

IDENTIFICATION

Product Code:	DEC-12-ZR2B-D
Product Name:	DIAL-MS PIP Program Description
Date Created:	December 1, 1970
Maintainer:	Software Services

LAP6-DIAL is an editor, filing system and assembler for use with the PDP-12 computer. The editor and filing portions are derived from the basic LINC program LAP6¹ by Mary Allen Wilkes of Washington University. The assembly portion is derived from several programs used for the PDP-8 computer including PAL-D².

The Digital Equipment Corporation wishes to express to the author, Mary Allen Wilkes (Clark), and the Computer Research Laboratory of Washington University, St. Louis, Missouri, its appreciation for the development set forth in LAP6 as well as its thanks for permission to use parts of the LAP6 program.

¹M. A. Wilkes, LAP6 Handbook, Computer Research Laboratory Tech. Rep. No. 2, Washington University, St. Louis, May 1, 1967.

²PAL-D Assembler Programmer's Reference Manual DEC-D8-ASAA-D.

1.0 PROGRAM OVERVIEW

PIP is basically an I/O device manipulator. It transfers data from one device to another, perhaps doing some conversion on the way. PIP works with two types of I/O: sequential and file oriented. File oriented merely means that the entire file resides on some device (DECTAPE, DISK, etc.) from which any part of the file may be retrieved at any time. On such a device there exists an index which has the file names, the record numbers and lengths of each file. Sequential input is defined as a string of one data word after another, where generally the length of the input and/or output is unknown and where it is generally impossible to "backspace" the input device to retrieve characters once they are read in or written out. PIP can transfer files to files, files to sequential, sequential to sequential, and sequential to files.

PIP is composed of several "handlers". Each handler does one conversion task (binary, source, etc.). The initial display chooses which handler to use. The handler does not do any I/O; rather it sets flags which tell the low level I/O routines what to do. This is done by two "flags" called BFLAG1 and BFLAG2 (for exact values see the system routine descriptions at the end of this manual). If either BFLAG1 or BFLAG2 is zero, then file oriented I/O is to be used instead of sequential. If an input or output is sequential, the handler gives an AUXIN to get a character or AUXOUT to output a character. Thus, from a high level point of view, the handler does not know or care what sequential device it is using; all it knows is that when it gives an AUXIN, the I/O routine will return with a character in the AC (the AUXIN also checks for CTRL/D, CTRL/P, and CTRL/Z). For file to file operations a "FILEC" call looks up the output file using "DIRECT" and then uses "COPY" to transfer all the data. (These routines are described in system subroutine calls, section 2.0.) For file to sequential or sequential to file operations, separate "mini-handlers" are often required. For example, the binary handler has two handlers, BINTAP for input from tape and BTAPE for output. Note that these cannot both be in use at the same time because file to file operations are done by "FILEC". Thus, PIP is merely a grouping of subroutines, with a very small main loop. This modularity makes PIP fairly big, but it also makes it easy to understand and to modify. Most of the key subroutines are described in the back of the next section.

2.0 PIP SUBROUTINES

PIP is basically a set of general purpose low level subroutines and a master coordinating loop which calls them. This section describes what these routines do and how to call them. Instead of using a JMS NAME type of call, the equal sign is used as follows:

PNAME = JMS NAME

Thus, by just stating PNAME, the subroutine call is obtained. In almost all cases all the tags defined in a subroutine begin with the same letter as the subroutine name.

TAPE Sets up the index information area (locations INDEX through CUPPER) to use tape rather than disk. Sets the unit to between 0 and 7.

DISC Same as TAPE except the unit is set between 10 and 47,

PUSH Takes the "FBLOCK" area (FSIZE through PNAME+3) and moves it to an area called the "lower save" area.

POP Transfers the lower save area back to the FBLOCK area.

HPUSH Transfers the FBLOCK area to the "high save" area.

HPOP Transfers the high save area to the FBLOCK area.

LEADER Generates about 120 characters of leader-trailer on the chosen output device (BFLAG2).

FILEC Copies a named file from one unit to another. The input unit was already "looked up" and exists in the high save region. The output file name and unit are still in FBLOCK. FILEC will do the rest and return to PIP.

PUTL Puts a character on the TTY. AC=character on entry; AC=0 on return.

DISPLAY DISPLAY
 XYZ XYZ , Horizontal coordinate (1 word)
 Vertical coordinate (1 word)
 Text/F Q and A type
 H text.....
 end\/.
 Display will display the message pointed to by the next word. The first and second words are the starting horizontal and vertical positions on the screen. The text is standard Q and A type text, but no replies are permitted. This routine displays the message once and then returns. To refresh you must go back and redisplay it.

PIP Restarts PIP.

DIAL Returns to the DIAL monitor.

COPY Copies blocks from one unit to another. INBLOCK contains the first input block number, OUTPUT contains the output unit. OUTNUM contains the two's complement of the number of copies to make.

CHECKIO Checks to see if a CTRL/D or CTRL/P was typed.

GETL
 xxxx comes here if no character typed (1st word).
 xxxx comes here with typed character in the AC (2nd word).

DIRECT Looks up the name of a file on a device index. The index information is contained in INDEX and ILEN and the unit in FUNIT. The name of the file is in FNAME and the type of file (source or binary) in FTYPE (1 or 2). There are two types of files: input and output. If FWHAT=1, then it is an input file. If the file exists, then the starting block number is left in FBNUM and the length in FSIZE. If the file does not exist, the routine issues a "NO" display. If the file is output, you

supply the length in FSIZE and the routine will return the block number in FBNUM. The routine handles the "REPLACE" and the "NO" messages.

DECODE This routine will get a line from the Teletype, check its syntax, and
XYZ then return. It will display the user's message at XYZ (see DISPLAY)
in addition to displaying a "REPLY". The reply is of the form:

X	1234	;	ABCDEFGH	,	4321
single	octal		8 six bit		octal
letter	number		characters		number

The first letter goes in the location "FTYPE" in 8 bit ASCII, the first octal number goes into FUNIT, the 8 character name goes into FNAME through FNAME+2 (filled by 77's), and the last number goes into FSIZE. Any missing numbers go to 0, any characters missing from the FNAME go to 77.

MOVE The move subroutine will move NUMBER number of words from FROMLOC to
FROMLOC TOLOC.
TOLOC
NUMBER

NOO Displays the word "NO" on the screen. It never returns.

REPLACE Displays the word "REPLACE" on the screen and waits for an R. If an R
is typed, it returns. Replace does a PUSH on entry and a POP on exits.

READ (or WRITE)
UNIT #
Core Loc. (starting loc of transfer)
Number of blocks to transfer
First block of transfer

These are the calls to the Mass Storage I/O Handler. UNIT # is the device number (0-7 = tapes 0 -7; 10-17 are disk units; 20-77 are unassigned yet; 100-7777 an error condition occurs). If you overflow from location 7777, the routines will automatically read into location 0 of field 1, and so on. PIP uses essentially the same RF08 and RK08 routines as BUILD. For a detailed description see DEC -12-ZR5A-D.

SEARCH
CHECKLIST
GOTOLIST

CHECKLIST, 301
 302
 303
 320
 307
 4215

bit 0 on = end of list

GOTOLIST, AFOUND
 BFOUND
 CFOUND
 PFOUND
 GFOUND
 CARRET

This routine checks the contents of FTYPE with the list pointed to by the first argument and, if found, goes indirectly to the corresponding position on the second list. If not found, it returns. Note that bit 0 is the end of list indicator. Therefore, only values between 0 and 3777 may be checked using this routine.

AUXIN Gets a character from the device specified by BFLAG1.

BFLAG1 = 1 Teletype
= 2 High speed reader
= 3 Card reader

Any other values should not be used.

AUXOUT This puts a character on the specified device.

BFLAG = 1 Teletype
= 2 High speed punch
= 3 Line printer

Important lower core locations:

0000 is used by JMP's in LMODE
0001 is used for displaying characters

AUTO 1-AUTO 8 (10-17)

Used for auto registers.

TEMP

TEMP1 thru TEMP4

These may be used as temporary locations at any time. Remember that as a routine is called, that routine is also free to use them.

KEYCHAR Last character typed on the TTY.

BNUM Number of 400_8 word blocks that can be used for buffers.

INBLOCK See COPY.
through
OUTNUM

INDEX Contains starting block number of the DIAL index (normally 346).

ILEN Contains the blocks length of the index (normally 2).

ELOWER Lowest block on the device.

EUPPER Highest block on the device.

CLOWER Lowest block the system uses on the device.

CUPPER Last block the system uses on the device.

FBLOCK AREA

FSIZE thru FNAME 3

FSIZE generally the length of the file (in blocks).

FUNIT unit on which the file sits.

FTYPE 1 = source
2 = binary
anything else = wrong

FWHAT 1 = input
2 = output
anything else = wrong

FBNUM starting block of the file.

FNAME name of the file (8 characters = 4 words).

3.0 ADDING OR DELETING DEVICES TO PIP

3.1 MASS STORAGE

Mass storage I/O is all done by calling the system read and write routines. By looking at the mass storage routine (approximate location 1400) the reader can see the general call is:

```
READ (or WRITE)
unit number
first core location of transfer
number of blocks to transfer
first block number of transfer
```

The key to selecting the type of device lies in bits 6-8 of the unit number word. There are, therefore, a maximum of 8 possible types of mass storage devices which PIP may use. At present, only device type 0 (units 0-7) is implemented as LINC tape. Type 1 (units 10-17) is now the RF08 or the RK08. Type 2, 3, and 4 (devices 20-47) are used for additional RK08 drives. Slots 5-7 (units 40-77) are free and there are no plans to use any of these in the immediate future. These slots have a "NOSUCH" in them so that if they are referenced, they will merely JMS to NOSUCH. NOSUCH will display an error message. Note that this should not happen in practice, because PIP should not try to address imaginary units.

Assume the reader wants to add a new mass storage device (for example, a drum) to be called device "7". At location 1411 (the last word of the input slots) put the address of your read routine. Then, whenever PIP attempts to read from a unit on device 7 (units 70-77), it will call this read routine in the manner just discussed. The write routine uses the same principle, with the exception that the address routine goes at location 1423 (the last write slot).

All that now remains is to tell the particular handler about the new device now made available for it to use. You would probably want to add it to the scope message; because that is merely adding one line in the middle of the desired text statement, it will not be discussed further. Assuming that you wish to tell the COPY handler about the new device, consider the following sequence. At location ACOPY (approximately 5626) the COPY routine calls DECODE to get the unit. It then checks for an "L" for LINC tape (314) and for a "D" for drum. Notice that the LINC tape unit number is ANDed with 0007. This ensures a unit between 0 and 7, which is device 0, which is the LINC tape routines. For this device 7, AND the unit with 0007 and then add 0070. This ensures the unit as being between 70 and 77. COPY logic will do the rest, including calling the mass storage routines with the unit selected, which in turn will call the

particular handler. That is basically all there is to adding another device.

3.2 SEQUENTIAL DEVICES

Sequential devices are selected by program switches (BFLAG1 and BFLAG2). To insert or remove a sequential device, add a BFLAG test in SEQIN or SEQOUT, the input and output routines. The exact nature of the device is then unimportant, as is the actual testing of the BFLAG switch. As an example of this, a brief description of the card read routine is in order.

The card reader is at present the most complicated sequential device on PIP. It differs from most other devices in that it has a limited amount of time to read in a mass of data. For this reason, it has its own buffer. The card routine is initialized by call CDINIT. This sets certain flags and stores the limits on the card columns to be read in. The main entry point is CDREAD. This routine actually checks BFLAG1 and then returns to the third address after the call if BFLAG1 $\neq$ 3. It returns to the first location if the data is not yet ready. It returns to the second location if the data is ready with a character in the AC. The routine reads in an entire 80 column card into CDBUF. The buffer is 40₁₀ words long because BCD is only 6 bit. After an entire card is read in, it then translates it to 6 bit ASCII. This is done by using the CDTAB which is a table of the 6 bit ASCII characters. The characters are arranged positionally to correspond to the values of the BCD. As an example, the translation of the character "A" follows.

A has the numerical value 61 in BCD from the card reader. The table CDTAB is packed two characters to a word. Therefore $61/2 = 30 + \text{Remainder}$. This may be taken as meaning the 30th character from the table CDTAB, right, as opposed to left if the remainder was 0. The contents of CDTAB+30 is 01, which is indeed the ASCII value of "A". It then stores this correct value back in the card buffer CDBUF until it translates the entire card. Then it will give the characters back to the user on an individual basis. When it has exhausted CDBUF, it reads in another card and translates it. The translation table CDTAB is set up for the IBM-029 Key punch code. This table may be reshuffled or changed in any way, as long as blank is always the only character to have the 00 value.

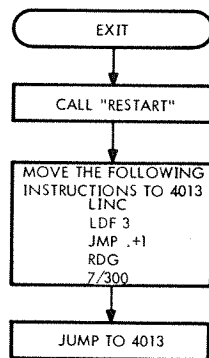
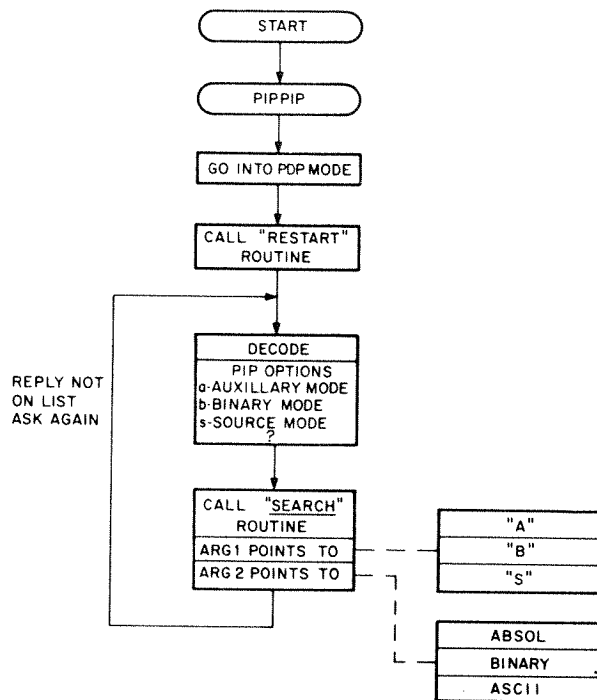
4.0 FLOWCHARTS (Attached)

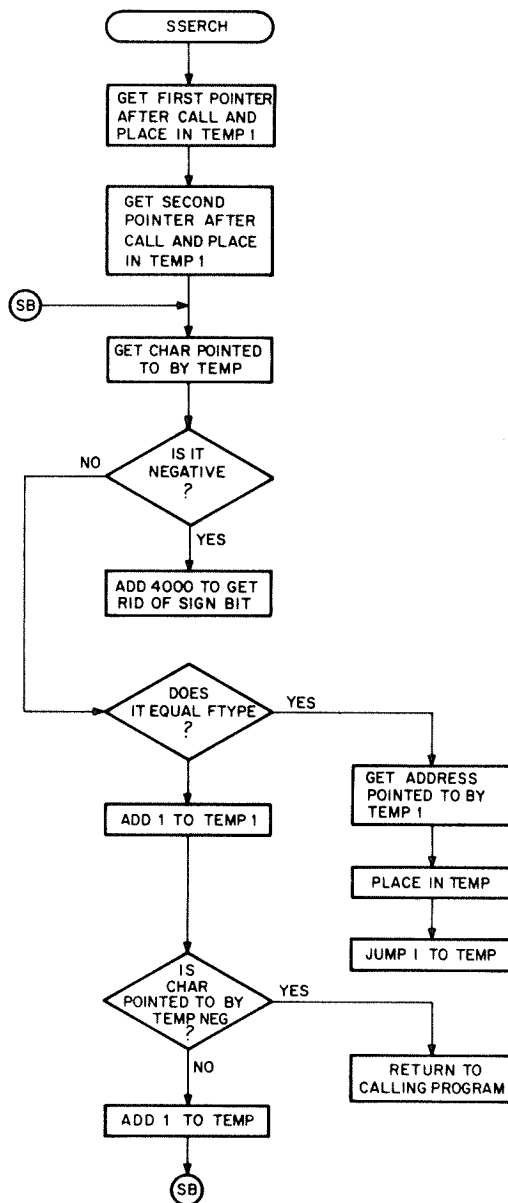
PIP FLOWCHART CONVENTIONS

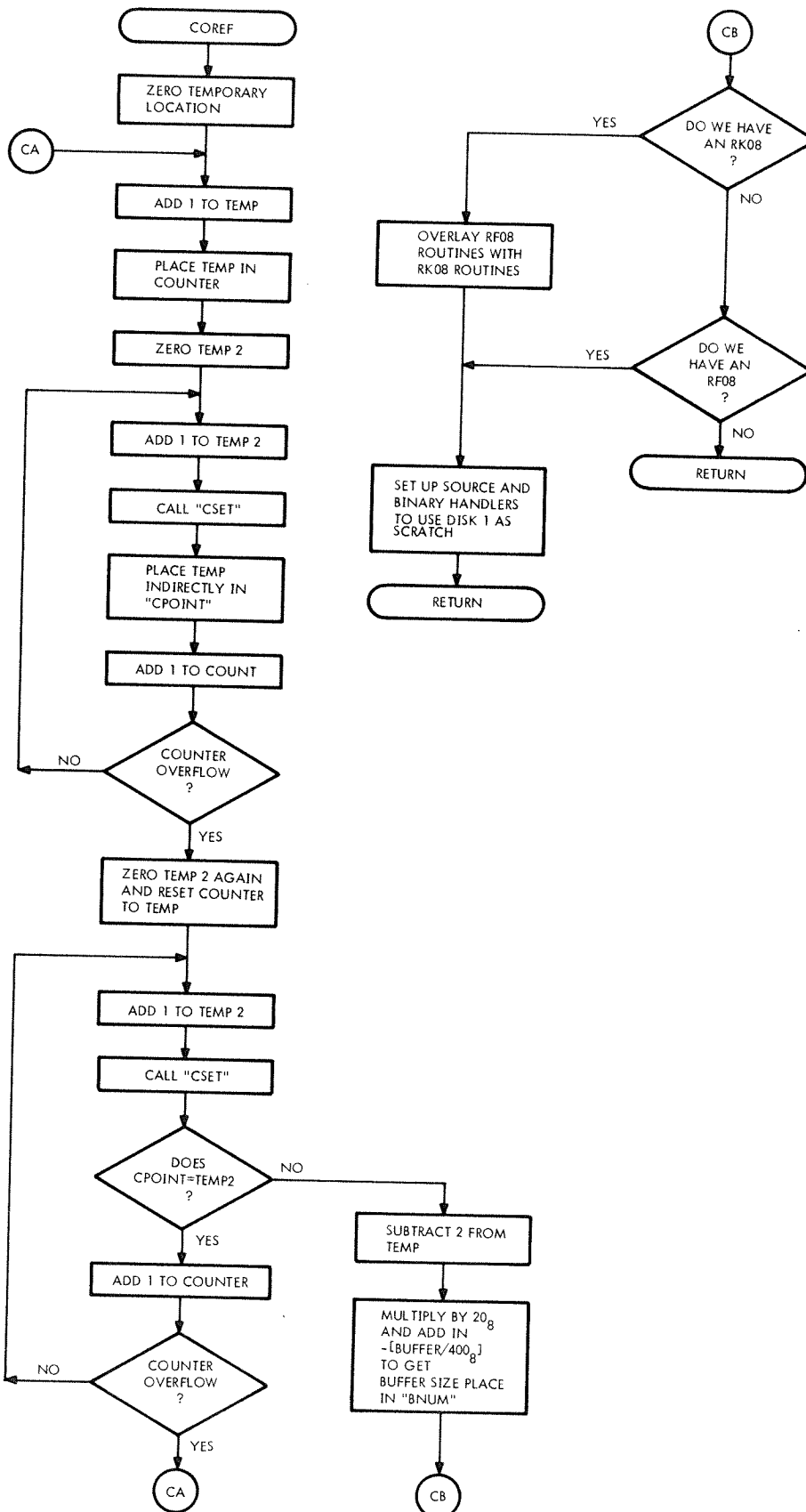
An underlined name means that routine has been called. A name in quotes ("F") means that is the message now being displayed. A subdivided box means that the rest of the box is the argument to the subroutine which is being called. RETURN at the end of a subroutine means return to the calling program.

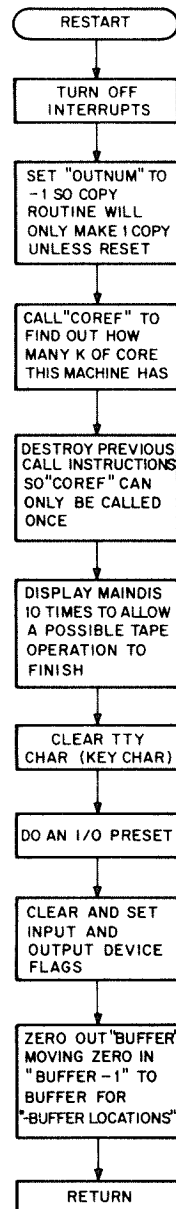
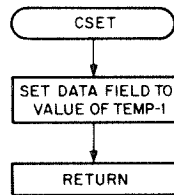
5.0 LISTINGS (Attached)

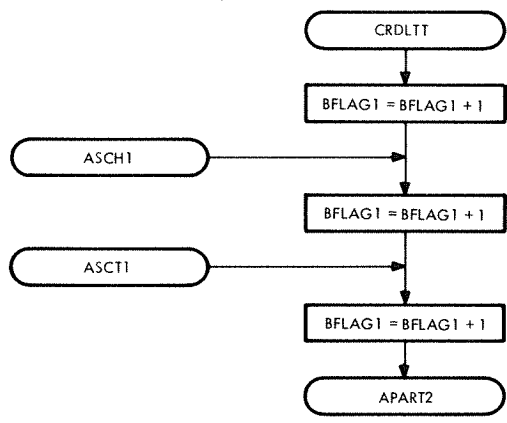
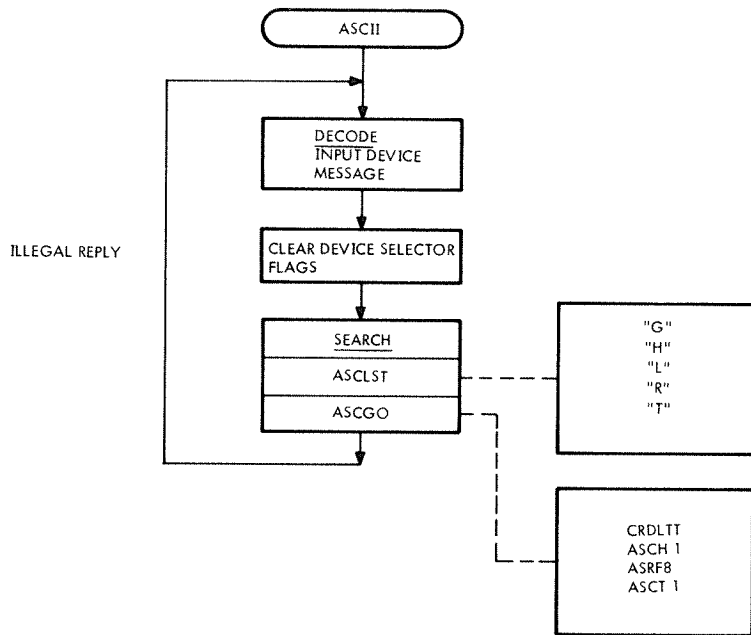
The Disk I/O routines are functionally the same as the DIAL-MS routines. For a more detailed description and flowchart, refer to DEC-12-ZR5B-D.

