          FLD+BXWO+,-=VARTEMP
02662 2467          FSTI   ADDRESS
02661 2000          FEXIT
02662 5503          JMP I   PEXECUTE
02663 1271  FORDONE,TAD   LOCTEMP
02664 3045          OCA    LOCCTR
02665 2063          ISZ   FORCT
02666 2053          ISZ   GOTEMP
02667 5265          JMP      ,=-2
02672 5503          JMP I   PEXECUTE
02671 0000  LOCTEMP,0
02672 0557  PFINDIT,FINDIT
02673 4477  NEXTERR,JMS I  PERROR
02674 1605          TEXT 'NEXT'
02675 3024
02676 0000
02677 4571  RETURN, GET+MUSTBE /((CR) OR '\
02720 2000          ,000
02701 1165          TAD    GSBPTR
02702 1320          TAD    MGOLIST
02703 7650          SNA CLA
02704 5313          JMP    RETNERR
02705 7240          CLA CMA
02706 1165          TAD    GSBPTR
02707 3165          OCA    GSBPTR
02710 1565          TAD I   GSBPTR
02711 3045          OCA    LOCCTR
02712 5503          JMP I   PEXECUTE
02713 4477  RETNERR,JMS I  PERROR
02714 2205          TEXT 'RETURN'
02715 2425
02716 2216
02717 0000
02720 0053  MGOLIST,-GOLIST
02721 0000  FORLIM, 01010
02722 0000
02723 0000
02724 0000  FORSTEP,010
02725 0000
02726 0000  SGN,      0
02727 4435          FENTER
02730 0100          FSSE
02731 3205          FLD+FWO+MNSONE-,
02732 0150          FSLE
02733 3151          FLD    ONE
02734 0000          FEXIT
02735 5726          JMP I   SGN
02736 6014  MNSONE, 60141010
02737 0000
02740 0000
02741 0000  PUTC,   0
02742 3326          OCA    SGN

```

22743	1326		TAD	SGN
22744	2027	PCCUNT,	AND	0177
22745	1374		TAD	07763A
22746	7640		SZA	CLA
22747	5357		JMP	PNOCR
22750	1344		TAD	PCCUNT
22751	1126		TAD	COLUMN
22752	3237		DCA	NEXTVAR
22753	3126		DCA	COLUMN

/IS IT A C.R.  
 /NOPE.  
 /ADD IN EXTRA PLACES FOR GOOD LUCK.  
 /SAVE COLUMN POSITION

```

00754 1237 TAD NEXTVAR
00755 0376 AND PUTXRA
00756 7110 CLL RAR
00757 7170 PNOCR, CLL CML CMA RAR
00760 3237 DCA NEXTVAR
00761 1326 TAD SGN
00762 0375 AND 0140A
00763 7440 SZA
00764 1365 TAD 07640A
00765 7640 07640A, SZA CLA
00766 2126 ISZ COLUMN
00767 1326 TAD SGN
00770 4777 JMS I JPUTCH
00771 2237 ISZ NEXTVAR
00772 5370 JMP .-2
00773 5741 JMP I PUTCH
    
```

```

/REGET WHERE WE WERE.
/ARE WE INSERTING NULL CHARACTERS?
/NOW DIVIDE BY 2,
/AND NOW INVERT AND DIVIDE BY 2 AGAIN,
/SAVE FOR LATER USE, THIS IS NULL COUNTER.
/RECALL THE CHARACTER.
    
```

```

/INCREMENT THE COUNTER
/GIVE NULLS UNTIL IT'S SATISFIED.
    
```

```

00774 7763 07763A, 7763
00775 0140 0140A, 140
00776 0000 PUTXRA, 1
00777 7000 JPUTCH, PUTER
    
```

```

/NULL AFTER C,R, WORD.
    
```

1000 PAGE

```

01000 4603 START, JMS I XRESTA
01001 5602 JMP I .+1
01002 2440 SCRATCH
01003 7407 XRESTA, ISET

01004 0000 EVAL, 0
01005 4177 JMS GETWD
01006 1204 TAD EVAL
01007 4504 EVALGO, JMS I PPUSH
01010 1363 TAD 04014
01011 4504 JMS I PPUSH
01012 5216 JMP GETOPR+1
01013 1364 ISUMIN, TAD 04213
01014 4504 JMS I PPUSH
01015 4177 GETOPR, JMS GETWD
01016 4566 ISIT
01017 3577 3577
01020 7410 SKP
01021 5213 JMP ISUMIN
01022 4566 ISIT
01023 3600 3600
01024 7410 SKP
01025 5215 JMP GETOPR
    
```

```

/REST FLAGS AND DEVICES.
    
```

'''

'''

01026	4566	ISIT	/'(	
01027	3755	3755		
01030	5235	JMP	NOPAREN /NO	
01031	4224	JMS	EVAL	
01032	4570	MUSTBE	/'(	
01033	3761	3761		
01036	5527	JMP I	PGOTOPR	
01035	4566	NOPAREN, ISIT	/A VARIABLE	
01036	7000	7000		
01037	5305	JMP	NOTVAR /NO	
01040	3276	OCA	ONESS	
01041	3277	OCA	TWOSS	
01042	1050	TAD	WORD	
01043	3275	OCA	WOTEMP	
01044	4567	GET+ISIT	/'(	
01045	3755	3755		
01046	5274	JMP	GOTSS /NO	
01047	1275	TAD	WOTEMP	
01050	4504	JMS I	PPUSH	
01051	4204	JMS	EVAL	
01052	4566	ISIT	/'(	
01053	3763	3763		
01054	5264	JMP	ONEDIM	
01055	4506	JMS I	PFIX	
01056	4504	JMS I	PPUSH	
01057	4204	JMS	EVAL	
01060	4506	JMS I	PFIX	
01061	3277	OCA	TWOSS	
01062	4505	JMS I	PPOP	
01063	5266	JMP	.,+3	
01064	3277	ONEDIM, OCA	TWOSS	
01065	4506	JMS I	PFIX	
01066	3276	OCA	ONESS	
01067	4570	MUSTBE	/'(	
01070	3761	3761		
01071	4505	JMS I	PPOP	
01072	3275	OCA	WOTEMP	
01073	4177	JMS	GETWD	
01074	4502	GOTSS, JMS I	PGETADDR	
01075	0000	WOTEMP, 0		
01076	0000	ONESS, 0		
01077	0000	TWOSS, 0		
01100	4435	FENTER		
01101	3467	FLDI	ADDRESS	
01102	0000	FEXIT		
01103	5704	JMP I	.,+1	
01104	1203	OPONE		
01105	4575	NOTVAR, JMS I	PISITLIT /ISIT A LITERAL	
01106	5310	JMP	ISITFUN /NO	
01107	5507	JMP I	PGOTOPR /IT IS IN THE AC NOW	
01110	1450	ISITFUN, TAD I	WORD	
01111	1362	TAD	03754	/-0024, WHICH IS BEGINNING OF FUNCTIONS.
01112	7510	SPA		/IS IT A LEGAL FUNCTION?
01113	5500	JMP I	PSXERR	/NO, EXIT WITH MESSAGE,
01114	7450	SNA		/WAS IT 'FN'

```

01115 4177      JMS      GETWD      /YES,SKIP OVER LETTER
01116 4504      JMS I    PPUSH
01117 4571      GET+MUSTBE  /'(
01122 3755      3755
01121 4204      JMS      EVAL
01122 4505      JMS I    PPOP
01123 1330      TAD      FJUMP
01124 3325      DCA      .+1
01125 7402      HLT
01126 5727      JMP I    .+1
01127 1200      FNEXIT
01130 4731      FJUMP,  JMS I    FUNTAB
01131 5453      FUNTAB,  FN
01132 5616      COS
01133 5600      TAN
01134 6200      ATN
01135 6114      LOG
01136 6000      EXP
01137 5412      SQR
01140 6425      ABS
01141 0726      SIN
01142 6434      INT
01143 5353      RND
01144 5624      SIN
01145 1761      PUTJ
01146 6441      SXERR  /POINTER TO PUT CHAR ROUTINE,
01147 6441      SXERR  /FOR THE MISC, FUNCTIONS.
01150 6441      SXERR

01151 1770      GETJ      /GET A CHAR FROM THE TTY.

IFNZRO MACHINE<

ADC      /"NORMAL" A=D CONVERSION RETURN.
TST     /"TEST CHARACTER BUFFER",
TIM     /TIME (# OF CLOCK TICKS),

>

IFZERO  MACHINE<

01152 6441      SXERR
01153 7421      TST
01154 6441      SXERR

>

01155 5547      TAB      /TAB FUNCTION IS IMPLEMENTED.
01156 6441      SXERR  /UNIMPLEMENTED USER FUNCTION.

IFNZRO MACHINE<

CLS     /GET STATUS OF LAST TICK.

```

01115	4177	JMS	GETWD	/YES, SKIP OVER LETTER
01116	4504	JMS I	PPUSH	
01117	4571	GET+MUSTBE		/'('
01122	3755	3755		
01121	4204	JMS	EVAL	
01122	4505	JMS I	PPOP	
01123	1330	TAD	FJUMP	
01124	3325	DCA	.+1	
01125	7402	HLT		
01126	5727	JMP I	.+1	
01127	1200	FNEXIT		
01130	4731	FJUMP, JMS I	FUNTAB	
01131	5453	FUNTAB, FN		
01132	5616	COB		
01133	5600	TAN		
01134	6200	ATN		
01135	6114	LOG		
01136	6000	EXP		
01137	5412	SQR		
01140	6425	ABS		
01141	0726	SIN		
01142	6434	INT		
01143	5353	RND		
01144	5624	SIN		
01145	1761	PUTJ		/POINTER TO PUT CHAR ROUTINE,
01146	6441	SXERR		/FOR THE MISC. FUNCTIONS.
01147	6441	SXERR		
01150	6441	SXERR		
01151	1770	GETJ		/GET A CHAR FROM THE TTY.
		IFNZRO	MACHINE<	
		ADC		/"NORMAL" A-D CONVERSION RETURN,
		TST		/"TEST CHARACTER BUFFER",
		TIM		/TIME (# OF CLOCK TICKS).
		IFZERO	MACHINE<	
01152	6441	SXERR		
01153	7421	TST		
01154	6441	SXERR		
01155	5547	TAB		/TAB FUNCTION IS IMPLEMENTED.
01156	6441	SXERR		/UNIMPLEMENTED USER FUNCTION.
		IFNZRO	MACHINE<	
		CLS		/GET STATUS OF LAST TICK,

```

01200 4570 FNEXIT, MUSTBE /030
01201 3761 3761
01202 4177 GOTOPR, JMS GETWD
01203 4505 OPOONE, JMS I PPOP
01204 3066 OCA OLDOP
01205 1450 TAD I WORD
01206 0272 AND 0700
01207 7650 SNA CLA
01210 5220 JMP ITSOP
01211 1450 TAD I WORD
01212 0275 AND 07077
01213 1273 TAD 03755
01214 7100 CLL
01215 1366 TAD 023
01216 7620 SNL CLA
01217 5500 JMP I PSXERR
01220 1066 ITSOP, TAD OLDOP
01221 0272 AND 0700
01222 3271 OCA OTEMP
01223 1450 TAD I WORD
01224 0272 AND 0700
01225 7041 CIA
01226 1271 TAD OTEMP
01227 7700 SNA CLA
01230 5247 JMP DOITNOW
01231 1066 TAD OLDOP
01232 4504 JMS I PPUSH
01233 4435 FENTER
01234 2073 FST OPERAND
01235 0000 FEXIT
01236 1073 TAD OPERAND
01237 4504 JMS I PPUSH
01240 1074 TAD OPERAND+1
01241 4504 JMS I PPUSH
01242 1075 TAD OPERAND+2
01243 4504 JMS I PPUSH
01244 1450 TAD I WORD
01245 4504 JMS I PPUSH
01246 5511 JMP I PGETOPR
01247 1066 DOITNOW, TAD OLDOP
01250 0070 AND 077
01251 1274 TAD 07764A
01252 7450 SNA
01253 5363 JMP UDOPER
    
```

01250	7021	IAC	
01255	7652	SNA CLA	
01256	5321	JMP	UMOPER
01257	1266	TAD	OLCOP
01262	2270	AND	077
01261	1276	TAD	OJUMP
01262	3271	DCA	OTEMP
01263	4505	JMS I	PPOP
01264	3075	OCA	OPERAND+2
01265	4505	JMS I	PPOP
01266	3074	OCA	OPERAND+1
01267	4505	JMS I	PPOP
01270	3073	DCA	OPERAND
01271	7402	OTEMP, HLT	
01272	0700	0700, 700	
01273	3755	03755, 3755	
01274	7764	07764A, 7764	
01275	7077	07077, 7077	
01276	5677	OJUMP, JMP I	.+1
01277	1312	PLUS	
01300	1316	MINUS	
01301	1327	STAR	
01302	1332	SLASH	
01303	5740	UPARRX	/OR 'UPARROW' IF NO EXTENDED PMS
01304	1342	RELATE	
01305	1342	RELATE	
01306	1342	RELATE	
01307	1342	RELATE	
01310	1342	RELATE	
01311	1342	RELATE	
01312	4435	PLUS, FENTER	
01313	4073	FAD	OPERAND
01314	0000	FADEXT, FEXIT	
01315	5203	JMP	OPDONE
01316	4435	MINUS, FENTER	
01317	5073	FSS	OPERAND
01320	0000	FEXIT	
01321	1020	UMOPER, TAD	AC1
01322	7640	SZA CLA	
01323	7330	CLA CLL	CML RAR
01324	1024	TAD	ACS
01325	3024	DCA	ACS /DIRECT REF TO FLOATING AC
01326	5203	JMP	OPDONE
01327	4435	STAR, FENTER	
01330	6073	FMP	OPERAND
01331	1615	FJMP+BKWD+,-FADEXT	
01332	4435	SLASH, FENTER	
01333	2204	FST+FWD+SLSHTMP-	
01334	3073	FLO	OPERAND
01335	7202	FDV+FWD+SLSHTMP-	
01336	1622	FJMP+BKWD+,-FADEXT	
01337	0000	SLSHTMP,01010	
01340	0000		
01341	0000		
01342	1066	RELATE, TAD	OLCOP



01343	1367	TAD	CONST	
01344	3353	DCA	THESKIP	
01345	6201	CDF	0	/***** 8 K INSERT.
01346	1753	TAD I	THESKIP	
01347	6211	CDF	10	/***** 8 K INSERT.
01350	3353	DCA	THESKIP	
01351	4435	FENTER		
01352	5073	FSD	OPERAND	
01353	7402	THESKIP,HLT		
01354	1204	FJMP+FWD+4		
01355	3151	FLD	ONE	
01356	0000	FEXIT		
01357	5203	JMP	OPDONE	
01360	3152	FLD	ZERO	
01361	0000	FEXIT		
01362	5203	JMP	OPDONE	
01363	4505	UOPER, JMS I	PPOP	
01364	3066	DCA	OLDOP	
01365	5466	JMP I	OLDOP	
01366	0023	023,	23	
01367	5263	CONST,	,-4104	
01370	0050	FSED	/ 0	
01371	0140	FSGT	/ 4	
01372	0110	FSLT	/ 8	
01373	0100	FSGE	/ 40	
01374	0150	FSLE	/ 20	
01375	0040	FSNE	/ 40	

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01400	0000	GETADDR,0		
01401	6201	CDF	0	/***** 8 K INSERT.
01402	1600	TAD I	GETADDR	
01403	3014	DCA	INDEX2	
01404	2200	ISZ	GETADDR	
01405	1600	TAD I	GETADDR	
01406	3362	DCA	GSS1	
01407	2200	ISZ	GETADDR	
01410	1600	TAD I	GETADDR	

01411	3363		DCA	GSS2
01412	2200		ISZ	GETADDR
01413	0211		COF	10
01414	1414		TAD I	INDEX2
01415	3067		DCA	ADDRESS
01416	2067		ISZ	ADDRESS
01417	1362		TAD	GSS1
01420	7650		SNA CLA	
01421	5260		JMP	NOSS1
01422	1014		TAD I	INDEX2
01423	7450		SNA	
01424	5261		JMP	ALLOC
01425	7140		CLL CMA	
01426	1362		TAD	GSS1
01427	7630		SZL CLA	
01430	5370		JMP	SSERR
01431	1414		TAD I	INDEX2
01432	3364		DCA	GDIM2
01433	1363		TAD	GSS2
01434	7450		SNA	
01435	5253		JMP	NOSS2
01436	7141		CLL CIA	
01437	1364		TAD	GDIM2
01440	7620		BNL CLA	
01441	5370		JMP	SSERR
01442	1362		TAD	GSS1
01443	7041		CIA	
01444	3362		DCA	GSS1
01445	7410		SKP	
01446	1364		TAD	GDIM2
01447	2362		ISZ	GSS1
01450	5246		JMP	,=2
01451	1363		TAD	GSS2
01452	3362		DCA	GSS1
01453	1362	NOSS2,	TAD	GSS1
01454	7104		CLL RAL	
01455	1362		TAD	GSS1
01456	1067		TAD	ADDRESS
01457	3067		DCA	ADDRESS
01460	5600	NOSS1,	JMP I	GETADDR
01461	2034	ALLOC,	ISZ	DIMFLAG
01462	7410		SKP	
01463	5273		JMP	ISDIM
01464	3034		DCA	DIMFLAG
01465	1363		TAD	GSS2
01466	7640		SZA CLA	
01467	1367		TAD	013
01470	3363		DCA	GSS2
01471	1367		TAD	013
01472	3362		DCA	GSS1
01473	1363	ISDIM,	TAD	GSS2
01474	7450		SNA	
01475	7201		CLA IAC	
01476	7041		CIA	
01477	3364		DCA	GDIM2

////////// B K INSERT.

01500	2134	ISZ	NOINT	/FORBID INTERUPTS NOW.
01501	7301	CLA CLL	IAC	
01502	1362	TAD	GSS1	
01503	7430	SZL		
01504	5765	JMP I	PSPACERR	
01505	2364	ISZ	GDIM2	
01506	5302	JMP	.-4	
01507	3364	DCA	GDIM2	
01510	1364	TAD	GDIM2	
01511	7124	CLL CML	RAL	
01512	7420	SNL		
01513	1364	TAD	GDIM2	
01514	3364	DCA	GDIM2	
01515	1364	TAD	GDIM2	
01516	7430	SZL		
01517	5765	JMP I	PSPACERR	
01520	4544	JMS I	SPLEFT	
01521	7410	SKP		
01522	5765	JMP I	PSPACERR	
01523	7344	CLA CLL	CMA RAL	
01524	1014	TAD	INDEX2	
01525	3014	DCA	INDEX2	
01526	1003	TAD	ARRLOC	
01527	3414	DCA I	INDEX2	
01530	1362	TAD	GSS1	
01531	3414	DCA I	INDEX2	
01532	1363	TAD	GSS2	
01533	3414	DCA I	INDEX2	
01534	7240	CLA CMA		
01535	1067	TAD	ADDRESS	
01536	3067	DCA	ADDRESS	
01537	1366	TAD	07774	
01540	3363	DCA	GSS2	
01541	1467	TAD I	ADDRESS	
01542	2067	ISZ	ADDRESS	
01543	4521	JMS I	PSTICKIT	
01544	2363	ISZ	GSS2	
01545	5341	JMP	.-4	
01546	1364	TAD	GDIM2	
01547	7041	CIA		
01550	1160	TAD	04	
01551	3364	DCA	GDIM2	
01552	4521	JMS I	PSTICKIT	
01553	2364	ISZ	GDIM2	
01554	5352	JMP	.-2	
01555	7346	CLA CLL	CMA RTL	
01556	1200	TAD	GETADDR	
01557	3200	DCA	GETADDR	
01560	4543	JMS I	CNCLR	/CHECK FOR CONTROL C.
01561	5201	JMP	GETADDR+1	
01562	0000	GSS1,	0	
01563	0000	GSS2,	0	
01564	0000	GDIM2,	0	
01565	0370	PSPACER,	SPACERR	
01566	7774	07774,	7774	

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01567 2013 013, 13 / (12) IF 1 ORG INDEXING
01570 4477 SBERR, JMS I PERROR
01571 2325 TEXT 'SUBSCRIPT'
01572 2223
01573 2322
01574 1120
01575 2400
    
```

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01576 1052 DEF, TAD LINENO
01577 3013 DCA INDEX1
01600 1413 TAD I INDEX1
01601 3220 DCA USERFN
01602 4571 GET+MUSTBE /'FN'
01603 3754 3754
01604 4571 GET+MUSTBE /A VARIABLE
01605 7000 7000
01606 4571 GET+MUSTBE /'('
01607 3755 3755
01610 4571 GET+MUSTBE /A VARIABLE
01611 7000 7000
01612 4571 GET+MUSTBE /')'
01613 3761 3761
01614 4571 GET+MUSTBE /'0'
01615 3673 3673
01616 5617 JMP I PSKIPIT
01617 0467 PSKIPIT, SKIPIT
01620 0000 USERFN, 0
01621 4570 MORERD, MUSTBE /', '
01622 3763 3763
01623 4513 READ, JMS I PGETVAR
01624 7240 CLA CMA
01625 1045 TAD LOCTR
01626 3273 DCA LOCTMP
01627 1046 TAD READLOC
01630 3045 DCA LOCTR
01631 4567 GET+ISIT / (CR) OR '\ '
01632 2000 2000
01633 7410 SKP
01634 5260 JMP SEARCH
01635 4566 ISIT /A LINENO
01636 0000 0000
01637 7410 SKP
01640 5260 JMP SEARCH
01641 4566 ISIT /', '
01642 3763 3763
01643 5267 JMP DATAERR
01644 4501 ISSOME, JMS I PEVAL
01645 7240 CLA CMA
01646 1045 TAD LOCTR
01647 3046 DCA READLOC
01650 1273 TAD LOCTMP
    
```

01651	3045	DCA	LOCCTR	
01652	4512	JMS I	PSTOVAR	
01653	4567	GET+ISIT		/(CR) OR '\'
01654	2000	2000		
01655	5221	JMP	MORERD	
01656	5503	JMP I	PEXECUTE	
01657	4177	SCHMOR, JMS	GETWD	
01660	4566	SEARCH, ISIT		/'DATA'
01661	1757	1757		
01662	7410	SKP		
01663	5244	JMP	ISSOME	
01664	4566	ISIT		/(EOF)
01665	1755	1755		
01666	5257	JMP	SCHMOR	
01667	4477	DATAERR, JMS I	PERROR	
01670	0401	TEXT	'DATA'	
01671	2401			
01672	0000			
01673	0000	LOCTMP, 0		
01674	0000	GETBLK, 0		
01675	4563	JMS I	PCHKFIT	
01676	1004	TAD	CODELOC	
01677	3045	DCA	LOCCTR	
01700	1004	TAD	CODELOC	
01701	1356	TAD	ABCDEF	
01702	3004	DCA	CODELOC	
01703	1004	TAD	CODELOC	
01704	3357	DCA	BCDEFG	
01705	1005	TAD	PSYMTAB	/UPDATE SYMBOL TABLE NOW.
01706	1356	TAD	ABCDEF	/BY ADDING IN CORRECTION FACTOR.
01707	3005	DCA	PSYMTAB	
01710	1445	GTBKLP, TAD I	LOCCTR	/MOVE TEXT NOW.
01711	2045	ISZ	LOCCTR	
01712	3757	DCA I	BCDEFG	
01713	2357	ISZ	BCDEFG	
01714	1357	TAD	BCDEFG	/NOW CHECK FOR END.
01715	7041	CIA		
01716	1005	TAD	PSYMTAB	
01717	7640	SZA CLA		
01720	5310	JMP	GTBKLP	
01721	7240	CLA CMA		
01722	1006	TAD	NSYMTAB	
01723	3006	DCA	NSYMTAB	
01724	1165	TAD	GSPTR	
01725	7040	CMA		
01726	1164	TAD	PGOLIST	
01727	3357	DCA	BCDEFG	
01730	1164	TAD	PGOLIST	
01731	3050	DCA	WORD	
01732	1356	TAD	ABCDEF	
01733	1450	TAD I	WORD	
01734	3450	DCA I	WORD	
01735	2050	ISZ	WORD	

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01736 2357      ISZ      BCDEFG
01737 5332      JMP          .-5
01740 1263      TAD          FORCT
01741 3357      DCA          BCDEFG
01742 1360      TAD          PPFORLI
01743 3050      OCA          WORD
01744 5352      JMP          .+6
01745 1356      TAD          ABCDEF
01746 1450      TAD I       WORD
01747 3450      DCA I       WORD
01750 2050      ISZ          WORD
01751 2050      ISZ          WORD
01752 2357      ISZ          BCDEFG
01753 5345      JMP          .-6
01754 1005      TAD          PSYMTAB
01755 5674      JMP I       GETBLK
01756 7774      ABCDEF,    -4
01757 0000      BCDEFG,    0
01760 7706      PPFORLI,  FORLIST+1
01761 0000      PUTJ,      0
01762 4506      JMS I      PFIX
01763 7200      CLA
01764 1016      TAD          ACS
01765 4433      JMS I      PPUTCH
01766 4546      JMS I      PANORM
01767 5761      JMP I      PUTJ

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01770 0000      GETJ,      0          /GETS A CHARACTER FROM THE TTY.
01771 4776      JMS I      PBEGFIX    /CLEAN UP THE FAC
01772 4432      JMS I      PGETCH    /PECTH A CHAR,
01773 3016      DCA          ACS      /SAVE IT, BABY!
01774 4546      JMS I      PANORM    /AND NORMALIZE AC,
01775 5770      JMP I      GETJ      /AND RETURN NOW.

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01776 3762      PBEGFIX, BEGFIX

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02000 2134      NOTNOW, ISZ      NOINT          /RESET *C SWITCH SO NO INTERRUPT NOW.
02001 2050      ISZ          WORD
02002 1450      TAD I       WORD
02003 7450      SNA
02004 5232      JMP          INSERT

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22225	3371		DCA	LOWLOC
22226	3450		DCA I	WORD
22227	1371		TAD	LOWLOC
22212	3045		DCA	LOCCTR
22211	4510		JMS I	PPASSCR
22212	1371	MOVE,	TAD	LOWLOC
22213	7041		CIA	
22214	1004		TAD	CODELOC
22215	7650		SNA CLA	
22216	5230		JMP	INSRTS
22217	7340		CLA CLL	CMA
22220	1371		TAD	LOWLOC
22221	3371		DCA	LOWLOC
22222	7340		CLA CLL	CMA
22223	1045		TAD	LOCCTR
22224	3045		DCA	LOCCTR
22225	1771		TAD I	LOWLOC
22226	3445		DCA I	LOCCTR
22227	5212		JMP	MOVE
22230	1045	INSRTS,	TAD	LOCCTR
22231	3004		DCA	CODELOC
22232	1057	INSERT,	TAD	FPTR
22233	1040		TAD	MLINBUF
22234	7040		CMA	
22235	3057		DCA	FPTR
22236	7326		CLA CLL	CHL RTL
22237	1057		TAD	FPTR
22240	7450		SNA	
22241	5313		JMP	FIXLIN
22242	7040		CMA	
22243	4563		JMS I	PCHKFIT
22244	1004		TAD	CODELOC
22245	3045		DCA	LOCCTR
22246	1437		TAD I	PLINBUF
22247	7001		IAC	
22250	3013		DCA	INDEX1
22251	1413		TAD I	INDEX1
22252	3073		DCA	OPERAND
22253	1413		TAD I	INDEX1
22254	3074		DCA	OPERAND+1
22255	4336		JMS	COMPARE
22256	5261		JMP	NOTFRST
22257	4361		JMS	SUBRA
22260	5303		JMP	TRANSF
22261	4510	NOTFRST,	JMS I	PPASSCR
22262	4336		JMS	COMPAR
22263	5261		JMP	NOTFRST
22264	1045		TAD	LOCCTR
22265	3360		DCA	LSTLOC
22266	1004		TAD	CODELOC
22267	3045		DCA	LOCCTR
22270	4361		JMS	SUBRA
22271	4177		JMS	GETWD
22272	1050	MOVLUP,	TAD	WORD
22273	3772		DCA I	PUTLOC

02074	2372		ISZ	PUTLOC
02075	4177		JMS	GETWD
02076	1360		TAD	LSTLOC
02077	7041		CIA	
02100	1045		TAD	LOCCTR
02101	7640		SZA	CLA
02102	5272		JMP	MOVLUP
02103	1037	TRANSF,	TAD	PLINBUF
02104	3060		DCA	GPTR
02105	1460	TRALUP,	TAD I	GPTR
02106	2060		ISZ	GPTR
02107	3772		DCA I	PUTLOC
02110	2372		ISZ	PUTLOC
02111	2057		ISZ	FPTR
02112	5305		JMP	TRALUP
02113	4561	FIXLIN,	JMS I	PLINFIX
02114	5520		JMP I	PEDIT

02115 0000 IGNORE, J

/THIS ROUTINE LOOKS FOR A "\ " OR A C,R.