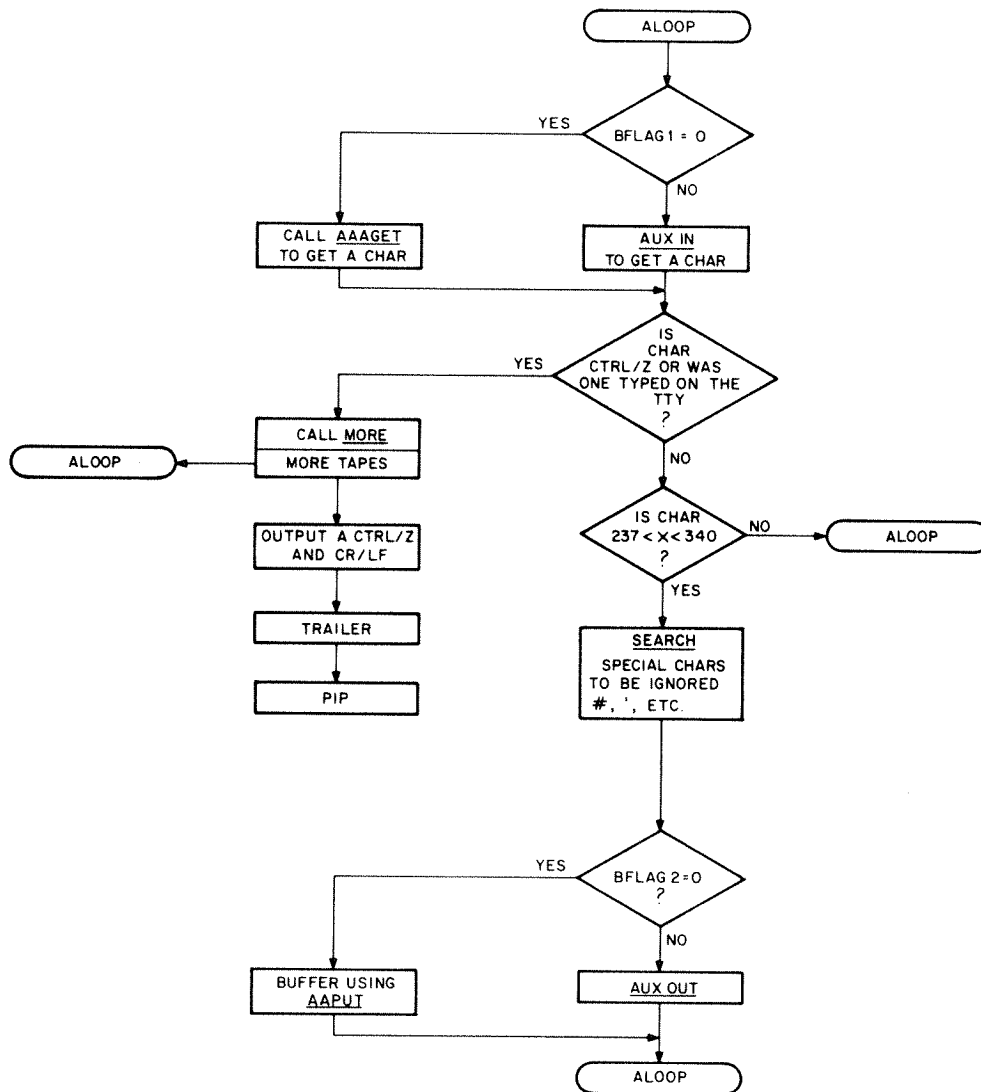


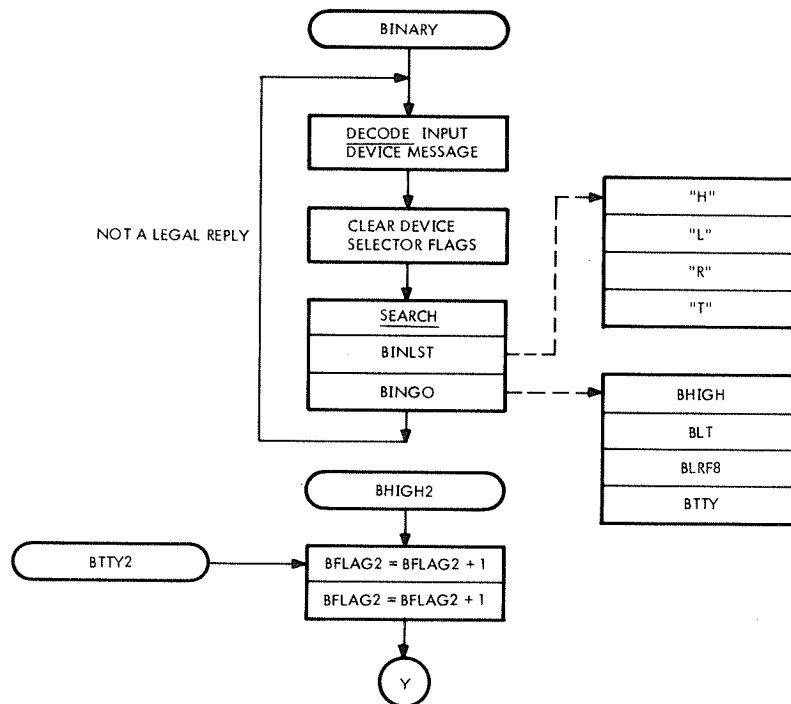


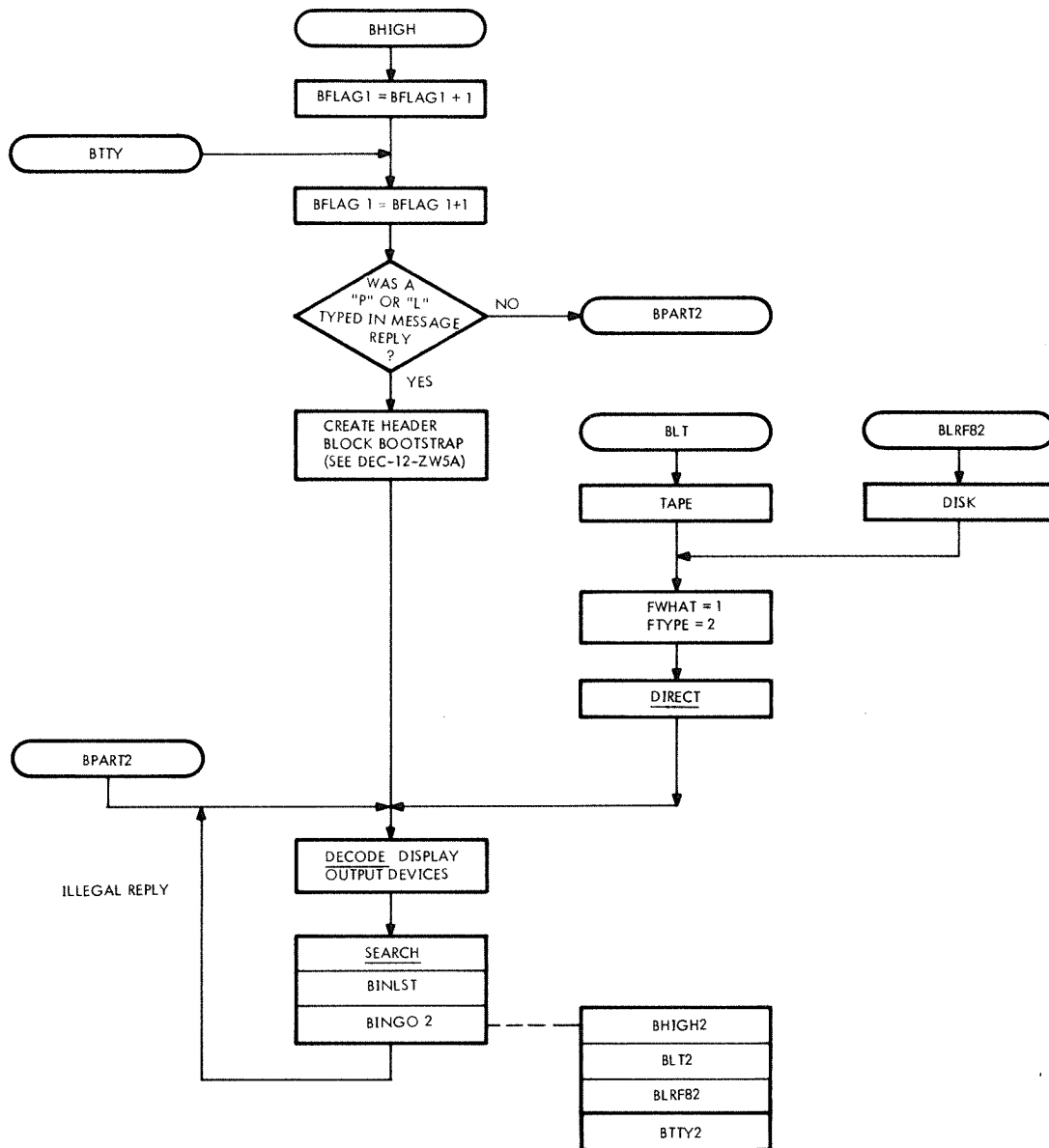


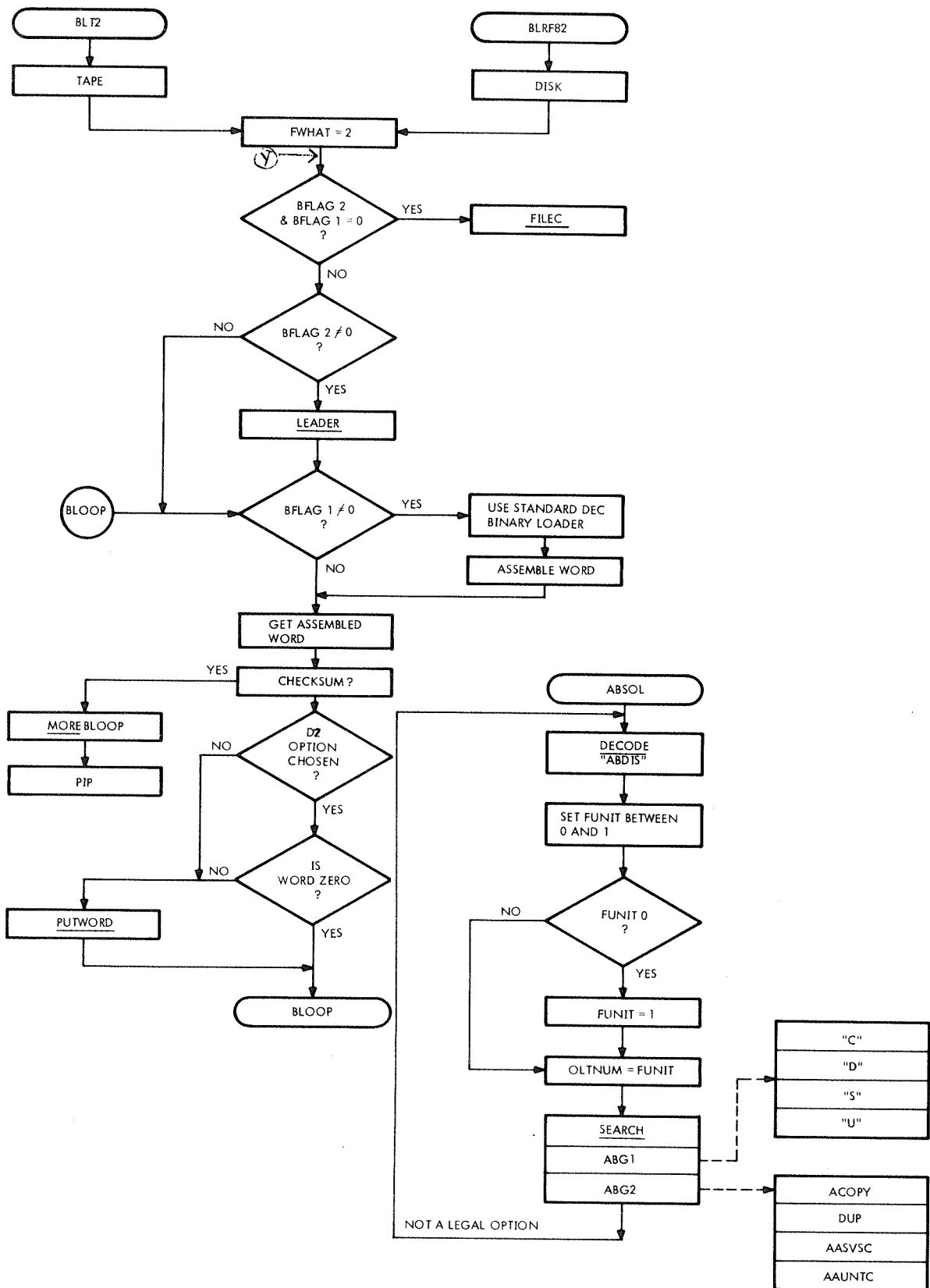


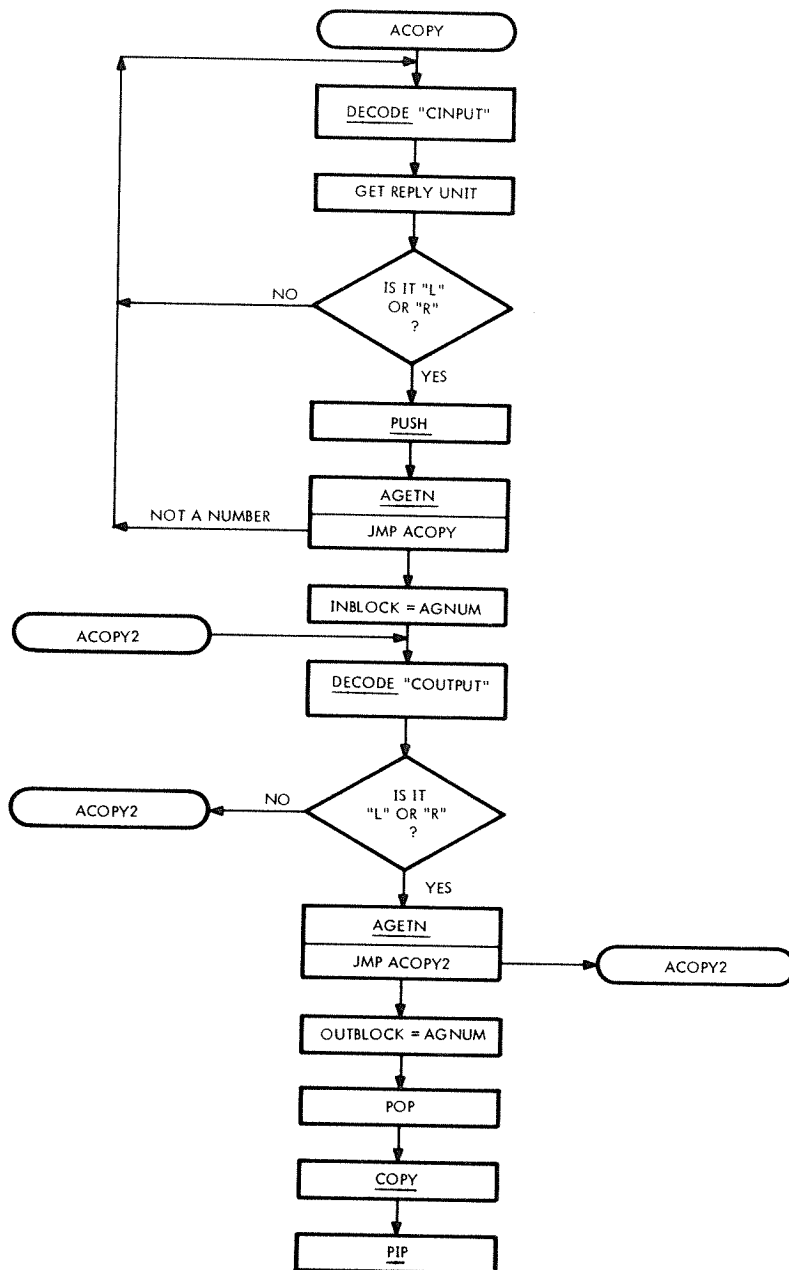


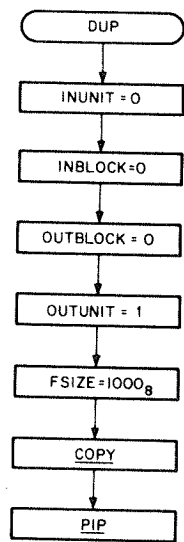












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0015 / DIAL PERIPHERAL INTERCHANGE PROGRAM FOR THE PDP-12 COMPUTER.
0016 / COPYRIGHT 1969; DIGITAL EQUIPMENT CORPORATION, MAYNARD MASS., 01754
0017 / WRITTEN BY JACK BURNES
0020 / RELEASED NOVEMBER, 1969.
0022 / UPDATED TO DIAL-MS MARCH, 1970.
0023 / UPDATED FOR CHAINING MAY 14, 1970
0024 / UPDATED FOR MULTIPLE RK28S 8/12/70
0025 /
0026 /
0027 / PIP WILL RUN ON A PDP-12 B OR HIGHER.
0030 /
0031 /
0032 /
0033 /
0034 /
0035 /
0036 /
0037 /
0040 /
0041 /
0042 /
0043 /
0044 /
0045 /
0046 /
0047 /
0050 /
0051 /
0052 /
0053 /
0054 / P P P P P P P P I I I I I I I I I I P P P P P P P P
0055 / P PP PP I I P PP
0056 / P PP PP I I P PP
0057 / P P P P P P P P I I P P P P P P P P
0060 / P I I P
0061 / P I I P
0062 / P I I P
0063 / P I I P
0064 / P I I I I I I I I I I P
0065 /
0066 /
0067 /
0070 /
0071 /
0072 /
0073 /
0074 /
0075 /
0076 /
0077 /
0100 /
0101 /
0102 / EJECT

```

```

0103          *0          /MAJOR PAGE 0 LOCATIONS.
0104          /
0105          /
0106          /
0107          /
0110      0000 0000      0          /RESERVED FOR JMP S IN L MODE.
0111      0001 0000 LOC1, 0          /USED BY DISPLAY ROUTINE.
0112          TAPE=JMS I .
0113      0002 3340      TTAPE
0114          HPOP=JMS I .
0115      0003 3321      HHPOP
0116          HPUSH=JMS I .
0117      0004 3313      HHPUSH
0120          LEADER=JMS I .
0121      0005 3303      LLEDER
0122          FILEC=JMP I .
0123      0006 1515      FFILEC
0124          PUTL=JMS I .
0125      0007 3361      TTYPUT
0126          /
0127          /
0130          *10
0131      0010 0000 AUTO1, 0          /AUTO REGISTER 1
0132      0011 0000 AUTO2, 0
0133      0012 0000 AUTO3, 0
0134      0013 0000 AUTO4, 0
0135      0014 0000 AUTO5, 0
0136      0015 0000 AUTO6, 0
0137      0016 0000 AUTO7, 0
0140      0017 0000 AUTO8, 0
0141          /
0142          /
0143          /
0144          /
0145          /
0146          /
0147          /
0150          RF08=1          /SET THIS SWITCH TO 1 IF YOU WANT
0151          /THE RF08 DISK HANDLER ASSEMBLED INTO PIP.
0152          /ELSE SET THE SWITCH "RF08" TO 0.
0153          /
0154          /
0155          DISKWORK=0001          /SET THIS SWITCH TO 0 IF YOU DO NOT WANT PIP TO
0156          /AUTOMATICALLY USE THE RF08 DISK FOR
0157          /THE BINARY AND SOURCE SCRATCH AREAS; IF AN RF08 DISK IS PRESENT.
0160          /
0161          /
0162          /
0163          /
0164          /
0165          /
0166          /
0167          CARD=1          /SET THE CARD=1 TO CARD READER AND LINE PRINTER.
0170          /          ELSE SET CARD TO 0.
0171          /
0172          /
0173          TERMC=00          /SET TO LOOK FOR A 00 AS THE EOF CHAR.
0174          /
0175          REMAKE=0          /DO NOT LOAD IN THE SOURCE FILE CONVERTER.
0176          /          REMAKE WAS ORIGINALLY 1 BUT THE CONVERT ROUTINES NO LONGER ARE NEEDED.
0177          /
0200          ECHO=1          /SET THIS SWITCH TO 0 TUPPRESS ECHOING.
0201          /

```

```

0202      /
0203      /
0204      PFLICK=1
0205
0206      /SET THIS SWITCH TO ONE TO CAUSE DISPLAY
0207      /CHARACTERS TO ALTERNATE RANDOMLY BETWEEN
0210      /CHANNELS 1&2. MAY BE SET TO ZERO
0211      /TO PICK UP SPACE ON PAGES IF NEEDED. WITH
0212      /NO ILL EFFECTS NOTED. A FRILL ONLY.
0213      /
0214      /
0215      /
0216      /
0217      /
0220      STAR20=1
0221      /
0222      /
0223      /
0224      /
0225      /
0226      /
0227      /
0230      /
0231      DIALBOOT=300
0232      DIALSYS=300
0233      SYSWT=467
0234      TINDEX=346
0235      TILEN=2
0236      TLOWER=0
0237      TUPPER=777
0240      TSYSLOWER=270
0241      TSYSUPPER=467
0242      SYSSBLOCK=370
0243      SYSBIN=0001
0244      ASMIFF RF08&DISKWORK
0245      SYSBSP=0001
0246      ASMIFN RF08&DISKWORK
0247      SYSBSP=0011
0250      SYSSBLOCK=370
0251      SYSHDR=447
0252      /
0253      /
0254      /
0255      /
0256      /
0257      /
0260      /
0261      /
0262      /
0263      /
0264      /
0265      ZERO=CLA
0266      PONE=ZERO+1
0267      PTWO=PONE+4+100
0270      PTHREE=PTWO+20
0271      PFOUR=PTWO+2
0272      PSIX=PTHREE+2
0273      MONE=CLA CMA
0274      MTWO=CLA CLL CMA RAL
0275      MTHREE=CLA CLL CMA RTL
0276      LEFT=000
0277      TOP=340
0300      BOTTOM=-400

```

/SET THIS SWITCH TO ONE TO CAUSE DISPLAY
 /CHARACTERS TO ALTERNATE RANDOMLY BETWEEN
 /CHANNELS 1&2. MAY BE SET TO ZERO
 /TO PICK UP SPACE ON PAGES IF NEEDED. WITH
 /NO ILL EFFECTS NOTED. A FRILL ONLY.

/SET TO 1 IF YOU WANT TO HAVE A "20" AT THE BEGINNING OF EVERY FILE.
 ELSE SET STAR20 TO 0000/

/WHERE TO REREAD IN DIAL FROM
 /START OF FIRST BLOCK OF SYSTEM ABOVE FREE BLOCKS.
 /LAST BLOCK OF DIAA WORK AREA.
 /TAPE INDEX BLOCK
 /NUMBER OF BLOCKS IN INDEX
 /FIRST BLOCK TO USE
 /LAST BLOCK TO USE
 /START OF SYSTEM
 /LAST BLOCK OF SYSTEM.
 /START OF BINARY WORK AREA.
 /BINARY SCRATCH UNIT.
 /WHAT IS SPECIAL DISK UNIT
 /NO SPECIAL SCRATCH UNITS.
 /HOW ABOUT NOW???
 /DEFINE PRIMARY SCRATCH AS DISK (INIT WILL DECIDE REST OF STORY)
 /START OF ASCII WORK AREA.
 /BINARY HEADER BLOCK FOR "SB"2 COMMAND"

SOME BASIC DEFINITIONS

/((Awww))
 /CLA CLL IAC RAL
 /CML
 /((Awww))
 /RTL

/POINTER TO STARTING LEFT OF SCREEN
 /POINTER TO TOP OF SCREEN
 /SCREEN BOTTOM

```

0301 /
0302 /
0303 AS 41F2 CARD-1
0304 BUFFER=6400
0305 AS 41F1 CARD-1
0306 BUFFER=6000
0307 /
0310 /
0311 /
0312 0020 0020 L20, 20
0313 0021 7770 M10, =10
0314 L7770=M10
0315 0022 7774 M4, -4
0316 0023 7760 M20, =20
0317 0024 0077 L77, 77
0320 0025 0100 L100, 100
0321 0026 0200 L200, 200
0322 0027 7456 M322, -322
0323 0030 4000 L4000, 4000
0324 0031 5000 L5000, 5000
0325 0032 6000 L6000, 6000
0326 0033 7000 L7000, 7000
0327 0034 7757 L7757, 7757
0330 0035 0060 L60, 60
0331 0036 0700 L700, 700
0332 0037 7766 M12, =12
0333 0040 0400 L400, 400
0334 0041 0054 L54, 54
0335 0042 7724 M24, =24
0336 0043 7720 M60, =60
0337 0044 7710 M70, =70
0340 0045 7705 M73, =73
0341 0046 7701 M77, =77
0342 0047 7777 L7777, 7777
0343 0050 7746 M32, =32
0344 0051 0333 L333, 333
0345 0052 7744 M34, =34
0346 0053 7700 L7700, 7700
0347 0054 0010 L10, 10
0350 0055 0004 L4, 4
0351 0056 7740 L7740, 7740
0352 M400=L7740
0353 0057 2021 M5757, =5757
0354 0060 0007 L7, 7
0355 0061 0030 L30, 30
0356 0062 7735 M43, =43
0357 0063 7772 M6, =6
0360 0064 7400 L7400, 7400
0361 M400=L7400
0362 /
0363 /
0364 0065 0000 TEMP, 0
0365 0066 0000 TEMP1, 0
0366 0067 0000 TEMP2, 0
0367 0070 0000 TEMP3, 0
0370 0071 0000 TEMP4, 0
0371 /
0372 0072 0000 KEYCHAR, 0
0373 0073 0000 CNTRLZ, 0
0374 0074 0000 BNUM, 0
0375 0075 0000 DFIRST, 0
0376 0076 4413 PMORE, MORE
0377 0077 0000 BWORD1, 0

```

```

/IF CARD READER IS IN
/SET THE BUFFER TO 6400
/IF NO CARD READER
/THEN SET IT TO 6000
IN ANY EVENT BUFFER MUST BE A MULTIPLE OF 400 OCTAL WORDS.

```

/CONTAINS THE CONTROL Z SWITCH.

0400	0100	0000	BWORDZ, 0	
0401	0101	0000	BOELZ, 0	/0=DONT DELETE ZEROS; NOT ZERO=DELETE ZEROS FROM BINARY OUTPUT
0402			/	
0403	0102	0000	INBLOCK, 0	
0404	0103	0000	INUNIT, 0	
0405	0104	0000	OUTBLOCK, 0	
0406	0105	0000	OUTUNIT, 0	
0407	0106	0000	OUTNUM, 0	
0410			/	
0411			BFLAG1=INBLOCK	
0412			BFLAG2=OUTBLOCK	
0413			BOLDP=INUNIT	
0414			BCHAR=OUTUNIT	
0415			/	
0416			/	
0417			/	
0420			/	
0421			ASMIFF RF28-1	/IF RF08 [RK08] DESIRED
0422	0107	0000	RKDRIV, 0	/INSERT WORD FOR UNIT NUMBER IN PAGE 0
0423			/	
0424			/	
0425			/	
0426	0110	0346	INDEX, TINDEX	
0427	0111	0002	ILEN, TLEN	
0430	0112	0000	ELOWER, TLOWER	
0431	0113	0777	EUPPER, TUPPER	
0432	0114	0270	CLOWER, TSYSLOWER	
0433	0115	0467	CUPPER, TSYSUPPER	
0434			/	
0435	0116	5757	LS757, 5757	
0436	0117	0000	FSIZE, 0	
0437	0120	0000	FUNIT, 0	
0440	0121	0000	FTYPE, 0	
0441	0122	0000	FBNUM, 0	
0442	0123	0000	FWHAT, 0	
0443	0124	7777	FNAME, 7777	
0444	0125	7777	7777	
0445	0126	7777	7777	
0446	0127	7777	7777	
0447			/	
0450			/	
0451	0130	0000	ORIGIN, 0	
0452	0131	0000	DATA, 0	
0453	0132	0000	BTEMP1, 0	
0454	0133	0000	BTEMP2, 0	
0455	0134	0000	BTEMP3, 0	
0456	0135	0000	BFIELD, 0	
0457	0136	0000	BOLD0, 0	
0460	0137	0000	BOFIELD, 0	
0461	0140	0000	BCCOUNT, 0	
0462			/	
0463			/	
0464	0141	0000	COUNT, 0	
0465	0142	0177	L177, 177	
0466	0143	7563	M215, -215	
0467	0144	7566	M212, -212	
0470	0145	7401	M377, -377	
0471	0146	7540	M240, -240	
0472	0147	7440	M340, -340	
0473			/	
0474			/	
0475			/	
0476			ROR6=JMS I .	/SUBROUTINE ROTATES AC RIGHT 6 PLACES

0477	0150	0770	RSIX	
0500			DISPLAY=JMS I .	
0501	0151	0600	PPDIS	
0502			PIP=JMP I .	
0503	0152	0200	PIPIP	
0504			DIAL=JMP I .	
0505	0153	0246	EXIT	
0506			COPY=JMS I .	
0507	0154	3214	CCOPY	
0510			SETA=JMS I .	
0511	0155	1502	ASET	
0512			GETA=TAD I AUTO8	
0513			CHECKIO=JMS I .	
0514	0156	0743	IOCHECK	
0515			ASMIFZ ECHO	/ECHOING DESIRED?
0516			ASMSKP 2	/NOPE. DON T ASSEMBLE CRLF PROCESS IN.
0517			CRLF=JMS I .	
0520	0157	0364	TTYCR	
0521			GETL=JMS I .	
0522	0160	1105	TTYGET	
0523			LINE=JMS I .	
0524	0161	1000	GLINE	
0525			DECODE=JMS I .	
0526	0162	2222	DCCODE	
0527			SYSERR=HLT	
0530			DIRECTORY=JMS I .	
0531	0163	2400	OYRECT	
0532			MOVE=JMS I .	
0533	0164	1327	MMOVE	
0534			POP=JMS I .	
0535	0165	1360	PPOP	
0536			PUSH=JMS I .	
0537	0166	1352	PPUSH	
0540			NO=JMS I .	
0541	0167	3151	NODIS	
0542			REPLACE=JMS I .	
0543	0170	3161	REPOIS	
0544			READ=JMS I .	
0545	0171	1400	TREAD	
0546			WRITE=JMS I .	
0547	0172	1412	TWRITE	
0550			SEARCH=JMS I .	
0551	0173	0334	SSERCH	
0552			AUXIN=JMS I .	
0553	0174	3711	SEQIN	
0554			AUXOUT=JMS I .	
0555	0175	3747	SEQOUT	
0556			PUTWORD=JMS I .	
0557	0176	4273	BBOUT	
0560			ASMIFZ RF08	/DO WE WANT THE RF08 ROUTINES LOADED?
0561			ASMSKP 2	/NO. SKIP PAST THE DEFINITIONS.
0562			DISC=JMS I .	
0563	0177	1540	RFDISK	
0564		/		
0565		/		
0566		/		
0567		/		
0570		/		
0571		/		
0572		/		
0573			EJECT	

```

0574 /
0575 /
0576 /
0577 /
0600 /
0601 /
0602 /
0603 /
0604 /
0605 /
0606 /
0607 *200
0610 /
0611 /
0612 /
0613 /
0614 /
0615 0200 4216 PIPPIP, JMS RESTART /RESTART I-O DEVICES, CLEAN UP SYSTEM, ETC.
0616 ASMIFN ECHO /DO A CRLF ONLY IF ECHOING.
0617 0201 4557 CRLF /GIVE INITIAL CARRIAGE RETURN LINE FEED.
0620 0202 4562 PIPL, DECODE /DISPLAY OPTIONS
0621 0203 0263 MAINDIS /FROM MY LIST OF GOODIES.
0622 0204 4573 SEARCH /LOOK FOR LEAGAL OPTIONS
0623 0205 0210 PIPLSI /LIST OF PIP OPTIONS
0624 0206 0213 PIPGO /WHERE TO GO IF FOUND
0625 0207 5202 JMP PIPL /NOT A LEGAL REQUEST.
0626 /
0627 /
0630 /
0631 0210 0301 PIPLST, 301 /A=ABSOLUTE MODE
0632 0211 0302 302 /B=BINARY MODE
0633 0212 4323 4323 /S=SOURCE MODE, 4000=END LIST
0634 /
0635 0213 5600 PIPGO, ABSOL /ABSOLUTE HANDLER.
0636 0214 3400 BINARY /POINTER TO BINARY HANDLER
0637 0215 5000 ASCII /SOURCE HANDLER
0640 /
0641 /
0642 /
0643 /
0644 /
0645 0216 0000 RESTART,0
0646 0217 4660 JMS I SAVEST /SAVE RK08STATUS BEFORE ZAPPER.
0647 0220 7240 MONE /SET UP COPIER FOR 1 COPY
0650 0221 3106 DCA OUTNUM /-NUMBER OF OUTPUT TAPES FOR COPY
0651 0222 4662 INITOV, JMS I FCORE /ALLOCATE CORE NOW, THIS IS LATER A "TAD 440".
0652 0223 3000 DCA 0
0653 0224 4551 DISPLAY /JUST WAIT A SECOND.
0654 0225 0263 MAINDIS
0655 0226 2000 ISZ 0
0656 0227 5224 JMP .-3 /NOT DONE YET
0657 0230 3072 DCA KEYCHAR /NO NEW CHAR.
0660 0231 6141 LINC /ENTER LINC MODE
0661 LMODE
0662 0232 2020 ADD L20 /GET THE I/O PRESET BIT
0663 0233 0004 ESF /AND DO AA I/O PRESET
0664 0234 0002 PDP
0665 PMODE
0666 0235 6026 6026
0667 0236 4661 JMS I RESTST /FIX UP RK08 NOW, IF NECESSARY.
0670 0237 6046 TLS /FIX UP THE TELEPUNCH NOW BY GIVING A PHOONEY CHARACTER.
0671 /
0672 LP0801, ASMIFZ CARD-1 /SHOULD WE INITIALIZE PRINTER???

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P I P C E N T R A L L O O P

0673	0240	6662	LCB	/YEP. CLEAR THE PRINTER BUFFER AND SET THE FLAG SO IT LL BE READY IF WE NEED
0674			IT.	
0675			/	
0676	0241	4564	MOVE	/ZERO UPPER CORE BY A HIDEOUS MOVE.
0677	0242	6377	BUFFER-1	
0700	0243	6400	BUFFER	
0701			ASMIF2 RF28	/IF NO RF28 ZERO ALL OF CORE
0702			=BUFFER	
0703	0244	1020	ASMIF4 RF28	/IF AN RF28 PRESENT ZERO ONLY BUFFER-7377
0704	0245	5616	=BUFFER-400	
0705			JMP 1 RESTART	
0706			/	
0707			/	
0710	0246	4216	EXIT, JMS RESTART	/RESTART DIAL
0711	0247	4564	OVEREX, MOVE	/PLACE DIAL RESTART INSTRUCTIONS
0712	0250	0254	READIN	
0713	0251	4014	EXITLOC, 4020=READEN+READIN	/IN PROPER PLACE FOR REBOOTSTRAP.
0714	0252	0004	READEN-READIN	/BOOTSTRAP IS 4 WORDS LONG
0715	0253	5651	JMP 1 EXITLOC	/RETURN TO DIAL
0716			/	
0717			/	
0720	0254	6141	READIN, LINC	/MAIN BOOTSTRAP.
0721			LMODE	/GET INTO LINC MODE FOR REBOOTSTRAP
0722	0255	0643	LDF 3	/MAKE SURE DATA FIELD IS SET AT 3
0723	0256	0701	RCG	/READ GROUP
0724	0257	7300	7\DIALBOOT	/FROM 300.
0725			PMODE	/RESUME 8 MODE DEFINITIONS
0726			READEN=.	
0727			/	
0730			/	
0731			/	
0732			/	
0733			/	
0734			/	
0735	0260	4600	SAVEST, STATSV	/POINTER TO RK08 SAVER
0736	0261	4562	RESTST, STATRS	/POINTER TO THE RK08 FIXER.
0737			/	
0740			/	
0741			/	
0742			/	
0743			/	
0744			/	
0745			/	
0746			/	
0747			/	
0750			/	
0751			/	
0752			/	
0753	0262	6400	FCORE, COREF	/POINTER TO CORE INITIALIZER ROUTINE.
0754			/	
0755			/	
0756			/	
0757			/	
0760			/	
0761			/	
0762			/	
0763			/	
0764			/	
0765			/	
0766			/	
0767			/	
0770			/	

0771		/	
0772	0263	0240	MAINDIS, LEFT+240
0773	0264	0140	TOP=220
0774	0265	0620	
0774	0266	1120	
0774	0267	4017	
0774	0270	2024	
0774	0271	1117	
0774	0272	1623	
0774			TEXT "FPIP OPTIONS:
0775	0273	7243	
0775			
0776	0274	4043	
0776			
0777	0275	4043	
0777	0276	1001	
0777	0277	4055	
0777	0300	5555	
0777	0301	4001	
0777	0302	2530	
0777	0303	1114	
0777	0304	1101	
0777	0305	2231	
0777	0306	4015	
0777	0307	1704	
0777			HA --- AUXILIARY MODE
1000	0310	0543	
1000	0311	1002	
1000	0312	4055	
1000	0313	5555	
1000	0314	4002	
1000	0315	1116	
1000	0316	0122	
1000	0317	3140	
1000	0320	1517	
1000			HB --- BINARY MODE
1001	0321	0405	
1001	0322	4310	
1001	0323	2340	
1001	0324	5555	
1001	0325	5540	
1001	0326	2317	
1001	0327	2522	
1001	0330	0305	
1001	0331	4015	
1001	0332	1704	
1001	0333	0534	
1001			HS --- SOURCE MODE"
1002			/
1003			/
1004			/
1005			/
1006			/
1007			/
1010			/
1011	0334	0000	SSERCH, 0
1012	0335	7300	CLA CLL
1013	0336	1734	TAD I SSERCH
1014	0337	3065	DCA TEMP
1015	0340	2334	ISZ SSERCH
1016	0341	1734	TAD I SSERCH
1017	0342	3066	DCA TEMP1
1020	0343	2334	ISZ SSERCH
-			

/COMPARES "FTYPE" AGAINST GIVEN LIST.
/CLEAR AC TO BE SURE
/GET POINTER TO USER LIST
/AND STORE AWAY
/BOP PAST FIRST ARG.
/GET JMP LIST
/STORE POINTER N TEMP1
/BOP PAST SECOND ARG FOR RETRUN.

1021			/			
1022	0344	1465	SSLOOP,	TAD I	TEMP	/GET NEXT WORD TO COAMPARE
1023	0345	7510		SPA		/IF POSIITIVE SKIP
1024	0346	1030		TAD	L4000	/NEGATIVE. LAST CHAR. MAKE POSIITIVE FOR CHECK.
1025	0347	7041		CIA		
1026	0350	1121		TAD	FTYPE	/DOES IT EQUAL CONTENTS O F FTYPE
1027	0351	7640		SZA CLA		
1030	0352	5356		JMP	SSNO	/NO. TEST FOR END
1031	0353	1466		TAD I	TEMP1	/YES. GET FOUND RETURN ADDRESS
1032	0354	3065		DCA	TEMP	
1033	0355	5465		JMP I	TEMP	/AND GO THERE
1034			/			
1035	0356	2066	SSNO,	ISZ	TEMP1	/BOP UP JUMP TABLE POINTER
1036	0357	1465		TAD I	TEMP	/WAS THIS LAST CHARACTER?
1037	0360	7710		SPA CLA		
1040	0361	5734		JMP I	SSECH	/YEP. IT S NEGATVIE
1041	0362	2065		ISZ	TEMP	/NOP. BOP UP CHAR POINTER AND TRY AGAIN
1042	0363	5344		JMP	SSLOOP	/BACK UP TO TRY NEXT.
1043			/			
1044			/			
1045			/			
1046			/			
1047			/			
1050			/			
1051			/			
1052			/			
1053			/			
1054			/			
1055				ASMIFZ	ECHO	/DO WE WANT ECHOING???
1056				ASMSKP	12	/NOPE. CR NEVER CALLED, SO DO NOT PUT IT IN.
1057			/			
1060	0364	0000	TTYCR,	0		
1061	0365	1143		TAD	M215	/GET A C.R. IN THE AC.
1062	0366	7041		CIA		
1063	0367	4407		PUTL		/AND AWAY IT GOES
1064	0370	1144		TAD	M212	/N THE L.F.
1065	0371	7041		CIA		
1066	0372	4407		PUTL		/AND AWAY IT GOES
1067	0373	5764		JMP I	TTYCR	/AND RETURN TO CALLER.
1070			/			
1071			/			
1072			/			
1073			/			
1074			/			
1075			/			
1076			/			
1077			/			
1100			/			
1101			/			
1102			/			
1103						
-				EJECT		

```

1104      *400
1105      /      DISPLAY CHARACTER TABLE.
1106      /
1107      TABLED=.
1108      /
1109
1110      0400  7777      7777      /00=ILLEGAL
1111      0401  7777      7777
1112      0402  4477      4477      /01=A
1113      0403  7744      7744
1114      0404  5177      5177      /02=B
1115      0405  2651      2651
1116      0406  4136      4136      /03=C
1117      0407  2241      2241
1118      0410  4177      4177      /04=D
1119      0411  3641      3641
1120      0412  4577      4577      /05=E
1121      0413  4145      4145
1122      0414  4477      4477      /06=F
1123      0415  4044      4044
1124      0416  4136      4136      /07=G
1125      0417  2645      2645
1126      0420  1077      1077      /08=H
1127      0421  7710      7710
1128      0422  7741      7741      /09=I
1129      0423  0041      0041
1130      0424  4142      4142      /10=J
1131      0425  4076      4076
1132      0426  1077      1077      /11=K
1133      0427  4324      4324
1134      0430  0177      0177      /12=L
1135      0431  0301      0301
1136      0432  3077      3077      /13=M
1137      0433  7730      7730
1138      0434  3077      3077      /14=N
1139      0435  7706      7706
1140      0436  4177      4177      /15=O
1141      0437  7741      7741
1142      0440  4477      4477      /16=P
1143      0441  3044      3044
1144      0442  4276      4276      /17=Q
1145      0443  0376      0376
1146      0444  4477      4477      /18=R
1147      0445  3146      3146
1148      0446  5121      5121      /19=S
1149      0447  4651      4651
1150      0450  4040      4040      /20=T
1151      0451  4077      4077
1152      0452  0177      0177      /21=U
1153      0453  7701      7701
1154      0454  0176      0176      /22=V
1155      0455  7402      7402
1156      0456  0677      0677      /23=W
1157      0457  7701      7701
1158      0460  1463      1463      /24=X
1159      0461  6314      6314
1160      0462  0770      0770      /25=Y
1161      0463  7007      7007
1162      0464  4543      4543      /26=Z
1163      0465  6151      6151
1164      0466  4177      4177      /27=[
1165      0467  0000      0000
1166      0470  7777      7777      /28=ILLEGAL
1167      0471  7777      7777

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1203	0472	0000	0000	/35=J
1204	0473	7741	7741	
1205	0474	2000	2000	/36=+
1206	0475	2076	2076	
1207	0476	7777	7777	/37=ILLEGAL
1210	0477	7777	7777	
1211	0500	0000	0000	/40=SPACE
1212	0501	0000	0000	
1213	0502	7500	7500	/41=:
1214	0503	0000	0000	
1215	0504	7000	7000	/42="
1216	0505	0070	0070	
1217	0506	7777	7777	/43=ILLEGAL
1220	0507	7777	7777	
1221	0510	5721	5721	/44=DOLLAR SIGN
1222	0511	4671	4671	
1223	0512	6661	6661	/45=PER CENT SIGN
1224	0513	4333	4333	
1225	0514	5166	5166	/46=8
1226	0515	0526	0526	
1227	0516	0000	0000	/47=TAB
1230	0517	0000	0000	
1231	0520	3600	3600	/50=(
1232	0521	0041	0041	
1233	0522	4100	4100	/51=)
1234	0523	0036	0036	
1235	0524	2050	2050	/52=*
1236	0525	0050	0050	
1237	0526	0404	0404	/53=+
1240	0527	0437	0437	
1241	0530	0500	0500	/54=,
1242	0531	0006	0006	
1243	0532	0404	0404	/55=-
1244	0533	0404	0404	
1245	0534	0001	0001	/56=.
1246	0535	0000	0000	
1247	0536	0601	0601	/57=/
1250	0537	4030	4030	
1251	0540	4536	4536	/60=0
1252	0541	3651	3651	
1253	0542	2101	2101	/61=1
1254	0543	0177	0177	
1255	0544	4523	4523	/62=2
1256	0545	2151	2151	
1257	0546	4122	4122	/63=3
1260	0547	2651	2651	
1261	0550	2414	2414	/64=4
1262	0551	0477	0477	
1263	0552	5172	5172	/65=5
1264	0553	0651	0651	
1265	0554	1506	1506	/66=6
1266	0555	4225	4225	
1267	0556	4443	4443	/67=7
1270	0557	6050	6050	
1271	0560	5126	5126	/70=8
1272	0561	2651	2651	
1273	0562	5122	5122	/71=9
1274	0563	3651	3651	
1275	0564	2200	2200	/72=:
1276	0565	0000	0000	
1277	0566	4601	4601	/73=;
1300	0567	0000	0000	
1301	0570	1000	1000	/74=<

1302	0571	4224	4224	
1303	0572	1212	1212	/75==
1304	0573	1212	1212	
1305	0574	2442	2442	/76=>
1306	0575	0010	0010	
1307	0576	4020	4020	/77=?
1310	0577	2055	2055	
1311		/		
1312		/		
1313		/		
1314			EJECT	
-				

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1315          *600
1316      /
1317      /
1320      /          DISPLAY ROUTINE
1321      /
1322      /          GENERAL CALL:
1323      /
1324      /          DISPLAY
1325      /          PTEXT
1326      /          WHERE PTEXT POINTS TO THE FOLLOWING:
1327      /
1330      /PTEXT, XCOORD.
1331      /          YCOORD
1332      /          TEXT      "F THIS IS MY MESSAGE\"
1333      /
1334
1335      0600 0000 PPDIS, 0          /MAIN ENTRY
1336      0601 7300 PINST1, CLA CLL /CLEAR AC.
1337      0602 4556          CHECKIO /CHECKIO FOR IO NOW AND AFTER EVERY C.R.
1340      0603 1600          TAD I PPDIS /GET MAIN POINTER
1341      0604 3331          DCA PDIS /AND PLACE IN TEMP POINTER.
1342      0605 2200          ISZ PPDIS /PAST POINTER ON RETURN.
1343      0606 1731          TAD I PDIS /GET POINTER
1344      0607 3332          DCA PHOR /X POS
1345      0610 2331          ISZ PDIS /BOP UP
1346      0611 1731          TAD I PDIS /GET VERTICAL
1347      0612 3333          PDCAVR, DCA /AND STASH AWAY,
1350      0613 1331          TAD PDIS /START OF TEXT
1351      0614 3334          DCA PSTART /BOP DOWN BY 1
1352      0615 7240          MONE /SET SWITHC TO LEFT OF NEXT WORD.
1353      0616 3335          DCA PSWITCH
1354      0617 1201          TAD PINST1 /GET A CLA FOR FIRST TIME THROUGH.
1355      0620 3251          DCA PNOT1 /AND STORE SO NO VERTICAL BOP.
1356      /
1357      0621 4302 PPSTART, JMS PGETL /GET NEXT CHAR FROM TEXT.
1360      0622 7240          MONE /SET CHAR SIZE TO HALFWORD
1361      0623 3337          DCA PCSW /IN CASE OF NO F OR H.
1362      0624 1336          TAD PCHAR /GET IN AC.
1363      0625 1021          TAD M10 /IS IT AN "H"
1364      0626 7650          SNA CLA /IF IT IS, SKIP PAST AND IGNORE.
1365      0627 5235          JMP PPAST /ITS AN "H"
1366      0630 1336          TAD PCHAR
1367      0631 1063          TAD M6 /IS IT AN "F"
1370      0632 7640          SZA CLA
1371      0633 5236          JMP PDO /NOT AN "F" OR AN "H", USE IT AS A CHAR IN HALFWORD.
1372      0634 3337          DCA PCSW /SET SIZE TO FULL.
1373      0635 4302 PPAST, JMS PGETL /GET FIRST CHAR TO BE DISPLAYED.
1374      0636 1337          PDO, TAD PCSW /GET SIZE.
1375      0637 7650          SNA CLA /IS IT FULL SIZE.
1376      0640 1022          TAD M4 /YES, SET BACK LEFT BY 8.
1377      0641 1022          TAD M4 / IF HALF SET IT BACK BY 4.
1400      0642 1332          TAD PHOR
1401      0643 3001          DCA LOC1 /THIS IS A REAL LOC1(0001)
1402      0644 1337          TAD PCSW /GET SIZE
1403      0645 7650          SNA CLA /FULL?
1404      0646 1023          TAD M20 /YES, BOP DOWN BY 40, NOT 20
1405      0647 1023          TAD M20 /M20 IF HALF SIZE
1406      0650 1333          TAD PVER
1407      0651 3333          PNOT1, DCA /MADE A CLA FOR THE FIRST TIME THROUGH
1410      0652 1212          TAD PDCAVR /GET CORRECT INST.
1411      0653 3251          DCA PNOT1 /SET UP FOR FUTURE CALLS.
1412      0654 1337          TAD PCSW /CHAR SIZE.
1413      0655 7040          CMA /COMPLEMENT BIT.

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1414	0656	0026	AND	L200	/BIT4 OF ESF
1415	0657	6141	LINC		
1416			LMODE		/GET INTO LINC MODE
1417	0660	0004	ESF		/SET CHARS TO CORRECT SIZE
1420	0661	0002	PDP		/BACK OVER INTO 8 MODE
1421			PMODE		
1422	0662	7200	CLA		/CLEAR THE AC BECAUSE THE SIZE IS STILL IN THE AC
1423			/		
1424	0663	1336	PLOOP,	TAD PCHAR	/GET THE CHAR IN THE AC,
1425	0664	7104	CLL RAL		/MULTIPLY BY 2.
1426	0665	1347	TAD	PTABLE	/POINTER TO DISPLAY TABLE.
1427	0666	3016	DCA	AUTO7	/AUTO FOR PICKING UP THE DISPLAY CHARS.
1430	0667	1333	TAD	PVER	/GET THE VERTICAL IN THE AC.
1431	0670	6141	LINC		/GO OVER TO LMODE AND START TO DISPLAY.
1432			LMODE		
1433	0671	1776	DSC I	AUTO7	/FIRST PART OF CHAR
1434	0672	1776	DSC I	AUTO7	/SECOND PART OF CHAR.
1435	0673	0002	PDP		
1436			PMODE		/BACK INTO 8 MODE
1437	0674	7305	PTWO		/GET A +2 IN THE AC
1440	0675	1001	TAD	LOC1	/GET NEXT DISPLAY POINT.
1441	0676	3001	DCA	LOC1	/AND BOP BY 1/2 CHAR.
1442			ASMIFN	PFLICK	/DO WE WANT TO ALTERNATE CHANNELS?
1443	0677	4730	JMS I	PALT	/YES. ADD IN RANDOM CHANNEL BITS NOW.
1444	0700	4302	JMS	PGETL	/GET ANOTHER CHARACTER.
1445	0701	5263	JMP	PLOOP	/ AND DISPLAY IT.
1446			/		
1447	0702	0000	PGETL,	0	/CHAR GETTER ROUTINE
1450	0703	2335	ISZ	PSWITCH	/IS IT LEFT HALF?
1451	0704	5311	JMP	PRIGHT	/GET CHARACTER
1452	0705	2334	ISZ	PSTART	/GET NEXT WORD
1453	0706	1734	TAD I	PSTART	/IN THE AC
1454	0707	4550	ROR6		/ROTATE LEFT HALF TO THE RIGHT HALF.
1455	0710	5314	JMP	PCOM	/GO DO THE AND.
1456	0711	7240	PRIGHT,	MONE	/RESET SWITCH
1457	0712	3335	DCA	PSWITCH	/FOR NEW WORD NEXT TIME.
1460	0713	1734	TAD I	PSTART	/WORD IN AC
1461	0714	0024	PCOM,	AND	/JUST THE LOW ORDER BITS.
1462	0715	5336	DCA	PCHAR	/SAVE FOR LATTER USE.
1463	0716	1336	TAD	PCHAR	/BACK IN AC.
1464	0717	1052	TAD	M34	/IS IT "\"
1465	0720	7650	SNA	CLA	
1466	0721	5600	JMP I	PPDIS	/YES! E X I T.
1467	0722	1336	TAD	PCHAR	/GET IT AGAIN
1470	0723	1062	TAD	M43	/IS IT A CR.
1471	0724	7640	SZA	CLA	
1472	0725	5702	JMP I	PGETL	/NO. RETURN.
1473	0726	4556	CHECKIO		/CHECK I/O FLAGS AND SERVICE.
1474	0727	5221	JMP	PPSTART	/RESET TO START NEXT LINE.
1475			/		
1476			/		
1477			ASMIFN	PFLICK	/IF ALTERNATING CHANNELS STICK IN POINTER NOW
1500	0730	3372	PALT,	POTHER	/POINTER TO THE FLICKERH
1501	0731	0000	PDIS,	0	/TEMPORARY POINTER
1502	0732	0000	PHOR,	0	/HORIZONTAL COORDINATE
1503	0733	0000	PVER,	0	/VERTICAL COORDINATE
1504	0734	0000	PSTART,	0	/POINTS TO NEXT TEXT WORD.
1505	0735	0000	PSWITCH,	0	/0=GET RIGHT HALF,-1=GET LEFT HALF OF NEXT WORD.
1506	0736	0000	PCHAR,	0	/CONTAINS NEXT TEXT CHARACTER.
1507			/		
1510			/		
1511			/		
1512			/		

1513	0737	0000	DDCCM,	J		/DECODE CALLS THIS ROUTINE TO GET A CHAR FROM PGETL
1514	0740	4302		JMS	PGETL	/GET A CHAR.
1515	0741	1336		TAD	PCHAR	/PLACE IN AC.
1516	0742	5737		JMP I	DDCCM	/RETURN.
1517				/		
1520				/		
1521	0743	0000	IOCHECK,	J		/CHECKS IO DEVICES.
1522	0744	7300		CLA	CLL	
1523	0745	6031		KSF		/IS IT KEYBOARD?
1524	0746	5743		JMP I	IOCHECK	/NOPE. RETURN.
1525	0747	0377	PTABLE,		TABLED-1	/POINTS TO THE DISPLAY TABLE-1
1526				/		
1527				/		/NOW CHECK TO SEE IF PREVIOUS INSTRUCTION
1530				/		/WAS AN "AND" SO THAT ITS EFFECTIVELY A NOP.
1531				/		/IT IS NECESSARY BECAUSE DOUBLE IOTS
1532				/		/CAN SCREW UP THE DATA BREAK TRANSFER.
1533				/		/SINCE THE AC IS ZERO, AN AND CAN BE NO WRONG
1534				/		
1535			ASMIFN		TABLED-1&7000	/CHECK FOR AN AND CONDITION.
1536			ERROR		HAS OCCURRED	/AND IF NOT AN AND, THEN GIVE AN ASSEMBLY ERROR MESSAGE
1537						/THE ASSEMBLY ERROR MESSAGE WILL LET THE GUY KNOW SOMETHINGS WRONG
1540				/		
1541	0750	6034	RKBIST,	KRS		/READ IN THE FLAG BUT DON T TURN OFF THE FLAG.
1542	0751	1366		TAD	IOCD	/IS IT A CONTROL D
1543	0752	7450		SNA		/????
1544	0753	5553		DIAL		/YEP. RESTART DIAL
1545	0754	1367		TAD	IOCP	/HOW ABOUT A CONTROL P
1546	0755	7650		SNA	CLA	/????
1547	0756	5552		PIP		/YEP. RESTART PIP.
1550	0757	1072		TAD	KEYCHAR	/DO WE HAVE A CHARACTER IN BUFFER????
1551	0760	7500		SMA		
1552	0761	6036		KHB		/READ IN NEW CHAR IF NONE THERE
1553	0762	7004		RAL		
1554	0763	7130		CLL	CML RAR	/TURN ON SIGN BIT.
1555	0764	3072		DCA	KEYCHAR	/STASH AWAY.
1556	0765	5743		JMP I	IOCHECK	/ALL DONE. RETURN TO CALLER
1557				/		
1560				/		
1561				/		
1562	0766	7574	IOCD,		=204	/CONTROL D
1563	0767	7764	IOCP,		=220+204	/CONTROL P MINUS CONTROL D
1564				/		
1565				/		
1566				/		
1567				/		
1570				/		
1571				/		
1572				/		
1573				/		
1574				/		
1575				/		
1576	0770	0000	RSIX,		0	/THIS LITTLE ROUTINE ROTATES THE AC SIX PLACES RIGHT
1577	0771	7012		RTR		
1600	0772	7012		RTR		
1601	0773	7012		RTR		
1602	0774	5770		JMP I	RSIX	/RETURN.
1603				/		
1604				/		
1605				/		
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/

PUSH=DDCOM

/A GOOD PLACE FOR THIS LOCATION

EJECT