```

02116 4567      GET+ISIT
02117 5000      5000          /TEXT?
02120 5327      JMP      NOTBAD      /NOPE.
02121 4177      JMS      GETWD
02122 1050      TAD      WORD
02123 0070      AND      077
02124 7640      SZA  CLA          /END OF TEXT?
02125 5321      JMP      ,=4          /NOPE.
02126 5316      JMP      IGNORE+1     /YEP, GET NEXT ITEM,

02127 4575  NOTBAD, JMS I  PISITLIT /IS IT A LITERAL?
02130 7410      SKP
02131 5316      JMP      IGNORE+1     /YES.
02132 4566      ISIT
02133 2000      2000          /"\" OR C.R.
02134 5316      JMP      IGNORE+1     / N O
02135 5715      JMP I  IGNORE          /YES, RETURN TO CALLER.

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02136 0000  COMPARE, 0
02137 4567      GET+ISIT      /A LINENO
02140 0000      0000
02141 5356      JMP      IAMLESS
02142 1050      TAD      WORD
02143 7001      IAC
02144 3013      DCA      INDEX1
02145 1413      TAD I  INDEX1
02146 7141      CLL  CIA
02147 1073      TAD      OPERAND
02150 7640      SZA  CLA
02151 5355      JMP      FRSTNE
02152 1413      TAD I  INDEX1
02153 7141      CLL  CIA
02154 1074      TAD      OPERAND+1
02155 7620  FRSTNE, SNL CLA /IS OPERAND<THIS LINENO
02156 2336  IAMLESS, ISZ COMPARE /YES
02157 5736      JMP I  COMPARE
02160 0000  LSTLOC, 0
02161 0000  SUBRA, 0
02162 1057      TAD      FPTR
02163 7100      CLL
02164 1004      TAD      CODELOC
02165 3004      DCA      CODELOC
02166 1004      TAD      CODELOC
02167 3372      DCA      PUTLOC
02170 5761      JMP I  SUBRA
02171 0000  LOWLOC, 0
02172 0000  PUTLOC, 0

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02173	4177	PRINT,	JMS	GETWD	/THIS INSTRUCTION MAY BE COMBINED WITH THE GET INSTRUCTION BEL
02174	7346		CLA CLL	CMA RYL	/7775=-3 FOR DEVICE CHECK.
02175	1131		TAD	OUTDEV	/MULTIPLY DEVICE BY 3.
02176	1131		TAD	OUTDEV	
02177	1131		TAD	OUTDEV	/SO THAT LPT=6, PTP=3, AND TTY=0.
02200	1341		TAD	0110	/NOW ADD IN 72, THUS TTY=72,LPT=60.
02201	3357		DCA	TWIDTH	/AND SAVE FOR FUTURE USE.
02202	4566		ISIT		/CHECK FOR FIRST COMMA, ONCE ONLY CHECK.
02203	3763		3763		
02204	5207		JMP	PRINTC	/NO. CONTINUE CHECKING.
02205	5277		JMP	PRINBLX	/YEP. GIVE BLANK, THEN TAB OVER.
02206	4177	PRINTG,	JMS	GETWD	/GET NEXT ELEMENT AFTER A TEXT ELEMENT.
02207	3345	PRINTC,	DCA	TABFLG	/RESET TAB INDICATOR.
02210	4566		ISIT		/CHECK TO SEE IF CARRIAGE RETURN.
02211	2000		2000		
02212	5216		JMP	NOPCR	/NOT A CARRIAGE RETURN. CONTINUE CHECKING.
02213	4514		JMS I	PPRINTXT	
02214	6531		CRLF		
02215	5503		JMP I	PEXECUTE	
02216	4566	NOPCR,	ISIT		/IS IT A COMMA (" , ")
02217	3763		3763		
02220	5316		JMP	PRENT	/NO. FINISH CHECKING BELOW.
02221	5303		JMP	PRINCOM	/IT IS, PROCESS THE COMMA NOW.
02222	4566	PRINTMS,	ISIT		/TEXT
02223	5000		5000		
02224	5236		JMP	NOTTXT	
02225	4177	PRINGUO,	JMS	GETWD	
02226	1050		TAD	WORD	
02227	7012		RTR		
02230	7012		RTR		
02231	7012		RTR		
02232	4260		JMS	PRINHAJ	
02233	1050		TAD	WORD	
02234	4260		JMS	PRINHAJ	
02235	5225		JMP	PRINGUO	
02236	1241	NOTTXT,	TAD	PPRINRET	
02237	5640		JMP I	PEVALGO	
02240	1007	PEVALGO,	EVALGO		
02241	2242	PPRINRE,	PRINRET		
02242	1345	PRINRET,	TAD	TABFLG	/WAS THERE A TAB PRESENT?

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02243 7640          SZA CLA
02244 5762          JMP I  TABTHR      /YEP, EXECUTE TAB CORRECTOR.
22245 1360          TAD      014      /SEE IF ROOM FOR 13 PLACES(1+12).
02246 4346          JMS     CHECKW
02247 1024          TAD      ACS
02250 7710          SPA CLA
02251 5254          JMP     ,+3
02252 1051          TAD      0240
02253 4433          JMS I  PPUTCH
02254 4517          JMS I  POUTNUM
02255 1051          TAD      0240
02256 4433          JMS I  PPUTCH
02257 5207          JMP     PRINTC      /GO BACK AND GET NEXT.
02260 0000          PRINHA,0
02261 0070          AND     077
02262 7450          SNA
02263 5206          JMP     PRINTG      /GO SKIP PAST TEXT ELEMENT AND CHECK NEXT.
02264 1326          TAD      007736
02265 7450          SNA
02266 5660          JMP I  PRINHA
02267 1062          TAD      02
02270 0070          .NO    077
02271 1051          TAD      0240
02272 3024          DCA     ACS        /SAVE CHARACTER FOR A SECOND.
02273 4346          JMS     CHECKW      /CHECK TO SEE IF IT'LL FIT ON THE LINE.
02274 1024          TAD      ACS        /RESTORE THE CHARACTER.
02275 4433          JMS I  PPUTCH
02276 5660          JMP I  PRINHA

02277 7200          PRINBLK,CLA      /MAKE SURE AC IS ZERO.
02300 1051          TAD      0240
02301 4433          JMS I  PPUTCH
02302 4346          JMS     CHECKW      /CHECK TO SEE IF ROOM FOR ONE MORE.
02303 1126          PRINCOM,TAD      COLUMN /SEE IF COLUMN ON COMMA BOUNDRY.
02304 7450          SNA
02305 5312          JMP     PRINSEM
02306 1327          TAD      07762
02307 7500          SNA
02310 5304          JMP     ,=4
02311 5277          JMP     PRINBLK      /NOPE.
                                /YEP, GIVE BLANK AND LOOP AGAIN.

02312 4567          PRINSEM,GET+ISIT /((CR) OR '\')
02313 2000
02314 7410          SKP
02315 5503          JMP I  PEXECUTE/YES
02316 4566          PRENT, ISIT      /''
02317 3762
02320 7410          SKP
02321 5312          JMP     PRINSEM /YES
02322 4566          ISIT      /''
02323 3763
02324 5222          JMP
02325 5277          JMP     PRINHS
                                PRINBLK
02326 7736          007736, 7736
02327 7762          07762, 7762
    
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02330 0000 LINFIX, 0
02331 1204          TAD      CODELOC
02332 3245          DCA      LOCCTR
02333 4177 LFXLUP, JMS      GETWD
02334 1450          TAD I    WORD
02335 7640          SZA CLA    /IS IT A LINENO
02336 5730          JMP I    LINFIX /NO
02337 2050          ISZ      WORD
02340 7240          CLA CMA
02341 1045          TAD      LOCCTR
02342 3450          DCA I    WORD
02343 4510          JMS I    PPASSCR
02344 5333          JMP      LFXLUP

02345 0000 TABFLG, 0          /TAB FOUND FLAG.

02346 0000 CHECKW, 0        /THIS ROUTINE CHECKS FOR LINE TOO LONG.
02347 1126          TAD      COLUMN /GET WHERE AT NOW.
02350 7040          CMA          /WHEREAT=NOF PLACES IN OUT CHAR.
02351 1357          TAD      TWIDTH /ADD IN WIDTH OF DEVICE.
02352 7700          SMA CLA    /TOO BIG.
02353 5706          JMP I    CHECKW /NAM, RETURN TO SENDER.
02354 4514          JMS I    PPRINTXT /YEP, GIVE C,R,L,F.
02355 6531          CRLF
02356 5706          JMP I    CHECKW /AND RETURN TO SENDER.

02357 0000 TWIDTH, 0      /0 IS OK SINCE IT'LL BE SET UP CORRECTLY.
02360 0014 014, 14      /MAGIC CONSTANT.
02361 0110 0110, 110   /WIDTH OF TTY PAPER.

02362 6350 TABTHR, TABDO  /ROUTINE WHICH PROCESS TAB CHARACTER.

02363 0073 MENDPDL, =ENDPDL=1

02364 0000 PUSH, 0
02365 3036          DCA I    PDL
02366 2036          ISZ      PDL
02367 1036          TAD      PDL
02370 1363          TAD      MENDPDL
02371 7640          SZA CLA
02372 5764          JMP I    PUSH
02373 4477          JMS I    PERROR
02374 0530          TEXT 'EXPRESSION'
02375 2022
02376 0523
02377 2311
02400 1716
02401 0000

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02402 4541 EXIT, JMS I PCOMT /WAIT FOR BUFFER TO EMPTY AND THEN CONTINUE,
02403 1007 TAD 0215
02404 4433 JMS I PPUTCH
02405 1010 EOIT, TAD 0212
02406 4433 JMS I PPUTCH
02407 1130 TAD OUTD2 /RESET DEVICE
02410 3131 DCA OUTDEV
02411 4543 JMS I CNCLR /CHECK TO SEE IF "C WAS TYPED.
02412 1362 TAD PXXTHEN
02413 4524 JMS I PGETLIN
02414 1437 TAD I PLINBUF
02415 3050 DCA WORD
02416 1450 TAD I WORD
02417 7650 SNA CLA
02420 5766 JMP I PNOTNOW
02421 1010 TAD 0212
02422 4433 JMS I PPUTCH
02423 1130 TAD OUTD2 /RESET I/O DEVICE.
02424 3131 DCA OUTDEV
02425 4566 ISIT /*RUN*
02426 3736 3736
02427 7410 SKP
02430 5252 JMP RUN
02431 4566 ISIT /*LIS*
02432 3737 3737
02433 7410 SKP
02434 5763 JMP I PLIST
02435 4566 ISIT /*SCR*
02436 3735 3735
02437 5254 JMP IMMED
02440 1365 SCRATCH, TAD PPERMSYM
02441 3004 DCA CODELOC
02442 1364 TAD PXXEOP
02443 3765 DCA I PPERMSYM
02444 1365 TAD PPERMSYM
02445 7001 IAC
02446 3005 DCA PSYMTAB
02447 7240 CLA CMA
02450 3006 DCA NSYMTAB
02451 4537 JMS I PRESET /RESET DEVICES AFTER SCRATCH.
02452 4262 RUN, JMS CLEARV
02453 5503 JMP I PEXECUTE
02454 1037 IMMED, TAD PLINBUF

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02455	3045	DCA	LOCCTR	
02456	1364	TAD	PXXEOP	
02457	3052	OCA	LINENO	
02460	5503	JMP I	PEXECUTE	
02461	7400	PJSET,	SETUP	
02462	0000	CLEARV,	0	
02463	4661	JMS I	PJSET	
02464	5303	JMP	RUNIN	
02465	1456	RUNLUP,	TAD I	EPTR
02466	1360		TAD	07000A
02467	7640	SZA CLA		/IS IT A VARIABLE
02470	5277	JMP	RUNNOT	/NO
02471	2056	ISZ	EPTR	
02472	1456	TAD I	EPTR	
02473	3060	DCA	GPTR	

02474	1460	TAD I	GPTR	
02475	3456	DCA I	EPTR	
02476	7410	SKP		
02477	2056	RUNNOT, ISZ	EPTR	
02500	2256		EPTR	
02501	2056		EPTR	
02522	2056		EPTR	
02503	2057	RUNIN, ISZ	FPTR	
02504	5265	JMP	RUNLUP	
02505	1361	TAD	PLIMIT	
02506	3003	DCA	ARRLOC	
02507	1005	TAD	PSYMTAB	
02510	3056	DCA	EPTR	
02511	1006	TAD	NSYMTAB	
02512	3057	DCA	FPTR	
02513	5343	JMP	RUNZIN	
02514	1456	RUN2LUP, TAD I	EPTR	
02515	1360	TAD	07000A	
02516	7640	SZA CLA		/IS IT A VARIABLE
02517	5337	JMP	RUN2NOT	/NO
02520	2056	ISZ	EPTR	
02521	1456	TAD I	EPTR	
02522	3031	DCA	TMP	
02523	1003	TAD	ARRLOC	
02524	3456	DCA I	EPTR	
02525	1031	TAD	TMP	
02526	4521	JMS I	PSTICKIT	
02527	4521	JMS I	PSYICKIT	
02530	4521	JMS I	PSTICKIT	
02531	4521	JMS I	PSTICKIT	
02532	2056	ISZ	EPTR	
02533	3456	DCA I	EPTR	
02534	2056	ISZ	EPTR	
02535	3456	DCA I	EPTR	
02536	5342	JMP	.+4	
02537	2056	RUN2NOT, ISZ	EPTR	
02540	2056		EPTR	
02541	2056		EPTR	
02542	2056		EPTR	
02543	2057	RUNZIN, ISZ	FPTR	
02544	5314	JMP	RUN2LUP	
02545	1004	TAD	CODELOC	
02546	3045	DCA	LOCCTR	
02547	1125	TAD	PPDLIST	
02550	3036	DCA	PDL	
02551	1004	TAD	CODELOC	
02552	3046	DCA	READLOC	
02553	7240	CLA CMA		
02554	3063	DCA	FORCT	
02555	1164	TAD	PGOLIST	
02556	3165	DCA	GSBPTR	
02557	5662	JMP I	CLEARV	
02560	7000	07000A, 7000		
02561	0003	PLIMIT, LIMIT		/FIRST WORD OF USER AREA
02562	7253	PXTHEN, XTHEN		

02563	3620	PLIST,	LIST	
02564	7502	PXXEOF,	XXEOF	
02565	7222	PPERMSY,	PERMSYM	
02566	2202	PNOTNOW,	NOTNOW	
02567	4262	END,	JMS	CLEARV
02570	4537	STOP,	JMS I	PRESET
02571	4541		JMS I	PCOWT
02572	4514		JMS I	PPRINTXT
02573	6525		READY	
02574	5520		JMP I	PEDIT

/RESET ALL DEVICES NOW,  
/AND WAIT FOR I/O TO FINISH UP.  
/AND GIVE THE STOP MESSAGE

2600 PAGE

02600	4561	GETLRET,	JMS I	PLINFIX	
02601	4543		JMS I	CNCLR	/CHECK TO SEE IF "C WAS TYPED WHILE HERE.
02602	5603		JMP I	GETLIN	
02603	0000	GETLIN,	0		
02604	3064		DCA	SNUMPLG	
02605	1131		TAD	OUTDEV	/GET THE OUTPUT DEVICE.
02606	3130		DCA	OUTO2	/SAVE FOR A SECOND.
02607	3131		DCA	OUTDEV	/TURN OFF THE OUTPUT DEVICE.
02610	1172	NEWLIN,	TAD	PLBEGIN	
02611	3056		DCA	EPTR	
02612	1370		TAD	040	
02613	3456		DCA I	EPTR	
02614	2056		ISZ	EPTR	
02615	4432	NEWCHAR,	JMS I	PGETCH	
02616	3456		DCA I	EPTR	
02617	7240		CLA	CMA	/CHECK THE INPUT DEVICE NOW.
02620	1127		TAD	INDEV	/GET IT, BABY.
02621	7640		SZA	CLA	/IS IT THE TTY?
02622	5226		JMP	,+4	/NOPE.
02623	3133		DCA	CNTLD	/IT IS, RESET CONTROL 0.
02624	7201		CLA	IAC	/AND TEMPORARILY SET THE OUTPUT TO THE TTY.
02625	3131		DCA	OUTDEV	



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02626 1456      TAD I  EPTR
02627 1374      TAD   07603
02630 7450      SNA           /IS IT ALT-MODE (175)
02631 5263      JMP   ALTMODE /YES
02632 1367      TAD   036
02633 7450      SNA           /IS IT 'L'
02634 5266      JMP   BARROW  /YES
02635 1371      TAD   0122
02636 7450      SNA           /IS IT (CAR. RET.)
02637 5300      JMP   CARRET  /YES
02640 1375      TAD   07715
02641 7450      SNA           /IS IT 'P'
02642 5215      JMP   NEWCHAR /YES
02643 0372      AND   0140B
02644 7440      SZA
02645 1363      TAD   07640B
02646 7640      SZA CLA     /IS IT A PRINTABLE CHARACTER
02647 5215      JMP   NEWCHAR /NO
02650 1456      TAD I  EPTR
02651 4433      JMS I  PPUTCH
02652 1056      TAD   EPTR
02653 2056      ISZ   EPTR
02654 1174      TAD   MLEND
02655 7640      SZA CLA
02656 5215      JMP   NEWCHAR
02657 0537      TUBIG, JMS I  PRESET      /RESET ALL DEVICES NOW,
02660 4514      JMS I  PPRINTXT        /AND GIVE THE ERROR MESSAGES,
02661 5162      TOOLONG
02662 5210      JMP   NEWLIN
02663 4514      ALTMODE, JMS I PPRINTXT
02664 0501      DELETED
02665 5210      JMP   NEWLIN
02666 1056      BARROW, TAD   EPTR
02667 1173      TAD   MLBEGIN
02670 7650      SNA CLA
02671 5215      JMP   NEWCHAR
02672 7240      CLA CMA
02673 1056      TAD   EPTR
02674 3056      DCA   EPTR
02675 1373      TAD   03737B
02676 4433      JMS I  PPUTCH
02677 5215      JMP   NEWCHAR
02700 1007      CARRET, TAD   0215
02701 4433      JMS I  PPUTCH
02702 2134      ISZ   NOINT          /SET FLAG TO PREVENT INTERRUPTS AS OF NOW.
02703 1172      TAD   PLBEGIN      /EPTR=BEGINNING OF STRING
02704 3056      DCA   EPTR        /FPTR=WHERE TRANSLATED SYMBOL GOES
02705 1037      TAD   PLINBUF     /GPTR=CHAR IN STRING(,GE, EPTR)
02706 3057      DCA   FPTR        /MPTR=POSITION IN TABLE
02707 1377      SLOOP, TAD   PTABLE
02710 3061      DCA   HPTR
02711 1056      GLOOP, TAD   EPTR
02712 3060      DCA   GPTR
02713 1461      TAD I  HPTR
02714 7650      SNA CLA

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02715	5776		JMP I	POTHER
02716	1261		TAD	HPTR
02717	3050		DCA	WORD
02722	2261		ISZ	HPTR
02721	3024		DCA	ACS
02722	1460	MLOOP,	TAD I	GPTR
02723	1054		TAD	07740
02724	7640		SZA CLA	
02725	5330		JMP	BSKIP
02726	2260		ISZ	GPTR
02727	5322		JMP	MLOOP
02730	7330	BSKIP,	CLA CLL	CML RAR
02731	1024		TAD	ACS
02732	3024		DCA	ACS
02733	1461		TAD I	HPTR
02734	7430		SZL	
02735	2061		ISZ	HPTR
02736	7430		SZL	
02737	5343		JMP	,+4
02740	7012		RTR	
02741	7012		RTR	
02742	7012		RTR	
02743	0070		AND	077
02744	7450		SNA	
02745	5766		JMP I	JMATCH
02746	1054		TAD	07740
02747	7450		SNA	
02750	5330		JMP	BSKIP
02751	0070		AND	077
02752	1370		TAD	040
02753	7041		CIA	
02754	1460		TAD I	GPTR
02755	2060		ISZ	GPTR
02756	7650		SNA CLA	
02757	5322		JMP	MLOOP
02760	1461		TAD I	HPTR
02761	0070		AND	077
02762	2061		ISZ	HPTR
02763	7640	07640B,	SZA CLA	
02764	5360		JMP	,=4
02765	5311		JMP	GLOOP
02766	6506	JMATCH,	AMATCH	
02767	0036	036,	36	
02770	0040	040,	40	
02771	0122	0122,	122	
02772	0140	0140B,	140	
02773	3737	037370,	3737	
02774	7603	07603,	7603	
02775	7715	07715,	7715	
02776	3000	POTHER,	OTHER	
02777	7023	PTABLE,	XXPLUS	

	3220	PAGE		
03000	4310	OTHER,	JMS	NONBLNK
03001	1301		TAD	077630
03002	7440		SZA	
03003	5223		JMP	NOTCR
03004	1325		TAD	PXXCRLF
03005	3457		DCA I	FPTR
03006	1257		TAD	FPTR
03007	3013		DCA	INDEX1
03010	1326		TAD	PXXEXIT
03011	3413		DCA I	INDEX1
03012	1013		TAD	INDEX1
03013	1041		TAD	MENDLIN
03014	7450		SNA	
03015	5622		JMP I	PGETLRET
03016	7710		SPA CLA	
03017	5210		JMP	.=7
03020	5621		JMP I	PTUBIG
03021	2657	PTUBIG,	TUBIG	
03022	2600	PGETLRE,	GETLRET	
03023	1322	NOTCR,	TAD	07737
03024	7450		SNA	
03025	5724		JMP I	JDIGIT
03026	1302		TAD	077640
03027	7100		CLL	
03030	1065		TAD	012
03031	7430		SZL	
03032	5724		JMP I	JDIGIT
03033	1300		TAD	07725A
03034	7100		CLL	
03035	1321		TAD	032
03036	7430		SZL	
03037	5703		JMP I	PLETTER
03040	7330		CLA CLL	CML RAR
03041	1456		TAD I	EPTR
03042	3456		DCA I	EPTR
03043	1076	REMPACK,	TAD	PTEXT
03044	3457		DCA I	FPTR
03045	2057		ISZ	FPTR
03046	3307	TXTPAK,	DCA	THISTXT
03047	1456		TAD I	EPTR
03050	1301		TAD	077630
03051	7450		SNA	
03052	5276		JMP	CRINTXT
03053	1304		TAD	07753
03054	7650		SNA CLA	
03055	5370		JMP	DQINTXT
03056	1456		TAD I	EPTR
03057	0070		AND	077

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03060 3456      DCA I  EPTR
03061 1307      TAD    THISTXT
03062 7450      SNA
03063 5270      JMP    LHALF
03064 1456      TAD I  EPTR
03065 3457      DCA I  FPTR
03066 2057      ISZ    FPTR
03067 5274      JMP    RHALF
03070 1456  LHALF, TAD I  EPTR
03071 7106      CLL  RTL
03072 7006      RTL
03073 7006      RTL
03074 2056  RHALF, ISZ    EPTR
03075 5246      JMP    TXTPAK
03076 1307  CRINTXT, TAD  THISTXT
03077 5723      JMP I  JYXXIT
    
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03100 7725  07725A, 7725
03101 7763  07763B, 7763
03102 7764  07764B, 7764
    
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03103 3446  PLETTER, LETTER
03104 7753  07753, 7753
03105 4200  04200, 4200
03106 0042  042, 42
03107 0000  THISTXT, 0
03110 0000  NONBLNK, 0
03111 1456      TAD I  EPTR
03112 1054      TAD    07740
03113 7640      SZA  CLA
03114 5317      JMP    ,+3
03115 2056      ISZ    EPTR
03116 5311      JMP    NONBLNK+1
03117 1456      TAD I  EPTR
03120 5710      JMP I  NONBLNK
03121 0032  032, 32
03122 7737  07737, 7737
03123 3201  JYXXIT, MTXXIT
03124 3204  JDIGIT, DIGIT
03125 7226  PXXCRLF, XXCRLF
03126 7505  PXXEXIT, XXEXIT
03127 0072  POPERA, OPERAND=1
03130 7506  PXXLIT0, XXLIT0
03131 4435  LITRAL, FENTER
03132 2073      FST    OPERAND
03133 0000      FEXIT
03134 1075      TAD    OPERAND+2
03135 7640      SZA  CLA
03136 5346      JMP    ALL3
03137 1074      TAD    OPERAND+1
03140 7640      SZA  CLA
03141 5347      JMP    JUST2
03142 1073      TAD    OPERAND
03143 7650      SNA  CLA
    
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03144	5350		JMP	JUST0
03145	7344	JUST1,	CLA CLL CMA RAL	
03146	7001	ALL3,	IAC	
03147	1062	JUST2,	TAD	02
03150	7048	JUST0,	CMA	
03151	3031		DCA	TMP

03152	1327		TAD	POPERA	
03153	3013		OCA	INDEX1	
03154	1231		TAD	TMP	
03155	7240		CMA		
03156	1330		TAD	PXXLIT0	
03157	5303		JMP	JUST0P	
03160	6201	JUST0P,	COF	0	/***** & K INSERT.
03161	1413		TAD I	INDEX1	
03162	6211		COF	10	/***** & K INSERT.
03163	3457	JUST0P,	OCA I	FPTR	
03164	2057		ISZ	FPTR	
03165	2031		ISZ	TMP	
03166	5360		JMP	JUST0P	
03167	5516		JMP I	PSLOOP	
03170	1307	OGINTXT,	TAD	THISTXT	
03171	2056		ISZ	FPTR	
03172	7440		SZA		
03173	5376		JMP	,+3	
03174	1305		TAD	04200	
03175	5723		JMP I	JTXXIT	
03176	1306		TAD	042	
03177	3457		OCA I	FPTR	
03200	2057		ISZ	FPTR	
03201	3457	MTXXIT,	OCA I	FPTR	
03202	2057		ISZ	FPTR	
03203	5516		JMP I	PSLOOP	
03204	7200	DIGIT,	CLA		
03205	1464		TAD I	SNUMFLG	
03206	1376		TAD	01774	
03207	7440		SZA		/IS IT 'GOTO' OR 'THEN'
03210	7001		IAC		
03211	7440		SZA		/OR 'GOSUB'
03212	1375		TAD	01742	
03213	7650		SNA CLA		/OR 'LIST'
03214	7240		CLA CMA		/YES
03215	3064		OCA	SNUMFLG	
03216	4435		FENTER		
03217	3152		FLD	ZERO	
03220	0000		FEXIT		
03221	3365		OCA	OPFLAG	
03222	3366		OCA	DECFRAC	
03223	7010		SKP		
03224	2056	DIGIN,	ISZ	FPTR	
03225	4522		JMS I	PNONBLNK	
03226	1316		TAD	07673	
03227	7450		SNA		
03230	5263		JMP	IT0E	
03231	1370		TAD	027	
03232	7450		SNA		
03233	5256		JMP	IT0P	

03230	1374	TAD	07764C
03235	7100	CLL	
03236	1065	TAD	012
03237	7420	SNL	
03240	5331	JMP	ENDNUM
03241	7110	CLL RAR	
03242	1373	TAD	02040A
03243	3360	DCA	FDIGIT
03244	7010	RAR	
03245	3361	DCA	FDIGIT+1
03246	4435	FENTER	
03247	6545	FMPI	PTEN
03250	4310	FAD+FWD+FDIGIT+	
03251	2000	FEXIT	
03252	1365	TAD	DPFLAG
03253	7640	SZA CLA	
03254	2366	ISZ	DECFRAC
03255	5224	JMP	DIGIN
03256	1365	ITSDP, TAD	DPFLAG
03257	7640	SZA CLA	
03260	5331	JMP	ENDNUM
03261	2365	ISZ	DPFLAG
03262	5224	JMP	DIGIN
03263	3360	ITSE, DCA	FDIGIT
03264	1064	TAD	SNUMPLG
03265	7640	SZA CLA	
03266	5331	JMP	ENDNUM
03267	2056	ISZ	EPTR
03270	4522	JMS I	PNONBLNK
03271	1371	TAD	07725B
03272	7450	SNA	
03273	5300	JMP	ITSP
03274	1372	TAD	07776
03275	7640	SZA CLA	
03276	5301	JMP	NOTSGN
03277	2360	ISZ	FDIGIT
03300	2056	ITSP, ISZ	EPTR
03301	4767	NOTSGN, JMS I	JISDIG
03302	5331	JMP	ENDNUM
03303	2056	ISZ	EPTR
03304	3361	DCA	FDIGIT+1
03305	4767	JMS I	JISDIG
03306	5322	JMP	ONLY1
03307	7200	CLA	
03310	1361	TAD	FDIGIT+1
03311	7106	CLL RTL	
03312	1361	TAD	FDIGIT+1
03313	7104	CLL RAL	
03314	3361	DCA	FDIGIT+1
03315	4767	JMS I	JISDIG
03316	7673	07673, 7673	
03317	1361	TAD	FDIGIT+1
03320	3361	DCA	FDIGIT+1
03321	2056	ISZ	EPTR
03322	1360	ONLY1, TAD	FDIGIT

03323	7110	CLL	RAR	
03324	1361	TAD		FOIGIT+1
03325	7422	SNL		
03326	7241	CIA		
03327	1366	TAD		DECFRAC
03330	3366	DCA		DECFRAC
03331	7200	ENDNUM, CLA		
03332	1366	TAD		DECFRAC
03333	7700	SMA	CLA	
03334	1364	TAD		DIVXTEN
03335	1363	TAD		MULXTEN
03336	3346	DCA		MULEXP
03337	1366	TAD		DECFRAC
03340	7510	SPA		
03341	7041	CIA		
03342	7040	CMA		
03343	3366	DCA		DECFRAC
03344	5350	JMP		.+4
03345	4435	PENTER		
03346	7402	MULEXP, HLT		
03347	0000	EXIT		
03350	2366	ISZ		DECFRAC
03351	5345	JMP		.-4
03352	2064	ISZ		SNIMFLG
03353	5777	JMP I		PLITRAL
03354	4506	JMS I		PFIX
03355	7200	CLA		
03356	5757	JMP I		PCOMMON
03357	3400	PCOMMON, COMMON		
03360	0000	FDIGIT, 01010		
03361	0000			
03362	0000			
03363	6545	MULXTEN, FMPI		PTEN
03364	1000	DIVXTEN, F0V=FMP		
03365	0000	DPFLAG, 0		
03366	0000	DECFRAC, 0		
03367	6532	J1801G, I8DIG		
03370	0027	027, 27		
03371	7725	07725B, 7725		
03372	7776	07776, 7776		
03373	2040	02040A, 2040		
03374	7764	07764C, 7764		
03375	1742	01742, 1742		
03376	1774	01774, 1774		
03377	3131	PLITRAL, LITRAL		



03400	1005	COMMON,	TAD	PSYMTAB	
03401	3060		DCA	GPTR	
03402	1020		TAD	NSYMTAB	
03403	3201		DCA	HPTR	
03404	5231		JMP	IN	
03405	1060	LUP,	TAD I	GPTR	
03406	2060		ISZ	GPTR	
03407	2060		ISZ	GPTR	
03410	7640		SZA CLA		/IS IT A LINENO
03411	5227		JMP	NOT	/NO
03412	1060		TAD I	GPTR	
03413	2060		ISZ	GPTR	
03414	7041		CIA		
03415	1017		TAD	AC2	
03416	7640		SZA CLA		
03417	5230		JMP	NOT+1	
03420	1060		TAD I	GPTR	
03421	7041		CIA		
03422	1016		TAD	AC3	
03423	7640		SZA CLA		
03424	5230		JMP	NOT+1	
03425	7306		CLA CLL	CMA RTL	
03426	5312		JMP	ISDEF2	
03427	2060	NOT,	ISZ	GPTR	
03430	2060		ISZ	GPTR	
03431	2061	IN,	ISZ	HPTR	
03432	5205		JMP	LUP	
03433	4515		JMS I	PGETBLK	
03434	3064		DCA	SNUMPLG	
03435	3064		DCA I	SNUMPLG	
03436	1064		TAD	SNUMPLG	
03437	3013		DCA	INDEX1	
03440	3013		DCA I	INDEX1	
03441	1017		TAD	AC2	
03442	3013		DCA I	INDEX1	
03443	1016		TAD	AC3	
03444	3013		DCA I	INDEX1	
03445	5314		JMP	IT8OEP	
03446	7001	LETTER,	IAC		
03447	7106		CLL RTL		
03450	7006		RTL		
03451	7006		RTL		
03452	3031		DCA	TMP	
03453	2056		ISZ	EPTR	
03454	4522		JMS I	PNONBLNK	
03455	1273		TAD	07706C	
03456	7100		CLL		
03457	1065		TAD	012	
03460	7620		SNL CLA		
03461	5266		JMP	SIMPLY	
03462	1056		TAD I	EPTR	
03463	1031		TAD	TMP	
03464	3031		DCA	TMP	
03465	2056		ISZ	EPTR	
03466	1005	SIMPLV,	TAD	PSYMTAB	

03467	3060	DCA	GPTR
03470	1026	TAD	NSYMTAB
03471	3261	DCA	MPTR
03472	5324	JMP	VSCHIN
03473	7706	07706C, 7706	
03474	7000	07000B, 7000	
03475	1460	VSCHLUP, TAD I	GPTR
03476	1274	TAD	07000B
03477	7640	SZA CLA	
03500	5320	JMP	VSCHNOT
03501	2060	ISZ	GPTR
03502	1460	TAD I	GPTR
03503	3064	DCA	SNUMFLG
03504	1464	TAD I	SNUMFLG
03505	7041	CIA	
03506	1031	TAD	TMP
03507	7640	SZA CLA	
03510	5321	JMP	VSCHNOT+1
03511	7240	CLA CMA	
03512	1060	ISDEF2, TAD	GPTR
03513	3064	DCA	SNUMFLG
03514	1064	ITSDEF, TAD	SNUMFLG
03515	3457	DCA I	FPTR
03516	2057	ISZ	FPTR
03517	5516	JMP I	PSLOOP
03520	2060	VSCHNOT, ISZ	GPTR
03521	2060	ISZ	GPTR
03522	2060	ISZ	GPTR
03523	2060	ISZ	GPTR
03524	2061	VSCHIN, ISZ	MPTR
03525	5275	JMP	VSCHLUP
03526	4515	JMS I	PGETBLK
03527	3064	DCA	SNUMFLG
03530	7240	CLA CMA	
03531	1064	TAD	SNUMFLG
03532	3013	DCA	INDEX1
03533	1350	TAD	01000
03534	3413	DCA I	INDEX1
03535	1003	TAD	ARRLOC
03536	3413	DCA I	INDEX1
03537	3413	DCA I	INDEX1
03540	3413	DCA I	INDEX1
03541	4563	JMS I	PCHKFIT
03542	1031	TAD	TMP
03543	4521	JMS I	PSTICKIT
03544	4521	JMS I	PSTICKIT
03545	4521	JMS I	PSTICKIT
03546	4521	JMS I	PSTICKIT
03547	5314	JMP	ITSDEF
03550	1000	01000, 1000	
03551	0000	POP, 0	
03552	7240	CLA CMA	
03553	1036	TAD	PDL
03554	3036	DCA	PDL
03555	1436	TAD I	PDL

```

03556 5751      JMP I   POP
03557 3737      FOURLF, TEXT '.....'
03560 3737
03561 2020
03562 3724      UGH1,   TEXT '...TOO BIG, LINE IGNORED...'
03563 1717
03564 4002
03565 1107
03566 5640
03567 1411
03570 1605
03571 4011
03572 0716
03573 1722
03574 0504
03575 3700
    
```

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03600 1746      LIST,   YAD I   PXLINBUF
03601 3050      DCA      WORD
03602 4566      ISIT                      /CHECK FOR A "*"
03603 3476      3476
03604 5210      JMP      .+4                /NOPE.
03605 7240      CLA CMA                /YEP, SET UP PUTXRA BY GIVING A PHOONEY
03606 4541      JMS I   PCOWT           /CALL TO THE WAIT ROUTINE.
03607 4177      JMS      GETWD          /AND GET ANOTHER WORD NOW.
03610 4566      ISIT                      /LINENO
03611 0000      0000
03612 5216      JMP      LISTALL
03613 2050      ISZ      WORD
03614 1450      YAD I   WORD
03615 7450      SNA
03616 1004      LISTALL, YAD CODELOC
03617 3045      LISTSDM, DCA LOCCTR
03620 4177      LISTLUP, JMS GETWD
03621 4566      ISIT                      /(EOF)
03622 1755      1755
03623 5230      JMP      LNOEND          /NOT DONE YET
03624 4541      JMS I   PCOWT           /WAIT FOR I/O TO FINISH AND CLEAN UP.
03625 4302      JMS      PRINTXT
03626 3557      FOURLF
03627 5520      JMP I   PEDIT
03630 4566      LNOEND, ISIT                /A LINENO
03631 0000      0000
03632 5240      JMP      LIST2          /NO
    
```

03633	1050	TAD	WORD	
03634	4523	JMS I	PPRINUM	
03635	1251	TAD	0240	
03636	4433	JMS I	PPUTCH	
03637	5220	JMP	LISTLUP	
03640	4566	LIST2,	ISIT	/A VARIABLE
03641	7000		7000	
03642	5255	JMP	LIST3	
03643	2050	ISZ	WORD	
03644	1450	TAD I	WORD	
03645	3050	DCA	WORD	
03646	1450	TAD I	WORD	
03647	3253	DCA	PRINVAR	
03650	4302	JMS	PRINTXT	
03651	3653	PRINVAR		
03652	5220	JMP	LISTLUP	
03653	0000	PRINVAR,0		
03654	0000		0	
03655	4575	LIST3,	JMS I	PISITLIT /ISIT A LITERAL
03656	5261	JMP	LIST4	/NO
03657	4517	JMS I	POUTNUM	/PRINT IT
03660	5220	JMP	LISTLUP	
03661	4566	LIST4,	ISIT	/(TEXT)
03662	5000		5000	
03663	5276	JMP	LIST5	
03664	4177	L4LUP,	JMS	GETWD
03665	1050		TAD	WORD
03666	3253		DCA	PRINVAR
03667	4302		JMS	PRINTXT
03670	3653		PRINVAR	
03671	1050		TAD	WORD
03672	0070		AND	077
03673	7640		SZA	CLA
03674	5264		JMP	L4LUP
03675	5220		JMP	LISTLUP
03676	1050	LIST5,	TAD	WORD /ITS A SYSTEM SYMBOL
03677	7001		IAC	
03700	4302		JMS	PRINTXT

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03721 5220      JMP      LISTLUP
03722 2200      PRINTXT,0
03723 7440      SZA
03724 5310      JMP      JBPENT+1      /***** 8 K INSERT.
03725 6201      CDF      0      /***** 8 K INSERT.
03726 1702      TAD I    PRINTXT
03727 2302      JBPENT, ISZ PRINTXT
03710 3202      DCA      PRTEMP
03711 1402      PRLOOP, TAD I  PRTEMP
03712 7012      RTR
03713 7012      RTR
03714 7012      RTR
03715 4324      JMS      PRSUBR
03716 1442      TAD I    PRTEMP
03717 4324      JMS      PRSUBR
03720 2042      ISZ      PRTEMP
03721 5311      JMP      PRLOOP
03722 6211      PRTXRET,CDF 10      /***** 8 K INSERT.
03723 5702      JMP I    PRINTXT
03724 0000      PRSUBR, 0
03725 0070      AND      077
03726 7450      SNA
03727 5322      JMP      PRTXRET
03730 1345      TAD      07741
03731 7450      SNA
03732 5340      JMP      CRLFPR
03733 1070      TAD      077
03734 0070      AND      077
03735 1051      TAD      0240
03736 4433      JMS I    PPUTCH
03737 5724      JMP I    PRSUBR
03740 1007      CRLFPR, TAD 0215
03741 4433      JMS I    PPUTCH
03742 1010      TAD      0212
03743 4433      JMS I    PPUTCH
03744 5724      JMP I    PRSUBR
03745 7741      07741, 7741
03746 7513      PXLINBU,LINBUF+1
03747 0000      PRINUM, 0
03750 7001      IAC
03751 3013      DCA      INDEX1
03752 4362      JMS      BEGPFX      /SET UP FAC TO RECEIVE INTEGER DATA.
03753 1413      TAD I    INDEX1
03754 3017      DCA      AC2
03755 1413      TAD I    INDEX1
03756 3016      DCA      AC3
03757 4546      JMS I    PANORM
03760 4517      JMS I    POUTNUM
03761 5747      JMP I    PRINUM

23762 0000      BEGPFX, 0
23763 3017      DCA      AC2      /SETS UP FOR INTEGER TO AC MODE,
                                     /CLEAR THEM ALL, EXCEPT FOR LOW WORD.

```

```

03764 3020      DCA   AC1
03765 3012      DCA   DV
03766 3024      DCA   ACS
03767 1372      TAD   0233
03770 3025      OCA   ACE
03771 5762      JMP I  BEGFIX
    
```

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03772 0233 0233, 233
    
```

```

03773 4571 RESTORE,GET+MUSTBE / (CR) OR '\
03774 2000      2000
03775 1004      TAD   CODELOC
03776 3046      DCA   READLOC
03777 5503      JMP I  PEXECUTE
    
```

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04000 4566 MOREIN, ISIT / (CR) OR '\
04001 2000      2000
04002 5234      JMP   INPLUP
04003 1010      TAD   0212
04004 4433      JMS I  PPUTCH
04005 1130      TAD   OUTOZ /GET THE OLD OUTPUT DEVICE.
04006 3131      DCA   OUTDEV /AND RESET IT.
04007 7240 INPUT, CLA CMA /CHECK THE INPUT DEVICE NOW.
04010 1127      TAD   INDEV /ARE WE INPUT FROM THE TELETYPE.
04011 7640      SZA CLA
04012 5224      JMP   IPNOPE /NOPE.
04013 1131      TAD   OUTDEV /GET THE OUTPUT DEVICE.
04014 4504      JMS I  PPSH /SAVE IT FOR A SECOND.
04015 7201      CLA IAC /SET OUTPUT DEVICE TO TTY FOR "?
04016 3131      DCA   OUTDEV
04017 4541      JMS I  PCOMT /WAIT FOR OUTPUT TO FINISH, THEN CONTINUE.
    
```

```

24020 1070 TAD 077
24021 4433 JMS I PPUTCH
24022 4505 JMS I PPOP
24023 3131 DCA OUTDEV
04024 1045 IPNOPE, TAD LOCCTR
04025 3505 DCA I GSBPTR
04026 1070 TAD PTEXT
04027 4524 JMS I PGETLIN
04030 1565 TAD I GSBPTR
04031 3045 DCA LOCCTR
04032 1037 TAD PLINBUF
04033 3263 DCA INPPTR
04034 4513 INPLUP, JMS I PGETVAR
04035 1050 TAD WORD
04036 3264 DCA INWDTMP
04037 1045 TAD LOCCTR
04040 3265 DCA INLCTMP
04041 1263 TAD INPPTR
04042 3045 DCA LOCCTR
04043 4501 JMS I PEVAL
04044 1045 TAD LOCCTR
04045 3263 DCA INPPTR
04046 1265 TAD INLCTMP
04047 3045 DCA LOCCTR
04050 4512 JMS I P8TOVAR
04051 7332 CLA CLL CML RTR
04052 1664 TAD I INWDTMP
04053 7640 SZA CLA
04054 5200 JMP MOREIN
04055 1010 TAD 0212
04056 4433 JMS I PPUTCH
04057 1130 TAD OUTD2
04060 3131 DCA OUTDEV
04061 3126 DCA COLUMN
04062 5503 JMP I PEXECUTE
04063 0000 INPPTR, 0
04064 0000 INWDTMP,0
04065 0000 INLCTMP,0
04066 0000 XGISIT, 0
04067 4177 JMS GETWD
04070 1266 TAD XGISIT
04071 3273 DCA XISIT
04072 5274 JMP XISIT+1
04073 0000 XISIT, 0
04074 1450 TAD I WORD
04075 6201 CDF 0
04076 1673 TAD I XISIT
04077 6211 CDF 10
04100 2273 ISZ XISIT
04101 7650 SNA CLA
04102 2273 ISZ XISIT
04103 5673 JMP I XISIT
04104 0000 ISITLIT,0
04105 1450 TAD I WORD
04106 7106 CLL CMA RTL

```

/RESET OUTPUT DEVICE NOW,

/RESET THE DEV, BABY

/\*\*\*\*\* 0 K INSERT,

/\*\*\*\*\* 0 K INSERT,

04107	7032	CML RTR	
04110	3024	OCA	ACS
04111	1024	TAD	ACS
04112	1160	TAD	04
04113	7620	SNL CLA	
04114	5704	JMP I	ISITLIT
04115	2304	ISZ	ISITLIT
04116	3020	OCA	AC1
04117	3017	OCA	AC2
04120	3016	OCA	AC3
04121	4333	JMS	ISLIT
04122	3016	OCA	AC3
04123	4333	JMS	ISLIT
04124	3017	OCA	AC2
04125	4333	JMS	ISLIT
04126	3020	OCA	AC1
04127	4435	LOADED, PENTER	
04130	3016	FLD	AC3
04131	0000	PEXIT	
04132	5704	JMP I	ISITLIT
04133	0000	ISLIT, 0	
04134	2024	IJZ	ACS
04135	7410	SKP	
04136	5327	JMP	LOADED
04137	4177	JMS	GETWD
04140	1050	TAD	WORD
04141	5733	JMP I	ISLIT
04142	0000	ERROR, 0	
04143	4537	JMS I	PRESET
04144	4514	JMS I	PPRINTXT
04145	6531	CRLF	
04146	1342	TAD	ERROR
04147	3351	OCA	,+2
04150	4514	JMS I	PPRINTXT
04151	7402	HLT	
04152	4514	JMS I	PPRINTXT
04153	4170	GERROR	
04154	1452	TAD I	LINENO
04155	7710	SPA CLA	
04156	5363	JMP	,+5
04157	4514	JMS I	PPRINTXT
04160	6451	ATLINE	
04161	1052	TAD	LINENO
04162	4523	JMS I	PPRINUM
04163	4514	JMS I	PPRINTXT
04164	6531	CRLF	
04165	1125	TAD	PPOLIST
04166	3036	OCA	POL
04167	5520	JMP I	PEDIT
04170	4005	GERROR, TEXT	' ERROR'
04171	2222		
04172	1722		
04173	0000		

/RESET ALL I/O DEVICES.



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/      JMS      FPT      /ENTER FLOATING POINT PACK
/      0000      /FEXIT
/      0040      /FSNE
/      0050      /FSEQ
/      0100      /FSGE
/      0110      /FSLT
/      0140      /FSGT
/      0150      /FSLE
/
/      IF BIT 4 OFF THEN SAME AS PDP-8
/      IF BIT 4 ON THEN IF BIT 3 OFF THEN RELATIVE PLUS
/                               IF BIT 3 ON THEN RELATIVE MINUS
/
/      1XXX      /FJMP
/      2XXX      /FST
/      3XXX      /FLO
/      4XXX      /FAD
/      5XXX      /FSB
/      6XXX      /FMP
/      7XXX      /FDV
    
```

```

04200 0000  FPT,      0
04201 5204  JMP          .+3
04202 4546  FPLOOP, JMS I  PANORM
04203 2200  ISZ        FPT
04204 6201  CDF        0
04205 1600  TAD I     FPT
04206 7006  RTL
04207 7006  RTL
04210 0072  AND        07
04211 7450  SNA
04212 5305  JMP        FPROPER
04213 3273  DCA        FPGOTO
04214 1600  TAD I     FPT
04215 0155  AND        0200
04216 7650  SNA CLA
04217 5227  JMP        FPPGZ
04220 1600  TAD I     FPT
04221 0027  AND        0177
04222 7430  SZL
04223 7041  CIA
04224 1200  TAD        FPT
04225 3304  DCA        FPADDR
04226 5237  JMP        FPDQIT
04227 1600  FPPGZ, TAD I  FPT
04230 0027  AND        0177
04231 3304  DCA        FPADDR
04232 7420  SNL
04233 5237  JMP        FPDQIT
04234 1704  TAD I     FPADDR
    