```

1640          *1000
1641          /
1642          /
1643          / ROUTINE TO GET A LINE FROM TTY.
1644          /
1645          / GENERAL CALL:
1646          /
1647          / LINE
1648          / PDIS
1649          /
1650          /
1651          /
1652          / WHERE PDIS POINTS TO THE STUFF TO BE DISPLAYED WHILE WAITING FOR A LINE OF INPUT.
1653          /
1654          /
1655          /
1656          /
1657          1000 0000 GLINE, 0 /MAIN ENTRY FPR LINE GETTER ROUTINE.
1658          1001 1600 TAD I GLINE /GET POINTER TO DISPLAY
1659          1002 3222 DCA G1 /AND SAVE IT.
1660          1003 2200 ISZ GLINE /SET UP RETURN.
1661          1004 1222 TAD G1 /GET POINTER
1662          1005 3241 DCA G2 /AND STASH IT IN THE SECOND LOOP.
1663          1006 3700 GCLEAR, DCA I GGNUM /CLEAR NUMBER OF CHARS TO ZERO.
1664          1007 7201 GMAIN, PONE /GET A +1 IN THE AC.
1665          1010 1700 TAD I GGNUM /GNUM+1, NEXT SPOT IN BUFFER.
1666          1011 4252 JMS GIN /STICKS NEXT CHARACTER INTO GNUM+1
1667          1012 0000 0 /0=ILLEGAL=A SOLID BLOCK.
1668          1013 7305 PTWO /GET A PTWO INTO THE AC.
1669          1014 1700 TAD I GGNUM /NUMBER OF CHARS+2
1670          1015 4252 JMS GIN /PUT A 34 AT END FOR DISPLAY ROUTINE.
1671          1016 0034 34 / FORM.
1672          1017 1303 TAD GCOUNT /AN OSCILLATING NUMBER.
1673          1020 3141 DCA COUNT /GENERAL COUNT LOCATION.
1674          /
1675          1021 4551 GLOOP1, DISPLAY /DISPLAY CALLERS MESSAGE.
1676          1022 0000 G1, 0 /HIS POINTER HERE
1677          1023 4551 DISPLAY /NOW DO OUR LINE OF CRAP.
1678          1024 1120 GTEXT /POINTER TO OUR BUFFER.
1679          1025 4560 GETL /IS THERE A TTY CHAR?
1680          1026 7410 SKP /NO!
1681          1027 4702 JMS I GGINSERT /YES. PLACE IN BUFFER.
1682          1030 2141 ISZ COUNT /BOP UP FLICKER COUNT.
1683          1031 5221 JMP GLOOP1 /STILL GOOD, DISPLAY AGAIN.
1684          1032 1303 TAD GCOUNT /GET FLICKER COUNTER
1685          1033 3141 DCA COUNT /AND RESET TEMPORARY COUNTER.
1686          1034 7201 PONE /+1
1687          1035 1700 TAD I GGNUM /SET A "\" AT END WITH NO BLOCK FLICKER.
1688          1036 4252 JMS GIN /PLACE IN BUFFER
1689          1037 0034 34
1690          1040 4551 GLOOP2, DISPLAY /NOW DISPLAY USERS MESSAGE.
1691          1041 0000 G2, 0 /HIS POINTER.
1692          1042 4551 DISPLAY /NOW OUR BUFFER
1693          1043 1120 GTEXT /BUFFER POINTER.
1694          1044 4560 GETL /TEST LOW READER.
1695          1045 7410 SKP /NO CHAR THERE
1696          1046 4702 JMS I GGINSERT /INSERT INTO BUFFER
1697          1047 2141 ISZ COUNT /DONE YET???
1698          1050 5240 JMP GLOOP2 /NO. DISPLAY AGAIN.
1699          1051 5207 JMP GMAIN /RESET FLICKER POINTER.
1700          /
1701          /
1702          /
1703          1052 0000 GIN, 0 /PUTS A CHAR IN BUFFER
1704          1053 1301 TAD GMLEN /BASIC MESSAGE BEFORE USER DOES ANYTHING.

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1737	1054	3065	DCA	TEMP	/SAVE CHARACTER NUMBER.
1740	1055	1065	TAD	TEMP	/GET CHARACTER NUMBER.
1741	1056	7110	CLL	RAR	/DIVIDE BY 2 TO GET WORD NUMBER.
1742	1057	1304	TAD	GGTEXT	/POINTER TO ACTUAL TEXT.
1743	1060	3067	DCA	TEMP2	/AND STASH AWAY.
1744	1061	1065	TAD	TEMP	/REGET CHAR NUMBER.
1745	1062	7010	RAR		/IS IT ODD OR EVEN.
1746	1063	7020	SNL	CLA	
1747	1064	5273	JMP	GLEFT	/EVEN. GET LEFT HALF.
1750	1065	1467	TAD	I TEMP2	/GET RIGHT HALF
1751	1066	0053	AND	L7700	/BLAH OUT RIGHT 6 BITS
1752	1067	1052	TAD	I GIN	/GET DESIRED SAVE CHAR.
1753	1070	2252	GINTO, ISZ	GIN	/BOP PAST CALLING CHAR.
1754	1071	3467	DCA	I TEMP2	/AND STASH AWAY.
1755	1072	5652	JMP	I GIN	/RETURN.
1756		/			
1757	1073	1652	GLEFT, TAD	I GIN	/GET THE DESIRED CHARACTER TO BE INSERTED
1760	1074	7106	CLL	RTL	/ROTATE TO BITS 0-5. CANNOT INSERT
1761	1075	7006	RTL		/IN THE MIDDLE OF THE BUFFER.
1762	1076	7006	RTL		
1763	1077	5270	JMP	GINTO	/AND GO STORE AWAY THE WORD.
1764		/			
1765		/			
1766	1100	1276	GGNUM, GNUM		
1767	1101	0005	GMLN, LBNUM-1		/LEN OF MESS ALREADY IN BUFF -1 TO COMPENSATE FOR 0 CHAR.
1770	1102	1200	GGINSERT, GINSERT		/POINTER TO INSERT ROUTINE.
1771	1103	7770	GCUUNT, -10		/FLICKER COUNTER
1772	1104	1122	GGTEXT, GTEXT+2		/ACTUAL TEXT POINTER.
1773		/			
1774		/			
1775		/			
1776		/			
1777	1105	0000	TTYGET, 0		/ROOM FOR NON-OVERLAPPED TTY ROUTINE HERE
2000	1106	4556	CHECKIO		/CHECK IO DEVICES NOW.
2001	1107	1072	TAD	KEYCHAR	/GET SAVED CHAR.
2002	1110	7450	SNA		/IS THERE REALLY ONE THERE???
2003	1111	5705	JMP	I TTYGET	/NO. RETURN
2004	1112	2305	ISZ	TTYGET	/YES. BOP UP RETURN ADDRESS.
2005	1113	1030	TAD	L4000	/CHOP OFF STUCK ON BIT.
2006	1114	3000	DCA	0	/0 CAN BE USED RIGHT ONW.
2007	1115	5072	DCA	KEYCHAR	/ZAP OUT OLD CHAR.
2010	1116	1000	TAD	0	/RETRIEVE CHAR.
2011	1117	5705	JMP	I TTYGET	/EXIT TO SECOND LOCATION WITH CHAR IN THE AC.
2012		/			
2013		/			
2014	1120	0000	LINEB, LEFT		/START AT BOTTOM LEFT FOR DISPLAY.
2015			GTEXT=LINEB		
2016	1121	7400	BOTTOM		/BOTTOM OF SCREEN.
2017	1122	2205			
2017	1123	2014			
2017	1124	3172			
2017	1125	3400			
2017			TEXT	"REPLY:\\"	/HALFWORD ASSUMED.
2020			LBNUM=6		/NUMBER OF PREVIOUS CHARS IN BUFFER.
2021			LBMAX=62-LBNUM		/MAXIMUM NUMBER OF USER CHARACTERS.
2022			/		FOUND BY GETTING MAX ON LINE(62) AND SUBTRACTING THOSE IN BUFFER(LBNUM).
2023			/		
2024			/		
2025			/		
2026			/		
2027			/		
2030			/		
2031			/		

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2032      /
2033      *LINEH+2+J1-1+1      /ALLOW SPACE FOR THE BUFFER
2034      1153 0000      2000      /LAST WORD OF THE CHARACTER BUFFER
2035      /
2036      /
2037      /
2040      /
2041      /
2042      /
2043      /
2044      /
2045      /
2046      /
2047      1154 1375 UNLOAD, TAD      UL320      /FOR A *T SET TO POSITIN BLOCK TO 300
2050      /
2051      /
2052      /
2053      /
2054      1155 3373 UNLOAD, DCA      UNPOS      /STORE THE BLOCK TO POSITION UNIT 0 TO (0 OR 300)
2055      /
2056      1156 6141      LINC      /THIS ROUTINE UNLOADS ALL THE TAPES
2057      LMODE      /EXCEPT FOR TAPE 0. IT IS SO SIMPLE
2060      1157 0076      SET I      AUTO7      /AND YET SO ELEGANT IT NEEDS
2061      1160 7773      -4      /NO COMMENTS. SO GAZE UPON IT AND BE THANKFUL.
2062      1161 2020      ADD      L20
2063      1162 1120 UNLOOP, ADA I
2064      1163 7776      -1
2065      1164 0001      AX0
2066      1165 0737      CHK I      U
2067      1166 0727      CHK I
2070      1167 7166      JMP      .-1
2071      1170 0236      XSK I      AUTO7
2072      1171 7162      JMP      UNLOOP
2073      1172 0707      CHK
2074      1173 0300 UNPOS,      J00
2075      1174 0002      POP
2076      PMODE
2077      1175 7300 UL300,      CLA CLL      /CLEAR THE AC AND JMP TO MIDDLE OF MESSAGE DISPLAY
2100      1176 5207      JMP      GMAIN      /KEEP MESSAGE GOING
2101      /
2102      /
2103      /
2104      /
2105      /
2106      /
2107      /
2110      /
2111      /
2112      /
2113      /
2114      /
2115      /
2116      /
2117      /
2120      /
2121      /
2122      /
2123      /
2124      EJECT

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2125      /
2126      /
2127      /
2130      *1200
2131      /
2132      /
2133      /
2134      /
2135      /
2136      1200 0000 GINSERT,0
2137      1201 0142 AND L177
2138      1202 1026 TAD L270
2139      1203 3121 DCA FTYPE
2140      1204 4573 SEARCH
2141      1205 1303 GSPL1
2142      1206 1315 GSPG1
2143      1207 4253 JMS GGLIMC
2144      1210 5600 GNEXIT, JMP I GINSERT
2145      1211 1276 TAD GNUM
2146      1212 1040 CMA
2147      1213 1277 TAD GLIMIT
2148      1214 7650 SMA CLA
2149      1215 5702 JMP I GGCLEAR
2150      1216 1121 ASMIFN ECHO
2151      1217 4407 TAD FTYPE
2152      1220 1121 ASMIFN ECHO
2153      1221 0024 PUTL
2154      1222 3226 TAD FTYPE
2155      1223 2276 AND L77
2156      1224 1276 DCA GPUT
2157      1225 4700 ISZ GNUM
2158      1226 0000 TAD GNUM
2159      1227 5701 JMS I GGIN
2160      /
2161      /
2162      /
2163      /
2164      /
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2167      /
2168      /
2169      /
2170      /
2171      /
2172      /
2173      /
2174      /
2175      /
2176      /
2177      1230 4557 GNLF, ASMIFN ECHO
2178      1231 5702 CRLF
2179      /
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2202      /
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2204      /
2205      1232 7240 GNRUB, NONE
2206      1233 1276 TAD GNUM
2207      1234 7500 SMA
2208      1235 3276 DCA GNUM
2209      /
2210      /
2211      /
2212      /
2213      /
2214      1236 7640 ASMIFZ ECHO
2215      1237 5242 ASMSKP 4
2216      1240 1307 JMP GNRNO
2217      1241 4407 TAD GNL334
2218      /
2219      /
2220      /
2221      /
2222      /
2223      1242 5721 GNRNO, ASMIFZ ECHO
2224      /
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2224      /
2225      /
2226      /
2227      /
2230      GALL,  ASMIFN  ECHO      /DO A CRLF ONLY IF SWITCH IS SET.
2231      1243  7201  PONE      /SPACE TO NEXT SPOT IN THE BUFFER
2232      1244  1276  TAD       /WHICH IS 1+GNUM
2233      1245  4700  JMS I     /AND INSERT A 0000 AS A TERMINATOR
2234      1246  0000  0000     /IN IT GOES.
2235      1247  4557  CRLF      /DO A CAR RET AND LIN FED.
2236      1250  1675  TAD I     GGLINE
2237      1251  3200  DCA       GINSERT
2240      1252  5600  JMP I     GINSERT
2241      /
2242      /
2243      /
2244      /
2245      /
2246      /
2247      /
2250      /
2251      /
2252      1253  0000  GGLIMC, 0      /THIS TESTS TO SEE IF TYPE IS BETWEEN 240 AND 337
2253      1254  1121  TAD       FTYPE /GET THE CHAR IN QUESTION
2254      1255  1147  TAD       M340  /SEE IF ITS GREATER THAN 340
2255      1256  7510  SPA      /?
2256      1257  1257  TAD       /IT ISNT, SO MAKE IT A BIG NUM FOR SECOND TEST
2257      1260  1274  TAD       GGM33 /SEE IF ITS GREATER THEN 372
2260      1261  7710  SPA CLA    /?
2261      1262  1056  TAD       M40   /ITS GREATER THEN 337 BUT LESS THEN 373
2262      1263  1121  TAD       FTYPE /NOW EITHER UPDATE FTYPE OR LEAVE IT ALONE
2263      1264  3121  DCA       FTYPE /THE UPDATE CONVERTS A 37 CHAR TO A 35 CHAR
2264      1265  1121  TAD       FTYPE /NOW GET THE MODIFIED OR UNMODIFIED CHAR
2265      1266  1147  TAD       M340  /SUBTRACT OFF 340 FOR LIMIT TEST
2266      1267  7100  CLL      /CLEAR THE LIC FOR THE FOLLOWING TEST
2267      1270  1025  TAD       L100  /NOW ADD IN 100 FOR LOWER LIMIT TEST
2270      1271  7630  SZL CLA    /IF GOOD LINC IS NOW A 1
2271      1272  2253  ISZ       GGLIMC /THEN GO TO SECONORETURN IF OK
2272      1273  5653  JMP I     GGLIMC /ELSE GO TO THE FIRST RETURN
2273      /
2274      /
2275      /
2276      /
2277      /
2300      /
2301      /
2302      /
2303      /
2304      1274  7745  GGM33, -33
2305      /
2306      /
2307      1275  1000  GGLINE, GLINE /COMMUNICATION.
2310      1276  0000  GNUM, 0      /NUMBER OF CHARS IN BUFFER
2311      1277  0054  GLIMIT, LBMAX /MAX NUM OF USER CHARS IN BUFFER.
2312      1300  1052  GGIN, GIN
2313      1301  1007  GGMAIN, GMAIN
2314      1302  1006  GGCLEAR, GCLEAR
2315      /
2316      /
2317      /
2320      /
2321      /
2322      1303  0212  GSPL1, 212

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2323	1304	0215	215		
2324	1305	0377	377		
2325			ASMIFZ	TERMC-44	/EOF CHAR=DOLLAR SIGN?
2326			244		/YEP. PLACE IT ON THE EXCEPTION TABLE
2327	1306	0247	247		
2330	1307	0334	GNL334, 334		
2331	1310	0300	300		
2332	1311	0337	337		
2333	1312	0224	224		
2334	1313	0225	225		/CONTROL U CHARACTER
2335	1314	4243	4243		
2336			/		
2337			/		
2340			/		
2341	1315	1230	GSPG1, GNLF		/LINE FEED
2342	1316	1243	GALL		/C.R.
2343	1317	1232	GNRUB		/RUB OUT
2344			ASMIFZ	TERMC-44	/DO WE WANT DOLLAR SIGN IN LIST?
2345			GNXIT		/YEP. DOLLAR SIGN ILLEGAL
2346	1320	1210	GNXIT		
2347	1321	1210	GNXIT		
2350	1322	1210	GNXIT		
2351	1323	1210	GNXIT		
2352	1324	1154	LUNOAD		
2353	1325	1155	UNLOAD		/POINTER TO THE UNLOAD ROUTINE.
2354	1326	1210	GNXIT		
2355			/		
2356			/		
2357			/		
2360			/		
2361			/		
2362			/		
2363	1327	0000	MMOVE, 0		
2364	1330	7240	MONE		
2365	1331	1327	TAD	MMOVE	
2366	1332	3012	DCA	AUTO3	
2367	1333	7240	MONE		
2370	1334	1412	TAD I	AUTO3	
2371	1335	3013	DCA	AUTO4	
2372	1336	7240	MONE		
2373	1337	1412	TAD I	AUTO3	
2374	1340	3014	DCA	AUTO5	
2375	1341	1412	TAD I	AUTO3	
2376	1342	7040	CMA		
2377	1343	3141	DCA	COUNT	
2400	1344	5347	JMP	MMEXIT-2	
2401	1345	1413	TAD I	AUTO4	
2402	1346	3414	DCA I	AUTO5	
2403	1347	2141	ISZ	COUNT	
2404	1350	5345	JMP	.-3	
2405	1351	5412	MMEXIT, JMP I	AUTO3	
2406			/		
2407			/		
2410	1352	0000	PPUSH, 0		
2411	1353	4564	MOVE		
2412	1354	0117	F SIZE		
2413	1355	1366	PPTEMP		
2414	1356	0011	FNAME+3-F SIZE+1		
2415	1357	5752	JMP I	PPUSH	
2416			/		
2417	1360	0000	PPOP, 0		
2420	1361	4564	MOVE		
2421	1362	1366	PPTEMP		

2422	1363	0117	FSIZE	
2423	1364	0011	FNAME+S*FSIZE+1	
2424	1365	0700	JMP I PPDP	
2425		/		
2426		/		
2427	1366	0070	PPTEMP, W	
2430			*PPTEMP+FNAME+S-FSIZE	
2431	1376	0000	0000	/JUST TO SEE WHERE IT IS. NEXT LOCATION IS COMPLETELY FREE.
2432		/		
2433		/		
2434		/		
2435			EJECT	

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/

EVOKE PIP2 NOW

CHAIN "PIP2"

0000
0001
0002
-

*20

PMODE
EJECT

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/

THIS IS THE SECOND PART OF PIP. IT S CALLED P I P 2.

EJECT

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0040          *1400          GENERAL MASS STORAGE I/O ROUTINES.
0041          /
0042          /
0043          /
0044          /
0045          /
0046          /          CALLING SEQUENCE:
0047          /
0050          /
0051          /          READ      (OR WRITE)
0052          /          UNIT NUMBER
0053          /          FIRST CORE LOCATION OF TRANSFER
0054          /          NUMBER OF BLOCKS TO BE TRANSFERRED.
0055          /          FIRST BLOCK OF TRANSFER.
0056          /
0057          /
0060          /          ROUTINE HAS THE ABILITY TO GO INTO EXTENDED CORE.
0061          /          IF HIS NUMBER OF BLOCKS MAKES THE LOCATION COUNTER "WRAP AROUND".
0062          /
0063          /
0064          /
0065          /
0066          /
0067          1400  0000  TREAD,  0          /MAIN READ ROUTINE
0070          1401  4224          JMS      TWHERE          /GET CORRECT MASS DEVICE
0071          1402  1453          TAPEW          /00-07 = TAPE READ
0072          ASMIFN  RF08          /DO WE WANT THE RF08 ROUTINES ASSEMBLED?
0073          ASMSKP  4          /YEP BYPASS NON-UNIT ASSIGNMENTS.
0074          NOSUCH
0075          NOSUCH
0076          NOSUCH
0077          NOSUCH          /UNITS 10-47 NOT PRESENT
0100          /
0101          ASMIFZ  RF08          /ARE THEY NOT THERE?
0102          ASMSKP  4          /NOT THERE. DO NOT ASSEMBLE IN POINTERS.
0103          1403  7501  RF08R
0104          1404  7501  RF08R
0105          1405  7501  RF08R
0106          1406  7501  RF08R          /UNITS 0-47 INCASE OF RK08S
0107          /
0110          1407  4560  NOSUCH          /UNITS 50-77 FREE FOR NOW.
0111          1410  4560  NOSUCH
0112          1411  4560  NOSUCH
0113          /
0114          /
0115          /
0116          /
0117          1412  0000  TWRITE, 0          /MAIN WRITE.
0120          1413  4224          JMS      TWHERE          /GET COORRECT MASS STORAGE DEVICE.
0121          1414  1464          TAPEW          /FIRST IS LINC TAPE.
0122          ASMIFZ  RF08          /DISK DESIRED?
0123          ASMSKP  4          /NOPE. BYPASS POITERS
0124          1415  7505  RF08W          /UNITS 10-47 ARE DISK UNITS NOW.
0125          1416  7505  RF08W
0126          1417  7505  RF08W
0127          1420  7505  RF08W
0130          /
0131          ASMIFN  RF08          /TEST AGAIN.
0132          ASMSKP  4          /SKIP NOSUCH UNITS IF DISK DESIRED.
0133          NOSUCH          /UNITS 10-17 NOT YET ASSIGNED.
0134          NOSUCH          /UNITS 20-77 FREE FOR NOW.
0135          NOSUCH
0136          NOSUCH

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0137			/			
0140	1421	4560		NOSUCH		/UNITS 50-77 FREE FOR NOW.
0141	1422	4560		NOSUCH		
0142	1423	4560		NOSUCH		
0143			/			
0144			/			
0145			/			
0146			/			
0147			/			
0150	1424	0000	TWHERE, 0			/GETS CORRECT MASS STORAGE DEVICE.
0151	1425	7344	MTWO			/-2
0152	1426	1224	TAD	TWHERE		/GET CALLING.
0153	1427	3065	DCA	TEMP		/GET ORIGINAL CALLING.
0154	1430	1465	TAD I	TEMP		
0155	1431	3065	DCA	TEMP		/GET USER CALLING.
0156			/			
0157			/			
0160			ASMIFF	RF08		/DISK
0161			ASMSKP	6		/NOPE
0162			/			
0163	1432	1465	TAD I	TEMP		/GET USERS UNIT.
0164	1433	1356	TAD	RK70		/SUBTRACT ONE FROM THE DRIVE NUMBER
0165	1434	0061	AND	L30		/CHOP OFF RANDOM CRAP.
0166	1435	7112	CLL RTR			/SHIFT TO CONTROLLER BITS 9-10
0167	1436	3107	DCA	RKDRIV		/SAVE AWAY
0170			/			
0171			/			
0172	1437	1465	TAD I	TEMP		/GET THE USERS UNIT AGAIN.
0173	1440	7012	RTR			
0174	1441	7010	RAR			/GET BITS 6-8
0175	1442	0060	AND	L7		
0176	1443	1224	TAD	TWHERE		/GET START OF LIST.
0177	1444	3224	DCA	TWHERE		/AND STORE AWAY.
0200	1445	1624	TAD I	TWHERE		/GET CALLING ADDRESS.
0201	1446	3224	DCA	TWHERE		/AND STASH AWAY.
0202	1447	1065	TAD	TEMP		/GET USERS CALLING ADDRESS.
0203	1450	3624	DCA I	TWHERE		/AND SET UP PHONNEY CALL.
0204	1451	2224	IS	TWHERE		/GO TO SECOND LOC.
0205	1452	5624	JMP I	TWHERE		/PHONNEY CALL ALL DONE.
0206			/			
0207			/			
0210			/			
0211			/			
0212	1453	0000	TAPER, 0			/MAIN LINC TAPE READ ROUTINE.
0213	1454	1200	TAD	TREAD		/GET READ ADDRESS.
0214	1455	3212	DCA	TWRITE		/AND SAVE FOR HEAD.
0215	1456	1312	TAD	TERENT		/SET TO RETRY READ IF ERROR
0216	1457	3713	DCA I	TEERNT		/SAVE IN RETRY LOCATION
0217	1460	3707	DCA I	TTSKP		/DO A CHECK OF CHECKSUM.
0220	1461	4711	JMS I	TTBLAH		/GO PERFORM FOLLOWING OPERATION.
0221			LMODE			/NEXT INSTRUCTION IS EXECUTED BY TBLAH IN LMODE
0222	1462	0722	RDE I			/READ AND LEAVE GOING.
0223			PMODE			/JUST FOR ASSEMBLER.
0224	1463	5276	JMP	TEXT		/AND EXIT
0225			/			
0226			/			
0227	1464	0000	TAPEW, 0			/GENERAL LINC TAPE WRITE ROUTINE.
0230	1465	1310	TAD	TTTSKP		/SET UP TO IGNORE BAD CHECKSUM.
0231	1466	3707	DCA I	TTTSKP		/AND STASH AWAY.
0232	1467	1314	TAD	TTAPEW		/FOR WRITE ERROR REWRITE ENTIRE BLOCK
0233	1470	3713	DCA I	TEERNT		
0234	1471	4711	JMS I	TTBLAH		/DO WRITE NOW.
0235			LMODE			

0236	1472	0726	WRI I		
0237			Pmode		
0240	1473	3707	DCA I	TTSKP	/BACK INTO Pmode
0241	1474	4711	JMS I	TTBLAH	/SET TO CHECK CHECKSUM.
0242			Lmode		/NOW DO CHECK OF WHAT WE JUST WROTE.
0243	1475	0727	CHK I		
0244			Pmode		
0245			/		
0246	1476	7307	TEXIT,	PFOUR	/GENERAL EXIT.
0247	1477	1212	TAD	TWRITE	/GET WRITE
0250	1500	3212	DCA	TWRITE	/GO PAST ARGUEMENTS.
0251	1501	5612	JMP I	TWRITE	/PAST ARGUEMENTS.
0252			/		
0253			/		
0254	1502	0000	ASET,	0	/INITIALIZES ARGUEMENT GETTER FOR AMSS STORAGE DEVICES.
0255	1503	7240		MONE	
0256	1504	1212	TAD	TWRITE	/FIRST AGR.
0257	1505	3017	DCA	AUTOB	/ARG REGISTER.
0260	1506	5702	JMP I	ASET	/EXIT
0261			/		
0262			/		
0263			/		
0264			/		
0265			/		
0266			/		
0267			/		
0270	1507	1750	TTSKP,	TSKP	/CHECKSUM SKIP
0271	1510	7410	TTTSKP,	SKP	/INSTRUCTION TO IGNORE CHECKSUM
0272	1511	1600	TTBLAH,	TBLAH	/POINTER TO I/O DOER
0273	1512	1627	TERENT,	TRENT	/RETRY LOCATION
0274	1513	2032	TEERNT,	TIRENT	/RETRY SWITCH
0275	1514	1413	TTAPEW,	TWRITE+1	/RETRY ENTRIE WRITE ON ERROR
0276			/		
0277			/		
0300			/		
0301			/		
0302			/		
0303	1515	7240	FFILEC,	MONE	/COPIES A NAMED FILE TO ANOTHER NAMED FILE.
0304	1516	3106	DCA	OUTNUM	/SET COUNTER TO 1
0305	1517	7305	PTWO		/SET UP SECOND DIRECTORY LOOKUP
0306	1520	3123	DCA	FWHAT	/IT S AN OUTPUT FILE
0307	1521	1737	TAD I	FFTEMP	/GET THE ORIGINAL SIZE
0310	1522	3117	DCA	FSIZE	/PLACE IN THE SIZE NOW.
0311	1523	4563	DIRECT		/NOW ALLOCATE SPACE.
0312	1524	1120	TAD	FUNIT	/GET THE NEW OUTPUT UNIT
0313	1525	3105	DCA	OUTUNIT	/AND SET UP OUTPUT UNIT
0314	1526	1122	TAD	FBNUM	/GET OUTPUT BLOCK
0315	1527	3104	DCA	OUTBLOCK	/AND SET UP.
0316	1530	4403	HPOP		/POP IN UPPER SAVED FBLOCK
0317	1531	1120	TAD	FUNIT	/SAVE THE INPUT UNIT
0320	1532	3103	DCA	INUNIT	
0321	1533	1122	TAD	FBNUM	/GET THE INPUT STARTING BLOCK
0322	1534	3102	DCA	INBLOCK	/AND SET UP
0323	1535	4554	COPY		/NOW COPY THE FILE
0324	1536	5552	PIP		/AND RETURN TO PIP.
0325			/		
0326			/		
0327			/		
0330	1537	3327	FFTEMP,	HHTEMP	
0331			/		
0332			/		
0333			/		
0334			/		

```

0335 /
0336 /
0337 /
0340 /
0341 /
0342 /
0343 /
0344 /
0345 /
0346 /
0347 1540 0000 RFDISK, 0
0350 1541 1120 TAD FUNIT /GET THE USERS UNIT
0351 1542 3200 DCA TREAD /AND SAVE FOR A SECOND
0352 1543 4402 TAPE /DO THE NECESSARY STUFF.
0353 1544 1200 TAD TREAD /REGET THE USERS UNIT
0354 1545 0356 AND RK70 /JUST MAJOR DEVICE BITS.
0355 1546 7450 SNA /ZERO?
0356 1547 1054 TAD L10 /YEP. ADD IN 10 TO FORCE CONTROLLER SHIFT.
0357 1550 1356 TAD RK70 /THIS IS TO FORCE BETWEEN 10-37
0360 1551 0356 AND RK70
0361 1552 1054 TAD L10
0362 1553 1120 TAD FUNIT
0363 1554 3120 DCA FUNIT /FUNIT IS ALL SET NOW.
0364 1555 5740 JMP I RFDISK
0365 /
0366 /
0367 /
0370 1556 0070 RK70, 70
0371 /
0372 /
0373 /
0374 /
0375 /
0376 /
0377 /
0400 /
0401 /
0402 /
0403 /
0404 /
0405 /
0406 /
0407 /
0410 ASMIFZ RF08 /RF08 DESIRED?
0411 ASMSKP 4 /NO, DON T PUT MESSAGE HERE.
0412 /
0413 1557 0614
0413 1560 1116
0413 1561 0340
0413 1562 2401
0413 TMESS2, TEXT "FLINC TAPE
0414 1563 2005
0414 1564 4306
0414 1565 0310
0414 1566 0503
0414 1567 1323
0414 1570 2515
0414 1571 4005
0414 1572 2222
0414 1573 1722
0414 1574 4040
0414 1575 4040
0414 FCHECKSUM ERROR

```

```
0415      1576  4043  "
0415                                /TAPE ERROR MESSAGE HERE TO LEA
                                VE ROOM LATTER ON.
0416                                /
0417                                /
0420                                /
0421                                /
0422                                /
0423                                /
0424                                /
0425                                /
0426                                EJECT
-
```

```

0427                                *1600
0430                                /
0431                                /
0432                                /
0433                                /
0434                                /
0435                                /
0436      1600 0000 TBLAH, 0 /PERFORMS A FUNCTION, THEN EXITS.
0437      1601 4555 SETA /SET UP ARGUMENT GETTER.
0440      1602 1417 GETA /GET UNIT NUMBER
0441      1603 7110 CLL RAR /MOVE INTO CORRECT PLACE
0442      1604 1061 TAD L32 /SET UP EXTENDED UNITS BITS.
0443      1605 3304 DCA TAXO /AND STORE AWAY. NO-PAUSE AND EXTENDED ADDRESSING ALSO SET.
0444      1606 7206 CLA RTL /NOW MOVE BACK TO BIT 8
0445      1607 7006 RTL
0446      1610 1600 TAD I TBLAH /ADD IN DESIRED FUNCTION.
0447      1611 3317 DCA TOPR /AND STORE AWAY TO BE EXECUTED.
0450      1612 1317 TAD TOPR /GET THE OPERATION AGAIN.
0451      1613 3307 DCA TSTOPR /SET UP SELECT-WRITE LOCK CHECK.
0452      1614 2200 ISZ TBLAH /SKIP PAST CRAP.
0453      1615 1417 GETA /GET STARTING ADDRESS.
0454      1616 3315 DCA TLOC1 /AND STORE AWAY.
0455      1617 1417 GETA /GET WORD COUNT.
0456      1620 7450 SNA /IS IT ZERO?
0457      1621 5600 JMP I TBLAH /YEP. EXIT.
0460      1622 7041 CIA /NOPE. COMPLETEN IT.
0461      1623 3361 DCA TCOUNT /STASH AWAY.
0462      1624 1417 GETA /GET BLOCK NUMBER
0463      1625 7001 IAC /FOR UPCOMING SUBTRACTION ERROR.
0464      1626 3320 DCA TBLOCK /AND OPLACE IN FIRST BLOCK.
0465                                /
0466                                /
0467                                /
0470      1627 7240 TREENT, NONE /TO RETRY SAME BLOCK AFTER ERROR.
0471      1630 1320 TAD TBLOCK /RESET BLOCK NUMBER TO CORRECT ONE.
0472      1631 3320 DCA TBLOCK
0473      1632 1315 TAD TLOC1
0474      1633 7440 SZA /GET THE FIRST LOC
0475      1634 5244 JMP TDOWN /IT S ZERO. CORRECT FOR FIELD CHANGE
0476      1635 1033 TAD L7000 /NOT ZERO OK.
0477      1636 1304 TAD TAXO /BOP DOWN FIELD.
0500      1637 3304 DCA TAXO /IN EXTENDED REGISTER
0501      ASMIFZ RF08 /DISK ROUTINES THERE.
0502      ASMSKP 4 /NO. DO NOT ASSEMBLE IN CODE TO PROTECT 7400-7777 OF FIELD 0.
0503      1640 1304 TAD TAXO /REGET THE NEXT AXO REGISTER.
0504      1641 0033 AND L7000
0505      1642 7650 SNA CLA /ARE WE CROSSING BOUNDARY TO LOWER CORE?
0506      1643 1064 TAD M400 /YES. BOP DOWN BY AN EXTRA 400 SO WE DON T BASH DATA BREAK
0507                                /
0510                                /
0511      1644 1064 TDOWN, TAD M400 /400= LENGTH OF 1 RECORD.
0512      1645 3315 DCA TLOC1 /LOC ALL SET TO GO.
0513                                /
0514      1646 1143 TREENT2, TAD M215 /ENTERS HERE IF A SKIP OVER RECORD. M215=LENGTH OF TAPE*10 SECONDS.
0515      1647 3363 DCA TERRC2 /SET UP WAIT COUNT.
0516      1650 1031 TAD L5000 /SET MAINTANCE MODE
0517      1651 6151 /FOR TESTING WHETHER OR NOT UNIT OK
0520                                /
0521                                /
0522                                /
0523      1652 7201 TLOOP, PONE /MAIN LOOP TO DO NEXT RECORD. IS THIS LAST RECORD?
0524      1653 1361 TAD TCOUNT /GET THE NUMBER OF RECORDS TO GO
0525      1654 7640 SZA CLA

```

0526	1655	5261	JMP	,+4	/NO. STILL MORE TO GO.
0527	1656	1317	TAD	TOPR	/LAST ONE, TURN OFF MOTION BIT.
0530	1657	0034	AND	L7757	
0531	1660	3317	DCA	TOPR	
0532			ASMIFZ	RF08	/RF08 DEISRED?
0533			ASMSKP	14	/NOPE. DON T ASSEMBLE IN CODE TO PROTECT 7400.
0534	1661	1315	TAD	TLOC1	/GET THE LAST LOCATION.
0535	1662	1040	TAD	L400	
0536	1663	1040	TAD	L400	/SEE IF NEXT IS GOING TO READ INTO 7400.
0537	1664	7640	SZA	CLA	/??
0540	1665	5275	JMP	TLP1	/NO. IT ISN T.
0541	1666	1304	TAD	TAX0	/GET THE TAX0 TO SEE IF
0542	1667	0033	AND	L7000	/IT S 7400 OF FIELD 0
0543	1670	7640	SZA	CLA	
0544	1671	5275	JMP	TLP1	/NOT FIELD 0
0545	1672	1040	TAD	L400	/WE RE GOING TO BASH 7400, SO SKIP PAST IT.
0546	1673	1315	TAD	TLOC1	
0547	1674	3315	DCA	TLOC1	
0550			/		
0551	1675	7300	TLP1,	CLA CLL	/LINC MUST BE CLEAR
0552	1676	1040	TAD	L400	/BOP UP LOCATION
0553	1677	1315	TAD	TLOC1	
0554	1700	3315	DCA	TLOC1	
0555	1701	6141	LINC		/GO OVER INTO LMODE
0556			LMODE		
0557	1702	0323	ROR I	3	/MOVE OVERFLOW BIT INTO CORRECT TAPE POSITION.
0560	1703	1160	ADM I		/UPDATE TAX0 AND AX0 ALL AT ONCE.
0561	1704	0000	TAX0,	0	
0562	1705	0001	AX0		/SEND TO CONTROLER
0563	1706	0011	CLR		/CLEAR AC FOR TEST TO FOLLOW DUMMY OPERATION.
0564	1707	0000	TSTOPR,	0	/PERFORM USERS OPERATION ONCE. BLOCK NUMBER=0 INSURES SUCCESS.
0565	1710	0000	0000		/BECAUSE BLOCK NUMBER IS ADDED TO SPECIAL REGISTER WHICH IS READ IN.
0566	1711	0500	IOB		/DO 8 101 TO GET SPECIAL REGISTER.
0567	1712	6154	6154		/IF TAPE OK(SELECT AND WRITE-LOCK OFKAY
0570	1713	4071	STC	TEMP4	/THEN BIT10=1; NOW DO REAL USER OPERATION.
0571	1714	1020	LDA I		/GET ADDRESS
0572	1715	0000	TLOC1,	0	
0573	1716	0023	TMA		/AND SEND IT TO CONTROLLER
0574	1717	0000	TOPR,	0	/ACTUAL TAPE INSTRUCTION
0575	1720	0000	TBLOCK,	0	/ACTUAL BLOCK NUMBER.
0576	1721	1000	LDA		/RECALL PAST SPECIAL FUCTION
0577	1722	0071	TEMP4		/REGISTER AND CHECK WHETHER UNIT OK
0600	1723	0002	PDP		/GET BACK INTO 8 MODE
0601			PMODE		
0602	1724	2320	ISZ	TBLOCK	/BOP UP BLOCK NUMBER
0603	1725	7012	RTR		/PLACE BIT 10 IN LINC
0604	1726	7620	SNL	CLA	/IS UNIT OK WITH WRITE LOCK OFF IF NECESSARY.
0605	1727	5357	JMP	TSELER	/UNIT NOT OK. DISPLAY MESSAGE.
0606			LMODE		/TELL ASSEM WE LL BE IN LMODE.
0607	1730	0002	TLOOP2,	PDP	/GET INTO 8 MODE. IF IN 8 MODE ITS JUST A NOP.
0610			PMODE		
0611	1731	4556	CHECKIO		/CHECKIO I/O DEVICES WHILE WAITING IN LOOP.
0612	1732	2362	ISZ	TERRC1	/BOP UP FIRST WAIT COUNT
0613	1733	5340	JMP	TNT2LG	/DIDN T OVERFLOW YET. GO DOWN
0614	1734	2363	ISZ	TEHRC2	/OUTER SKIP OK?
0615	1735	5340	JMP	TNT2LG	/BIG COUNT STILL OK. GO DOWN.
0616			/		
0617	1736	4764	JMS I	TEMAIN	/WE VE WAITED TOO LONG. GIVE MESSAGE.
0620	1737	2202	TMESS1		/TO LONG MESSAGE
0621			/		
0622	1740	6141	TNT2LG,	LINC	/GET INTO LINC MODE FOR FLAG TESTING.
0623			LMODE		/GET INTO L MODE TO TEST TAPE.
0624	1741	0416	STD		

0625	1742	7730	JMP	TLOOP2	/NOT YET DONE. GO BACK AND WAIT.
0626	1743	0003	TAC		/DONE. GET CHECKSUM INTO AC.
0627	1744	0002	PDP		
0630			PMODE		/AND GET BACK INTO 8 MODE
0631	1745	7040	CMA		/MAKE INTO ZERO IF 7777
0632	1746	7650	SNA CLA		/GOOD CHECKSUM
0633	1747	5352	JMP	TDOC	/YEP. TRY NEXT RECORD.
0634	1750	7410	TSKP,	SKP	/SWITCH FOR ERROR IF BAD CHECKSUM.
0635	1751	5355	JMP	TCHEKE	/BAD CHECKSUM. GIVE MESSAGE
0636	1752	2361	TDOC,	ISZ	/OK. IS ALL DONE?
0637	1753	5252	JMP	TLOOP	/NOPE. DO NEXT
0640	1754	5600	TBEXIT,	JMP 1	/YEP. EXIT
0641			/		
0642			/		
0643			/		
0644			/		
0645	1755	4764	TCHEKE,	JMS 1	
0646	1756	1557		TMESS2	/CHECKSUM ERROR
0647	1757	4764	TSELER,	JMS 1	
0650	1760	1765		TMESS3	/BLOCK NUMBER OR TIMING ERROR
0651			/		
0652			/		
0653			/		
0654			/		
0655			/		
0656	1761	0000	TCOUNT,	0	
0657	1762	0000	TEERRC1,	0	
0660	1763	0000	TEERRC2,	0	
0661	1764	2005	TEMAIN,	TEMAINE	
0662			/		
0663			/		
0664			/		
0665			/		
0666			/		
0667			/		
0670			/		
0671			/		
0672			/		
0673			ASMIFN	RF08	/RF08 DESIRED?
0674			ASMSKP	4	/YEP. DON'T ASSEMBLE MESSAGE HERE
0675			/		
0676			TMESS2,	TEXT	"FLINC TAPE
0677			FCHECKSUM	ERROR	
0700			"		
0701			/		
0702	1765	0623			
0702	1766	0514			
0702	1767	0503			
0702	1770	2440			
0702			TMESS3,	TEXT	"FSELECT OR
0703	1771	1722			
0703	1772	4306			
0703	1773	2722			
0703	1774	1124			
0703	1775	0555			
0703	1776	1417			
0703	1777	0313			
0703	2000	4005			
0703	2001	2222			
0703	2002	1722			
0703	2003	4040			
0703			FWRITE-LOCK	ERROR	
0704	2004	4043			