```

////////// & K INSERT.

24235	3304		DCA	FPADDR
24236	6211		CDF	10
24237	7346	FPDOIT,	CLA CLL	CMA RTL
24240	1273		TAD	FPGOTO
24241	7710		SPA CLA	
24242	5270		JMP	FPNOADR
24243	7330		CLA CLL	CML RAR
24244	0704		AND I	FPADDR
24245	3026		DCA	OPS
24246	1704		TAD I	FPADDR
24247	7640		SZA CLA	
24250	7040		CMA	
24251	3156		DCA	FPFLAG
24252	1704		TAD I	FPADDR
24253	7012		RTR	
24254	7010		RAR	
24255	0071		AND	0377
24256	3030		DCA	OPE
24257	1704		TAD I	FPADDR
24260	0072		AND	07
24261	3023		DCA	OP1
24262	2304		ISZ	FPADDR
24263	1704		TAD I	FPADDR
24264	3022		DCA	OP2
24265	2304		ISZ	FPADDR
24266	1704		TAD I	FPADDR
24267	3021		DCA	OP3
24270	1273	FPNOADR,	TAD	FPGOTO
24271	1274		TAD	FPJUMP
24272	3273		DCA	.+1
24273	7402	FPGOTO,	HLT	
24274	5674	FPJUMP,	JMP I	.
24275	4317		FPJMP	
24276	4322		FPSTO	
24277	4351		FPLAC	
24300	4456		FPADD	
24301	4453		FPSUB	
24302	4510		FPMUL	
24303	4667		FPDIV	
24304	0000	FPADDR,	0	
24305	1600	FPOPER,	TAD I	FPT
24306	6211		CDF	10
24307	7450		SNA	
24310	5600		JMP I	FPT
24311	1345		TAD	07600
24312	3314		DCA	FPSKIP
24313	4333		JMS	HIGHWD
24314	7402	FPSKIP,	HLT	
24315	2200		ISZ	FPT
24316	5203		JMP	FPLOOP+1
24317	1304	FPJMP,	TAD	FPADDR
24320	3200		DCA	FPT
24321	5204		JMP	FPLOOP+2
24322	4333	FPSTO,	JMS	HIGHWD
24323	3704		DCA I	FPADDR

\*\*\*\*\* 8 K INSERT.

\*\*\*\*\* 8 K INSERT.

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04324	2304	ISZ	FPADR
04325	1017	TAD	AC2
04326	3704	OCA I	FPADR
04327	2304	ISZ	FPADR
04330	1016	TAD	AC3
04331	3704	OCA I	FPADR
04332	5203	JMP	FPLOOP+1
04333	0000	HIGHWD, 0	
04334	1025	TAD	ACE
04335	7104	CLL	RAL
04336	7500	SMA	

04337	7106		CLL	RTL
04340	7530		SPA	SZL
04341	5305		JMP	07600
04342	1024		TAD	ACS
04343	1220		TAD	AC1
04344	5733		JMP I	HIGHWD
04345	7600	07600,	7600	
04346	1071		TAD	0377
04347	3025		DCA	ACE
04350	5334		JMP	HIGHWD+1
04351	1026	FPLAC,	TAD	OP8
04352	3024		DCA	ACS
04353	1030		TAD	OPE
04354	3025		DCA	ACE
04355	1023		TAD	OP1
04356	3020		DCA	AC1
04357	1022		TAD	OP2
04360	3017		DCA	AC2
04361	1021		TAD	OP3
04362	3016		DCA	AC3
04363	3012		DC	OV
04364	5202		JM/	FPLOOP
04365	7041	UPARR2,	CIA	/(CMA) IF 1 ORG INDEXING
04366	3013		DCA	INDEX1
04367	4435		FENTER	
04370	3151		FLD	ONE
04371	0000		FEXIT	
04372	5376		JMP	,+4
04373	4435		FENTER	
04374	6073		FMP	OPERAND
04375	0000		FEXIT	
04376	2013		ISZ	INDEX1
04377	5373		JMP	,=4
04400	5601		JMP I	,+1
04401	1203		OPDONE	

04402	0000	ARI,	0	
04403	1020		TAD	AC1
04404	7110		CLL	RAR
04405	3020		DCA	AC1
04406	1017		TAD	AC2
04407	7010		RAR	
04410	3017		DCA	AC2
04411	1016		TAD	AC3
04412	7010		RAR	
04413	3016		DCA	AC3
04414	7010		RAR	
04415	3012		DCA	OV
04416	5602		JMP I	ARI
04417	0000	ACN,	0	
04420	1234		TAD	POP3

04421	3235		DCA	OADD
04422	7366		CLA CLL	CMA RTL
04423	3202		DCA	AR1
04424	7020		CML RAL	
04425	1635		TAD I	OADD
04426	7041		CIA	
04427	3635		DCA I	OADD
04430	2235		ISZ	OADD
04431	2202		ISZ	AR1
04432	5224		JMP	=6
04433	5617		JMP I	ACN
04434	0021	POPS,	OP3	
04435	0000	OADD,	0	
04436	7100		CLL	
04437	1016		TAD	AC3
04440	1021		TAD	OP3
04441	3016		DCA	AC3
04442	7004		RAL	
04443	1017		TAD	AC2
04444	1022		TAD	OP2
04445	3017		DCA	AC2
04446	7004		RAL	
04447	1020		TAD	AC1
04450	1023		TAD	OP1
04451	3020		DCA	AC1
04452	5635		JMP I	OADD
04453	7330	FP8UB,	CLA CLL	CML RAR
04454	1026		TAD	OP8
04455	3026		DCA	OP8
04456	2156	FPADD,	ISZ	FPFLAG
04457	5326		JMP	EOFAD
04460	1025		TAD	ACE
04461	7141		CLL CIA	
04462	1030		TAD	OPE
04463	7430		SZL	
04464	5302		JMP	BCKW08
04465	5235		DCA	OADD
04466	1023	ALGNLP,	TAD	OP1
04467	7110		CLL RAR	
04470	3023		DCA	OP1
04471	1022		TAD	OP2
04472	7010		RAR	
04473	3022		DCA	OP2
04474	1021		TAD	OP3
04475	7010		RAR	
04476	3021		DCA	OP3
04477	2235		ISZ	OADD
04500	5266		JMP	ALGNLP
04501	5312		JMP	SETSGN
04502	7040	BCKW08,	CMA	
04503	3235		DCA	OADD
04504	1030		TAD	OPE
04505	3025		DCA	ACE
04506	7410		SKP	
04507	4202		JMP	AR1

04510	2235		ISZ	QADD
04511	5307		JMP	,=2
04512	1024	SETSGN,	TAD	AC8
04513	1026		TAD	OPS
04514	7710		SPA	CLA
04515	4217		JMS	ACN
04516	4235		JMS	QADD
04517	1020		TAD	AC1
04520	7700		SMA	CLA
04521	5326		JMP	EOFAD
04522	7346		CLA	CLL CMA RTL
04523	4217		JMS	ACN
04524	1026		TAD	OPS
04525	3024		DCA	AC8
04526	3012	EOFAD,	DCA	OV
04527	5775		JMP I	PPFLOOP
04530	2156	FPMUL,	ISZ	PPFLAG
04531	5371		JMP	MULCLR
04532	1024		TAD	AC8
04533	1026		TAD	OPS
04534	3024		DCA	AC8
04535	1025		TAD	ACE
04536	1030		TAD	OPE
04537	1377		TAD	07577
04540	3025		DCA	ACE
04541	1020		TAD	AC1
04542	3026		DCA	OPS
04543	1017		TAD	AC2
04544	3030		DCA	OPE
04545	1016		TAD	AC3
04546	3031		DCA	TMP
04547	3020		DCA	AC1
04550	1162		TAD	07745
04551	3376		DCA	PPTEMP
04552	4202	MPYLUP,	JMS	ARI
04553	1026		TAD	OPS
04554	7010		RAR	
04555	3026		DCA	OPS
04556	1030		TAD	OPE
04557	7010		RAR	
04560	3030		DCA	OPE
04561	1031		TAD	TMP
04562	7010		RAR	
04563	3031		DCA	TMP
04564	7430		SZL	
04565	4235		JMS	QADD
04566	2376		ISZ	PPTEMP
04567	5352		JMP	MPYLUP
04570	5775		JMP I	PPFLOOP
04571	7346	MULCLR,	CLA CLL	CMA RTL
04572	3025		DCA	ACE
04573	3020		DCA	AC1
04574	5775		JMP I	PPFLOOP
04575	4202	PPFLOOP,	FLOOP	
04576	0000	PPTEMP,	0	

04577 7577 07577, 7577

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04600	0000	ANORM,	0		
04601	1020		TAD	AC1	
04602	7450		SNA		/IS HIGH WORD ZERO?
04603	5212		JMP	MAYZERO	/YEP, ENTIRE NUMBER MAY BE ZERO,
04604	1055		TAD	07770	
04605	7710		SPA	CLA	
04606	5220		JMP	NOTBIG	
04607	4547		JM3	I PARI	
04610	2025		IS1	ACE	
04611	5201		JMP	ANORM+1	
04612	1017	MAYZERO,	TAD	AC2	/IS SECOND WORD ZERO?
04613	7600		SZA	CLA	
04614	5220		JMP	NOTBIG	/NOPE, NORMAL NORMALIZE,
04615	1016		TAD	AC3	/1 & 2 ARE ZERO, IS THIRD WORD?
04616	7650		SNA	CLA	
04617	5245		JMP	UNDERF	/YEP, CLEAR AC, ALL ZERO,
04620	1012	NOTBIG,	TAD	OV	
04621	7650		SNA	CLA	
04622	5233		JMP	NOBUMP	
04623	2016		ISZ	AC3	
04624	5233		JMP	NOBUMP	
04625	2017		ISZ	AC2	
04626	5233		JMP	NOBUMP	
04627	2020		ISZ	AC1	
04630	3012		DCA	OV	
04631	5201		JMP	ANORM+1	
04632	7200		CLA	CMA	
04633	1025	NOBUMP,	TAD	ACE	
04634	7510		SPA		
04635	5245		JMP	UNDERF	
04636	3025		DCA	ACE	
04637	7346		CLA	CLL CMA RTL	
04640	1020		TAD	AC1	
04641	7740		SMA	SZA CLA	
04642	5600		JMP	I ANORM	
04643	4254		JMS	AL1	
04644	5232		JMP	NOBUMP-1	
04645	7200	UNDERF,	CLA		
04646	3024		DCA	AC8	
04647	3025		DCA	ACE	
04650	3020		DCA	AC1	

04651	3017		DCA	AC2
04652	3016		DCA	AC3
04653	5620		JMP I	ANORM
04654	2020	ALI,	0	
04655	1016		TAD	AC3
04656	7124		CLL RAL	
04657	3016		DCA	AC3
04660	1017		TAD	AC2
04661	7004		RAL	
04662	3017		DCA	AC2
04663	1020		TAD	AC1
04664	7004		RAL	
04665	3020		DCA	AC1
04666	5654		JMP I	ALI
04667	6201	FPDIV,	CDF	0
04670	2156		ISZ	FPFLAG
04671	5336		JMP	FPZDIV
04672	1024		TAD	ACS
04673	1026		TAD	OPS
04674	3024		DCA	ACS
04675	1030		T D	OPE
04676	7041		CLA	
04677	1025		TAD	ACE
04700	1027		TAD	0177
04701	3025		DCA	ACE
04702	3031		DCA	TMP
04703	1343		TAD	07743
04704	3200		DCA	ANORM
04705	7330	DIVLP,	CLA CLL	CML RAR
04706	0023		AND	OP1
04707	1020		TAD	AC1
04710	7700		SMA CLA	
04711	4742		JMS I	PACN
04712	4557		JMS I	POADD
04713	1031		TAD	TMP
04714	7004		RAL	
04715	3031		DCA	TMP
04716	1030		TAD	OPE
04717	7004		RAL	
04720	3030		DCA	OPE
04721	1026		TAD	OPS
04722	7004		RAL	
04723	3026		DCA	OPS
04724	4550		JMS I	PAL1
04725	2200		ISZ	ANORM
04726	5305		JMP	DIVLP
04727	1026		TAD	OPS
04730	3020		DCA	AC1
04731	1030		TAD	OPE
04732	3017		DCA	AC2
04733	1031		TAD	TMP
04734	3016		DCA	AC3
04735	5741		JMP I	PPFLOOP
04736	1071	FPZDIV,	TAD	0377
04737	3025		DCA	ACE

\*\*\*\*\* B K INSERT.



04740	5741		JMP I	PPFLOOP	
04741	4222	PPFLOOP,	FPLOOP		
04742	4417	PACN,	ACN		
04743	7743	07743,	7743		
04744	0000	FIX,	0		
04745	1020		TAD	AC1	
04746	7650		SNA	CLA	
04747	5367		JMP	ZFIXEX	
04750	1025	FIXLUP,	TAD	ACE	
04751	1377		TAD	07545	
04752	7700		SMA	CLA	
04753	5373		JMP	FIXEXIT	
04754	4547		JMS I	PARI	
04755	1024		TAD	ACS	
04756	0012		AND	OV	
04757	7640		SZA	CLA	
04760	2016		ISZ	AC3	
04761	5365		JMP	,+4	
04762	2017		ISZ	AC2	
04763	5365		JMP	,+2	
04764	2020		I'L	AC1	
04765	2025		ISZ	ACE	
04766	5350		JMP	FIXLUP	
04767	3025	ZFIXEX,	DCA	ACE	
04770	3020		DCA	AC1	
04771	3017		DCA	AC2	
04772	3016		DCA	AC3	
04773	3012	FIXEXIT,	DCA	OV	
04774	1016		TAD	AC3	
04775	7001	S8FIX,	IAC		/(NOP) IF 1 ORG INDEXING
04776	5744		JMP I	FIX	
04777	7545	07545,	7545		

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05000	0000	OUTNUM,	0		
05001	6201		ODF	0	////////// 8 K INSERT.
05002	1024		TAD	AC0	
05003	7700		SMA	CLA	
05004	5207		JMP	,+3	
05005	1351		TAD	0255	
05006	4433		JMS I	PPUTCH	
05007	1020		TAD	AC1	
05010	7640		SZA	CLA	
05011	5216		JMP	NONZERO	
05012	1011		TAD	0260	
05013	4433		JMS I	PPUTCH	

\*\*\*\*\* 8 K INSERT.

05014	6211		COF	10	
05015	5600		JMP I	OUTNUM	
05016	4746	NONZERO,	JMS I	FIXUP	
05017	1355		TAD	07771	
05020	3042		DCA	PRTEMP	
05021	1044		TAD	PNUMBUF	
05022	3025		OCA	ACE	
05023	5230		JMP	,+5	
05024	1020	CVTLOOP,	TAD	AC1	
05025	0027		AND	0177	
05026	3020		DCA	AC1	
05027	4760		JMS I	PMPY	
05030	1020		TAD	AC1	
05031	7006		RTL		
05032	7006		RTL		
05033	7006		RTL		
05034	0347		AND	017	
05035	1011		TAD	0260	
05036	3425		DCA I	ACE	
05037	2025		ISZ	ACE	
05040	2042		ISZ	PRTEMP	
05041	5224		JMP	CVTLOOP	
05042	7326		CLA CLL	CML RTL	
05043	1043		TAD	DECEXP	
05044	7450		SNA		
05045	5325		JMP	FMT1	/,0NNNNNNN
05046	7510		SPA		
05047	5253		JMP	FMT2	/N,NNNNNNE+NN
05050	1055		TAD	07770	
05051	7710		SPA CLA		
05052	5330		JMP	FMT3	/OTHER THAN N,NNNNNNE+NN
05053	7200	FMT2,	CLA		/N,NNNNNNE+NN
05054	1044		TAD	PNUMBUF	
05055	3025		DCA	ACE	
05056	1357		TAD	07772	
05057	3042		OCA	PRTEMP	
05060	1425		TAD I	ACE	
05061	4433		JMS I	PPUTCH	
05062	1356		TAD	0256A	
05063	4433		JMS I	PPUTCH	
05064	2025		ISZ	ACE	
05065	1425		TAD I	ACE	
05066	4433		JMS I	PPUTCH	
05067	2042		ISZ	PRTEMP	
05070	5264		JMP	,-4	
05071	1352		TAD	0305	
05072	4433		JMS I	PPUTCH	
05073	1043		TAD	DECEXP	
05074	7710		SPA CLA		
05075	7326		CLA CLL	CML RTL	
05076	1350		TAD	0253	
05077	4433		JMS I	PPUTCH	
05100	3025		DCA	ACE	
05101	1043		TAD	DECEXP	
05102	7510		SPA		

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05103 7041  
05104 3043  
05105 1243

CIA  
DCA DECEXP  
TAD DECEXP

05106	1354	TAD	07766	
05107	7510	SPA		
05110	5314	JMP	,+4	
05111	3043	DCA	DECEXP	
05112	2025	ISZ	ACE	
05113	5305	JMP	,=6	
05114	7200	CLA		
05115	1025	TAD	ACE	
05116	1011	TAD	0260	
05117	4433	JMS I	PPUTCH	
05120	1043	TAD	DECEXP	
05121	1011	TAD	0260	
05122	4433	JMS I	PPUTCH	
05123	6211	FMTENF, CDF	10	/***** 8 K INSERT,
05124	5600	JMP I	OUTNUM	
05125	4514	FMT1, JMS I	PPRINTXT	
05126	7371		DOTZERO	
05127	6201	CDF	0	/***** 8 K INSERT,
05130	1355	FMT3, TAD	07771	
05131	3042	DCA	PRTEMP	
05132	1361	TAD	PNBF6	
05133	3025	TRYAGIN, DCA	ACE	
05134	1425	TAD I	ACE	
05135	1353	TAD	07520	
05136	7640	SZA CLA		
05137	5344	JMP	ZERDONE	
05140	2042	ISZ	PRTEMP	
05141	7240	CLA CMA		
05142	1025	TAD	ACE	
05143	5333	JMP	TRYAGIN	
05144	5745	ZERDONE, JMP I	,+1	/***** 8 K INSERT,
05145	6545		PZERDONE	/***** 8 K INSERT,
05146	5200	FIXUP, FIXITUP		
05147	0017	017,	17	
05150	0253	0253,	253	
05151	0255	0255,	255	
05152	0305	0305,	305	
05153	7520	07520,	7520	
05154	7766	07766,	7766	
05155	7771	07771,	7771	
05156	0256	0256A,	256	
05157	7772	07772,	7772	
05160	5321	PMPY,	MPY	
05161	5343	PNBF6,	NUMBUF+6	

05162	3714	TOOLONG,TEXT	'_LINE TOO LONG_'
05163	1116		
05164	0540		
05165	2417		
05166	1740		
05167	1417		
05170	1607		
05171	3700		

	5200	PAGE		
05200	0000		FIXITUP,0	
05201	1025		TAD	ACE
05202	1345		TAD	07610
05203	3025		DCA	ACE
05204	7410		SKP	
05205	1043	OCC,	TAD	DECEXP
05206	3043		DCA	DECEXP
05207	1020	NORMIT,	TAD	AC1
05210	7006		RTL	
05211	7630		SZL CLA	
05212	5220		JMP	NORMED
05213	4550		JMS I	PAL1
05214	7240		CLA CMA	
05215	1025		TAD	ACE
05216	3025		DCA	ACE
05217	5207		JMP	NORMIT
05220	1025	NORMED,	TAD	ACE
05221	7540		SMA SZA	
05222	5236		JMP	NOTX10
05223	7200		CLA	
05224	4547		JMS I	PAR1
05225	4547		JMS I	PAR1
05226	4547		JMS I	PAR1
05227	4547		JMS I	PAR1
05230	4321		JMS	MPY
05231	1025		TAD	ACE
05232	1160		TAD	04
05233	3025		DCA	ACE
05234	7240		CLA CMA	
05235	5205		JMP	OCC
05236	1346	NOTX10,	TAD	07773
05237	7510		SPA	
05240	5265		JMP	EXP0K
05241	7200		CLA	
05242	1050	EXP000,	TAD	07740
05243	3321		DCA	MPY
05244	7100		CLL	
05245	1020	DVLOOP,	TAD	AC1
05246	1347		TAD	05400
05247	7500		SMA	
05250	3020		DCA	AC1
05251	7204		CLA CML CMA RAL	
05252	3023		DCA	OP1
05253	4550		JMS I	PAL1
05254	2023		IBZ	OP1
05255	2010		IBZ	AC3

05256	2321		ISZ	MPY
05257	5245		JMP	DVLOOP
05260	1020		TAD	AC1
05261	0071		AND	0377
05262	3020		DCA	AC1
05263	7201		CLA	IAC
05264	5205		JMP	DCC
05265	3042	EXPOK,	DCA	PRTEMP
05266	7410		SKP	
05267	4547		JMS I	PAR1
05270	2042		ISZ	PRTEMP
05271	5267		JMP	, -2
05272	1020		TAD	AC1
05273	1347		TAD	05400
05274	7700		SMA	CLA
05275	5242		JMP	EXPGOOD
05276	7300		CLA	CLL
05277	1016		TAD	AC3
05300	1344		TAD	02062
05301	3016		DCA	AC3
05302	7430		SIL	
05303	2017		I4Z	AC2
05304	7410		SKP	
05305	2020		ISZ	AC1
05306	1020		TAD	AC1
05307	1347		TAD	05400
05310	7640		SZA	CLA
05311	5600		JMP I	FIXITUP
05312	1155		TAD	0200
05313	3020		DCA	AC1
05314	3017		DCA	AC2
05315	3016		DCA	AC3
05316	2043		ISZ	DECEXP
05317	7000		NOP	
05320	5600		JMP I	FIXITUP
05321	0000	MPY,	0	
05322	4550		JMS I	PAL1
05323	1020		TAD	AC1
05324	3023		DCA	OP1
05325	1017		TAD	AC2
05326	3022		DCA	OP2
05327	1016		TAD	AC3
05330	3021		DCA	OP3
05331	4550		JMS I	PAL1
05332	4550		JMS I	PAL1
05333	4557		JMS I	POADD
05334	5721		JMP I	MPY
05335	0000	NUMBUF,	0101010101010	
05336	0000			
05337	0000			
05340	0000			
05341	0000			
05342	0000			
05343	0000			
05344	2062	02062,	2062	

05345 7610 07610, 7610  
 05346 7773 07773, 7773  
 05347 5400 05400, 5400

05350 0000 RNDJMP, FEXIT  
 05351 4546 JMS I PANORM  
 05352 5753 JMP I RND  
  
 05353 0000 RND, 0  
 05354 4435 FENTER  
 05355 3227 FLD+FWD+FRNOX=,  
 05356 0000 FEXIT  
 05357 1021 TAD OP3  
 05360 7006 RTL  
 05361 7006 RTL  
 05362 7006 R'L  
 05363 3020 DCA AC1  
 05364 1020 TAD AC1  
 05365 7010 RAR  
 05366 0050 AND 07740  
 05367 3017 DCA AC2  
 05370 3016 DCA AC3  
 05371 4557 JMS I POADD  
 05372 4557 JMS I POADD  
 05373 4557 JMS I POADD  
 05374 1030 TAD OPE  
 05375 3025 DCA ACE  
 05376 1020 TAD AC1  
 05377 0072 AND 07  
 05400 3020 DCA AC1  
 05401 4435 FENTER  
 05402 2202 FST+FWD+FRNOX=,  
 05403 1633 FJMP+BKWD+,-RNDJMP

05404 2004 FRNOX, 2004;4173;1231  
 05405 4173  
 05406 1231

05407 0000 FSQRX, 01010  
 05410 0000  
 05411 0000  
 05412 0000 SQR, 0  
 05413 4435 FENTER  
 05414 2073 FST OPERAND  
 05415 0040 FSNE  
 05416 1232 FJMP+FWD+SQEXIT=,

25417	0000	FEXIT	
25420	1024	TAD	ACS
25421	7710	SPA	CLA
25422	5447	JMP I	PARGERR
25423	1025	TAD	ACE
25424	1252	TAD	007600
25425	7100	CLL	
25426	7510	SPA	
25427	7020	CML	
25430	7010	RAR	
25431	1155	TAD	0200
25432	3025	DCA	ACE
25433	1055	TAD	07770
25434	3013	DCA	INDEX1
25435	4035	SQLLOOP,	FENTER
25436	2627		FST+BKWD+,-FSQRX
25437	3073		FLO OPERAND
25440	7631		FDV+BKWD+,-FSQRX
25441	4632		FAD+BKWD+,-FSQRX
25442	0000	FEXIT	
25443	7240	CI 4	CMA
25444	1025	TAD	ACE
25445	3025	DCA	ACE
25446	2013	IBZ	INDEX1
25447	5235	JMP	SQLLOOP
25450	0000	SQLEXIT,	FEXIT
25451	5612	JMP I	SGR
25452	7600	007600,	7600
25453	0000	FN,	0
25454	1045	TAD	LOCCTR
25455	4504	JMB I	PPUSH
25456	1050	TAD	WORD
25457	4504	JMB I	PPUSH
25460	6201	COF	0
25461	1745	TAD I	PUSERFN
25462	6211	COF	10
25463	7001	IAC	
25464	3049	DCA	LOCCTR
25465	4567	GET+ISIT	/'DEF'
25466	1761	1761	
25467	5746	JMP I	PFNERR /NO
25470	4177	JMB	GETWD /SKIP 'FN'
25471	4177	JMB	GETWD /SKIP LETTER
25472	4177	JMB	GETWD /SKIP '('
25473	4567	GET+ISIT	/'A VARIABLE
25474	7000	7000	
25475	5746	JMP I	PFNERR /NO
25476	2050	IBZ	WORD
25477	1450	TAD I	WORD
25500	3013	DCA	INDEX1
25501	1413	TAD I	INDEX1
25502	4504	JMB I	PPUSH
25503	1413	TAD I	INDEX1
25504	4504	JMB I	PPUSH
25505	1413	TAD I	INDEX1

////////// 8 K INSERT  
 //////////// 8 K INSERT.



05506	4504	JMS I	PPUSH	
05507	1013	TAD	INDEX1	
05510	4504	JMS I	PPUSH	
05511	7304	CLA CLL	CMA RAL	
05512	1013	TAD	INDEX1	
05513	3013	OCA	INDEX1	
05514	4435	PENTER		
05515	2413	PSTI	INDEX1	
05516	0020	PEXIT		
05517	4177	JMS	GETWD	/SKIP '3'
05520	4177	JMS	GETWD	/SKIP '0'
05521	4501	JMS I	PEVAL	
05522	4505	JMS I	PPOP	
05523	3050	OCA	WORD	
05524	4505	JMS I	PPOP	
05525	3450	OCA I	WORD	
05526	7240	CLA CMA		
05527	1050	TAD	WORD	
05530	3050	DCA	WORD	
05531	4505	JMS I	PPOP	
05532	3450	OCA I	WORD	
05533	7240	CLA CMA		
05534	1050	TAD	WORD	
05535	3050	OCA	WORD	
05536	4505	JMS I	PPOP	
05537	3450	OCA I	WORD	
05540	4505	JMS I	PPOP	
05541	3050	OCA	WORD	
05542	4505	JMS I	PPOP	
05543	3045	OCA	LOCCTR	
05544	5653	JMP I	FN	
05545	1620	PUSERPN, USERFN		

05546 0352 PFNERR, FNERR

05547	0000	TAD,	0	/FUNCTION "TAB" IN PRINT STATEMENT.
05550	4506	JMS I	PFIX	/FIX THE FAC NOW.
05551	6201	GOB	0	/SET DATA FIELD TO FIELD ZERO.
05552	7201	CLA IAC		/SET FLAG TO INDICATE WE'VE DONE THIS FUNCTION.
05553	3771	OCA I	PTABFLG	/AND STORE AWAY.
05554	1024	TAD	ACS	/GET SIGN OF FAC
05555	7650	SNA CLA		/WAS IT A POSITIVE NUMBER?
05556	1016	TAD	ACS	/YEP, PICK UP DESIRED POSITION.
05557	0071	AND	0377	/MAXIMUM OF 256 COLUMNS.
05560	3770	OCA I	PTABDES	/SAVE AWAY FOR ACTUAL SPACER TO USE.
05561	4772	JMS I	TBEGPIX	/PREPARE TO RETURN PRESENT COLUMN NUMBER.

05562	7201		CLA IAC		
05563	1126		TAD	COLUMN	/INCREMENT TO ACCOUNT FOR DIFFERENCES.
05564	3016		DCA	AC3	/AND STORE AWAY.
05565	6211		CDF	10	/RESET DATA FIELD NOW.
05566	4546		JMS I	PANORM	/NORMALIZE AC NOW.
05567	5747		JMP I	TAB	/AND RETURN NOW.
05570	6367	PTABDES, TABDES			/POINTER TO DESIRED LOCATION OF PRINT HEAD.
05571	2345	PTABFLG, TABFLG			/POINTER TO TAB IN PRINT FLAG.
05572	3762	TBEGFIX, BEGFIX			/POINTER TO MINI-FIX-SET-UP ROUTINE.
05573	7201	RUBO,	CLA IAC		/SET RUBOUT SWITCH.
05574	3135	NORUBO,	DC\	RBSWCH	
05575	5776		JMP I	.+1	/AND CLEAN IT UP.
05576	7175		DEVCOM		/CLEAN=UP POINTER.

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05600	0000	TAN,	0		
05601	4435		FENTER		
05602	2275		FST+FWD+FTANT1=.		
05603	0000		FEXIT		
05604	4216		JMS	COS	
05605	4435		FENTER		
05606	2274		FST+FWD+FTANT2=.		
05607	3270		FLD+FWD+FTANT1=.		
05610	0000		FEXIT		
05611	4224		JMS	SIN	
05612	4435		FENTER		

05613	7267		FDV+FWD+FTANT2=.
05614	2200		FEXIT
05615	5000		JMP I TAN
05616	2200	COS,	0
05617	4435		FENTER
05620	4312		FAD+FWD+FSINC7=.
05621	0000		FEXIT
05622	4224		JMS SIN
05623	5616		JMP I COS
05624	0000	SIN,	0
05625	4435		FENTER
05626	7265		FDV+FWD+FSINC1=.
05627	2256		FST+FWD+FSINZ=.
05630	0000		FEXIT
05631	3024		DCA ACS
05632	4676		JMS I PINT
05633	7330		CLA CLL CML RAR
05634	0305		AND FSINZ
05635	3024		DCA ACS
05636	4435		FENTER
05637	5246		FS3+FWD+FSINZ=.
05640	6275		F1P+FWD+FSINM4=.
05641	2244	FSIN10,	FST+FWD+FSINZ=.
05642	0000		FEXIT
05643	3024		DCA ACS
05644	4435		FENTER
05645	5151		FSB ONE
05646	0140		FBGT
05647	1210		FJMP+FWD+FSINOK=.
05650	3235		FLD+FWD+FSINZ=.
05651	0000		FEXIT
05652	4675		JMS I PSGN
05653	2025		ISZ ACE
05654	4435		FENTER
05655	5230		FSB+FWD+FSINZ=.
05656	1615		FJMP+BKWD+FSIN10
05657	3226	FSINOK,	FLD+FWD+FSINZ=.
05660	6225		FMP+FWD+FSINZ=.
05661	2227		FST+FWD+FSINZZ=.
05662	6234		FMP+FWD+FSINC3=.
05663	4236		FAD+FWD+FSINC4=.
05664	6224		FMP+FWD+FSINZZ=.
05665	4237		FAD+FWD+FSINC5=.
05666	6222		FMP+FWD+FSINZZ=.
05667	4240		FAD+FWD+FSINC6=.
05670	6220		FMP+FWD+FSINZZ=.
05671	4241		FAD+FWD+FSINC7=.
05672	6213		FMP+FWD+FSINZ=.
05673	0000		FEXIT
05674	5624		JMP I SIN
05675	0726	PSGN,	SGN
05676	6434	PINT,	INT
05677	0000	FTANT1,	01010
05700	0000		
05701	0000		

05702	2200	FTANT2, 01010
05703	2200	
05704	2200	
05705	2227	FSINZ, 01010
05706	2200	
05707	2200	
05710	2020	FSINZZ, 01010
05711	2000	
05712	2000	
05713	2036	FSINC1, 20361220717325
05714	2207	
05715	7325	
05716	1644	FSINC3, 16441755316722
05717	7553	
05720	6722	
05721	5714	FSINC4, 57141622311432
05722	6223	
05723	1432	
05724	1755	FSINC5, 17551063211276
05725	0632	
05726	1276	
05727	6005	FSINC6, 61051125617400
05730	1256	
05731	7400	
05732	2016	FSINC7, 20161220717325
05733	2207	
05734	7325	
05735	6034	FSINM4, 60341000010000
05736	0000	
05737	0000	
05740	4435	UPARRX, FENTER
05741	2634	FST+BKWD+,-FSINZ
05742	0100	PAGE
05743	1221	FJMP+FWD+EXPLONG=.
05744	0000	FEXIT
05745	4676	JMS I PINT
05746	4435	FENTER
05747	3642	FSB+BKWD+,-FSINZ
05750	0050	FSEQ
05751	1213	FJMP+FWD+EXPLONG=.
05752	3645	FLD+BKWD+,-FSINZ
05753	5207	FSB+FWD+PUPRC1=.
05754	0150	FSLE
05755	1207	FJMP+FWD+EXPLONG=.
05756	3651	FLD+BKWD+,-FSINZ
05757	0000	FEXIT
05760	5761	JMP I ,+1
05761	6457	UPARROW
05762	2077	PUPRC1, 207717700
05763	7700	
05764	3073	EXPLONG,FLD OPERAND
05765	0000	FEXIT
05766	4775	JMS I PLOG
05767	4435	FENTER
05770	6663	FMP+BKWD+,-FSINZ

05771 0000  
 05772 4776  
 05773 5774  
 05774 1203  
 05775 6114 PLOG,  
 05776 6000 PEXP,

FEXIT  
 JMS I PEXP  
 JMP I .+1  
 OPOONE  
 LOG  
 EXP

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06000	0000	EXP,	0
06001	4435		FENTER
06002	7270		FDV+FWD+PEXPC1=.
06003	2261		FDT+FWD+PEXPU=.
06004	0000		FEXIT
06005	4660		JMS I PPINT
06006	7330		CLA CLL CML RAR
06007	1024		TAD ACS
06010	3024		DCA ACS
06011	0435		FENTER
06012	2247		FST+FWD+PEXPI=.
06013	4251		FAD+FWD+PEXPU=.
06014	2253		FST+FWD+PEXPF=.
06015	6252		FMP+FWD+PEXPF=.
06016	4257		FAD+FWD+PEXPC2=.
06017	2245		FST+FWD+PEXPU=.
06020	3241		FLD+FWD+PEXPI=.
06021	0000		FEXIT
06022	4506		JMS I PPIX
06023	7000	FXXPFX,	NOB / (IAC IF 1 ORG INDEXING)
06024	3261		DCA FEXPI
06025	1024		TAD ACS
06026	7164		CMA CLL CML RAL
06027	1261		TAD FEXPI
06030	7420		SNL
06031	7041		CIA
06032	7001		IAC
06033	3261		DCA FEXPI
06034	4435		FENTER
06035	3243		FLD+FWD+PEXPC3=.
06036	7226		FDV+FWD+PEXPU=.
06037	4244		FAD+FWD+PEXPC4=.
06040	5227		FSD+FWD+PEXPF=.
06041	2223		FST+FWD+PEXPU=.
06042	3225		FLD+FWD+PEXPF=.
06043	6224		FMP+FWD+PEXPF=.
06044	6242		FMP+FWD+PEXPC5=.
06045	4217		FAD+FWD+PEXPU=.

06046	2216		FST+FWD+FEXPU=.
06047	3220		FLD+FWD+FEXPF=.
06050	7214		FDV+FWD+FEXPU=.
06051	4240		FAD+FWD+FEXPC6=.
06052	2215		FST+FWD+FEXPF=.
06053	0000		FEXIT
06054	1025		TAD ACE
06055	1261		TAD FEXPI
06056	3025		DCA ACE
06057	5600		JMP I EXP
06060	6434	PPINT,	INT
06061	0000	FEXPI,	01010
06062	0000		
06063	0000		
06064	0000	FEXPU,	01010
06065	0000		
06066	0000		
06067	0000	FEXPF,	01010
06070	0000		
06071	0000		
06072	2005	FEXPC1,	21051427110300
06073	4271		
06074	0300		
06075	2075	FEXPC2,	20751355217022
06076	3552		
06077	7022		
06100	6124	FEXPC3,	61241647710715
06101	6477		
06102	0715		
06103	2044	FEXPC4,	20441764310062
06104	7643		
06105	0062		
06106	1744	FEXPC5,	17441337213400
06107	3372		
06110	3400		
06111	2004	FEXPC6,	20041000010000
06112	0000		
06113	0000		
06114	0000	LOG,	0
06115	1024	TAD	ACS
06116	7710	SPA	CLA
06117	5447	JMP I	PARGERR
06120	1025	TAD	ACE
06121	3365	DCA	LOGACE
06122	1155	TAD	DZ00
06123	3025	DCA	ACE
06124	4435	FENTER	
06125	2641	FST+BKWD+.	=FEXPU
06126	4244	FAD+FWD+FLOGC1=.	
06127	2640	FST+BKWD+.	=FEXPF
06130	3644	FLD+BKWD+.	=FEXPU
06131	5241	FSD+FWD+FLOGC1=.	
06132	7643	FDV+BKWD+.	=FEXPF
06133	2644	FST+BKWD+.	=FEXPF
06134	6645	FMP+BKWD+.	=FEXPF

06135	6216	FMP+FWD+FLOGC2=.
06136	4220	FAD+FWD+FLOGC3=.
06137	6650	FMP+BKWD+.=FEXPF
06142	6651	FMP+BKWD+.=FEXPF
06141	4220	FAD+FWD+FLOGC4=.
06142	6653	FMP+BKWD+.=FEXPF
06143	5632	FSB+BKWD+.=FEXPC6
06144	2655	FST+BKWD+.=FEXPF
06145	3217	FLD+FWD+LOGFWD=.
06146	5221	FSB+FWD+LOGOKW=.
06147	4660	FAD+BKWD+.=FEXPF
06150	6656	FMP+BKWD+.=FEXPC1
06151	0000	FEXIT
06152	5714	JMP I LOG
06153	2004	FLOGC2, 20041625312521
06154	6253	
06155	2521	
06156	2007	FLOGC3, 20071542113604
06157	5421	
06160	3604	
06161	2025	FLOGC4, 21251612511007
06162	6125	
06163	1007	
06164	2174	LOGFWD, 2174
06165	0000	LOGACE, 0
06166	0000	0
06167	2174	LOGOKW, 21741020010
06170	0200	
06171	0000	
06172	2005	FLOGC1, 20051520213632
06173	5202	
06174	3632	

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06200	0000	ATN, 0
06201	1024	TAD ACS
06202	3272	DCA FATNSX
06203	3024	DCA ACS
06204	4435	FENTER
06205	2271	FST+FWD+FATNT=.
06206	2265	FST+FWD+FATNAX=.
06207	5275	FSB+FWD+FATNC1=.
06210	0140	FSGT
06211	1254	FJMP+FWD+ATNBIG=.

06212	5275		FSB+FWD+FATNC2=.
06213	0140		FSGT
06214	1204		FJMP+FWD+ATNLOW=.
06215	3151		FLD ONE
06216	7260		FDV+FWD+FATNT=.
06217	2257		FST+FWD+FATNT=.
06220	3152	ATNLOW,	FLD ZERO
06221	2316		FST+FWD+FATNC=.
06222	3254		FLD+FWD+FATNT=.
06223	5267		FSB+FWD+FATNC3=.
06224	0100		FSGE
06225	1212		FJMP+FWD+ATNNOT=.
06226	3250		FLD+FWD+FATNT=.
06227	4266		FAD+FWD+FATNC4=.
06230	2246		FST+FWD+FATNT=.
06231	3314		FLD+FWD+FATNCJ=.
06232	7244		FDV+FWD+FATNT=.
06233	4262		FAD+FWD+FATNC4=.
06234	2242		FST+FWD+FATNT=.
06235	3263		FLD+FWD+FATNC5=.
06236	2301		FST+FWD+FATNC=.
06237	3237	ATNNOT,	FLD+FWD+FATNT=.
06240	6236		FMP+FWD+FATNT=.
06241	2240		FST+FWD+FATNTT=.
06242	3261		FLD+FWD+FATNC6=.
06243	6236		FMP+FWD+FATNTT=.
06244	4262		FAD+FWD+FATNCT=.
06245	6234		FMP+FWD+FATNTT=.
06246	4263		FAD+FWD+FATNC8=.
06247	6232		FMP+FWD+FATNTT=.
06250	4264		FAD+FWD+FATNC9=.
06251	6230		FMP+FWD+FATNTT=.
06252	4151		FAD ONE
06253	6223		FMP+FWD+FATNT=.
06254	4263		FAD+FWD+FATNC=.
06255	2221		FST+FWD+FATNT=.
06256	3215		FLD+FWD+FATNAX=.
06257	5151		FSB ONE
06260	0140		FSGT
06261	1204		FJMP+FWD+ATNBIG=.
06262	3260		FLD+FWD+FATNCH=.
06263	5213		FSB+FWD+FATNT=.
06264	2212		FST+FWD+FATNT=.
06265	3211	ATNBIG,	FLD+FWD+FATNT=.
06266	0000		FEXIT
06267	1272		TAD FATNSX
06270	3024		OCA ACS
06271	5600		JMP I ATN
06272	0000	FATNSX,	0
06273	0000	FATNAX,	01010
06274	0000		
06275	0000		
06276	0000	FATNT,	01010
06277	0000		
06300	0000		



06301	0000	FATNTT, 01010
06302	0000	
06303	0000	
06304	1634	FATNC1, 16341000010000
06305	0000	
06306	0000	
06307	2007	FATNC2, 20071777610000
06310	7776	
06311	0000	
06312	1774	FATNC3, 17741223012427
06313	2230	
06314	2427	
06315	2016	FATNC4, 20161733117272
06316	7331	
06317	7272	
06320	2004	FATNC5, 20041140512216
06321	1405	
06322	2216	
06323	1756	FATNC6, 17561046214562
06324	0462	
06325	4562	
06326	5764	FATNC7, 57641422113403
06327	4221	
06330	3403	
06331	1766	FATNC8, 17661314116672
06332	3141	
06333	6672	
06334	5775	FATNC9, 57751252512337
06335	2525	
06336	2337	
06337	0000	FATNC, 01010
06340	0000	
06341	0000	
06342	2016	FATNCM, 20161220717325
06343	2207	
06344	7325	
06345	6034	FATNCJ, 60341000010000
06346	0000	
06347	0000	

06350	1126	TABDD, TAD	COLUMN
06351	7041	CIA	
06352	1367	TAD	TABDES
06353	7740	SMA SZA CLA	
06354	5360	JMP	TABOK

/GET WHERE WE ARE NOW.

/COMPARE AGAINST WHERE WE WANT TO BE.

/DO WE HAVE TO BACK UP?

/NOPE.

06355	1007		TAD	0215	/YEP, GIVE C.R.
06356	4433		JMS I	PPUTCH	/SEND IT
06357	4433		JMS I	PPUTCH	/ALSO SEND A NULL CHARACTER TO ALL TTY TO RETURN.
06360	1126	TABOK,	TAD	COLUMN	/GET WHERE WE ARE.
06361	7040		CMA		/NEGATE=1
06362	1367		TAD	TABDES	/WHERE DO WE WANT TO BE?
06363	7750		SNA SPA	CLA	/?
06364	5770		JMP I	TPRINT	/HERE, EXIT.
06365	1051		TAD	0240	/FARTHER UP.
06366	5357		JMP	TABOK=1	/GIVE SPACE AND LOOP AGAIN.
06367	0000	TABDES, 0			
06370	2207	TPRINT, PRINTC			/NORMAL EXIT LOCATION.

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06400 0000  CHKFIT, 0
06401 1160          TAD      04
06402 4544          JMS I   SPLEFT
06403 5600          JMP I   CHKFIT
06404 4561          JMS I   PLINFX
06405 4537          JMS I   PRESET      /RESET ALL I/O DEVICES,
06406 4514          JMS I   PPRINTXT
06407 3562          UCHI
06410 3064          OCA      SNUMPLG      /RESET THIS FLAG NOW
06411 5612          JMP I   .+1
06412 2610          NEWLIN      /THIS MAY BE RIGHT,
    
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```

06413 0000  RMLEFT, 0
06414 7100          CLL
06415 1003          TAD      ARRLOC
06416 7430          BZL
06417 5223          JMP      NORLFT
06420 7041          CIA
06421 1004          TAD      CODELOC
06422 7620          SNL CLA
06423 2213  NORLFT, ISZ
06424 5613          JMP I   RMLEFT
    
```

```

06425 0000  ABS, 0
06426 3024          OCA      ACS
06427 5625          JMP I   ABS
    
```

26430	0000	STICKIT,0		
26431	3403		OCA I	ARRLOC
26432	2003		ISZ	ARRLOC
26433	5630		JMP I	STICKIT

26434	0000	INT,	0	
26435	4506		JMS I	PFIX
26436	7200		CLA	
26437	4506		JMS I	PANORM
26440	5634		JMP I	INT

26441	0000	8XERR, 0			/INCASE THIS IS JMS'D TO,
26442	7200		CLA		
26443	3241		OCA	8XERR	/AND REMAKE INTO AN "AND"
26444	4077		JMS I	PERROR	
26445	2331		TEXT	'SYNTAX'	
26446	1624				
26447	0130				
26450	0000				
26451	4001	ATLINE, TEXT ' AT LINE '			
26452	2440				
26453	1411				
26454	1605				
26455	4000				

26456	7570	07570, 7570		
26457	1024	UPARR0W, TAD		ACS
26460	7700		SMA CLA	
26461	1256		TAD	07570
26462	1025		TAD	ACE
26463	7700		SMA CLA	
26464	5447		JMP I	PARGERR
26465	4506		JMS I	PFIX
26466	5667		JMP I	.+1
26467	4365		UPARR2	

```

26470 4570 MOREDIM,MUSTBE      /', '
26471 3763                3763
26472 7240 DIM,          CLA CMA
26473 3234                DCA      DIMFLAG
26474 4501                JMS I   PEVAL
26475 4566                ISIT     / (CR) OR '\ '
26476 2000                2000
26477 5270                JMP     MOREDIM
26500 5503                JMP I  PEXECUTE/YES

```

```

26501 4004 DELETED,TEXT ' DELETED.'
26502 0514
26503 0524
26504 0504
26505 3700

```

```

26506 1050 AMATCH, TAD      WORD
26507 3064                DCA      SNUMFLG
26510 1064                TAD      SNUMFLG
26511 3457                DCA I   FPTR
26512 2057                ISZ     FPTR
26513 1060                TAD      GPTR
26514 3056                DCA      EPTR
26515 4966                ISIT     /'REM'
26516 1762                1762
26517 5516                JMP I   PSLOOP
26520 5721                JMP I   .+1
26521 3043                REMPack

```

```

26522 3723 BREAK, 3723/2417/2056
26523 2417
26524 2056
26525 3722 READY, TEXT ' _READY...'
26526 0501
26527 0431
26530 5637
26531 3700

```

6531 CRLF,-1

```

06532 0000 ISDIG, 0
06533 4522 JMS I PNONBLNK
06534 1344 TAD 07706A
06535 7100 CLL
06536 1065 TAD 012
06537 7420 SNL
06540 7200 CLA
06541 7430 SZL
06542 2332 I? ISDIG
06543 5732 JIP I ISDIG
06544 7706 07706A, 7706
    
```

```

06545 1042 PZERDON, TAD PRTEMP
06546 1043 TAD DECEXP
06547 7710 SPA CLA
06550 5354 JMP .+4
06551 1043 TAD DECEXP
06552 7040 CMA
06553 3042 DCA PRTEMP
06554 1044 TAD PNUMBUF
06555 3025 DCA ACE
06556 7344 CLA CLL CMA RAL
06557 7040 DIGLUP, CMA
06560 1043 TAD DECEXP
06561 7440 SZA
06562 5365 JMP .+3
06563 1375 TAD 02560
06564 4433 JMS I PPUTCH
06565 3043 DCA DECEXP
06566 1425 TAD I ACE
06567 4433 JMS I PPUTCH
06570 2025 ISZ ACE
06571 2042 ISZ PRTEMP
06572 5357 JMP DIGLUP
06573 5774 JMP I .+1
06574 5123 PMTENF
    
```

\*\*\*\*\* 8 K INSERT RETURN.

06575 0256 02560, 256

6600 PAGE

6661 L8F=6661  
 6662 LCF=6662  
 6666 LLS=6666

06600	3334	INTER,	DCA	INTAC	/SAVE ALL IMPORTANT STUFF ON INTERUPT.
06601	7010		RAR		
06602	3335		OCA	INTL	
06603	6234		RIB		
06604	0374		AND	070	
06605	1375		TAD	06202	
06606	3371		OCA	INTCIF	/SAVE INSTRUCTION FIELD
06607	6234		RIB		
06610	0072		AND	07	
06611	7106		CLL	RTL	/SHIFT IT OVER

26612	7004		RAL		
26613	1215		TAD	06201A	/AND THE INSTUCTION FIELD
26614	3370		DCA	INTCOF	
26615	6201	06201A,	CDF	0	/JUST IN CASE.
06616	7000		IFZERO	MACHINE<	
			NDP		/TO KEEP PAGE SAME SIZE.
			IFNZRO	MACHINE<	
			JMS I	SPECINT	/CHECK FOR SPECIAL INTERUPT DEVICE.
06617	6041		TSF		/IS IT THE TELEPRINTER.
06620	5223		JMP	,+3	/NO
06621	6042		TCF		
06622	5310		JMP	INDDUN	/YEP, CLEAN IT UP,
06623	6661		LSF		/PRINTER?
06624	5227		JMP	,+3	
06625	6662		LCF		/YEP.
06626	5310		JMP	INDDUN	
06627	6021		PCF		/PUNCH?
06630	5233		JMP	,+3	
06631	6022		PCF		
06632	5310		JMP	INDDUN	
06633	6011		RSP		/READER?
06634	5241		JMP	INOPPP	/NOPE.
06635	7330		CLA CLL	CML RAR	/4000 TO AC
06636	6012		RRB		/READ IN THE CHARACTER,
06637	3740		DCA I	PHRCHAR	
06640	5344		JMP	INTEXT	/EXIT FROM THE INTERUPT.
06641	6663	INOPPP,	6663		/LINE PRINTER ERROR?
06642	5245		JMP	INOTTT	/NOPE.
06643	6667		6667		/YEP, INGORE THE LINE PRINTER NOW.
06644	5344		JMP	INTEXT	/AND EXIT.
06645	6031	INOTTT,	KSF		/IS IT THE KEYBOARD.
06646	7402		HLT		/NOPE. A BADDY, WE'RE F--KED.
06647	6036		KRB		/READ IN THE CHARACTER,
06650	0027		AND	0177	/CHOP OFF THE CRAP,
06651	3336		DCA	INTEMP	/SAVE IN THE INTERUPT TEMPORARY.
06652	1336		TAD	INTEMP	/RECALL IT NOW, BUBBY.
06653	1376		TAD	07775	/IS IT A "C
06654	7450		SNA		/?
06655	5265		JMP	FCNTLC	/YES!
06656	1377		TAD	077640	/"0?
06657	7650		SNA CLA		
06660	5303		JMP	FCNTLO	
06661	7330		CLA CLL	CML RAR	
06662	1336		TAD	INTEMP	/SET HIGH ORDER BIT ON FOR SAFETY.
06663	3741		DCA I	PINCHAR	/PUT IT AWAY
06660	5344		JMP	INTEXT	/AND EXIT FROM INTERUPT.
06665	1134	FCNTLC,	TAD	NOINT	/CHECK IF OK TO INTERUPT.



26666	7640		SZA	CLA		
26667	5300		JMP	CNTLCP		/NOT OK,
26670	6002	CNTLCR,	IOF			/TURN OFF INTERRUPTS TO BE SURE.
26671	4542		JMS I	DELOUT		/DELETE OUTPUT BUFFERS,
26672	4537		JMS I	PRESET		/RESET ALL I/O DEVICES,
26673	4514		JMS I	PPRINTXT		/GIVE THE STOP MESSAGE
26674	6522		BREAK			/I DON'T LIKE "THOSE PEOPLE" LOOKING OVER MY SHOULDER WHILE I TYPE,
26675	1125		TAD	PPDLIST		/RESET PUSH DOWN POINTER
26676	3036		DCA	PDL		
26677	5520		JMP I	PEDIT		/AND RESTART CISAB
26678	7040	CNTLCP,	CMA			/RESET "C FOUND SWITCH.
26679	3134		DCA	NOINT		
26680	5344		JMP	INTEXT		
26681	4542	FCNTLO,	JMS I	DELOUT		/DELETE THE OUTPUT NOW, BABY.
26682	1133		TAD	CNTLO		/NEGATE CNTLO SWITCH.
26683	7040		CMA			
26684	3133		DCA	CNTLO		
26685	5344		JMP	INTEXT		
26686	3742	INODUN,	DCA I	POFLAG		/RESET OUTPUT FLAG.
26687	4743		JMS I	POUITI		/PERFORM THE NEXT OPERATION.
26688	5344		JMP	INTEXT		
26689	0000	BIDLE,	0			/THE IDLE ROUTINE
26690	6002		IOF			
26691	7201		CLA	IAC		
26692	3337		DCA	BUSY		/RESET THE IDLE TASK FLAG.
26693	6214		RDF			/SAVE THE DATA FIELD NOW.
26694	1215		TAD	06201A		
26695	3362		DCA	INTECOF		/AND PLACE IN WHERE TO GO ON IDLE EXIT.
26696	1331		TAD	IDLELK		/RESTORE THE IDLE ROUTINES PARAMETERS.
26697	7104		CLL	RAL		
26698	1332		TAD	IDLEAC		
26699	6211	IDLECO,	COF	10		
26700	6202	IDLECI,	CIF	0		
26701	6001		ION			/AND DO THE IDLE STUFF
26702	5733		JMP I	IDLEPC		
26703	0000	IDLELK,	0			
26704	0000	IDLEAC,	0			
26705	7415	IDLEPC,	NULJOB			
26706	0000	INTAC,	0			
26707	0000	INTL,	0			
26708	0000	INTEMP,	0			
26709	0000	BUSY,	0			
26710	7256	PHRCHAR,	HRCHAR			
26711	7255	PINCHAR,	INCHAR			

26742 7188 POFLAG, OFLAG  
26743 7043 PDUTIT, OUTIT

06744	1337	INTEXT, TAD	BUSY
06745	7650	SNA CLA	
06746	5305	JMP	INTOU
06747	3337	DCA	BUSY
06750	1000	TAD	0
06751	3333	DCA	IDLEPC
06752	1334	TAD	INTAC
06753	3332	DCA	IDLEAC
06754	1335	TAD	INTL
06755	3331	DCA	IDLELK
06756	1371	TAD	INTCIF

/GET STATUS,  
/WE WERE NOT IDLE, EXIT NOW,  
/RESET BUSY FLAG,

/SAVE SH-T,

06757	3326		DCA	IOLECIF	
06760	1370		TAD	INTCDF	
06761	3325		DCA	IOLECDF	
06762	7402	INTECD,	HLT		/IDLE ROUTINES CALLING CDF.
06763	6001		ION		
06764	5713		JMP I	BIDLE	/AND GO BACK NOW.

06765	1335	INTOU,	TAD	INTL	
06766	7104		CLL RAL		
06767	1334		TAD	INTAC	
06770	7402	INTCDF,	HLT		
06771	7402	INTCIF,	HLT		
06772	6001		ION		
06773	5400		JMP I	0	

06774	0070	070,	70		
06775	6202	06202,	6202		
06776	7775	07775,	7775		
06777	7764	077640,	7764		

7000

PAGE

07000	0000	PUTER,	0		
07001	3241		DCA	OPUTC	

/THE CHARACTER PUTTER.  
/SAVE THE CHARACTER NOW.