0704	"	
0705	/	
0706	/	
0707	/	
0710	/	
0711	/	
0712		EJECT

-

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0713 /
0714 /
0715 /
0716 /
0717 /
0720 /
0721 /
0722 /
0723 /
0724 2025 0020 TMAINE, 7
0725 2026 7330 CLA CLL CML RAR
0726 2027 6152 6152
0727 2010 7300 CLA CLL
0730 2011 1605 TAD I TMAINE
0731 2012 3214 DCA .+2
0732 2013 4564 MOVE
0733 2014 0000 2
0734 2015 2101 TMAIND
0735 2016 0020 20
0736 2017 7240 NONE
0737 2020 1633 TAD I TBLOKK
0740 2021 4237 JMS TTRC
0741 2022 2023 TTEG1
0742 /
0743 /
0744 /
0745 /
0746 /
0747 2023 2026 TTEG1, TRENT3
0750 2024 2031 TTRRT
0751 2025 2026 TRENT3
0752 /
0753 /
0754 /
0755 /
0756 /
0757 /
0760 /
0761 2026 2634 TRENT3, ISZ I TKOUNT
0762 2027 5635 JMP I TTRNT2
0763 2030 5636 JMP I TBLAHT
0764 /
0765 /
0766 /
0767 /
0770 /
0771 2031 5632 TTRRT, JMP I TTRENT
0772 /
0773 /
0774 /
0775 /
0776 /
0777 /
1000 2032 1627 TTRENT, TREENT
1001 2033 1720 TBLOKK, TBLOCK
1002 2034 1761 TKOUNT, TCOUNT
1003 2035 1646 TTRNT2, TRENT2
1004 2036 1754 TBLAHT, TBEXIT
1005 /
1006 /
1007 /
1010 /
1011 /

```

LOCATED AROUND 2347. PREVIOUS PAGE OVERLAPS A LITTLE BIT.

TAPE ROUTINES CONTINUED.
/MAIN ERROR WAIT
/4022+6152=TAPE PRESET.
/STOP ANY STRAY TAPE OPERATIONS.

/GET ERROR MESSAGE
/AND MOVE TO MAIN MESSAGE.

/40 CHARACTER NAME.

/GET CORRECT BLOCK NUMBER FOR DISPLAY OF ERROR MESSAGE.
/CALL ERROR MESSAGE DISPLAYER
/WITH LIST OF WHERE TO GO ON REPLY.

/ACCEPT LOCATION
/RETRY LOCATION
/SKIP LOCATION (INTERNALLY SAME AS ACCEPT)

/IS THIS LAST RECORD?
/NOPE. GO BACK AND SKIP
/YEP. EXIT

1012		/		
1013		/		
1014		/		
1015		/		
1016		/		
1017		/		
1020		/		
1021		/		
1022		/		
1023	2037	0000	TTBC, 0	/ERROR MESSAGE DISPLAYER
1024	2040	0141	LINC	/GET OVER TO LINC SIDE
1025			LMODE	
1026			TBREG=TMAINE&1777	/ASSIGN A BETA REGISTER
1027	0041	4046	STC TTEBLK	/SAVE THE BLOCK NUMBER
1030	0042	0065	SET I TBREG	/SET THE B REG TO POINT TO
1031	0043	4131	TOUT1&1777-1+4000	/WHERE THE BLOCK NUMBER SHOULD GO.
1032			/	
1033	0044	0006	TTBLP, DJR	/DON T Clobber 0
1034	0045	1020	LOA I	
1035	0046	0000	TTEBLK, 0	/GET THE BLOCK NUMBER
1036	0047	0243	ROL 3	/ROTATE TO GET DIGIT
1037	0050	1040	STA	
1040	0051	0046	TTEBLK	/AND STORE BACK FOR NEXT TIME
1041	0052	1960	BCL I	
1042	0053	7770	-7	
1043	0054	1620	BSE I	
1044	0055	0060	60	/CONVERT TO TRIMMED ASCII
1045	0056	1365	STH I TBREG	/AND STORE AWAY.
1046	0057	1520	SRO I	
1047	0060	3567	3567	/ALL DONE WITH 4 DIGITS?
1050	0061	6044	JMP TTBLP	/NOPE. DISPLAY MORE.
1051	0062	0002	PDP	
1052			Pmode	/GET BACK INTO B MODE
1053	2063	7200	CLA	
1054	2064	1637	TAD I TTBC	/GET THE GO TO LIST
1055	2065	3272	DCA TTS2	/AND SAVE IN SEARCH CALL
1056	2066	4562	DECODE	/DISPLAY MESSAGE AND GET REPLY
1057	2067	2077	TMAIND-2	
1060	2070	4573	SEARCH	/LOOK-UP REPLY
1061	2071	2074	TTS1	
1062	2072	0000	TTS2, 0	/CALLERS LIST.
1063	2073	5266	JMP -5	/NOT A LEGAL REPLY.
1064			/	
1065			/	
1066			/	
1067	2074	0301	TTS1, 301	
1070	2075	0322	322	
1071	2076	4323	4323	
1072			/	
1073			/	
1074			/	
1075			/	
1076			/	
1077			/	
1100			/	
1101			/	
1102	2077	0140	LEFT+140	
1103	2100	0240	TOP-100	/LOCATED ON TOP,LEFT OF SCREEN
1104	2101	0000	TMAIND, 0	/OVERLAYED BY EXACT MESSGE
1105			*TMAIND+20	/A 40 CHAR MESSAGE FROM CORRECT ERROR ROUTINE.
1106	2121	0601		
1106	2122	2440		
1106	2123	0214		

1106	2124	1703		
1106	2125	1340		
1106	2126	1625		
1106	2127	1502		
1106	2130	0522		
1106	2131	4040		
1106			TEXT	"FAT BLOCK NUMBER "
1107	2132	0000	TOUT1,	0
1110	2133	0000	TOUT2,	0
1111			TEXT	"
1112				
1113	2134	4340		
1113				
1114	2135	4340		
1114	2136	4301		
1114	2137	4055		
1114	2140	5555		
1114	2141	4001		
1114	2142	0303		
1114	2143	0520		
1114	2144	2440		
1114	2145	0123		
1114	2146	4011		
1114			A ---	ACCEPT AS IS
1115	2147	2343		
1115	2150	2240		
1115	2151	5555		
1115	2152	5540		
1115	2153	2422		
1115	2154	3140		
1115	2155	0107		
1115	2156	0111		
1115			R ---	TRY AGAIN
1116	2157	1643		
1116	2160	2340		
1116	2161	5555		
1116	2162	5540		
1116	2163	2422		
1116	2164	3140		
1116	2165	2417		
1116	2166	4023		
1116	2167	1311		
1116	2170	2040		
1116	2171	2001		
1116	2172	2324		
1116	2173	4006		
1116	2174	0125		
1116	2175	1424		
1116	2176	3140		
1116	2177	0214		
1116	2200	1703		
1116	2201	1334		
1116			S ---	TRY TO SKIP PAST FAULTY BLOCK\
1117	2202	0602		
1117	2203	1417		
1117	2204	0313		
1117	2205	4016		
1117	2206	2515		
1117	2207	0205		
1117			TMESS1, TEXT	"FBLOCK NUMBER
1120	2210	2243		
1120	2211	0617		
1120	2212	2240		

1120	2213	2411	
1120	2214	1511	
1120	2215	1607	
1120	2216	4005	
1120	2217	2222	
1120	2220	1722	
1120			FOR TIMING ERROR
1121	2221	4043	
1121		"	
1122		/	
1123		/	
1124		/	
1125		/	
1126			EJECT

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1127 / LOCATED AROUND 2200. PREVIOUS PAGE OVERLAPS A LITTLE BIT.
1130 /
1131 /
1132 / GENERAL CALL:
1133 /
1134 / DECODE
1135 / YOUR DISPLAY
1136 /
1137 /
1140 /
1141 / WILL DECODE A STRING AS FOLLOWS:
1142 /
1143 / <SINGLE LETTER><OCTAL NUMBER>;<B CHARACTER NAME>,<OCTAL NUMBER>
1144 /
1145 / ANY PART MAY BE MISSING WITH THE EXCEPTION OF THE FIRST LETTER.
1146 /
1147 / IT IS BROKEN DOWN AS FOLLOWS. THE FIRST LETTER GOES INTO "FTYPE", THE NUMBER INTO "FUNIT",
1150 / THE B CHARACTER NAME INTO "FNAME" FOLLOWED BY
1151 / "77" S TO FILL IT OUT, AND THE LAST NUMBER INTO
1152 / "FSIZE". ANY MISSING NUMBERS GO TO 0, A MISSING NAME GOES TO 7777777777777.
1153 /
1154 /
1155 2222 0000 DDGCODE, W /GETS AND DECODES A LINE FROM THE TTY WHILE DISPLAYING SOMETHING.
1156 2223 7300 CLA CLL /CLEAR AC.
1157 2224 1622 TAD I DDGCODE /GET LOCATION OF DISPLAY.
1160 2225 3243 DCA DDDIS /AND PLACE HERE.
1161 2226 2222 ISZ DDGCODE /SKIP PAST CALLING ARG.
1162 2227 7240 DDAGIN, MONE /RESTART OF DISPLAY.
1163 2230 3124 DCA FNAME /SET NAME TO 7777
1164 2231 7240 MONE
1165 2232 3125 DCA FNAME+1
1166 2233 7240 MONE
1167 2234 3126 DCA FNAME+2
1170 2235 7240 MONE
1171 2236 3127 DCA FNAME+3 /NAME NOW CONTAINS A 7777
1172 2237 3120 DCA FUNIT /ZAP OUT UNIT NUMBER.
1173 2240 3121 DCA FTYPE /ZAP OUT CHAR.
1174 2241 3117 DCA FSIZE /AND SIZE.
1175 2242 4561 LINE /GET A LINE FROM THE TTY.
1176 2243 0000 DDDIS, 0 /WHILE DISPLAYING THE CALLER'S CRAP.
1177 2244 1673 TAD DDGTEXT /POINTER TO BUFFER-1
1200 2245 3774 DCA I DPSTART /WE LL USE "PGETL" TO GET
1201 2246 7240 MONE /THE CHARS SO I M SETTING IT UP NOW.
1202 2247 3775 DCA I DPSWITCH /SET SWITCH TO LEFT CHAR.
1203 2250 1376 TAD DSIZE /NUMBER OF CHARS ALREADY IN BUFFER.
1204 2251 3141 DCA COUNT /PLACE IN TEMP COUNT.
1205 2252 4771 JMS I DPGETL /GO GET A CHAR.
1206 2253 2141 ISZ COUNT /BOP UP COUNT. IS THIS ALL?
1207 2254 5252 JMP .-2 /NO. GET NEXT.
1210 2255 7200 CLA /YES. CLEAR AC OF CHAR.
1211 2256 4771 JMS I DPGETL /GET NEXT CHAR.
1212 2257 1047 TAD L7777 /TEST TO SEE IF A LETTER
1213 2260 7510 SPA /IS IT <"A"
1214 2261 5227 JMP DDAGIN /YES. NOT A LET. TRY AGAIN.
1215 2262 1050 TAD M32 /IS IT TOO BIG???
1216 2263 7500 SNA
1217 2264 5227 JMP DDAGIN /YEP. TOO BIG. TRY AGAIN.
1220 2265 1051 TAD L333 /OK. MAKE INTO A GOOD LETTER.
1221 2266 3121 DCA FTYPE /AND STASH AWAY.
1222 2267 4334 JMS DGETNUM /GET A NUMBER NEXT.
1223 2270 1065 TAD TEMP /GET THE VALUE.
1224 2271 3120 DCA FUNIT /AND STASH AWAY.
1225 2272 1066 TAD TEMP1 /GET CHARACTER WHICH WAS NON NUM.

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1226	2273	7450	SNA		/IS IT TERMINATING 0000
1227	2274	5622	JMP I	DDCODE	/YES, EXIT.
1230	2275	1045	TAD	M73	/IS IT A ";"
1231	2276	7640	SZA	CLA	
1232	2277	5227	JMP	DDAGIN	/NOT ANYONE. BAD CHAR. TRY AGAIN.
1233	2300	1372	TAD	OFNAME	/POINTER TO "FNAME"
1234	2301	3070	DCA	TEMP3	/AND STORE AWAY
1235	2302	1022	TAD	M4	/4 *2 CHARS PER WORD=8
1236	2303	3141	DCA	COUNT	
1237	2304	4360	JMS	DDCHEK	/GET A CHAR AND CHECK IT.
1240	2305	7006	RTL		
1241	2306	7006	RTL		
1242	2307	7006	RTL		/ROTATE INTO LEFT SPOT.
1243	2310	0053	AND	L7700	/ZAP OUT RIGHT
1244	2311	1024	TAD	L77	/NAME TERMINATES WITH A 77
1245	2312	3470	DCA I	TEMP3	/PLACE IT AWAY.
1246	2313	4360	JMS	DDCHEK	/GET ANOTHER
1247	2314	0024	AND	L77	/JUST RIGHT 6 BITS
1250	2315	1470	TAD I	TEMP3	/GET BACK OLD 1
1251	2316	1046	TAD	M77	/CHOP OFF L77 WE ADDED BEFORE.
1252	2317	3470	DCA I	TEMP3	/AND PLACE BACK IN THING.
1253	2320	2070	ISZ	TEMP3	/BOP UP NAME POINTER.
1254	2321	2141	ISZ	COUNT	/4 WORDS FILLED UP YET?
1255	2322	5304	JMP	DLOOP	/NO.
1256	2323	4360	JMS	DDCHEK	/YES. GET NEXT JUST FOR HELL OF IT.
1257	2324	5227	JMP	DDAGIN	/NAME TOO LOONG. RESTART/
1260			/		
1261	2325	4334	DCOMMA, JMS	DGETNUM	/EVALUATE NUM AFTER COMMA.
1262	2326	1065	TAD	TEMP	/GET VALUE
1263	2327	3117	DCA	FSIZE	/AND STASH AWAY
1264	2330	1066	TAD	TEMP1	/GET TERMINATING CHAR.
1265	2331	7640	SZA	CLA	/IS IT 0000
1266	2332	5227	JMP	DDAGIN	/NO. RETRY AGAIN.
1267	2333	5622	JMP I	DDCODE	/YEP. ALL DONE. E X I T !
1270			/		
1271	2334	0000	DGETNUM, 0		/FORMS A NUMBER
1272	2335	3065	DCA	TEMP	/ZERO SUM
1273	2336	4771	JMS I	DPGETL	/GET A CHAR.
1274	2337	3066	DCA	TEMP1	/STASH IT AWAY.
1275	2340	1066	TAD	TEMP1	/GET IT BACK
1276	2341	1043	TAD	M60	/IS IT <60
1277	2342	7710	SPA	CLA	
1300	2343	5734	JMP I	DGETNUM	/ <60. RETURN.
1301	2344	1066	TAD	TEMP1	/GET AGAIN
1302	2345	1044	TAD	M70	/IS IT T00000 BBBIIIGGG?????
1303	2346	7700	SMA	CLA	
1304	2347	5734	JMP I	DGETNUM	/YEP. RETURN
1305	2350	1065	TAD	TEMP	/GET OLD TOTAL
1306	2351	7104	CLL	RAL	
1307	2352	7104	CLL	RAL	
1310	2353	7104	CLL	RAL	/MULTIPLY BY 8
1311	2354	1066	TAD	TEMP1	/ADD IN TEMP1
1312	2355	1043	TAD	M60	/GET RID OF ASCII BITS.
1313	2356	3065	DCA	TEMP	/AND STASH AWAY.
1314	2357	5336	JMP	DGETNUM+2	/GO GET NEXT CHAR.
1315			/		
1316	2360	0000	DDCHEK, 0		/CHECKS FOR 0 OR ,
1317	2361	4771	JMS I	DPGETL	
1320	2362	7450	SNA		/IS GOTTEN CHAR 0?
1321	2363	5622	JMP I	DDCODE	/YES. EX I T
1322	2364	1042	TAD	M54	/IS IT A ,
1323	2365	7450	SNA		
1324	2366	5325	JMP	DCOMMA	/YES. END OF NAME.

1325	2367	1041	TAD	L54	/CORRECT FOR SUBTRACTION.
1326	2370	5760	JMP I	DDCHK	/RETURN WITH CHAR IN AC.
1327			/		
1330			/		
1331			/		
1332	2371	0737	DPGETL, DDCOM		/POINTER TO UNPACK ROUTINE CHAR GETTER.
1333	2372	0124	DFNAME, FNAME		/POINTER TO FNAME
1334	2373	1121	DDGTEXT, GTEXT+1		/POINTER TO START OF MESSAGE-1
1335	2374	0734	DPSTART, PSTART		/POINTER TO GETCHAR POINTER
1336	2375	0735	DPSWITCH, PSWITCH		/POINTER TO SWITCH (LEFT OR RIGHT CHAR)
1337	2376	7772	DSIZE, -LBNUM		/NUMBER OF SYSTEM CHARS ALREADY IN BUFFER.
1340			/		
1341			/		
1342			/		
1343			/		
1344			/		
1345			/		
1346			/		
1347			EJECT		

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1350      *240Z
1351      /
1352      /
1353      /
1354      /
1355      /
1356      /
1357      /
1360      /
1361      /
1362      /
1363      /
1364      /
1365      /
1366      /
1367      /
1370      /
1371      2400 0000 DYRECT, 0 /MAIN ENTRY
1372      2401 7300 CLA CLL /CLEAR AC TO BE SURE.
1373      2402 1110 TAD INDEX /GET START OF INDEX
1374      2403 3215 DCA DINDEX /AND PLACE AWAY HERE
1375      2404 1111 TAD ILEN /GET LENGTH OF INDEX
1376      2405 3214 DCA DLEN /AND PLACE AWAY.
1377      2406 4566 PUSH /SAVE FBLOCK. I/O MIGHT DESTROY IT.
1400      2407 1120 TAD FUNIT /GET DESIRED UNIT.
1401      2410 3212 DCA .+2 /AND FINISH SETTING UP READ.
1402      2411 4571 READ /READ IN INDEX.
1403      2412 0000 0 /UNIT
1404      2413 6400 DPOINT, BUFFER /INTO START OF BUFFER AREA.
1405      2414 0000 DLEN, 0 /LENGTH OF INDEX.
1406      2415 0000 DINDEX, 0 /STARTING BLOCK OF INDEX.
1407      2416 4565 POP /RESTORE FBLOCK
1410      2417 4763 JMS I DDNAME /LOOKUP NAME.
1411      2420 5764 JMP I DDFOUND /NAME EXISTS. GO ELSEWHERE.
1412      2421 4765 JMS I DYGLLEN /NO NAME. GET D LEN.
1413      2422 2141 ISZ COUNT /BOP BY 1 TO OFFSET FOR FIRST ENTRY
1414      2423 1213 TAD DPOINT /SET UP AUT01
1415      2424 3010 DCA AUT01 /TO DPOINT TO DIRECTORY.
1416      2425 4766 DYLOOP, JMS I DYPAST /GO TO NEXT ENTRY.
1417      2426 1410 TAD I AUT01 /GET FIRST LETTERS OF NAME.
1420      2427 1057 TAD M5757 /IS IT FREE
1421      2430 7650 SNA CLA
1422      2431 5235 JMP DYGOOD /YEP. PLACE IT HERE
1423      2432 2141 ISZ COUNT /NO GOOD, ANY MORE TO CHACK?
1424      2433 5225 JMP DYLOOP /YEP. GO BACK
1425      2434 4567 NO /NO ROOM FOR NEW NAME.
1426      2435 1010 DYGOOD, TAD AUT01 /SET UP MOVE TO DIRECOTRY OF NAME
1427      2436 3241 DCA .+3 /NAME PLACE IN DIRECTORY.
1430      2437 4564 MOVE /MOVE NEW NAME INTO DIRECTORY.
1431      2440 0124 FNAME
1432      2441 0000 0
1433      2442 0004 4
1434      2443 7307 PFOUR /NOW FILL IN SPACES WITH 5757S
1435      2444 1010 TAD AUT01 /POINTER TO SOURCE BLOCKS
1436      2445 3250 DCA .+3
1437      2446 4564 MOVE /NOW MOVE IN 5757 S
1440      2447 2570 DL5757
1441      2450 0000 0
1442      2451 0004 4
1443      2452 4767 JMS I DYBACK /POINT TO START OF NAME
1444      /
1445      /
1446      2453 1123 DREENT, TAD FWHAT /DFOUND ALSO COMES HERE. IS IT INPUT OR OUTPUT???

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1447	2454	1047	TAD	L7777	/1=INPUT,2=OUTPUT
1450	2455	7450	SXA		/IS IT INPUT
1451	2456	4567	NO		/YES, NO NAME. DISPLAY "NO"
1452	2457	1047	TAD	L7777	/IS IT "2"
1453	2460	7440	SZA		
1454	2461	7402	SYSERR		/NO, INTERNAL PIP ERROR, FOR DEBUGGING ONLY.
1455	2462	1121	TAD	FIYPL	/SOURCE=1,BINARY=2
1456	2463	1047	TAD	L7777	/IS IT 1
1457	2464	7450	SXA		
1460	2465	5272	JMP	DSOURCE	/YES, SOURCE
1461	2466	1047	TAD	L7777	/IS IT2. (BINARY)
1462	2467	7440	SZA		
1463	2470	7402	SYSERR		/NEITHER, SYSTEM ERROR
1464	2471	7305	PTWO		/BINARY, BOP PAST SOURCE.
1465	2472	1055	DSOURCE, TAD	L4	/GO PAST NAME.
1466	2473	1010	TAD	AUTO1	/SET AUTO2 TO BLOCK NUMBER POINTER.
1467	2474	3011	OCA	AUTO2	
1470			/		
1471			/		
1472			/		
1473			/		
1474			/		
1475			/		
1476			/		
1477			/		
1500	2475	1114	DLOOK, TAD	CLOWER	/GET LOWER LIMIT OF SYSTEM.
1501	2476	3075	DCA	DFIRST	/THATS WHERE WE LL START CHECKING.
1502	2477	1075	DLOOP1, TAD	DFIRST	/GET START OF BLOCKS WE RE NOW CHECKING
1503	2500	1117	TAD	FSIZE	/FIND OUT HOW BIG WE WANT THEM.
1504	2501	7141	CLL CMA	IAC	/13 BIT NEGATE, EXCEPT FOR LINK.
1505	2502	1114	TAD	CLOWER	/DO WE GO OVER INTO SYSTEM?
1506	2503	7660	SZA SNL	CLA	/NOW REASON FOR NO CML ABOVE.
1507	2504	5316	JMP	DN01	/YEP, GO DOWN AND TRY NEXT.
1510	2505	4761	JMS I	DDCHECK	/CHECK TO SEE IF ANY OF THESE BLOCKS ARE OCCUPIED.
1511	2506	5316	JMP	DN01	/YEP, THEY ARE. GO DOWN AND TRY NEXT.
1512	2507	1075	TAD	DFIRST	/FOUND ROOM.
1513	2510	1117	TAD	FSIZE	/GET DISTANCE FROM INDEX.
1514	2511	7041	CIA		
1515	2512	1110	TAD	INDEX	
1516	2513	7001	IAC		/1 MORE FOR ADDITION OVERSHOOT.
1517	2514	3357	DCA	DDIS1	/DISTANCE FROM INDEX.
1520	2515	5331	JMP	DD02	/NOW CHECK OTHER SIDE.
1521	2516	1075	DN01, TAD	DFIRST	/BLOCKS WON T FIT.
1522	2517	7041	CIA		/CAN WE TRY FARTHER FROM SYSTEM.
1523	2520	1112	TAD	ELOWER	/ADD LOWER LIMIT OF DEVICE.
1524	2521	7650	SNA CLA		/ARE WE AT BOTTOM NOW?
1525	2522	5327	JMP	DBAD1	/YEP, NO ROOM HERE IN THIS SIDE.
1526	2523	7240	MONE		/ROOM LEFT. BOP DOWN DFIRST AND TRY AGAIN.
1527	2524	1075	TAD	DFIRST	
1530	2525	3075	DCA	DFIRST	/A LITTLE FARTHER FROM SYSTEM THIS TIME.
1531	2526	5277	JMP	DLOOP1	/GO BACK AND TRY AGAIN.
1532			/		
1533	2527	7240	DBAD1, MONE		/NO ROOM ON BOTTOM , SET DISTANCE TO MAX.
1534	2530	3357	DCA	DDIS1	
1535			/		
1536	2531	7300	DD02, CLA CLL		/NOW EW LL CHECK TO UPPER TO SEE IF IT FITS.
1537	2532	1115	TAD	CUPPER	/GET UPPER PART OF SYSTEM.
1540	2533	3075	DCA	DFIRST	/FOR FIRST ISZ CORRECTION.
1541			/		
1542	2534	2075	DLOOP2, ISZ	DFIRST	/WE LL TRY NEXT BLOCK.
1543	2535	7410	SKP		/WOW, QUITE A DEVICE HE S GOT THERE, 4 RF08 S IT MUST BE.
1544	2536	5354	JMP	DBAD2	/BUT STILL NO ROOM ON TOP.
1545	2537	1113	TAD	EUPPER	/GET THE UPPER LIMIT OF THE DEVICE.

1546	2540	7160	CLL CML CMA	/13 BIT COMP , -1
1547	2541	1075	TAD DFIRST	/WILL WE OVERFLOW DEVICE LIMITS.
1550	2542	1117	TAD FSIZE	/WHEN WE ADD IN LENGTH.
1551	2543	7660	SZA SNL CLA	
1552	2544	5354	JMP DBAD2	/NO ROOM LEFT ON TOP END.
1553	2545	4761	JMS I DDCHECK	/CHECK TO SEE IF BLOCKS ARE FREE.
1554	2546	5334	JMP DLOOP2	/NOT FREE. GO BACK AND TRY AGAIN.
1555	2547	1110	TAD INDEX	/FREE. GET DISTANCE.
1556	2550	7041	CIA	
1557	2551	1075	TAD DFIRST	
1560	2552	3360	DCA DDIS2	/AND SAVE IT.
1561	2553	5762	JMP I DDFIG	/GO CALCULATE WHICHONE IS CLOSER [LOWER HALF OR UPPER HALF]
1562			/	
1563			/	
1564	2554	7240	DBAD2, MONE	/NO ROOM ON UPPER HALF.
1565	2555	3360	DCA DDIS2	/SET DISTANCE TO A MAXIMUM.
1566	2556	5762	JMP I DDFIG	/GO FIGURE OUT WHICH ONE IS CLOSER.
1567			/	
1570			/	
1571	2557	0000	DDIS1, 0	/LOWER DEVICE DISTANCE
1572	2560	0000	DDIS2, 0	/UPPER DEVICE DISTANCE FROM DESIRED FILE.
1573	2561	2653	DDCHECK, DCHECK	/POINTER
1574	2562	2600	DDFIG, DFIG	
1575	2563	3064	DDNAME, DNAME	
1576	2564	3000	DDFOUND, DFOUND	
1577	2565	2706	DYGLN, DGLN	
1600	2566	2717	DYPAST, DPAST	
1601	2567	2725	DYBACK, DBACK	
1602	2570	5757	DL5757, 5757	
1603	2571	5757	5757	
1604	2572	5757	5757	
1605	2573	5757	5757	
1606			/	
1607			/	
1610			/	
1611			/	
1612			/	
1613			/	
1614			/	
1615			/	
1616			/	
1617			EJECT	

1620				*2600	
1621			/		
1622			/		
1623			/		MORE OF THE DIRECTORY LOOKUP ROUTINES.
1624			/		
1625			/		
1626			/		
1627			/		
1630			/		
1631	2600	1765	DFIG,	TAD I	DDDIS1
1632	2601	7001		IAC	
1633	2602	7650		SNA CLA	/IS LOWER HALF OK??
1634	2603	5245		JMP	D1NOG
1635	2604	1766		TAD I	DDDIS2
1636	2605	7001		IAC	/NO ROOM IN LOWER HALF.
1637	2606	7650		SNA CLA	/HOW ABOUT THE UPPER HALF?
1640	2607	5215		JMP	D1CLOSE
1641	2610	1765		TAD I	DDDIS1
1642	2611	7161		CLL CML	CMA IAC
1643	2612	1766		TAD I	DDDIS2
1644	2613	7630		SZL CLA	/LOWER HALF IS CLOSER BECAUSE NO UPPER HALF.
1645	2614	5251		JMP	D2CLOSE
1646			/		/BOTH THERE. GET LOWER DISTANCE.
1647	2615	7240	D1CLOSE,	MONE	/13 BIT NEGATE
1650	2616	1117		TAD	FSIZE
1651	2617	1765		TAD I	DDDIS1
1652	2620	7041		CIA	/GET UPPER DISTANCE.
1653	2621	1110		TAD	INDEX
1654	2622	3122	DCOM,	DCA	FBNUM
1655	2623	1122		TAD	FBNUM
1656	2624	3411		DCA I	AUTO2
1657	2625	1117		TAD	FSIZE
1660	2626	3411		DCA I	AUTO2
1661	2627	4564		MOVE	
1662	2630	2412		DPOINT-1	/ALSO THE SIZE IN THE DIRECTORY.
1663	2631	2635		DWRITE*1	/NOW SET UP THE WRITING OF THE DIRECTORY.
1664	2632	0004		4	
1665	2633	4566		PUSH	
1666	2634	4572	DWRITE,	WRITE	/PUSH DOWN F BLOCK
1667	2635	0000		0	/WRITE DIRECTORY, WITH MOVED IN ARGUEMENTS.
1670	2636	0000		0	
1671	2637	0000		0	
1672	2640	0000		0	
1673	2641	4565		POP	/POP UP FBLOCK
1674	2642	1767	DDEXIT,	TAD I	DDIRECT
1675	2643	3065		DCA	TEMP
1676	2644	5465		JMP I	TEMP
1677			/		/EXIT TO USER.
1700	2645	1766	D1NOG,	TAD I	DDDIS2
1701	2646	7001		IAC	
1702	2647	7650		SNA CLA	/CHECK IF ROOM ON TOP HALF.
1703	2650	4567		NO	/ROOM?
1704	2651	1075	D2CLOSE,	TAD	DFIRST
1705	2652	5222		JMP	DCOM
1706			/		/NO ROOM ON DEVICE FOR FILE.
1707			/		/GET THE LAST BLOCK CHECKED.
1710			/		/AND THATS IT. PLACE IN DIRECTORY.
1711			/		
1712	2653	0000	DCHECK,	0	
1713	2654	7240		MONE	/CHECKS TO SEE IF BLOCKS OCCUPIED BY DFIRST ARE FREE
1714	2655	1770		TAD I	DDPOINT
1715	2656	3010		DCA	AUTO1
1716	2657	4771		JMS I	DDGLEN
					/SET AUTO1 TO POINT TO START OF DIRECTORY
					/IN CORE.
					/GET LEN OF DIRECTORY

1717	2660	1410	DL00P3,	TAD I	AUTO1	/GET FIRST WORD OF A NAME IN THE DIRECTORY.
1720	2661	1057		TAD	M5757	/IS IT A GOOD NAME???
1721	2662	7650		SNA	CLA	
1722	2663	5301		JMP	DBLANK	/AND, SKIP PAST IT.
1723	2664	2010		ISZ	AUTO1	
1724	2665	2010		ISZ	AUTO1	
1725	2666	2010		ISZ	AUTO1	/SKIP PAST REST OF NAME.
1726	2667	2010		ISZ	AUTO1	/AND ALSO STARTING BLOCK OF SOURCE
1727	2670	1410		TAD I	AUTO1	/IS THERE ANY SOURCE(LENGTH=POSITIVE)
1730	2671	7710		SPA	CLA	
1731	2672	5274		JMP	DNOS	/NO SOURCE
1732	2673	4772		JMS I	DOTHERE	/YEP, CHECK IT OUT.
1733	2674	2010	DNOS,	ISZ	AUTO1	/SKIP PAST BINARY BLOCK
1734	2675	1410		TAD I	AUTO1	/GET BINARY LENGTH
1735	2676	7710		SPA	CLA	/BINARY THERE?
1736	2677	5301		JMP	DBLANK	/NO BINARY
1737	2700	4772		JMS I	DOTHERE	/BINARY THERE, CHECK FOR INTERFERENCE.
1740			/			
1741	2701	4773	DBLANK,	JMS I	DPAST	/SKIP TO NEXT DIRECTORY ENTRY
1742		2141		ISZ	COUNT	/ARE WE ALL DONE WITH THE DIRECTORY?
1743	2703	5260		JMP	DL00P3	/NO, GET NEXT ENTRY
1744	2704	2253		ISZ	DCHECK	/YES, SKIP PAST NEXT CALLING STATEMENT AND EXIT.
1745	2705	5653		JMP I	DCHECK	/GOODBYE, AND GOOD LUCK.
1746			/			
1747			/			
1750			/			
1751			/			
1752			/			
1753	2706	0000	DGLEN,	0		/ROUTINE GETS LENGTH OF DIRECTORY AND STORES IT IN -COUNT.
1754	2707	1111		TAD	ILEN	/GET INDEX LENGTH.
1755	2710	7006		RTL		
1756	2711	7006		RTL		
1757	2712	7004		RAL		/MULTIPLY BY 32 (32 ENTRIES PER BLOCK.
1760	2713	0056		AND	L7740	/CHOP AWAY CRAP.
1761	2714	7041		CLA		
1762	2715	3141		DCA	COUNT	/AND STORE NEGATED IN COUNT.
1763	2716	5706		JMP I	DGLEN	/RETURN TO CALLER.
1764			/			
1765	2717	0000	DPAST,	0		/ROUTINE SETS AUTO1 TO POINT TO NEXT NAME IN DIRECTORY.
1766	2720	1010		TAD	AUTO1	
1767	2721	0021		AND	L7770	/LOGICAL OPERATION---- AUTO1,OR,7
1770	2722	1060		TAD	L7	
1771	2723	3010		DCA	AUTO1	/AND PUT BACK.
1772	2724	5717		JMP I	DPAST	
1773			/			
1774	2725	0000	DBACK,	0		/ROUTINE BACKSPACES 1 DIRECTORY ENTRY.
1775	2726	4317		JMS	DPAST	/MOVE TO END OF THIS NAME
1776	2727	1010		TAD	AUTO1	
1777	2730	1021		TAD	M10	
2000	2731	3010		DCA	AUTO1	/AND DOP DOWN BY 10 (1 DIRECTORY ENTRY)
2001	2732	5725		JMP I	DBACK	
2002			/			
2003			/			
2004			/			
2005	2733	0000	DTHERE,	0		/CHECKS JUST ONE DIRECTORY ENTRY FOR BEING WITHIN THE SPECIFIED LIMITS.
2006	2734	7240		MONE		
2007	2735	1010		TAD	AUTO1	/BOP BACK THE AUTO REG.
2010	2736	3070		DCA	TEMP3	/AND PLACE IT AWAY
2011	2737	1470		TAD I	TEMP3	/RETRIEVE STARTING BLOCK NUMBER
2012	2740	7161		CLL CML	CMA IAC	/13 BIT NEGATE.
2013	2741	1075		TAD	DFIRST	/ADD IN DESIRED STARTING BLOCK.
2014	2742	7450		SNA		
2015	2743	5653		JMP I	DCHECK	/SAME, BLOCK IS TAKEN, EXIT.

2016	2744	7620	SNL	CLA		/ARE WE PAST DFIRST.
2017	2745	5555	JMP	I	DFBIGN	/NO. DFIRST IS BIGGER.
2020	2746	1470	TAD	I	TEMP3	/YEP. LETS SEE IF WE MISS IT.
2021	2747	7160	CLL	CML	CMA	
2022	2750	1075	TAD		DFIRST	/DOES DFIRST+FSIZE INCRDACH ON OUR TERRITORY.
2023	2751	1117	TAD		FSIZE	
2024	2752	7620	SNL	CLA		/????
2025	2753	5653	JMP	I	DCHECK	/YEP. CAN T PUT IT HERE.
2026	2754	5733	JMP	I	DTHERE	/IT FITS.
2027			/			
2030	2755	1470	DFBIGN,	TAD	I	TEMP3
2031	2756	2070	ISZ		TEMP3	/WE RE BEFORE DFIRST.
2032	2757	1470	TAD	I	TEMP3	/POINT TO FILE LENGTH NOW.
2033	2760	7141	CLL	CMA	IAC	/ADD OUR LENGTH IN
2034	2761	1075	TAD		DFIRST	
2035	2762	7660	SZA	SNL	CLA	/DO WE OVERFLOW INTO DFIRST???
2036	2763	5653	JMP	I	DCHECK	/WE CERTAINLY DO.
2037	2764	5733	JMP	I	DTHERE	/ NOPE. WE RE CLEAR. RETURN TO CHECK AGAIN.
2040			/			
2041			/			
2042			/			
2043	2765	2557	DDDIS1,	DDIS1		/POINTER TO LOWER DISTANCE FROM SYSTEM
2044	2766	2560	DDDIS2,	DDIS2		/POINTER TO UPPER DISTANCE FROM SYSTEM
2045	2767	2400	DDYRECT,	DIRECT		/POINTER TO ENTRY
2046	2770	2413	DDPOINT,	DPOINT		/POINTER TO BUFFERS
2047	2771	2706	DDGLEN,	DGLEN		/POINTER TO GET NUMBER OF DIRECTORY ENTRIES ROUTINE.
2050	2772	2733	DDTHERE,	DTHERE		/POINTER TO BLOCK CHECKER
2051	2773	2717	DDPAST,	DPAST		/POINTER TO ROUTINE TO GO TO NEXT ENTRY,
2052			/			
2053			/			
2054			/			
2055			/			
2056			/			
2057			/			
2060			/			
2061			/			
2062			/			
2063						

EJECT

```

2064                                *3000
2065                                /
2066                                /
2067                                /
2070                                /
2071                                /
2072                                /
2073                                /
2074      3000 1123  DFOUND, TAD    FWHAT    /NAME ALREADY IN DIRECTORY. GET WHETHER INPUT OR OUTPUT FILE.
2075      3001 1047          TAD    L7777    /1=INPUT,2=OUTPUT
2076      3002 7450          SNA
2077      3003 5241          JMP    DDIN     /IT S INPUT,
2100      3004 1047          TAD    L7777    /IS IT OUTPUT?
2101      3005 7440          SZA
2102      3006 7402          SYSERR        /NOT 1 OR 2. SOMETHING HAS BLOWN.
2103      3007 1121          TAD    FTYPE   /1=SOURCE,2=BINARY
2104      3008 1047          TAD    L7777    /IS IT SOURCE
2105      3011 7450          SNA
2106      3012 5217          JMP    DZAP     /YEP. ZAP OUT BLOCKS FROM DIRECTORY.
2107      3013 1047          TAD    L7777    /BINARY???
2110      3014 7440          SZA
2111      3015 7402          SYSERR
2112      3016 7305          PTWO          /BINARY FILE. ADD TWO TO BYPASS SOURCE
2113      3017 1055  DZAP,  TAD    L4        /BOP PAST NAME
2114      3020 1010          TAD    AUTO1    /GET POINTER NOW
2115      3021 3010          DCA    AUTO1
2116      3022 1116          TAD    L5757
2117      3023 3410          DCA I  AUTO1    /BLANK OUT THE BLOCK NUMBER
2120      3024 4566          PUSH          /      (EITHER TO POINTER TO SOURCE OR BINARY)
2121      3025 1010          TAD    AUTO1    /PUSH DOWN FBLOCK SO "REPLACE" WONT BLOW IT.
2122      3026 3012          DCA    AUTO3    /NOW GET THE AUTO LENGTH POINTER.
2123      3027 1412          TAD I  AUTO3    /AND PLACE IN A TEMPORARY AUTO,
2124      3030 7700          SMA CLA        /IF SIGN BIT OF LENGTH ON THEN NO SOURCE OR BINARY.
2125      3031 4570          REPLACE        /DO WE WANT TO REPLACE???
2126      3032 4565          POP           /YEP. DISPLAY REPLACE MESSAGE.
2127      3033 1116          TAD    L5757    /HE S ANSWERED AN "R". NOW REPLACE FBLOCK.
2130      3034 3410          DCA I  AUTO1    /NOW ZAP OUT THE LENGTH.
2131      3035 4566          PUSH          /BY PLACING IN SOME 5757 S.
2132      3036 4745          JMS I  DDBACK   /NOW PUSH DOWN SO THAT WE WILL REMEMBER IT.
2133      3037 5640          JMP I  ,+1      /BACKSPACE TO BEGINNING OF NAME.
2134      3040 2453          DREENT        /WE WANTS IT REPLACED.
2135                                /        /REENTRY FOR REPLACING THE FILE
2136                                /
2137      3041 1121  DDIN,  TAD    FTYPE   /IT AN INPUT FILE. GET THE MODE.
2140      3042 1047          TAD    L7777    /1=SOURCE,2=BINARY
2141      3043 7450          SNA
2142      3044 5251          JMP    DDT      /IT SOURCE
2143      3045 1047          TAD    L7777    /MAYBE IT S BINARY
2144      3046 7440          SZA
2145      3047 7402          SYSERR        /UGH. PIP HAS BLOWN.
2146      3050 7305          PTWO          /IT S BINARY. MOVE PAST SOURCE.
2147      3051 1055  DDT,  TAD    L4        /PUSH PAST NAME.
2150      3052 1010          TAD    AUTO1    /RESET POINTER
2151      3053 3010          DCA    AUTO1
2152      3054 1410          TAD I  AUTO1    /GET BLOCK NUMBER
2153      3055 3122          DCA    FBNUM    /AND STORE AWAY.
2154      3056 1410          TAD I  AUTO1    /GET SIZE OF FILE
2155      3057 7510          SPA           /IS IT OK?
2156      3060 4567          NO           /NO.  DISPLAY "NO" MESSAGE.
2157      3061 3117          DCA    FSIZE   /YEP. ITS THERE. STASH AWAY.
2160      3062 5663          JMP I  ,+1      /NOW EXIT FROM DYRECT.
2161      3063 2642          DDEXIT
2162                                /

```

2163		/			
2164		/			
2165		/			
2166	3064	0000	DNAME,	0	/LOOKS UP NAME IN THE DIRECTORY.
2167	3065	1746	TAD I	DNPOINT	/GET STARTING ADDRESS FOR THE NAME LOOKUP.
2170	3066	1047	TAD	L7777	/AC MAY NOT CONTAIN ZERO FOR SOME SPECIAL CALLS.
2171	3067	3010	DCA	AUTO1	/PLACE IN AUTO1
2172	3070	4747	JMS I	DNGLEN	/GET LENGTH
2173	3071	1746	TAD I	DNPOINT	/GET STARTING ADDRESS OF DIRECTORY
2174	3072	3071	DCA	TEMP4	/STORE AWAY.
2175	3073	1471	TAD I	TEMP4	/GET FIRST WORD. IS IT "5757"
2176	3074	1057	TAD	M5757	
2177	3075	7650	SNA	CLA	
2200	3076	5312	JMP	DOK	/IT'S THERE. ALL IS WELL
2201	3077	2264	ISZ	DNAME	/DESIRED NAME NOT THERE BECAUSE NO DIRECTORY.
2202	3100	1141	TAD	COUNT	/MULTIPLY COUNT BY 8
2203	3101	7006	RTL		
2204	3102	7004	RAL		/BECAUSE THERE ARE 8 WORDS PER
2205	3103	0021	AND	L7770	/DIRECTORY ENTRY
2206	3104	3141	DCA	COUNT	
2207	3105	1116	TAD	L5757	/MAKE IT A GOOD DIRECTORY.
2210	3106	3410	DCA I	AUTO1	/FILL IT UP
2211	3107	2141	ISZ	COUNT	/ALL DONE?
2212	3110	5305	JMP	,-J	/NOPE
2213	3111	5664	JMP I	DNAME	/YEP. ALL DONE.
2214			/		
2215			/		
2216			/		
2217	3112	4750	DOK,	JMS I	DNPAST
2220	3113	1410		TAD I	AUTO1
2221	3114	7041		CIA	
2222	3115	1124		TAD	FNAME
2223	3116	7640		SZA	CLA
2224	3117	5341		JMP	DNOT
2225	3120	1410		TAD I	AUTO1
2226	3121	7041		CIA	
2227	3122	1125		TAD	FNAME+1
2230	3123	7640		SZA	CLA
2231	3124	5341		JMP	DNOT
2232	3125	1410		TAD I	AUTO1
2233	3126	7041		CIA	
2234	3127	1126		TAD	FNAME+2
2235	3130	7640		SZA	CLA
2236	3131	5341		JMP	DNOT
2237	3132	1410		TAD I	AUTO1
2240	3133	7041		CIA	
2241	3134	1127		TAD	FNAME+3
2242	3135	7640		SZA	CLA
2243	3136	5341		JMP	DNOT
2244	3137	4745		JMS I	DNBACK
2245	3140	5664		JMP I	DNAME
2246			/		
2247			/		
2250	3141	2141	DNOT,	ISZ	COUNT
2251	3142	5312		JMP	DOK
2252	3143	2264		ISZ	DNAME
2253	3144	5664		JMP I	DNAME
2254			/		
2255			/		
2256			/		
2257			/		
2260			/		
2261	3145	2725	DDBACK,	DBACK	/POINTER TO BACKSPACE ROUTINE

```

2262          ONBACK=DDBACK          /A SLIGHT OVERSIGHT.
2263      3146 2413 DNPPOINT,DPOINT /POINTER TO BUFFERS
2264      3147 2706 DNGLEN, DNGLEN  /GET NUMBER OF ENTRIES ROUTINE
2265      3150 2717 DNPAST, DPAST   /ADVANCE POINTER TO NEXT NAME ROUTINE
2266          /
2267          /
2270          /
2271          /
2272          /
2273      3151 0000 NODIS, 0          /THIS ROUTINE DISPLAYS A "NO"
2274      3152 4551 DISPLAY          /ISSUE DISPLAY COMMAND
2275      3153 3155 NONODI          /MYOUTPUT CRAP
2276      3154 5352 JMP             .-2 /HANG AROUND UNTIL A *D OR *P IS TYPED.
2277          /
2300      3155 0340 NONODI, LEFT+340 /ABOUT CENTER OF THE SCREEN
2301      3156 7740 BOTTOM+340
2302      3157 0616
2302      3160 1734
                TEXT      "FN0\N"    /A SIMPLE MESSAGE.
2303          /
2304          /
2305          /
2306      3161 0000 REPDIS, 0
2307      3162 4566 PUSH
2310      3163 4562 DECODE          /STORE AWAY FBLOCK
2311      3164 3173 DISREP          /GET A LINE
2312      3165 1121 TAD             FTYPE /REPLACE MESSAGE
2313      3166 1027 TAD             M322  /GET REPLY
2314      3167 7640 SZA CLA
2315      3170 5363 JMP             REPDIS+2 /IS IT AN "R"
2316      3171 4565 POP
2317      3172 5761 JMP 1 REPDIS    /NOPE. TRY AGAIN.
2320          /
2321          /
2322      3173 0260 DISREP, LEFT+260 /RESTORE FBLOCK
2323      3174 0040 TOP=J00        /AND RETURN.
2324      3175 0622
2324      3176 0520
2324      3177 1401
2324      3200 0305
                TEXT      "FREPLACE?"
2324      3201 7743
2325          /
2326      3202 4043
2326          /
2327      3203 4243
2327      3204 1022
2327      3205 4055
2327      3206 5555
2327      3207 4022
2327      3210 0520
2327      3211 1401
2327      3212 0305
2327      3213 3400
                HR      "-- REPLACE\N"
2327          /
2330          /
2331          /
2332          /
2333          /
2334          /
2335          /
2336          /
2337          /

```

2340
2341
2342
2343
-

/

/

/

EJECT