27202	6214		RDF		/READ THE DATA FIELD NOW.
27203	1205		TAD	062018	/CREATE PROPER CDF INSTRUCTION.
27204	3237		DCA	PUTCDF	/SAVE CDF INSTRUCTION.
27205	6201	062018.	CDF	0	/RESET CDF TO THIS DATA FIELD.
27206	7410		SKP		
27207	4761	PUTLP,	JMS I	PBIDLE	/CALL IN THE IDLE ROUTINE NOW.
27210	1242		TAD	OCOUNT	/GET NUMBER OF CHARACTERS IN THE BUFFER.
27211	7450		SNA		
27212	5223		JMP	PUTCIN	/PUT IT IN NOW, BABY.
27213	1315		TAD	OCMLIM	/TEST FOR TOO MANY IN BUFFER.
27214	7650		SNA	CLA	
27215	5207		JMP	PUTLP	/YEP, WAIT ANWHILE.
27216	1131		TAD	OUTDEV	
27217	7041		CIA		
27220	1132		TAD	ODEV	/CHECK FOR A MATCH.
27221	7640		SZA	CLA	
27222	5207		JMP	PUTLP	/NOPE, WAIT FOR BUFFER TO BECOME EMTPY.
27223	6002	PUTCIN,	IOF		/TURN THEM OFF, BABY.
27224	1133		TAD	CNTLO	/CHECK FOR CONTROL "OM" ACTIVE.
27225	7650		SNA	CLA	
27226	1131		TAD	OUTDEV	/MOVE OVER OUTPUT DEVICE.
27227	3132		DCA	ODEV	
27230	2242		ISZ	OCOUNT	
27231	1241		TAD	OPUTC	/STICK A CHARACTER IN THE BUFFER.
27232	3634		DCA I	IPOINT	
27233	4301		JMS	OBOP	/BOP UP THE POINTER NOW.
27234	1165	IPOINT,	OBL0W		
27235	4243		JMS	OUTIT	/SEND IT OUT
27236	6001		ION		/RESTORE INTERRUPTS.
27237	7402	PUTCDF,	HLT		/USER'S CORRECT CDF
27240	5600		JMP I	PUTER	
27241	0000	OPUTC,	0		
27242	0000	OCOUNT,	0		
27243	0000	OUTIT,	0		
27244	1300		TAD	OFLAG	
27245	7640		SZA	CLA	
27246	5643		JMP I	OUTIT	/FLAG STILL UP, EXIT.
27247	1242		TAD	OCOUNT	
27250	7450		SNA		
27251	5643		JMP I	OUTIT	/NO CHARS TO GO, SO WE WILL.
27252	1314		TAD	07777	/PLEASE IGNORE THE COMMENTS OF A DERANGED MIND.
27253	3242		DCA	OCOUNT	
27254	1132		TAD	ODEV	
27255	1273		TAD	OPDTAB	/MAP DEVICE INTO TABEL TOO ET WHAT TO DO.
27256	3300		DCA	OFLAG	/AND ALSO RESET FLAG AT THE SAME TIME.
27257	1700		TAD I	OFLAG	/GET THE MAGIC INSTRUCTION.
27260	3262		DCA	.+R	/AND PLACE IT HERE.
27261	1665		TAD I	OPOINT	/GET THE CHARACTER.
27262	7402		HLT		/AND HALT.
27263	7200		CLA		/AFTER PRINTING THE CHARACTER,

27264	4321		JMS	OBOP	/WE SHALL INCREMENT THE POINTER.
27265	1165	OPOINT,	OBLW		
27266	5643		JMP I	OUTIT	/AND EXIT.
27267	7222	OPNUL,	CLA		/RESET OFLAG
27270	3322		DCA	OFLAG	/SO DEVICES INACTIVE.
27271	4542		JMS I	DELOUT	/DELETE ANY STRAY CHARACTERS IN THE BUFFER.
27272	5643		JMP I	OUTIT	/AND RETURN NOW.
27273	7274	OPOTAB,	,+1		
27274	5267		JMP	OPNUL	/NUL DEVICE (NO ECHOING)
27275	6246		TL5		
27276	6226		PL5		
27277	6666		LL5		
27122	2222	OFLAG,	2		
27121	2222	OBOP,	2		
27122	1701		TAD I	OBOP	
27123	1312		TAD	OTST1	
27124	7452		SNA		
27125	1315		TAD	OFLOW	
27126	1313		TAD	OCOR	
27127	3721		DCA I	OBOP	
27112	2321		ISZ	OBOP	
27111	5721		JMP I	OBOP	
27112	6621	OTST1,	-OBHIGH		
27113	1222	OCOR,	OBHIGH+1		
27114	7777	O7777,	7777		
27115	7765	OFLOW,	-OBHIGH=1+OBLW		
	7115	OCMLIM=OFLOW			
27116	2222	RESET1,	2		
27117	7221		CLA IAC		
27120	3131		DCA	OUTDEV	
27121	7221		CLA IAC		
27122	3132		DCA	OUTD2	
27123	7221		CLA IAC		
27124	3127		DCA	INDEV	
27125	3133		DCA	CNTLO	
27126	3134		DCA	NOINT	
27127	6221		OPF	2	/CLEAR NO-INTERUPT FLAG.
27130	3756		DCA I	QMRCHAR	/RESET DATA FIELD TO HERE.
27131	3762		DCA I	SINCHAR	/CLEAR ALL INPUT FLAGS,
27132	3757		DCA I	PBUSY	/AND ALSO THE BUSY FLAG.
27133	3762		DCA I	PPXRA	/RESET NULL AFTER C.R. FLAG.

		IFNZRO	MACHINE<	
		CIF LDF	10	/PREPARE TO RESET CLOCK.
		JMS I	LLLUUU	/RESET CLOCK NOW (OR RATHER A-D BUFFER).
			>	
		IFZEND	MACHINE<	
27134	6211	CDF	10	
27135	6221	ION		
			>	
27136	6665	6665		/TELL LPT IT'S OK TO INTERUPT NOW.
27137	5716	JMP I	RESET1	
27142	2352	LLLUUU, UDULLL		/POINTER TO UPPER CORE RESETER.
27141	0000	RESET2, 0		
27142	4537	JMS I	PRESET	
27143	4542	JMS I	DELOUT	
27144	3300	DCA	OPLAG	
27145	5741	JMP I	RESET2	
27146	0000	OUTOEL, 0		
27147	3242	DCA	OCOUNT	
27150	1355	TAD	OPRST	
27151	3263	DCA	OPOINT	
27152	1355	TAD	OPRST	
27153	3234	DCA	IPOINT	
27154	5746	JMP I	OUTOEL	
27155	1165	OPRST, OBLOW		
27156	7256	QHRCHAR, HRCHAR		
27157	6737	PBUSY, BUSY		
27160	2776	PPXRA, PUTXRA		
27161	6713	PBIDLE, BIDLE		
27162	7255	SINCHAR, INCHAR		

07163	7201	LPTOUT,	CLA	IAC	/LINE PRINTER OUTPUT
07164	7001	PTPOUT,	IAC		/PUNCH OUT
07165	7201	TTYOUT,	IAC		/TTY OUT
07166	3131		OCA	OUTDEV	/AND SET IT UP
07167	1131		TAD	OUTDEV	/ALSO MOVE OVER TO SECONDARY DEVICE.
07172	3130		OCA	OUTO2	
07171	5375		JMP	DEVCOM	/AND CHECK FOR END.
07172	7201	PTRIN,	CLA	IAC	
07173	7001	TTYIN,	IAC		
07174	3127		OCA	INDEV	
07175	4177	DEVCOM,	JMS	GETWD	
07176	4570	DEVCON,	MUSTRE		
07177	2000		2000		/C.R. OR \
07200	5503		JMP I	PEXECUTE	

07221	0000	GETCH,	0		
07222	4270		JMS	QWHERE	
07223	4657		JMS I	QBIDLE	
07224	1259		TAD	INCHAR	

07205	7450		SNA	
07206	5203		JMP	GETCH+2
07207	2027		AND	0177
07210	3254		OCA	GTEMP
07211	3255		OCA	INCHAR
07212	3256		OCA	HRCHAR
07213	1135		TAD	R08WCH
07214	7650		SNA	CLA
07215	5224		JMP	GRB
07216	1254		TAD	GTEMP
07217	1260		TAD	07601
07220	7640		SZA	CLA
07221	5224		JMP	GRB
07222	1261	GROELA,	TAD	0137
07223	5601		JMP I	GETCH
07224	1254	GRB,	TAD	GTEMP
07225	1055		TAD	07770
07226	7450		SNA	
07227	5222		JMP	GROELA
07230	1262		TAD	07612
07231	7450		SNA	
07232	5247		JMP	GALT
07233	1266		TAD	0143
07234	7650		SNA	CLA
07235	5247		JMP	GALT
07236	1254		TAD	GTEMP
07237	1263		TAD	07640C
07240	7510		SPA	
07241	5251		JMP	GOUT
07242	1264		TAD	07746
07243	7500		SNA	
07244	5251		JMP	GOUT
07245	1265		TAD	0132
07246	5601		JMP I	GETCH
07247	1267	GALT,	TAD	0175
07250	5601		JMP I	GETCH
07251	7200	GOUT,	CLA	
07252	1254		TAD	GTEMP
07253	5601		JMP I	GETCH
07254	0000	GTEMP,	0	
07255	0000	INCHAR,	0	
07256	0000	HRCHAR,	0	
07257	6713	0BIOLE,	0IDLE	
07260	7601	07601,	7601	
07261	0137	0137,	137	
07262	7612	07612,	7612	
07263	7640	07640C,	7640	
07264	7746	07746,	7746	



07265 0132 0132, 132  
 07266 0143 0143, 143  
 07267 0175 0175, 175

07270 0000 GWHERE, 0  
 07271 7240 CLA CMA  
 07272 1127 YAD INDEV  
 07273 2270 ISZ GWHERE  
 07274 7750 SPA SNA CLA  
 07275 5670 JMP I GWHERE /INPUT=TTY

07276 1264 YAD 07746  
 07277 3254 DCA GTEMP  
 07300 3256 DCA HRCHAR  
 07301 6014 RFC /START THE READER NOW,  
 07302 1256 HRLOP, TAD HRCHAR  
 07303 7440 SZA  
 07304 5321 JMP HFOUND /GOT IT.  
 07305 2255 ISZ INCHAR  
 07306 5302 JMP HRLOP  
 07307 2254 ISZ GTEMP  
 07310 5302 JMP HRLOP

07311 7201 CLA IAC  
 07312 3131 DCA OUTDEV /RESET OUTPUT DEVICE FOR A SECOND,  
 07313 3133 DCA CNTLO /RESET THE CONTROL "O" SWITCH ALSO.  
 07314 4514 JMS I PPRINTXT /GIVE THE MESSAGE,

27315	7323		HRMES	
27316	7281		CLA IAC	
27317	3127		DCA	INDEV
27322	5670		JMP I	GWHERE
07321	2270	MFOUND,	ISZ	GWHERE
07322	5670		JMP I	GWHERE
07323	3724	HRMES,	TEXT	'_TTY_'
07324	2431			
07325	3700			

07326	0000	CONT,	0		/THIS ROUTINE WAITS FOR OUTPUT TO STOP.
07327	6201		ODF	0	/SET D.F. TO THIS FIELD.
07330	3742		DCA I	CCXRA	/SET OR RESET NULL AFTER C.R. FLAG.
07331	1743	CONTLP,	T) I	COWTFP	/GET OUTPUT FLAG STATUS.
07332	6211		ODF	10	/RESET D.F.
07333	7650		SNA CLA		/IS OUTPUT DONE?
07334	5340		JMP	CONT0	/YEP, EXIT.
07335	4744		JMS I	CONTW	/NOPE, IDLE LOOP TILL INTERRUPT.
07336	6201		ODF	0	/RESET D.F. TO ZERO.
07337	5331		JMP	CONTLP	/AND LOOP.
07340	3133	CONT0,	DCA	CNTLO	/CLEAR CONTROL 0 STATE.
07341	5726		JMP I	COWT	

07342	0776	CCXRA,	PUTXRA
07343	7100	COWTFP,	OFLAG
07344	6713	CONTW,	BIDLE

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07345 0000 XGMUST, 0
07346 4177 JMS GETWD
07347 1345 TAD XGMUST
07352 3352 DCA XMUST
07351 5353 JMP XMUST+1
07352 0000 XMUST, 0
07353 1450 TAD I WORD
07354 6201 CDF 0 /***** B K INSERT.
07355 1752 TAD I XMUST
07356 6211 CDF 10 /***** B K INSERT.
07357 2352 ISZ XMUST
07360 7650 SNA CLA
07361 5752 JMP I XMUST
07362 5500 JMP I PSXERR
    
```

```

07363 4477 ARGERR, JMS I PERROR
07364 0122 TEXT 'ARGUMENT'
07365 0725
07366 1505
07367 1624
07370 0000
07371 5660 DOTZERO,TEXT '.0'
07372 0000
    
```

```

07373 4477 RTERR, JMS I PERROR /GIVE RATE ERROR FOR CLOCK.
07374 2201 TEXT 'RATE'
07375 2405
07376 0000
    
```

7400

PAGE

IFZERO MACHINE<  
NOPUNCH>

07400	1136	PLOT,	TAD	DISB	/GET BUFFER ADDRESS,
07401	7640		SZA	CLA	/IS THERE ONE?
07402	5220		JMP	DBGOT	
07403	1240		TAD	PASSUME	/GET ASSUMED LENGTH,
07404	4544		JMS I	SPLEFT	/ROOM LEFT TO FIT IT IN,
07405	7410		SKP		
07406	5755		JMP I	NPSERR	/NO.
07407	1003		TAD	ARRLOC	/GET A USABLE ADDRESS,
07410	3311		DCA	DLAST	/SAVE AWAY,
07411	1003		TAD	ARRLOC	/NOW UPDATE OUR ARRAY.
07412	1240		TAD	PASSUME	
07413	3003		DCA	ARRLOC	
07414	7240		CLA	CMA	
07415	1003		TAD	ARRLOC	/GET LAST WORD OF OUR BUFFER NOW.
07416	3312		DCA	DDLAST	/AND GO.
07417	4314		JMS	PLOTB	/FIGURE OUT OUR CRAP NOW,
07420	3313	DBGOT,	DCA	DBAD	/TELL IT POINT IS ON SCREEN
07421	4177		JMS	GETWD	/GET NEXT SYNTATICAL ELEMENT.
07422	4641		JMS I	PMEVAL	/EVALUATE OUR EXPRESSION,
07423	4439		FENTER		
07424	6217		FMP+FSHIFT+FND=,		/CORRECT NUMBER FOR SYMETRICAL SCREEN.

```

07425 0000 FEXIT
07426 4326 JMS DBLIT /PUT IT IN THE BUFFER.
07427 4641 JMS I PMEVAL /GET Y COORDINATE.
07430 4326 JMS DBLIT /PUT IT IN THE BUFFER.
07431 1313 TAD DBAD /IS IT A BAD ONE? <OFF SCREEN?>
07432 7041 CIA
07433 1311 TAD DINP
07434 3311 DCA DINP
07435 7330 CLA CLL CML RAR /4000=END OF BUFFER CHARACTER.
07436 3711 DCA I DINP
07437 5642 JMP I PDEVCON

07440 1750 PASSUME,1750
07441 7415 PMEVAL, MEVAL
07442 7176 PDEVCON,DEVCON
07443 2007 FSHIPT, 2007/1600/0000 /MAGIC CONSTANT FOR SYMETRICAL SCREEN.
07444 1600
07445 0000

07446 1136 USE, TAD DISB /IS DISPLAY BUFFER ASSIGNED.
07447 7640 SZA CLA
07450 5661 JMP I USKIPIT /YES, EXIT.
07451 4262 JMS GETARY /GET THE ARRAY DATA
07452 1020 TAD AC1 /GET FIRST FREE LOCATION
07453 3311 DCA DLAST
07454 1017 TAD AC2 /GET SECOND FREE LOCATION
07455 3312 DCA ODLAST /SAVE AWAY.
07456 4314 JMS PLOTB /SET UP STUFF.
07457 4177 JMS GETWD /GET NEXT ELIAMENT AFTER VARIABLE.
07460 5642 JMP I PDEVCON
07461 0467 USKIPIT,SKIPIT

07462 0000 GETARY, 0 /THIS ROUTINE GETS THE FIRST AND LAST LOCATIONS OF AN ARRAY.
07463 4571 GET+MUSTBE /MUST BE A VARIABLE.
07464 7000 7000
07465 1050 TAD WORD /GET POINTER TO VARIABLE.
07466 3302 OCA UVP
07467 2050 ISZ WORD
07470 1450 TAD I WORD /GET POINTER NOW.
07471 7001 IAC
07472 3020 DCA AC1 /SAVE AWAY.
07473 2050 ISZ WORD
07474 1450 TAD I WORD
07475 3303 DCA UIP
07476 2050 ISZ WORD
07477 1450 TAD I WORD
07500 3304 DCA UZF
07501 4502 JMS I PGETADD
07502 0000 UVP, 0
07503 0000 UIP, 0

```

```

07504 0000 U2P, 0
07505 7326 CLA CLL CML RTL /+2
07506 1067 TAD ADDRESS
07507 3017 DCA AC2
07510 5662 JMP I GETARY

07511 0000 DLAST, 0
07511 7511 DINP=DLAST
07512 0000 DDLAST, 0
07513 0000 DBAD, 0

```

```

07514 0000 PLOT8, 0
07515 7240 CLA CMA
07516 1311 TAD DLAST
07517 3136 DCA DISB
07520 1325 TAD 04001
07521 3712 DCA I DDLAST
07522 7330 CLA CLL CML RAR
07523 3711 DCA I DLAST
07524 5714 JMP I PLOT8

07525 4001 04001, 4001

```

```

07526 0000 DBLIT, 0
07527 1024 TAD AC6
07530 7700 SMA CLA
07531 5335 JMP .+4
07532 7326 DBBAD, CLA CLL CML RTL
07533 3313 DCA DBAD
07534 5347 JMP DBISRT

```

07535	1025	TAO	ACE	
07536	1354	TAO	07577B	
07537	7700	SMA	CLA	
07542	5332	JMP	DBBAD	
07541	1225	TAO	ACE	
07542	1265	TAO	012	
07543	3025	DCA	ACE	
07544	4506	JMS I	PPIX	
07545	7200	CLA		
07546	1016	TAO	AC3	
07547	4356	DBISRT, JMS	DBPUT	
07550	7330	CLA CLL	CML RAR	
07551	2311	ISZ	DINP	
07552	4356	JMS	DBPUT	
07553	5726	JMP I	DBLIT	

07554	7577	07577B, 7577		
07555	0370	NPSPERR, SPACERR		

07556	2000	DBPUT, 0		
07557	3017	DCA	AC2	
07560	7350	CLA CLL	CMA RAR	/=4001=3777
07561	1711	TAO I	DINP	
07562	7650	SMA CLA		
07563	5755	JMP I	NPSPERR	/NO ROOM IN BUFFER, BOMB HIM,
07564	1017	TAO	AC2	
07565	3711	DCA I	DINP	
07566	5756	JMP I	DBPUT	

07567	4477	UUDATA, JMS I	PERROR	
07570	0155	TEXT	'A-D FULL'	
07571	0440			
07572	0625			
07573	1414			
07574	0000			

ENPUNCH

IFNZRO MACHINE4

PAGE

>

7400

IFZERO MACHINE<  
>PLOT>

07400	0000	SETUP,	0	
07401	1005		TAD	PSYMTAB
07402	3056		DCA	EPTR
07403	1006		TAD	NSYMTAB
07404	3057		DCA	FPTR
07405	3136		DCA	DISB
07406	5600		JMP I	SETUP

IFNZRO MACHINE<  
CDEVCOM,DEVCOM

>

0000

IFZERO MACHINE<  
CDEVCOM=0

>

07407	0000	ISSET,	0	
07410	6050		DILC	
07411	6055		DIXY	



```

27412 4614      JMS I   IIXR
27413 5607      JMP I   ISET
27414 7141      IIXR,  RESET2

```

```

IFZERO MACHINE<
NOPUNCH>

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```

07415 0000      MEVAL,  0
07416 4566      ISIT                      /IS IT A C.R.
07417 2000      2000
07420 7410      SKP
07421 5500      JMP I   PSXERR
07422 4566      ISIT
07423 3763      3763                      /,
07424 5227      JMP     .+3
07425 4177      JMS     GETND
07426 5216      JMP     MEVAL+1
07427 1215      TAD     MEVAL
07430 5631      JMP I   MEVALGO

07431 1007      MEVALGO,EVALGO

```

```

07432 1136      CLEAR,  TAD     DISB
07433 7450      SNA                      /IS IT THERE?
07434 5400      JMP I   COEVCOM          /NOPE.
07435 3013      DCA     INDEX1
07436 7330      CLA CLL CML RAR          /4000
07437 3413      DCA I  INDEX1
07440 6201      CDF     0                      /RESET INPUT POINTER ALSO.
07441 1013      TAD     INDEX1
07442 3645      DCA I  CDINP
07443 6211      CDF     10
07444 5400      JMP I   COEVCOM

```

07445 7511 COINP, OINP

07446	0200	LLLJMS, 0	
07447	1946	TAD I	LLLJMS
07450	2246	ISZ	LLLJMS
07451	3257	DCA	LLLJMP
07452	4657	JMS I	LLLJMP
07453	7410	SKP	

/IN CASE OF SKIPPING RETURN.

07454	2246		ISZ	LLLJMS	
07455	6213		CIF	COF	18
07456	5646		JMP	I	LLLJMS

07457	0800	LLLJMP,	0		
07460	1657		TAD	I	LLLJMP
07461	3257		DCA		LLLJMP
07462	5657		JMP	I	LLLJMP

07463	7326	DELAY,	CLA	CLL	CML	RTL	/+2
07464	3220		DCA		NDELAY		/SET UP DEALY TIME (ONE TIME THROUGH).

		NULJOB,	IFNZRO	MACHINE<			
			TAD	DISB			/SET UP AUTO INDEX REGISTER NOW,

			IFZERO	MACHINE<			
			ENPUNCH				
	7415		*MEVAL				

07415	7001	NULJOB,	IAC				
07416	5215		JMP		NULJOB		

NOPUNCH&gt;

07417	3015		DCA		DISAUTO		/WITH POINTER TO OUR BUFFER.
07420	1220		TAD		NDELAY		/UPDATE DELAY WORD.
07421	7110		CLL	RAR			
07422	3220		DCA		NDELAY		
07423	7430		SZL				/ARE WE FINISHED WITH DELAY COMMAND?
07424	5400		JMP	I	COEVCOM		/YEP, EXIT NOW.
07425	1136		TAD		DISB		/GET OUR WORD NOW.
07426	7650		SNA	CLA			/ZERO?
07427	5215		JMP		NULJOB		/YEP. WAIT AWHILE.

07430	1415	NULLOP,	TAD	I	DISAUTO		
07431	7510		SPA				
07432	5254		JMP		NULCMD		
07433	1256		TAD		0700BC		/BRING DOWN INTO RANGE OF SCREEN.
07434	6052		DISD				
07435	5234		JMP		,=1		

07436	6053	DILX	
07437	7200	CLA	
07440	1415	TAD I	DISAUTO
07441	7510	SPA	
07442	5254	JMP	NULCMD
07443	1256	TAD	07000C
07444	6052	DISD	
07445	5244	JMP	.-1
07446	6054	DILY	
07447	7200	CLA	
07450	6052	DISD	
07451	5250	JMP	.-1
07452	6055	DIXY	
07453	5230	JMP	NULLOP
07454	7200	NULCMD, CLA	
07455	5215	JMP	NULJOB
07456	7000	07000C, 7000	
07457	6762	NINTECDF, INTECDF	

/CENTER AGAIN,

07460	4477	UNLOAD, JMS I	PERROR
07461	1617	TEXT	'NO A=D'
07462	4001		
07463	5304		
07464	0000		

07465	0000	CCINTK, 0	
07466	6131	6131	
07467	5665	JMP I	CCINTK
07470	6213	CIF CDF	10
07471	5672	JMP I	.+1
07472	0175	CLOCKI	

7473  
7473REALTI=,  
SETRAT=,

	7473	SETCLO=.
	7473	WAITC=.
	7473	WAIT=.
	7473	REJECT=.
	7473	ACCEPT=.
07473	1450	TAD I WORD
07474	6213	COF CIF 10
07475	5676	JMP I ,+1
07476	0731	UPCOMDO

	7477	TIM=.
	7477	CLF=.
	7477	CLU=.
	7477	ADC=.
	7477	ADB=.
07477	0000	0
07500	1436	TAD I PDL
07501	6213	CIF COF 10
07502	4704	JMS I ,+2
07503	5677	JMP I ADB
07504	0747	UPFUN

/RECALL CORRECT FUNCTION NUMBER (IT'S ON THE STACK)

ENPUNCH  
IFZERO MACHINE<

7417 \*NULJOB+2>

07417 3762 T8TFX, BEGFIX

07420 0000 NOELAY, 0

07421	0000	TST,	0	
07422	4617		JMS I	TSTFX
07423	6201		ODF	0
07424	1631		YAD I	TSTP
07425	6211		ODF	10
07426	3016		OCA	AC3
07427	4546		JMS I	PANORM
07430	5621		JMP I	TST
07431	7255	TSTP,	INCHAR	

0001

FIELD 1

0000 \*0

10000 2045 TEN, 2045:0000/0000  
 10001 0000  
 10002 0000

/INSERTED IN UPPER CORE BECAUSE OF FEEBILITY.

10003 0000 CLKSTS, 0  
 10004 0000 TIM1, 0  
 10005 0000 TIM2, 0  
 10006 0000 ABDGET, 0  
 10007 0000 ADACPT, 0  
 10010 0000 ADCUNT, 0  
 10011 0000 CLTEMP, 0  
 10012 0000 ADCX, 0  
 10013 0100 U100, 100  
 10014 0000 CT3, 0  
 10015 0000 CT2, 0  
 10016 0000 CT1, 0  
 10017 0177 U177, 177  
 10020 4707 U4707, 4707  
 10021 7775 U7775, 7775  
 10022 0000 ACCOUNT, 0  
 10023 0000 APUT1, 0  
 10024 0000 APUT2, 0  
 10025 0000 ADA1, 0  
 10026 0000 ADA2, 0  
 10027 0000 ADA3, 0  
 10030 0550 UUSETF, USETF  
 10031 0673 UMEVAL, UMEVAL  
 10032 0677 UPPFIX, UPPFIX  
 10033 0007 U7, 7  
 10034 5010 U5010, 5010  
 10035 7767 U7767, 7767  
 10036 0010 U10, 10  
 10037 0654 UAC1, UUAC1  
 10040 0661 UAC2, UUAC2  
 10041 0666 UAC3, UUAC3  
 10042 0020 PPAC1, AC1  
 10043 0017 PPAC2, AC2  
 10044 0016 PPAC3, AC3  
 10045 0025 PPACE, ACE  
 10046 0024 PPAC8, ACS  
 10047 0017 U17, 17  
 10050 7777 U7777, 7777  
 10051 0362 UDOAD, DOAD  
 10052 7760 U7760, 7760  
 10053 0000 UTEMP, 0

```

10054 0722 UJMP,   UUJMP
10055 0707 UJMS,   UUJMS
10056 0705 UDEVCON,UUDEVCN
10057 0200 UGETWD, 6000
10060 4455           JMS I   UJMS
10061 0177           GETWD
10062 5057           JMP I   UGETWD
10063 0000 AUTEMP, 0
10064 7767 ADCCOR, -11
    
```

/ABOUT 512 FOR PUDGE.

0200 PAGE

0175 +,-3

```

10175 6135 CLOCKI, 6135 /CLEAR CLOCK FLAG,
10176 3003 OCA      CLK878 /AND SAVE STATUS,
10177 2005 ISZ     TIM2  /INCREMENT CLOCK,
10200 5203 JMP      ,+3
10201 2004 ISZ     TIM1
10202 7000 NOP
10203 1006 TAD      ABDGET /IS REAL TIME OPTION RUNNING?
10204 7750 SPA SNA CLA
    
```



```

10205 5234 JMP UIEXT /NOPE.
10206 1007 TAD ADACPT /IT SO, ARE WE NOW ACCEPTING DATA?
10207 7650 SNA CLA
10210 5234 JMP UIEXT /NOPE.
10211 1010 TAD ADCUNT /YEP, GET NUMBER OF CHANNELS TO DO.
10212 3011 DCA CLTEMP /SET UP OUR COUNTER.
10213 1012 TAD ADCX /GET STARTING CHANNEL NUMBER.
10214 6531 6531 /SEND TO TO CONTROLLER.
10215 1013 TAD U100 /TELL IT TO INCREMENT MULTIPLEXOR WHEN DONE.
10216 6536 6536

10217 4451 UCLOOP, JMS I UDDAD /PERFORM A=D INSTRUCTION.
10220 4263 JMS APUT /STORE IN USERS BUFFER.
10221 2011 ISZ CLTEMP /ALL DONE?
10222 5217 JMP UCLOOP /NOPE, WAIT.
10223 2014 ISZ CT3 /DONE, INCREMENT TOTAL NUMBER OF SAMPLES.
10224 5234 JMP UIEXT
10225 2015 ISZ CT2
10226 5234 JMP UIEXT
10227 2016 ISZ CT1
10230 5234 JMS UIEXT
10231 7240 CLA CMA /ALL DONE, STOP SAMPLING.
10232 3006 DCA ABDGET
10233 3007 DCA ADACPT /AND GO INTO "REJECT" MODE.

10234 6031 UIEXT, 6031 /HAS HE TYPED A CONTROL CT
10235 5243 JMP UIEXT2 /NO.
10236 6034 6034
10237 0017 AND U177
10240 1021 TAD U7775 /^CT
10241 7650 SNA CLA
10242 5249 JMP UIEXT3 /YES! BOMB HIM.

10243 6131 UIEXT2, 6131
10244 5260 JMP UIEXT4 /CLOCK HAS NOT COME UP AGAIN, ALL IS WELL.

10245 1020 UIEXT3, TAD U4707 /STOP CLOCK IMMEDIATELY.
10246 6132 6132
10247 6135 6135
10250 6130 6130
10251 7240 CLA CMA
10252 6130 6130 /CLEAR ALL AFTER PARTIAL ENABLE.
10253 6032 6032 /CLEAT TTY FLAG.
10254 3006 DCA ABDGET /FREE BUFFER AND ACCEPT MODE.
10255 3007 DCA ADACPT
10256 4454 JMS I UJMP
10257 7373 RTERR

10260 6203 UIEXT4, CIF CDF 0 /INTERUPT EXIT.
10261 5662 JMP I ,+1
10262 6744 INTEXT /AND DO WHATEVER GOO INTENDED.

```

10263	0000	APUT,	0		/THIS ROUTINE PUTS A SAMPLE IN THE BUFFER.
10264	3423		DCA I	APUT1	/PLACE IN BUFFER.
10265	2022		ISZ	ACOUNT	/INCREMENT COUNTER.
10266	4325		JMS	ABOP	/BOP UP POINTER.
10267	0023			APUT1	
10270	1023		TAD	APUT1	/GET INPUT POINTER.
10271	7041		CIA		
10272	1024		TAD	APUT2	/DOES IT MATCH OUTPUT POINTERT
10273	7640		SZA	CLA	
10274	5663		JMP I	APUT	/NOPE, ALL IS WELL.
10275	3006		DCA	ABOGET	/FREE BUFFER.
10276	3007		DCA	ADACPT	/AND ACCEPT.
10277	4454		JMS I	UJMP	/GIVE ERROR.
10300	7567		UUDATA		/A=D ERROR.
10301	0000	AGET,	0		/THIS GETS A DATA ITEM FROM BUFFER.
10302	7240		CLA	CMA	/DECREMENT COUNTER.
10303	1022		TAD	ACOUNT	
10304	7500		SIZ		/OR SHOULD WE?
10305	5312		JIP	,+5	/YEP, STILL ITEMS LEFT.
10306	7200		CLA		
10307	4455		JMS I	UJMS	/PUT TO SLEEP
10310	6713		BIDLE		
10311	5302		JMP	AGET+1	/AND CHECK AGAIN WHEN AWAKE.
10312	3022		DCA	ACOUNT	/SAVE COUNTER.
10313	1424		TAD I	APUT2	/GET THE SAMPLE.
10314	3323		DCA	ATEMP	/SAVE WHILE UPDATE TAKES PLACE.
10315	6002		IOF		

10316	4325	JMS	ABOP	
10317	2024	APUT2		
10320	6001	ION		/ABOP WILL F--K YOU UP IF CALLED RE-ENTRENTLY.
10321	1323	TAD	ATEMP	
10322	5701	JMP I	AGET	

10323	0000	ATEMP,	0
10324	0000	ATEMP2,	0

10325	0000	ABOP,	0	
10326	1725	TAD I	ABOP	
10327	3324	OCA	ATEMP2	/SAVE POINTER NOW.
10330	1724	TAD I	ATEMP2	
10331	2325	ISZ	ABOP	/GET VALUE AND SKIP PAST POINTER #1.
10332	1025	TAD	ADA1	/TEST AGAINST UPPER.
10333	7450	SNA		
10334	1026	TAD	ADA2	/CORRECT TO LOWER.
10335	1027	TAD	ADA3	/AND ADD IN UPPER.
10336	3724	OCA I	ATEMP2	/AND THEN SAVE AWAY.
10337	5725	JMP I	ABOP	/AND THEN EXIT.

10340	0000	UCLS,	0	/GETS STATUS AFTER LAST CLOCK INTERRUPT,
10341	1003	TAD	CLKSTS	
10342	4430	JMS I	UUSETF	
10343	0000	0		
10344	5740	JMP I	UCLS	/RETURN WHEN DONE.

10345	0000	UCLC,	0	/READS IN AS A CLCA
10346	6137	0	6137	/GET COUNT REGISTER.
10347	4430	JMS I	UUSETF	
10350	0000	0		/FIX IT UP.
10351	5745	JMP I	UCLC	/AND RETURN NOW.

10352	0000	UUULLL,	0
10353	7200		CLA

10354	3022		DCA	ACOUNT	
10355	3006		DCA	ABDGET	
10356	3007		DCA	ADACPT	
10357	6001		ION		
10360	6202		CIF	0	
10361	5752		JMP I	UUULLL	
10362	0000	DOAD,	0		
10363	1052		TAD	U7760	/PLENTY OF DELAY
10364	3375		OCA	DSCREW	/SAVE IN A COUNTER WORD.
10365	6532		6532		/START CONVERSION.
10366	6534	DOADLP,	6534		/WAIT UNTIL DONE.
10367	7410		SKP		/IF NOT DONE, WAIT SOME.
10370	5373		JMP	,+3	/IF DONE, READ IT IN.
10371	2375		ISZ	DSCREW	
10372	5366		JMP	DOADLP	/WAIT UNTIL DONE OR TOO LONG.
10373	6533		6533		/THEN READ IN THE CONVERTED NUMBER.
10374	5762		JMP I	DOAD	/AND RETURN.
10375	2000	DSCREW,	0		

10400	4057	USETR,	JMS	UGETWD	/BOP PAST CHAR.
10401	4431		JMS I	UMEVAL	/THIS ROUTINE SETS UP CLOCK TO A GIVEN TIME.
10402	4432		JMS I	UPFIX	/FIX UP AC.
10403	0033		AND	U7	/JUST GET SIGNIFICANT BITS (0-7).
10404	7106		CLL	RTL	/NOW MOVE TO TIME PORTION (3-5)
10405	7006		RTL		
10406	7006		RTL		
10407	1034		TAD	U5010	/SET OTHER CORRECT BITS NOW.
10410	5216		JMP	USETM	
10411	4057	USETC,	JMS	UGETWD	/BOP PAST BAD POINTER.
10412	4431		JMS I	UMEVAL	/THIS ROUTINE LOADS CLOCK WITH USERS COMMAND REGISTER.
10413	4432		JMS I	UPFIX	
10414	0035		AND	U7767	/MAKE SURE TO TURN INTERRUPTS ON.
10415	1036		T.D	U10	
10416	3053	USETM,	DCA	UTEMP	/SAVE ENABLE REGISTER FOR A SECOND.
10417	7240		CLA	CMA	/CLEAR CLOCK NOW.
10420	6130			6130	
10421	7200		CLA		/SO WE CAN LOAD IN CORRECT STUFF.
10422	4431		JMS I	UMEVAL	/EVALUATE HIS TIME SETTING.
10423	4432		JMS I	UPFIX	
10424	7041		CIA		
10425	6002		IOF		/MAKE SURE INTERRUPTS ARE OFF.
10426	6133			6133	
10427	7200		CLA		
10430	3004		DCA	TIM1	/CLEAR OUT THE TIM NOW.
10431	3005		DCA	TIM2	
10432	1053		TAD	UTEMP	/RECALL DESIRED ENABLE REGISTER.
10433	6132			6132	/SEND IT OUT.
10434	6001		ION		/TURN ON INTERRUPTS NOW.
10435	7200		CLA		
10436	5456		JMP I	UDEVCON	/AND EXIT NOW.
10437	7240	UWAIT,	CLA	CMA	/WAITS FOR AN INTERRUPT, SET TO LOOK LIKE CLOCK DID IT.
10440	1005	UWAITC,	TAD	TIM2	/GET LOW ORDER WORD.
10441	3053		DCA	UTEMP	/SAVE FOR AWHILE.
10442	4455		JMS I	UJMS	
10443	6713		BIDLE		/PUT TO SLEEP.
10444	1053		TAD	UTEMP	/WAS IT CLOCK (OR OTHER IF CLOCK FUDGED?)
10445	7041		CIA		
10446	1005		TAD	TIM2	/COMPARE AGAINST PRESENT CLOCK.
10447	7050		SNA	CLA	
10450	5242		JMP	UWAITC+2	/NOT CORRECT. WAIT SOME MORE.
10451	4454	RANDAE,	JMS I	UJMP	

12452 7179

DEVCOM

12453 1036 UACCPT, TAD ABDGET  
 12454 7740 SZA SNA CLA  
 12455 7281 CLA IAC

12456 3087 UREJT, DCA ADACPT  
 12457 5251 JMP RANDAE

/IS BUFFER ASSIGNED?  
 /YEP, WE CAN ACCEPT NOW,  
 /OR REJECT,  
 /AND THEN EXIT,

/REAL TIME DECODING FUNCTION.

12460 1087 UREAL, TAD ADACPT  
 12461 7658 SNA CLA  
 12462 5265 JMP ,+3  
 12463 4454 JMS I UJMP  
 12464 0467 SYJPIT  
 12465 4455 JMS I UJMS  
 12466 7462 GETARY  
 12467 4437 JMS I UAC1  
 12470 3023 DCA APUT1  
 12471 1023 TAD APUT1  
 12472 3024 DCA APUT2  
 12473 4440 JMS I UAC2  
 12474 7041 CIA  
 12475 3025 DCA ADA1  
 12476 4440 JMS I UAC2  
 12477 7001 IAC  
 12500 3027 DCA ADA3  
 12501 1027 TAD ADA3  
 12502 7041 CIA  
 12503 1023 TAD APUT1  
 12504 3026 DCA ADA2  
 12505 4057 JMS UGETWD  
 12506 4431 JMS I UMEVAL  
 12507 4432 JMS I UPPFIX  
 12510 0047 AND U17  
 12511 3012 DCA ADCX  
 12512 4431 JMS I UMEVAL  
 12513 4432 JMS I UPPFIX  
 12514 7440 SZA  
 12515 1050 TAD U7777  
 12516 0047 AND U17  
 12517 7040 CMA  
 12520 3010 DCA ADCUNT  
 12521 4431 JMS I UMEVAL  
 12522 4432 JMS I UPPFIX  
 12523 7161 CLL CML CIA  
 12524 3014 DCA CT3  
 12525 7004 RAL  
 12526 4440 JMS I UAC2

/ARE WE ACCEPTING NOW?  
 /PICK UP BUFFER ITEMS,  
 /GET THE FIRST WORD OF ARRAY,  
 /SAVE AWAY NOW,  
 /ALSO SET UP OUTPUT POINTER,  
 /GET LAST WORD OF ARRAY,  
 /SAVE IN UPPER LIMIT TESTER,  
 /GET AGAIN,  
 /ADD ONE,  
 /AND SAVE AWAY IN BOPPER WORD,  
 /FINALLY GET THE RESET WORD,  
 /AND SAVE AWAY FOR WRAP AROUND CONDITION,  
 /BYPASS REAL TIME STATEMENT,  
 /EVALUATE AN EXPRESSION  
 /FIX THE AC NOW,  
 /JUST GET CHANNEL NUMBER,  
 /SAVE AWAY,  
 /EVALUATE ANOTHER ITEM,  
 /FIX IT UP,  
 /IF ZERO, DO NOT SUBTRACT ONE,  
 /SUBTRACT ONE TO BRING INTO 0-17 RANGE,  
 /MAKE INTO 0-17,  
 /NOW NEGATE AND SUBTRACT ONE,  
 /AND SAVE AWAY CORRECT ISZ COUNTER,  
 /NOW GET NUMBER OF SAMPLES (CLOCK TICKS)  
 /SET UP LOW ORDER WORD OF COUNTER,  
 /AND PRESERVE CARRY,

10527	7161		CLL CML CIA	
10530	3015		DCA	CT2
10531	7004		RAL	
10532	4437		JMS I	UAC1
10533	7161		CLL CML CIA	
10534	3016		DCA	CT1
10535	3022		DCA	ACOUNT
10536	7201		CLA IAC	
10537	3006		DCA	ABDGET
10540	5456		JMP I	UDEVCN

/CLEAR PRESENT BUFFER COUNTER.

/SET UP BUFFER.

10541	0000	UTIM,	0		/RETURNS CLOCK TICK.
10542	1004		TAD	TIM1	
10543	3346		DCA	.+3	
10544	1005		TAD	TIM2	
10545	4430		JMS I	USETF	
10546	0000		0		
10547	5741		JMF I	UTIM	

10550	0000	USETF,	0		
10551	3053		DCA	UTEMP	/SAVE LOW ORDER WORD OF FAC.
10552	4455		JMS I	UJMS	
10553	3762		BEGFIX		/PREPARE TO INTERGIZE IT.
10554	1750		TAD I	USETF	/GET MIDDLE WORD.
10555	6201		ODF	0	
10556	3443		DCA I	PPAC2	/PLACE IN FAC.
10557	1053		TAD	UTEMP	/GET LOW WORD.
10560	3444		DCA I	PPAC3	/PLACE IN FAC.
10561	6211		ODF	10	
10562	4455		JMS I	UJMS	
10563	4600		ANORM		
10564	2350		18Z	USETF	/BYPASS VALUE
10565	5750		JMP I	USETF	/RETURN NOW.

10600	0000	UACB,	0	/THIS RETURNS A VALUE FROM THE A-D.
10601	7710		SPA CLA	/BUFFERED OR DIRECT?
10602	5222		JMP UACN	/DIRECT.
10603	1006		TAD ABGET	/CHECK TO SEE WHETHER BUFFER ASSIGNED.
10604	7450		SNA	
10605	5220		JMP UABAD	/NO BUFFER ASSIGNED.
10606	7710		SPA CLA	/IS BUFFER ACTIVE?
10607	5215		JMP UADCMY	/NO, GET COUNT.
10610	1007		TAD ADAPT	/ACTIVE, ARE WE ACCEPTING DATA?



10611	7650		SNA	CLA			
10612	5215		JMP		UADCMY		/NO, CHECK COUNT IN BUFFER,
10613	4653	UADCIN,	JMS	I	UPAGET		/GET VALUE FROM A-D BUFFER,
10614	5231		JMP		UINAC		/AND FIX IT UP,
10615	1022	UADCMY,	TAD		ACOUNT		/GET BUFFER COUNTER NOW,
10616	7640		SZA	CLA			/#07
10617	5213		JMP		UADCIN		/NOPE, WE CAN RETURN SOME DATA,
10620	4454	UABAD,	JMS	I	UJMP		
10621	7460		UUNOAD				/NO A-D DATA IN BUFFER, HE'S F--KED,
10622	4432	UADCN,	JMS	I	UPFIX		/NON-REAL TIME,
10623	0047		AND		U17		/JUST GET CHANNEL NUMBER,
10624	6002		IOF				/WE CANNOT BE INTERRUPTED HERE,
10625	6531				6531		
10626	6536				6536		
10627	4451		JMS	I	UODAD		/PERFORM THE CONVERSION NOW,
10630	6001		ION				/RESTORE INTERRUPTS,
10631	3063	UINAC,	DLA		AUTEMP		/SAVE FOR A SECOND,
10632	1063		TAD		AUTEMP		/PLACE ABSOLUTE VALUE IN FAC,
10633	7510		SPA				
10634	7041		CIA				
10635	4430		JMS	I	UUBETP		
10636	0000		B				
10637	1063		TAD		AUTEMP		/NOW SET SIGN OF FAC,
10640	6201		CDF		B		/SET TO PICK UP FIELD B, NO COOLNESS LEFT, DESPITE COMMENTS,
10641	7710		SPA	CLA			/IF POSITIVE LEAVE ALONE,
10642	7330		CLA	CLL	CML RAR		/SET LEFT MOST BIT ON TO INDICATE NEGATIVE,
10643	3446		DCA	I	PPACB		
10644	1445		TAD	I	PPACE		/GET EXPONENT NOW,
10645	1064		TAD		ADCCOR		/BRING INTO CORRECT RANGE NOW,
10646	7500		SMA				/IF TOO FAR,
10647	3445		DCA	I	PPACE		/DON'T CORRECT,
10650	7200		CLA				
10651	6211		CDF		10		/RESET CDF,
10652	5600		JMP	I	UADCB		/RETURN TO FIELD ONE (COOL ,UGH)
10653	0301	UPAGET,	AGET				
10654	0000	UUAC1,	B				
10655	6201		CDF		B		
10656	1442		TAD	I	PPAC1		
10657	6211		CDF		10		
10660	5654		JMP	I	UUAC1		
10661	0000	UUAC2,	B				
10662	6201		CDF		B		

10663	1443		TAD I	PPAC2
10664	6211		CDP	10
10665	5661		JMP I	UUAC2

10666	0000	UUAC3,	0	
10667	6201		CDP	0
10670	1444		TAD I	PPAC3
10671	6211		CDP	10
10672	5666		JMP I	UUAC3

10673	0000	UUMEVAL,	0	
10674	4455		JMS I	UJMS
10675	7415		MEVAL	
10676	5673		JMP I	UUMEVAL

10677	0000	UUPFIX,	0	
10700	4455		JMS I	UJMS
10701	4744		FIX	
10702	7200		CLA	
10703	4441		JMS I	UAC3
10704	5677		JMP I	UUPFIX

10705	4454	UUDEVY,	JMS I	UJMP
10706	7176		DEVCON	

10707	0000	UUJMS,	0	
10710	6202		CIF	0
10711	1707		TAD I	UUJMS
10712	3314		DCA	.+2
10713	4721		JMS I	UUUJMS
10714	0000		0	
10715	7410		SKP	
10716	2307		ISZ	UUJMS
10717	2307		ISZ	UUJMS
10720	5707		JMP I	UUJMS

/IN CASE OF SKIPPING RETURN

10721	7446	UUUJMS,	LLLJMS	
-------	------	---------	--------	--

10722	0000	UUJMP,	0	
10723	6202		CIF	0
10724	1722		TAD I	UUJMP
10725	3327		DCA	+.2
10726	4730		JMS I	UUUJMP
10727	0000		0	
10730	7457	UUUJMP,	LLLJMP	

10731	1335	UPCOMDO,	TAD	UUFUDGE
10732	1336		TAD	UPJMP
10733	3334		DCA	+.1
10734	7402		HLT	
10735	1740	UUFUDGE,	-6040	
10736	5737	UPJMP,	JMP I	+.1
10737	0460		UREAL	
10740	0400		USEYR	
10741	0411		USETC	
10742	0440		UWAITC	
10743	0437		UWAIT	
10744	0000		0000	
10745	0453		UACCPT	
10746	0456		UREJT	

/NOT USED NOW.

10747	0000	UPFUN,	0	
10750	1350		TAD	UPFUD
10751	1357		TAD	UPJMP
10752	3333		DCA	+.1
10753	7402		HLT	
10754	6202		CIF	0
10755	5747		JMP I	UPFUN

10756	7757	UPFUD,	=21	
10757	4760	UPJMP,	JMS I	+.1
10760	0770		ZZADC	
10761	0000		0000	
10762	0501		UTIM	

2763	2200		0000
2764	2000		0000
2765	2340		UCL8
2766	2345		UCLC
2767	2775		ZZADB

2770	2000	ZZADC,	0
2771	7240		CLA CMA
2772	4774		JMS I .+2
2773	5770		JMP I ZZADC
2774	2600		UADCB

2775	2000	ZZADB,	0
2776	4774		JMS I ZZADB-1
2777	5775		JMP I ZZADB

```

                IFZERO MACHINE<
0003          LIMIT=TEN+3
                >
                IFNZRO MACHINE<
LIMIT, 0
                >
    
```

7022            \*7022

```

17022 0000 PERMSYM,0
17023 4200 XXPLUS, 4200;TEXT '+ '
17024 5300
17025 4201 XXMINUS,4201;TEXT '- '
17026 5500
17027 4302 XXSTAR, 4302;TEXT '* '
17030 5200
17031 4303 XXSLASH,4303;TEXT '/ '
17032 5700
17033 4404 XXUPARR,4404;TEXT '^ '
17034 3600
17035 4110 XXLE, 4110;TEXT '<'
17036 7475
17037 0000
17040 4111 XXGE, 4111;TEXT '>'
17041 7675
17042 0000
17043 4112 XXNE, 4112;TEXT '<>'
17044 7476
17045 0000
17046 4111 XXEG, 4111;TEXT '>>'
    
```

17047	7576		
17050	0000		
17051	4110	XXEL,	4110;TEXT 'E'
17052	7574		
17053	0000		
17054	4105	XXEO,	4105;TEXT 'O'
17055	7500		
17056	4106	XXLT,	4106;TEXT 'L'
17057	7400		
17060	4107	XXGT,	4107;TEXT 'G'
17061	7600		
17062	4015	XXCOMMA,	4015;TEXT ','
17063	5400		
17064	4016	XXSEMI,	4016;TEXT ';'
17065	7300		
17066	4017	XXCLOSE,	4017;TEXT ')'
17067	5100		
17070	4017	XXRBRAK,	4017;TEXT ']'
17071	3500		
17072	4021	XXTO,	4021;TEXT ' TO '
17073	4024		
17074	1740		
17075	0000		
17076	4022	XXSTEP,	4022;TEXT ' STEP '
17077	4023		
17100	2405		
17101	2040		
17102	0000		
17103	4023	XXOPEN,	4023;TEXT '('
17104	5000		
17105	4023	XXLBRAK,	4023;TEXT '['
17106	3300		
17107	4024	XXFN,	4024;TEXT 'FN'
17110	0616		
17111	0000		
17112	4025	XXCOS,	4025;TEXT 'COS'
17113	0317		
17114	2300		
17115	4026	XXTAN,	4026;TEXT 'TAN'
17116	2401		
17117	1600		
17120	4027	XXATN,	4027;TEXT 'ATN'
17121	0124		
17122	1600		
17123	4030	XXLOG,	4030;TEXT 'LOG'
17124	1417		
17125	0700		
17126	4031	XXEXP,	4031;TEXT 'EXP'
17127	0530		
17130	2000		
17131	4032	XXSQR,	4032;TEXT 'SQR'
17132	2321		
17133	2200		
17134	4033	XXABS,	4033;TEXT 'ABS'
17135	0102		

17136	2300		
17137	4034	XXSGN,	4034;TEXT 'SGN'
17140	2307		
17141	1620		
17142	4035	XXINT,	4035;TEXT 'INT'
17143	1116		
17144	2400		
17145	4036	XXRND,	4036;TEXT 'RND'
17146	2216		
17147	0400		
17150	4037	XXSIN,	4037;TEXT 'SIN'
17151	2311		
17152	1600		
17153	4040	XXPUT,	4040;TEXT 'PUT'
17154	2025		
17155	2400		
17156	4041	XXLIST,	4041;TEXT 'LIST'
17157	1411		
17160	2324		
17161	0000		
17162	4041	XXLIS,	4041;TEXT 'LIS'
17163	1411		
17164	2300		
17165	4042	XXRUN,	4042;TEXT 'RUN'
17166	2225		
17167	1600		
17170	4043	XXSCR,	4043;TEXT 'SCR'
17171	2303		
17172	2200		
17173	4044	XXGET,	4044;TEXT 'GET'
17174	0705		
17175	2400		
17176	4045	XXAOC,	4045;TEXT 'AOC'
17177	0104		
17200	0300		
17201	4046	XXTTY,	4046;TEXT 'TST'
17202	2423		
17203	2400		
17204	4047	XXTIME,	4047;TEXT 'TIM'
17205	2411		
17206	1500		
17207	4050	XXTAB,	4050;TEXT 'TAB'
17210	2401		
17211	0200		
17212	4051	XXUUF,	4051;TEXT 'UUF'
17213	2525		
17214	0600		
17215	4052	XXCLS,	4052;TEXT 'CLS'
17216	0314		
17217	2300		
17220	4053	XXCLC,	4053;TEXT 'CLC'
17221	0314		
17222	0300		
17223	4054	XXADB,	4054;TEXT 'ADB'
17224	0104		

17225	0200	
17226	6000	XXCRLF, 6000;TEXT '␣'
17227	3700	
17232	6000	XXBSLSM,6000;TEXT '\'
17231	3400	
17232	6001	XXEND, 6001;TEXT 'END'
17233	0516	
17234	0400	
17235	6002	XXFOR, 6002;TEXT 'FOR '
17236	0617	
17237	2240	
17240	0000	
17241	6003	XXGOSUB,6003;TEXT 'GOSUB '
17242	0717	
17243	2325	
17244	0240	
17245	0000	
17246	6004	XXGOTO, 6004;TEXT 'GO TO '
17247	0717	
17250	4024	
17251	1740	
17252	0000	
17253	6004	XXTHEN, 6004;TEXT ' THEN '
17254	4024	
17255	1005	
17256	1640	
17257	0000	
17260	6005	XXIF, 6005;TEXT 'IF '
17261	1106	
17262	4000	
17263	6006	XXINPUT,6006;TEXT 'INPUT '
17264	1116	
17265	2025	
17266	2440	
17267	0000	
17270	6007	XXLET, 6007;TEXT 'LET '
17271	1485	
17272	2440	
17273	0000	
17274	6010	XXNEXT, 6010;TEXT 'NEXT '
17275	1605	
17276	3024	
17277	4000	
17300	6011	XXPRINT,6011;TEXT 'PRINT '
17301	2022	
17302	1116	
17303	2440	
17304	0000	
17305	6012	XXRETRN,6012;TEXT 'RETURN'
17306	2205	
17307	2425	
17310	2216	
17311	0000	
17312	6013	XXSTOP, 6013;TEXT 'STOP'
17313	2324	



17314	1720	
17315	2020	
17316	6214	XXDIM, 6014;TEXT 'DIM '
17317	2411	
17322	1540	
17321	0200	
17322	6015	XXRSTOR,6015;TEXT 'RESTORE'
17323	2205	
17324	2324	
17325	1722	
17326	0500	
17327	6016	XXREM, 6016;TEXT 'REM '
17330	2205	
17331	1540	
17332	0000	
17333	6017	XXDEF, 6017;TEXT 'DEF '
17334	0405	
17335	0640	
17336	0000	
17337	6020	XXREAD, 6020;TEXT 'READ '
17340	2205	
17341	0104	
17342	4000	
17343	6021	XXDATA, 6021;TEXT 'DATA '
17344	0401	
17345	2401	
17346	4000	
17347	6024	XXTTYI, 6024;TEXT 'TTY IN'
17350	2424	
17351	3140	
17352	1116	
17353	0000	
17354	6025	XXTTYO, 6025;TEXT 'TTY OUT'
17355	2424	
17356	3140	
17357	1725	
17360	2400	
17361	6026	XXLPT, 6026;TEXT 'LPT'
17362	1420	
17363	2400	
17364	6027	XXPTP, 6027;TEXT 'PTP'
17365	2024	
17366	2000	
17367	6030	XXPTR, 6030;TEXT 'PTR'
17370	2024	
17371	2200	
17372	6032	XXRUB, 6032;TEXT 'RUBOUTS'
17373	2225	
17374	0217	
17375	2524	
17376	2300	
17377	6033	XXNRUB, 6033;TEXT 'NO RUBOUTS'
17400	1617	

/6031 HAS BEEN REMOVED.

17401	4022	
17402	2502	
17403	1725	
17404	2423	
17405	0000	
17406	6034	XXCLEAR,6034)TEXT 'CLEAR'
17407	0314	
17410	0501	
17411	2200	
17412	6035	XXDELAY,6035)TEXT 'DELAY'
17413	0405	
17414	1401	
17415	3100	
17416	6036	XXUSE, 6036)TEXT 'USE '
17417	2523	
17420	0540	
17421	0000	
17422	6037	XXPLOT, 6037)TEXT 'PLOT '
17423	2014	
17424	1724	
17425	4000	
17426	6040	XXREAL, 6040)TEXT 'REAL TIME '
17427	2205	
17430	0114	
17431	4024	
17432	1115	
17433	0540	
17434	0000	
17435	6041	XXSETR, 6041)TEXT 'SET RATE '
17436	2305	
17437	2440	
17440	2201	
17441	2405	
17442	4000	
17443	6042	XXSETC, 6042)TEXT 'SET CLOCK '
17444	2305	
17445	2440	
17446	0314	
17447	1703	
17450	1340	
17451	0000	
17452	6043	XXWAITC,6043)TEXT 'WAITC'
17453	2701	
17454	1124	
17455	0300	
17456	6044	YYWAIT, 6044)TEXT 'WAIT'
17457	2701	
17460	1124	
17461	0000	
17462	6045	XXUCOM, 6045)TEXT 'UCOM '
17463	2503	
17464	1715	
17465	4000	
17466	6046	XXACPT, 6046)TEXT 'ACCEPT'
17467	0103	

17470 0305  
 17471 2024  
 17472 0P00  
 17473 6247 XXREJT, 6047;TEXT 'REJECT'  
 17474 2205  
 17475 1205  
 17476 0324  
 17477 0000

17500 0000 0

17501 3000 XXTEXT, 3000  
 17502 6023 XXEOF, 6023  
 17503 4113 XXUNARY, 4113  
 17504 4014 XXFINI, 4014  
 17505 6022 XXEXIT, 6022  
 17506 2000 XXLIT0, 2000;2001;2002;2003  
 17507 2001  
 17510 2002  
 17511 2003

          NOPUNCH  
 17512 0000 LINBUF, ZBLOCK 51  
 17563 0000 LBEGIN, ZBLOCK 60  
 17643 0000 ENDLIN, 0  
 17644 0000 POLIST, ZBLOCK 40  
 17704 0000 ENDPDL, 0  
 17705 0000 FORLIST, ZBLOCK 20  
 17725 0000 GOLIST, ZBLOCK 30  
 17755 0000 GSBEND, 0  
           ENPUNCH

3

ABCEP 1756	BEGFIX 3762	DBISRT 7547	EXPOK 5265
ABOGET 0026	BIDLE 6713	DBLIT 7526	FAD 4000
ABOP 6325	BKWD 0600	DBPUT 7556	FADEXT 1314
ABS 6425	BREAK 6522	DDLAST 7512	FADI 4400
ACCEPT 7473	BSKIP 2730	DECEXP 0043	FATNAX 6273
ACE 2825	BUSY 6737	DECFRA 3366	FATNC 6337
ACN 4417	CARRET 2700	DEEPER 0526	FATNCM 6342
ACCOUNT 0022	CCINTK 7465	DEF 1576	FATNCJ 6345
ACS 0024	CCYRA 7342	DELAY 7463	FATNC1 6304
AC1 0020	CDEVCO 0000	DELETE 6501	FATNC2 6307
AC2 0017	CDINP 7445	DELOUT 0142	FATNC3 6312
AC3 0016	CHECKW 2346	DEVCOM 7175	FATNC4 6315
ADACPT 2027	CHKFIT 6400	DEVCON 7176	FATNC5 6320
ADA1 0025	CLAB 6133	DICO 6051	FATNC6 6323
ADA2 0026	CLBA 6136	DIGIN 3224	FATNC7 6326
ADA3 0027	CLC 7477	DIGIT 3204	FATNC8 6331
ADB 7477	CLCA 6137	DIGLUP 6557	FATNC9 6334
ADC 7477	CLEAR 7432	DILC 6050	FATNSX 6272
ADCCOR 0064	CLEARV 2462	DILE 6056	FATNT 6276
ADCL 6530	CLEN 6134	DILX 6053	FATNTY 6301
ADCUNT 0010	CLKST 0003	DILY 6054	FCNTLC 6665
ADCX 0012	CLOCK 0175	DIM 6472	FCNTLO 6703
ADDRES 0067	CLOC 6132	DIMPLA 0034	FDIGIT 3360
ADLE 6536	CLRCNT 0360	DINP 7511	FDV 7000
ADLM 6531	CLS 7477	DIRE 6057	FDVI 7400
ADR0 6533	CLSA 6135	DISAUT 0019	FENTER 4435
ADR8 6537	CLSK 6131	DISO 0136	FEXIT 0000
ADSE 6535	CLTEMP 0011	DISO 6052	FEXPC1 6072
ADSK 6534	CLZE 6130	DIVLP 4705	FEXPC2 6075
ADST 6532	CNCLR 0143	DIVXTE 3364	FEXPC3 6100
AGEY 0301	CNTLCF 6700	DIXY 6055	FEXPC4 6103
ALGNLP 4466	CNTLCR 6670	DLAST 7511	FEXPC5 6106
ALLCC 1461	CNTLO 0133	ODAD 0362	FEXPC6 6111
ALL3 3146	CODELO 0004	ODADLP 0366	FEXPF 6067
ALTMOD 2663	COLUMN 0126	ODITNO 1247	FEXPI 6061
ALI 4654	COMMON 3400	DOTZER 7371	FEXPU 6064
AMATCH 6506	COMPAR 2136	DPFLAG 3365	FINDIT 0557
ANORM 4600	CONST 1367	DQINTX 3170	FINDLU 0565
APUT 0263	COS 3616	DSCREW 0375	PIX 4744
APUT1 0023	COWT 7326	DVLOOP 5245	FIXEXI 4773
APUT2 0024	COWTFP 7343	EDIT 2405	FIXITU 5200
ARGERR 7363	COWTLP 7331	END 2567	FIXLIN 2113
ARRLOC 0003	COWTO 7340	ENDLIN 7643	FIXLUP 4750
ARI 4402	COWTW 7344	ENDNUM 3331	FIXUP 5146
ATEMP 0323	CRINTX 3076	ENDPOL 7704	FJMP 1000
ATEMP2 0324	CRLF 6531	EOFAD 4526	FJMPI 1400
ATLINE 6451	CRLFPR 3740	EPTR 0056	FJUMP 1130
ATN 6200	CT1 0016	ERROR 4142	FLD 3000
ATNBIG 6265	CT2 0015	EVAL 1004	FLOI 3400
ATNLOW 6220	CT3 0014	EVALGO 1007	FLOGC1 6172
ATNNOT 6237	CYTLOO 5024	EXECUT 0213	FLOGC2 6153
AUTEMP 0063	DAYAER 1667	EXIT 2402	FLOGC3 6156
BARRON 2666	DBAD 7513	EXP 6000	FLOGC4 6161
BCOEPG 1757	DBBAD 7532	EXPGOO 5242	FMP 6000
BCKWDS 4502	DBGOT 7420	EXPLON 5764	FMPI 6400

FHTENF 5123	FBINZZ 5710	IDLEAC 6732	JOIGIT 3124
FHT1 5125	FSIN10 5641	IDLECO 6725	JISDIG 3367
FHT2 5053	FSLE 0150	IDLECI 6726	JMATCH 2766
FHT3 5130	FSLT 0110	IDLELK 6731	JPUTCH 0777
FN 5453	FSNE 0040	IDLEPC 6733	JTXXIT 3123
FNERR 0352	FSQRX 5407	IF 0375	JUST0 3150
FNEXIT 1200	FST 2000	IGNORE 2115	JUSTOF 3160
FOR 0413	FSTI 2400	IIXR 7414	JUSTOP 3163
FORCT 0063	FTANT1 5677	IMMED 2454	JUST1 3145
FORDON 0663	FTANT2 5702	IN 3431	JUST2 3147
FORERR 6501	FUNTAB 1131	INCHAR 7255	KEYWD 0231
FORLIM 0721	FUPRC1 5762	INDEV 0127	LBEGIN 7563
FORLIS 7705	FWD 0200	INDEX1 0013	LCF 6662
FORSTE 0724	FXXPPX 6023	INDEX2 0014	LET 0312
FORVAR 0452	GALT 7247	INLCYM 4065	LETD0 0205
FOUND 0575	GDIM2 1564	INLOOP 0572	LETTER 3446
FOURLF 3557	GET 0001	INLUPP 0432	LFXLUP 2333
FPADD 4456	GETADD 1400	INODUN 6710	LHALF 3070
FPADDR 4304	GETARY 7462	INOPPP 6641	LIMIT 0003
FPDIV 4667	GETBLK 1674	INOTTT 6645	LINBUF 7512
FPDOIT 4237	GETCH 7201	INPLUP 4034	LINENO 0052
FPFLAG 0156	GETJ 1770	INPPTR 4063	LINFIX 2330
FPGOTO 4273	GETLIN 2603	INPUT 4007	LIST 3600
FPJMP 4317	GETLRE 2600	INSERT 2032	LISTAL 3616
FPJUMP 4274	GETOPR 1015	INSRTS 2030	LISTLU 3620
FPLAC 4351	GETVAR 0311	INT 6434	LISTSO 3617
FPLOOP 4202	GETWO 0177	INTAC 6734	LIST2 3640
FPMUL 4530	GLOOP 2711	INTCDF 6770	LIST3 3655
FPNOAD 4270	G000TH 0532	INTCIF 6771	LIST4 3661
FPPER 4305	GOLIST 7725	INTECD 6762	LIST5 3676
FPPGZ 4227	G0SUB 0505	INTEMP 6736	LITRAL 3131
FPSKIP 4314	GOTEMP 0053	INTER 6600	LLLJMP 7457
FPSO 4322	GOTO 0517	INTEXT 6744	LLLJMS 7446
FPSUB 4453	GOTOPR 1202	INTL 6735	LLLUUU 7140
FPT 4200	GOTSS 1074	INTOU 6765	LLS 6666
FPTEMP 4576	GOTSTE 0634	INHDTM 4064	LNOEND 3630
FPTR 0057	GOUT 7251	IPNOPE 4024	LOADED 4127
FPZDIV 4736	GPTR 0060	IPOINT 7034	LOCCTR 0045
FRNDX 5404	GRB 7224	ISDEF2 3512	LOCTEM 0671
FRSTNE 2155	GRDELA 7222	ISDIG 6532	LOCTMP 1673
F80 5000	G80END 7755	ISDIM 1473	LOG 6114
F801 5400	G80PTR 0165	ISET 7407	LOGACE 6165
F8EQ 0050	G801 1562	ISIT 4566	LOGFWD 6164
F8GE 0100	G802 1563	ISITOP 0550	LOGOKW 6167
F8GT 0140	GT0KLP 1710	ISITFU 1110	LOWLOC 2171
F8HPT 7443	GTEMP 7254	ISITLI 4104	LPTOUT 7163
F8INC1 5713	GWHERE 7270	ISLIT 4133	L8F 6661
F8INC3 5716	HFOUND 7321	ISSOME 1644	L8TLOC 2160
F8INC4 5721	HIGHWD 4333	ISUMIN 1013	LUP 3405
F8INC5 5724	HLOOP 2722	ITSDEF 3514	LUPP 0426
F8INC6 5727	HPTR 0061	ITSOP 3256	L4LUP 3664
F8INC7 5732	HRCHAR 7256	ITSE 3263	MACHIN 0000
F8INH4 5735	HRLOP 7302	ITSOP 1220	MAYZER 4612
F8INOK 5657	HRMES 7323	ITSP 3300	MENDLI 0041
F8INZ 5705	IANLES 2150	JBPENT 3707	MENOPD 2363

MEVAL 7415	NULCMD 7454	0143 7266	07612 7262
MEVALG 7431	NULJOB 7415	017 5147	07640A 0765
MGOLIS 0720	NULLOP 7430	01742 3375	07640B 2763
MGSEEN 0525	NUMBUF 5335	0175 7267	07640C 7263
MINUS 1316	DADD 4435	0177 0027	07673 3316
MLBEGI 0173	OBHIGH 1177	01774 3376	077 0070
MLEND 0174	OBLOW 1165	02 0062	07706A 6544
MLINBU 0040	OBOP 7101	0200 0155	07706C 3473
MNSONE 0736	OCC 5205	02040A 3373	07715 2775
MOREDI 6470	OCCLIM 7115	02062 5344	07725A 3100
MOREIN 4000	OCOR 7113	0212 0010	07725B 3371
MORERD 1621	OCOUNT 7042	0215 0007	07737 3122
MOVE 2012	ODEV 0132	023 1366	07740 0054
MOVLUP 2072	OFLAG 7100	0233 3772	07741 3745
MPY 5321	DFLOW 7115	0240 0051	07743 4743
MPYLUP 4552	DJUMP 1276	0253 5150	07745 0162
MTXXIT 3201	DLOOP 0066	0255 5151	07746 7264
MULCLR 4571	ONE 0151	0256A 5156	07753 3104
MULEXP 3346	ONEDIH 1064	0256B 6575	07762 2327
MULXTE 3363	ONESS 1076	0260 0011	07763A 0774
MUSTBE 4570	ONLY1 3322	027 3370	07763B 3101
NODELAY 7420	007606 5052	0305 5152	07764A 1274
NEWCHA 2615	007736 2326	032 3121	07764B 3102
NEWLIN 2610	OPDONE 1203	036 2767	07764C 3374
NEXT 0600	OPE 0030	03737B 2773	07764D 6777
NEXTER 0673	OPERAN 0073	03754 1162	07766 5154
NEXTVA 0637	OPNUL 7067	03755 1273	07770 0055
NINTEC 7457	OPQINT 7065	0377 0071	07771 5155
NOBUMP 4633	OPOTAB 7073	04 0160	07772 5157
NOCOMM 0335	OPRST 7155	040 2770	07773 5346
NOINT 0134	OPB 0026	04001 7525	07774 1566
NONBLN 3110	OPUTC 7041	04014 1163	07775 6776
NONZER 5016	OP1 0023	042 3106	07776 3372
NOPARE 1035	OP2 0022	04200 3105	07777 7114
NOPCR 2216	OP3 0021	04213 1164	PACN 4742
NORLFT 6423	OTEMP 1271	05400 5347	PAL1 0150
NORMED 5220	OTHER 3000	06201A 6615	PANORM 0146
NORMIT 5207	OTST1 7112	06201B 7005	PARGER 0047
NORUBO 5574	OUTDEL 7146	06202 6775	PAR1 0147
NO881 1460	OUTDEV 0131	07 0072	PASSCR 0472
NO882 1453	OUTO2 0130	070 6774	PASSUM 7440
NOT 3427	OUTIT 7043	0700 1272	PBEGFI 1776
NOTBAD 2127	OUTNUM 5000	07000A 2560	PBIDLE 7161
NOTBIG 4620	OV 0012	07000B 3474	PBOMB 0367
NOTCR 3023	01000 3550	07000C 7456	PBUSY 7157
NOTPRS 2061	011 0304	07077 1275	PCCUNT 0744
NOTHER 0435	0110 2361	07520 5153	PCHKFI 0163
NOTKWD 0313	012 0065	07545 4777	PCOMMO 3357
NOTNOW 2000	0122 2771	07570 6456	PCOWT 0141
NOTSGN 3301	013 1567	07577 4577	POEVCO 7442
NOTTXT 2236	0132 7265	07577B 7554	POL 0036
NOTVAR 1105	0137 7201	07600 4345	POLIST 7644
NOTX10 5236	014 2360	07601 7260	PEDIT 0120
NPSPER 7555	0140A 0775	07603 2774	PERMSY 7022
NSYMTA 0006	0140B 2772	07610 5345	PERROR 0077

PEVAL	0101	PPASSC	0110	PUTLOC	2172	SLOOP	2707
PEVALG	2240	PPDLIS	0125	PUTLP	7007	SLBHTM	1337
PEXECU	0103	PPERHB	2565	PUTXRA	0776	SNUMFL	0064
PEXP	5776	PPFLOD	4741	PXFORL	0556	SPACER	0370
PFINOI	0672	PPFORL	1760	PXLINO	3746	SPECIN	0140
PFIX	0106	PPINT	6060	PXXCRL	3125	SPLEFT	0144
PFNERR	5546	PPOP	0105	PXXEOF	2564	SGEXIT	5450
PPFLOO	4575	PPRINR	2241	PXXEXI	3126	SQLOOP	5435
PGETAD	0102	PPRINT	0114	PXXLIT	3130	SGR	5412
PGETBL	0115	PPRINU	0123	PXXTHE	2562	SSERR	1570
PGETCH	0032	PPUSH	0104	PZERDO	6505	SSFIX	4775
PGETLI	0124	PPUTCH	0033	QBIDLE	7257	SSONE	0344
PGETLR	3022	PPXRA	7160	QERROR	4170	SSTWO	0345
PGETOP	0111	PRENT	2316	QMRCHA	7156	STAR	1327
PGETVA	0113	PRESET	0137	RANDAE	0451	START	1000
PGOLIS	0164	PRINBL	2277	RBSWCH	0135	STICKI	6430
PGOTOP	0107	PRINCO	2303	READ	1623	STOP	2370
PHRCHA	6740	PRINHA	2260	READLO	0046	STOVAR	0341
PIGNOR	0471	PRINQU	2225	READY	6525	SUBRA	2161
PINCHA	6741	PRINRE	2242	REALTI	7473	SXERR	6441
PINT	5676	PRINSE	2312	REJECT	7473	TAB	5547
PISITL	0175	PRINT	2173	RELATE	1342	TABDES	6367
PJSET	2461	PRINTC	2207	REMPAC	3043	TABDO	6350
PLBEGI	0172	PRINTG	2206	RESET1	7116	TABFLG	2345
PLETDO	0204	PRINTH	2222	RESET2	7141	TABOK	6360
PLETTE	3103	PRINTX	3702	RESTOR	3773	TABTHR	2362
PLIMIT	2561	PRINUM	3747	RETNER	0713	TAN	5600
PLINBU	0037	PRINVA	3653	RETURN	0677	TBEGFI	5572
PLINFI	0161	PRLOOP	3711	RHALF	3074	TEN	0000
PLIST	2563	PRSUBR	3724	RMLEFT	6413	THESKI	1353
PLITRA	3377	PRTEMP	0042	RND	5353	THISTX	3107
PLOG	5775	PRTXRE	3722	RNDJMP	5350	TIM	7477
PLOT	7400	PSGN	5675	RTERR	7373	TIM1	0004
PLOTB	7514	PSKIPI	1617	RUBO	5573	TIM2	0005
PLUS	1312	PSLOOP	0116	RUN	2452	TMP	0031
PHEVAL	7441	PSPACE	1565	RUNIN	2503	TOOLON	5162
PHPY	5160	PSTICK	0121	RUNLUP	2465	TPRINT	6370
PNBPF6	5161	PSTOVA	0112	RUNNOT	2477	TRALUP	2105
PNOCR	0757	PSXERR	0100	RUNZIN	2543	TRANSF	2103
PNONBL	0122	PSYMTA	0005	RUNZLU	2514	TRYAGI	5133
PNOTNO	2566	PTABDE	5570	RUNZNO	2537	TRYSTE	0626
PNUMBU	0044	PTABFL	5571	SCHMOR	1657	TST	7421
POADD	0157	PTABLE	2777	SCRATC	2440	TSTFX	7417
POFLAG	6742	PTEN	0145	SEARCH	1660	TSTP	7431
POP	3551	PTEXT	0076	SETCLO	7473	TTYIN	7173
POPERA	3127	PTPOUT	7164	SETRAT	7473	TTYOUT	7165
POP3	4434	PTRIN	7172	SETSGN	4512	TUBIG	2657
POTHER	2776	PTUBIG	3021	SETUP	7400	TWIDTH	2357
POUIT	6743	PUSERP	5545	SGN	0726	TWOSS	1077
POUTNU	0117	PUSH	2364	SIMPLY	3466	TXTPAK	3046
PPACE	0049	PUTCDF	7037	SIN	5624	UABAD	0620
PPAC0	0040	PUTCH	0741	SINCHA	7162	UACCP	0453
PPAC1	0042	PUTCIN	7023	SJUMP	0240	UAC1	0037
PPAC2	0043	PUTER	7000	SKIPIT	0467	UAC2	0040
PPAC3	0044	PUTJ	1761	SLASH	1332	UAC3	0041

UADCB	2622	UUJMP	0730	XXEQ	7054	XXTAB	7207
UADCIN	2613	UUJMS	0721	XXEXIT	7505	XXTAN	7115
UADCMY	2615	UUULLL	0352	XXEXP	7126	XXTEXT	7501
UADCN	2622	UVP	7502	XXFINI	7504	XXTMEN	7253
UCLC	2345	UWAIT	0437	XXFN	7107	XXTIME	7204
UCLOOP	2217	UWAITC	0440	XXFOR	7235	XXTO	7072
UCLS	2340	UIP	7503	XXGE	7040	XXTTY	7201
UDEVCO	0256	UI0	0036	XXGET	7173	XXTTYI	7347
UDOAD	0251	UI00	0013	XXGOSU	7241	XXTTYO	7354
UDOPER	1363	UI7	0047	XXGOTO	7246	XXUCOM	7462
UFFUD	0756	UI77	0017	XXGT	7060	XXUNAR	7503
UFJMP	2757	U2P	7504	XXIF	7260	XXUPAR	7033
UGETWD	0257	U4707	0020	XXINPU	7263	XXUSE	7416
UGH1	3562	U5010	0034	XXINT	7142	XXUUF	7212
UIEXT	0234	U7	0033	XXLORA	7105	XXWAIT	7452
UIEXT2	0243	U7760	0052	XXLE	7035	YYWAIT	7456
UIEXT3	0245	U7767	0035	XXLET	7270	ZERDON	5144
UIEXT4	0260	U7775	0021	XXLIS	7162	ZERO	0152
UINAC	0631	U7777	0050	XXLIST	7156	ZFIXEX	4767
UJMP	0254	VAR	0343	XXLIT0	7506	ZZA08	0775
UJMS	2255	VARTEM	0553	XXLOG	7123	ZZA0C	0770
UMEVAL	0031	VSCHI	3524	XXLPT	7361		
UMOPER	1321	VSCHLU	3475	XXLT	7056		
UNDERF	4645	VSCHND	3520	XXMINU	7025		
UPAGET	0653	WAIT	7473	XXNE	7043		
UPARRO	6457	WAITC	7473	XXNEXT	7274		
UPARRX	5740	WDTEMP	1075	XXNRUB	7377		
UPARR2	4365	WORD	0050	XXOPEN	7103		
UPCOMD	0731	XEXECU	0412	XXPLOT	7422		
UPFIX	0032	XGIBIT	4066	XXPLUS	7023		
UPFUN	0747	XGMUST	7345	XXPRIN	7300		
UPJMP	0736	XIBIT	4073	XXPTP	7364		
UREAL	0060	XMUST	7352	XXPTR	7367		
UREJT	0456	XRESTA	1003	XXPUT	7153		
USE	7446	XXABS	7134	XXRBRA	7070		
USERFN	1620	XXACPT	7466	XXREAD	7337		
USETC	0411	XXADB	7223	XXREAL	7426		
USETF	0550	XXADC	7176	XXREJT	7473		
USETM	0416	XXATN	7120	XXREM	7327		
USETR	0400	XXBSLS	7230	XXRETR	7305		
USKIPI	7461	XXCLC	7220	XXRND	7145		
UTEMP	0053	XXCLEA	7406	XXRSTO	7322		
UTIM	0541	XXCLOS	7066	XXRUB	7372		
UUAC1	0654	XXCLS	7215	XXRUN	7165		
UUAC2	0661	XXCOMM	7062	XXSCR	7170		
UUAC3	0666	XXCOS	7112	XXSEMI	7064		
UUDATA	7567	XXCRLF	7226	XXSETC	7443		
UDEVCO	0705	XXDATA	7343	XXSETR	7435		
UFFUDG	0735	XXDEF	7333	XXSGN	7137		
UUJMP	0722	XXDELA	7412	XXSIN	7150		
UUJMS	0707	XXDIM	7316	XXSLAS	7031		
UUMEVA	0673	XXEQ	7046	XXSQR	7131		
UUNOAD	7460	XXEL	7051	XXSTAR	7027		
UUPFIX	0677	XXEND	7232	XXSTEP	7076		
UOSETF	0030	XXEOF	7502	XXSTOP	7312		