```

2344 /
2345 /
2346 /
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2352 /
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2355 /
2356 /
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2361 /
2362 /
2363 /
2364 /
2365 /
2366 /
2367 /
2370 /
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2372 /
2373 /
2374 /
2375 /
2376 /
2377 /
2400 3214 0000 CCOPY, 0 /MAIN ENTRY
2401 3215 1103 TAD INUNIT /GET INPUT UNIT
2402 3216 3252 DCA CINU /AND PLACE IN READ CALL
2403 3217 1102 TAD INBLOCK /GET INPUT STARTING BLOCK
2404 3220 3255 DCA CINB /AND STORE IN READ BLOCK
2405 3221 1104 TAD OUTBLOCK /GET THE OUTPUT STARTING BLOCK
2406 3222 3262 DCA COUTB /AND LEAVE THAT IN WRITE
2407 3223 1117 TAD FSIZE /GET THE NUMBER OF BLOCKS TO COPY
2410 3224 3301 DCA CSIZE /AND STORE THAT AWAY.
2411 /
2412 3225 1105 CPLOOP, TAD OUTUNIT /GET THE ORIGINAL OUTPUT UNIT.
2413 3226 3257 DCA COUTU /AND PLACE IN WRITE OUT UNIT.
2414 3227 1106 TAD OUTNUM /GET NUMBER OF UNITS ITS GOING TO
2415 3230 3302 DCA CCOUNT /PLACE IN TEMPORARY COUNTER.
2416 3231 1301 TAD CSIZE /GET NUMBER OF BLOCKS LEFT.
2417 3232 7450 SNA /ALL DONE???
2418 3233 5614 JMP I CCOPY /YES
2419 3234 7161 CLL CML CMA IAC /13 BIT NEGATE.
2420 3235 1074 TAD BNUM /NUMBER OF BUFFERS AVAILABLE.
2421 3236 7660 SNL SZA CLA /MORE TO GO THEN BUFFERS ALOLOW?
2422 3237 5245 JMP CSMALL /NO. BUFFERS BIGGER.
2423 3240 1074 TAD BNUM /GET BUFFER SIZE.
2424 3241 3254 DCA CINS /STASH IN READ.
2425 3242 1074 TAD BNUM
2426 3243 3261 DCA COUTS /STASH IN WRITE.
2427 3244 5251 JMP CCOM /GO DO READ-WRITE
2430 /
2431 3245 1301 CSMALL, TAD CSIZE /GET NUMBER LEFT.
2432 3246 3254 DCA CINS /STASH IN INPUT SIZE.
2433 3247 1301 TAD CSIZE
2434 3250 3261 DCA COUTS /AND OUTPUT SIZE.
2436 /
2437 3251 4571 CCOM, READ /READ IN CORECT NUMBER OF BLOCKS.
2440 3252 0000 CINU, 0 /INPUT UNIT.
2441 3253 6400 BUFFER /POINTER TO BUFFERS.
2442 3254 0000 CINS, 0 /NUMBER OF RECORDS TO BE READ IN.

```

COPY ROUTINE:
OVERLAPS IN 3200 FROM PREVIOUS PAGE.

GENERAL CALL:

COPY

COPIES FSIZE BLOCKS FROM INUNIT,INBLOCK
TO OUTUNIT,OUTBLOCK
AND TO MORE UNITS DEPENDING ON THE VALUE OF "OUTNUM".
OUTNUM SHOULD BE 7777 FOR 1 TAPE COPY.

2443	3255	0000	CINB, 0		/STARTING BLOCK NOW OF READ.
2444	3256	4572	CCMORE, WRITE		/NOW WRITE IT OUT.
2445	3257	0000	COUTU, 0		/OUTPUT UNIT
2446	3260	6400	BUFFER		/BUFFER POINTER
2447	3261	0000	COUTS, 0		/NUMBER OF RECORDS.
2450	3262	0000	COUTB, 0		/STARTING RECORD NUMBER.
2451	3263	2257	ISZ COUTU		/BUP UP TO NEXT OUTPUT UNIT
2452	3264	2302	ISZ CCOUNT		/MORE UNITS TO WRITE ON??
2453	3265	5256	JMP CCMORE		/YEP. GO BACK AND WRITE ON NEXT.
2454			/		
2455			/		
2456			/		
2457	3266	1254	TAD CINS		/GET THE INPUT SIZE
2460	3267	1255	TAD CINB		/ADD THE BLOCK NUMBER
2461	3270	3255	DCA CINB		/AND UPDATE BLOCK NUMBER.
2462	3271	1261	TAD COUTS		/GET THE OUTPUT SIZE.
2463	3272	1262	TAD COUTB		/ADD THE COUTPUT SIZE.
2464	3273	3262	DCA COUTB		/AND UPDATE IT.
2465	3274	1254	TAD CINS		/GET THE NUMBER OF RECORDS JUST TRANSFERRED.
2466	3275	7041	CIA		/AND SUBTRACT IT FROM
2467	3276	1301	TAD CSIZE		/THE TOTAL TRANSFERR
2470	3277	3301	DCA CSIZE		/AND STORE AWAY.
2471	3300	5225	JMP CPL00P		/GO BACK AND DO SOME MORE.
2472			/		
2473			/		
2474			/		
2475			/		
2476	3301	0000	CSIZE, 0		/CURRENT NUMBER OF BLOCKS GOING.
2477	3302	0000	CCOUNT, 0		/TEMPORAY COUNTER FOR THE UNITS.
2500			/		
2501			/		
2502			/		
2503	3303	0000	LLEDER, 0		/GENERATES LEADER OR TRAILER
2504	3304	1144	TAD M212		/ABOUT 130 CHARACTERS OF LEADER
2505	3305	3141	DCA COUNT		
2506	3306	1026	TAD L200		
2507	3307	4575	AUXOUT		/PUT OUT LEADER
2510	3310	2141	ISZ COUNT		/ALL DONE?
2511	3311	5306	JMP .-3		/NOPE, DO MORE.
2512	3312	5703	JMP I LLEDER		/ALL DONE. EXIT
2513			/		
2514			/		
2515			/		
2516	3313	0000	HHPUSH, 0		/HIGH FBLOCK SAVE.
2517	3314	4564	MOVE		/MOVE FBLOCK TO A SAFE PLACE
2520	3315	0117	FSIZE		
2521	3316	3327	HHTEMP		
2522	3317	0011	FNAME+3=FSIZE+1		
2523	3320	5713	JMP I HHPUSH		
2524			/		
2525			/		
2526	3321	0000	HHPOP, 0		/RESTORES FBLOCK FROM HIGH PLACE
2527	3322	4564	MOVE		
2530	3323	3327	HHTEMP		
2531	3324	0117	FSIZE		
2532	3325	0011	FNAME+3=FSIZE+1		
2533	3326	5721	JMP I HHPOP		
2534			/		
2535			/		
2536	3327	0000	HHTEMP, 0/HIGH SAVE AREA		/LEAVE ROOM FOR FBLOCK
2537			*HHTEMP+FNAME+3-FSIZE		/LAST WORD OF SAVE AREA.
2540	3337	0000	0000		
2541			/		

```

2542      /
2543      /
2544      /
2545      3340 0000 TTAPE, 0 /SETS UP TO USE TAPE LIMITS FOR DIRECTORY LOOKUP.
2546      3341 4564 MOVE /MOVE IN CORRECT POINTERS
2547      3342 3353 TTSET
2548      3343 0110 INDEX
2549      3344 0006 CUPPER=INDEX+1
2550      3345 1120 TAD FUNIT /GET THE UNIT
2551      3346 0060 AND L7 /SET UP FOR LINC TAPE
2552      3347 3120 DCA FUNIT
2553      3350 1240 NONE /SET FOR 1 COPY
2554      3351 3106 DCA OUTNUM
2555      3352 5740 JMP I TTAPE /AND RETURN
2556      /
2557      /
2558      /
2559      3353 0346 TTSET, TINDEX /START OF TAPE INDEX BLOCK
2560      3354 0002 TLEN /LENGTH OF TAPE INDEX
2561      3355 0000 TLOWER /LOWEST BLOCK NUMBER ON DEVICE
2562      3356 0777 TUPPER /HIGHEST BLOCK NUMBER ON THE DEVICE
2563      3357 0270 TSYSLOWER /LOWER LIMIT OF SYSTEM
2564      3360 0467 TSYSUPPER /LAST BLOCK USED BY SYSTEM
2565      /
2566      /
2567      /
2568      /
2569      /
2570      3361 0000 TTYPUT, 0 /TTY OUTPUT ROUTINE
2571      3362 3340 DCA TTAPE /STASH AWAY WHILE DOING CHECK.
2572      3363 4556 CHECKIO /TEST FOR MAYBE A CONTROL Z
2573      3364 6041 6041 /IS IT FREE?
2574      3365 5363 JMP ,-2 /NOPE, CHECK AGAIN.
2575      3366 1340 TAD TTAPE /GET IT AGAIN.
2576      3367 6046 6046 /YEP, GOOD BYE.
2577      3370 7200 CLA
2578      3371 5761 JMP I TTYPUT /THATS ALL
2579      /
2580      /
2581      /
2582      /
2583      /
2584      /
2585      /
2586      /
2587      /
2588      /
2589      /
2590      /
2591      /
2592      /
2593      /
2594      /
2595      /
2596      /
2597      /
2598      /
2599      /
2600      /
2601      /
2602      /
2603      /
2604      /
2605      /
2606      /
2607      /
2608      /
2609      /
2610      /
2611      /
2612      /
2613      /
2614      /
2615      /
2616      /
2617      /
2618      /
2619      /
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2621      /
2622      /
2623      /
2624      /
2625      /
2626      /
2627      /
2628      /
2629      /
2630      /
2631      /
2632      /
2633      /
2634      /
2635      /
2636      /
2637      /
2638      /
2639      /
2640      /

```

```

/SETS UP TO USE TAPE LIMITS FOR DIRECTORY LOOKUP.
/MOVE IN CORRECT POINTERS

```

```

/GET THE UNIT
/SET UP FOR LINC TAPE

```

```

/SET FOR 1 COPY

```

```

/AND RETURN

```

```

/START OF TAPE INDEX BLOCK
/LENGTH OF TAPE INDEX
/LOWEST BLOCK NUMBER ON DEVICE
/HIGHEST BLOCK NUMBER ON THE DEVICE
/LOWER LIMIT OF SYSTEM
/LAST BLOCK USED BY SYSTEM

```

```

/TTY OUTPUT ROUTINE
/STASH AWAY WHILE DOING CHECK.
/TEST FOR MAYBE A CONTROL Z
/IS IT FREE?
/NOPE, CHECK AGAIN.
/GET IT AGAIN.
/YEP, GOOD BYE.

```

```

/THATS ALL

```

```

/DO WE WANT THE FLICKER FACTOR ADDED?
/NOPE. DONT ASSEMBLE THEM IN

```

```

/FLICKER.
/PICK A RANDOM LOCATION
/JUST GET THE HIGH ORDER BIT
/NOW ADD IN THE TABLE POINTER
/AND THE CHANNEL SELECTIO WORD
/STASH BACK AND RETURN TO THE CALLER

```

2641 /
2642 /
2643 /
2644 /
2645 /
2646 /
2647 /
2650 /
2651 /
2652

EJECT

```
2653      /
2654      /
2655      /
2656      /
2657      /
2660      /      END OF      P   I   P   2.
2661      /
2662      /
2663      /
2664      /      CALL PIP3
2665      /
2666      /
2667      /
2670      /
2671      /
2672      /
2673      /      CHAIN      "PIP3"
2674
```

0000
0001
0002
-

*20

PMODE
EJECT

0003 /
0004 /
0005 /
0006 /
0007 /
0010 /
0011 /
0012 /
0013 /
0014 /
0015 /
0016 /
0017 /
0020 /
0021 /
0022 /
0023 /
0024 /
0025 /
0026 /
0027 /
0030 /
0031 /
0032 /

THIS IS THE THIRD PART OF PIP. IT S CALLED:

P I P 3

EJECT

-

```

0033          3422
0034          /
0035          /
0036          /
0037          /
0040          /
0041          /
0042      3400  4502  BINARY, DECODE          /GET THE CORRECT INPUT DEVICE.
0043      3401  4610  BININP                    /WHILE DISPLAYING INPUT MESSAGE.
0044      3402  /344  NTWO                      /SET BFIELD TO DO A NEW ONE.
0045      3403  3137  DCA      BFIELDJ
0046      3404  3130  DCA      ORIGIN          /SET ORIGIN TO ZERO
0047      3405  3103  DCA      BOLDP          /SET BASE TO ZERO
0050      3406  3135  DCA      BFIELD          /SET FIELD TO ZERO
0051      3407  3136  DCA      BOLDJ          /SET OLD ORIGIN TO ZERO
0052      3410  3140  DCA      BCCOUNT        /SET SIZE TO ZERO
0053      3411  3102  DCA      BFLAG1         /CLEAR THE INPUT AND OUTPUT DEVICE FLAGS.
0054      3412  3104  DCA      BFLAG2
0055      3413  4573  SEARCH
0056      3414  4377  BINLST
0057      3415  4403  BINGO
0060      3416  5200  JMP      BINARY          /CHECK IF A LEGAL OPTION WAS GIVEN
0061          /
0062          /
0063          /
0064          /
0065      3417  2102  BHIGH, ISZ      BFLAG1     /SET FLAG TO READER
0066      3420  2102  BTTY,  ISZ      BFLAG1     /SET FLAG TO LOW READER. MORE DEVICE MAY COME
0067          /
0070      3421  1124  TAD      FNAME          /BEFORE THE HIGH READER
0071      3422  7040  CMA
0072      3423  7650  SNA  CLA
0073      3424  5304  JMP      BPART2         /TEST TO SEE IF MODE GIVEN
0074      3425  1124  TAD      FNAME          /NO LETTERS. NOO AUTO START.
0075      3426  0053  AND
0076      3427  3121  DCA      FTYPE          /GET LEFT CHARACTER OF NAME.
0077      3430  4573  SEARCH          /ONLY P OR L NEEDED
0100      3431  3555  BGOLST          /AND STASH AWAY
0101      3432  3557  BSTGO
0102      3433  5200  JMP      BINARY          /CHECK FOR P OR L
0103          /
0104          /
0105      3434  1117  BPODE, TAD      FSIZE     /ILLEGAL
0106      3435  7450  SNA
0107      3436  1026  TAD      L200
0110      3437  3117  DCA      FSIZE
0111      3440  7305  PTWO
0112      3441  5252  JMP      BSCOMM         /GET STARTING ADDRESS
0113          /
0114      3442  1117  BLODE, TAD      FSIZE     /ONE GIVEN?
0115      3443  7450  SNA
0116      3444  1350  TAD      L4020         /NO. ASSUME 4020
0117      3445  3117  DCA      FSIZE
0120      3446  1032  TAD      L6000         /SAVE BACK STARTING ADDRESS.
0121      3447  7040  CMA
0122      3450  0117  AND      FSIZE
0123      3451  1032  TAD      L6000         /GET .NOT. 10 BIT MASK IN AC.
0124          /
0125          /
0126      3452  3752  BSCOMM, DCA I  B800T+1    /MAKE IT A GOOD 10 BIT AND MASK
0127      3453  1117  TAD      FSIZE
0130      3454  3754  DCA I  B800T+3          /JUST 10 BITS.
0131      3455  7352  CLA  CLL  CMA  RTR      /NOW MAKE IT A GOOD JMP IN LMODE INSTRUCTION.
                                          I NEEDED A PAGE 0 LOCATION, SO I DID IT THAT WAY
                                          /GET STARTING ADDRESS
                                          /PLACE AWAY IN HEADER.
                                          /PLACE A JMP I 7777 IN THE AC(5777)

```

input from HSR

0132	3456	3753	DCA I	BB00T+2	/AND PLACE AWAY.
0133	3457	1120	TAO	FUNIT	/GET THE FIELD
0134	3460	0060	AND	L7	/MAKE IT REASONABLE
0135	3461	7106	CLL RTL		/SHIFT TO CORRECT PLACES.
0136	3462	1026	TAD	L200	
0137	3463	1040	TAD	L400	/SAVE A PAGE 0 LITTERAL
0140	3464	3120	DCA	FUNIT	/PLACE BACK
0141	3465	1117	TAO	F5IZE	/GET STARTING ADDRESS.
0142	3466	0032	AND	L6000	/JUST LMODE FIELD BITS.
0143	3467	7106	CLL RTL		
0144	3470	7004	RAL		/INTO CORRECT POSITION.
0145	3471	1120	TAO	FUNIT	/ADD BACK IN CORRECT "LIF"
0146	3472	3751	DCA I	BB00T	/AND SAVE AWAY.
0147	3473	5304	JMP	BPART2	/GO TO COMMON.
0150			/		
0151			/		
0152			/		
0153			ASMIFZ	HF08	/DISK THERE?
0154			ASMSKP	2	/NOPE. DON'T ASSEMBLE THE FOLLOWING IN.
0155	3474	4577	BLRF8,	DISC	/SET UP DISK INPUT
0156	3475	7410	SKP		/SKP OVER TAPE SETUP.
0157	3476	4402	BLT,	TAPE	/SET UP TAPE OPERATION.
0160	3477	7305	PTWO		/TELL DIRECTORY LOOKUP ITS BIANRY
0161	3500	3121	DCA	FTYPE	/FTYPE=2 MEANS A BINARY FILE.
0162	3501	7345	BL7345,	CLA CLL CIA RAL	/+1=BINARY, 7345=-433=-("DZ")-1 FOR DELETE ZERO
0163					/IN OTHER WORDS, ITS ALSO A LITTERAL, SO DONT MESS.
0164	3502	3123	DCA	FWHAT	/SET INPUT SWITCH
0165	3503	4563	DIRECT		/GO DO IT.
0166			/		
0167	3504	4404	BPART2,	HPUSH	/PUSH DOWN THE FBLOCK REGION.
0170	3505	4562		DECODE	/GET THE OUTPUT DEVICE
0171	3506	4703		BINOUT	/BINARY OUTPUT DISPLAY CMESSAGE
0172	3507	4573		SEARCH	/CHECK NAME FOR LEGAL OPTION
0173	3510	4377		BINLST	/SAME INPUT AS OUTPUT FORR NOW
0174	3511	4407		BING02	/JMP LIST
0175	3512	5305	JMP	BPART2+1	/NOT A LEGAL REQUEST.
0176			/		
0177			/		
0200	3513	2104	BHIGH2,	ISZ	BFLAG2
0201	3514	2104	BTY2,	ISZ	BFLAG2
0202	3515	2124		ISZ	FNAME
0203	3516	1301	TAO	BL7345	/ADD IN -DZ-1.(IF NOT 7777)
0204	3517	3101	DCA	BOELZ	/NOW STASH AWAY IN DELETE SWITCH (0 OR -DZ-1)
0205	3520	1124	TAO	FNAME	/NOW GET THE CORRECT NAME+1
0206	3521	1101	TAO	BOELZ	/COMPARE AGAINST WHAT WE PUT THERE
0207	3522	7640	SZA CLA		/DO THEY MATCH.
0210	3523	5305	JMP	BPART2+1	/THEY DONT MATCH. ASK AGAIN.
0211					/NOW BOELZ CONTAINS 0 FOR NO DELETE OR 7345 FOR DELETE.
0212			/		
0213			/		
0214			ASMIFZ	RF08	/DISK THERE???
0215			ASMSKP	2	/NOPE. NO DISK CODE NOW.
0216	3524	4577	BLRF82,	DISC	/SET FOR DISC NOW
0217	3525	7410	SKP		
0220	3526	4402	BLT2,	TAPE	/SET FOR LINC TAPE, NOT DISC
0221	3527	4566	PUSH		/SAVE FBLOCK IN LOW SAVE AREA.
0222	3530	7305	PTWO		/SET BINARY MODE AGAIN.
0223	3531	3121	DCA	FTYPE	/IN CASE OF COPY
0224	3532	7240	MONE		/IS IT A MASS STORAGE DEVICE OPERATION
0225	3533	1102	TAO	BFLAG1	
0226	3534	1104	TAO	BFLAG2	/IF NEGATIVE IT IS.
0227	3535	7710	SPA CLA		/THE TEST!
0230	3536	5406	FILEC		/YEP. COPY CHOSEN FILES.

0231	3537	1104	TAD	BFLAG2	/GET OUTPUT FLAG
0232	3540	7640	SZA CLA		/TAPE OUTPUT?
0233	3541	4405	LEADER		/NO. PUNCH LEADER.
0234	3542	1102	TAD	BFLAG1	/IS IT LINC TAPE INPUT???
0235	3543	7650	SNA CLA		
0236	3544	5746	JMP I	BBTAPE	/YEP. GO TO LINC TAPE ROUTINE
0237	3545	5747	JMP I	BLODYR	/NOPE. USE STANDARD BINARY LOADER.
0240			/		
0241			/		
0242			/		
0243			/		
0244	3546	4003	BBTAPE,	BINTAP	
0245	3547	3600	BLODYR,	BNFILE	
0246	3550	4020	L4020,	4020	/NORMAL STARTING ADDRESS IN LINC MODE.
0247			/		
0250	3551	7000	BB00T,	BUFFER+400	/HEADER BLOCK SELF STARTING POINTERS.
0251	3552	7001		BUFFER+401	
0252	3553	7002		BUFFER+402	
0253	3554	7003		BUFFER+403	
0254			/		
0255	3555	1400	BGOLST,	1400	/L*100
0256	3556	6000		6000	/P*100+4000
0257			/		
0260	3557	3442	BSTGO,	BLODE	
0261	3560	3434		BPODE	
0262			/		
0263			/		
0264			/		
0265			/		
0266			/		
0267			/		
0270			/		
0271			/		
0272			ASMIFN	CARD-1	/DO WE WANT CARD READER CRAP LOADERED???
0273			ASMSKP	30	/GUESS NOT. DON T ASSEMBLE THEM.
0274			/		
0275			/		
0276	3561	0000	CRDLTT,	0	/CARD READER CHECKER AND INITIALIZER.
0277	3562	1121	TAD	FTYPE	/GET THE REPLY.
0300	3563	1376	TAD	CRM303	/IS IT A "C"
0301	3564	7640	SZA CLA		/?
0302	3565	5761	JMP I	CRDLTT	/NOPE. RETURN TO CHECK MORE.
0303	3566	1120	TAD	FUNIT	/YEP. GET THE STARTING COLUMN
0304	3567	3136	DCA	BOLDO	/AND STASH AWAY.
0305	3570	1117	TAD	FSIZE	/AND GET THE LAST COLUMN
0306	3571	3131	DCA	DATA	/AND STORE IT AWAY.
0307	3572	4777	JMS I	CRINIT	/INITIALIZE CARD READER.
0310	3573	2102	ISZ	BFLAG1	/PREPARE TO SET THE INPUT FLAG TO 3
0311	3574	5775	JMP I	,+1	/NOW ADD TWO TO THE INPUT FLAG
0312	3575	5017	ASCH1		/HIGH SPEED READER=2
0313			/		
0314	3576	7475	CRM303,	-303	/A - "C"
0315	3577	6005	CRINIT,	CDINIT	/POINTE TO CARD READER INITIALIZE ROUTINE.
0316			/		
0317			/		
0320			/		
0321			/		
0322			/		
0323			/		
0324			/		
0325			/		
0326			/		
0327			/		

0330
0331
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0333
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0335
0336
0337
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EJECT

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0340 /
0341 /
0342 /
0343 /
0344 /
0345 /
0346 /
0347 3620 6016 BNFIL, 6216 /NON FILE ORIENTED ROUTINES.
0350 3621 6032 6232 /INITIATE AND CLEAR ALL POSSIBLE DEVICES.
0351 3622 3135 DCA BFIELD /SET FIELD TO ZERO.
0352 3623 3372 DCA BFIELD /AND SET NEXT FIELD TO ZERO ALSO.
0353 3624 4243 JMS BEGG /GET A CHARACTER
0354 3625 5204 JMP .-1 /LEADER-TRAILER. IGNORE IT.
0355 /
0356 3626 3371 BGO, DCA BCHECK /UPDATE CHECKSUM
0357 3627 1105 TAD BCHAR /GET THE CHARACTER
0360 3610 3077 DCA BWORD1 /STORE AWAY
0361 3611 4574 AUXIN /LOOKUP FOR NEXT CHAR
0362 3612 3100 DCA BWORD2 /AND SAVE
0363 3613 4243 JMS BEGG /LOOK AHEAD ONE NOW.
0364 3614 5276 JMP BEND /TRAILER FOUND. CHECK CHECKSUM.
0365 3615 4234 JMS BASSEM /ASSEMBLE A WORD
0366 3616 7420 SNL /ORIGIN?
0367 3617 5227 JMP BBBPUT /NO. PLACE IN DATA WORD
0370 3620 3130 DCA ORIGIN /YES. STORE IN ORIGIN.
0371 3621 1372 BCHEX, TAD BFIELD /GET THE NEXT FIELD
0372 3622 3135 DCA BFIELD /AND STORE IT IN THE PRESENT FIELD FOR NEXT TIME
0373 3623 1077 TAD BWORD1
0374 3624 1100 TAD BWORD2
0375 3625 1371 TAD BCHECK /UPDATE CHECKSUM
0376 3626 5206 JMP BGO /AND GO GET NEXT WORD.
0377 /
0400 3627 3131 BBBPUT, DCA DATA /PLACE IN DATA FOR OUTPUT ROUTINE TO USE.
0401 3630 4576 PUTWORD /GO OUTPUT IT.
0402 3631 2130 ISZ ORIGIN /GO TO NEXT LOC.
0403 3632 7600 M200, -200 /NOP IN CASE OF SKIP
0404 3633 5221 JMP BCHEX /AND UPDATE CHECKSUM
0405 /
0406 3634 0000 BASSEM, 0
0407 3635 1077 TAD BWORD1 /GET THE FIRST WORD
0410 3636 7106 CLL RTL
0411 3637 7006 RTL
0412 3640 7006 RTL /NOW PLACE IN SECOND PART
0413 3641 1100 TAD BWORD2
0414 3642 5634 JMP I BASSEM /NOW EXIT
0415 /
0416 3643 0000 BEGG, 0 /GETS AND CHECKS A CHARACTER FROM GIVEN SEQUENTIAL DEVICE.
0417 3644 3071 DCA TEMP4 /SET SWITCH
0420 3645 4574 AUXIN /GET A CHARACTER.
0421 3646 1145 TAD M377 /CHECK FOR RUBOUT
0422 3647 7640 SZA CLA /?
0423 3650 5254 JMP .+4 /NO RUBOUT
0424 3651 2071 ISZ TEMP4 /YES. COMPLEMENT SWITCH
0425 3652 7040 CMA
0426 3653 5244 JMP BEGG+1 /GO BACK AGAIN.
0427 3654 1071 TAD TEMP4 /SWITCH SET?
0430 3655 7640 SZA CLA
0431 3656 5245 JMP BEGG+2 /YEP. STILL IN RUBOUTS
0432 3657 1105 TAD BCHAR /GET THE CHAR
0433 3660 0036 AND L700 /HIGH ORDER BITS ON?
0434 3661 1232 TAD M200 /GET TYPE
0435 3662 7510 SPA /IS IT JUST LEADER
0436 3663 2243 ISZ BEGG /NO HIGH ORDER BITS ON.

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MORE BINARY LOADER ROUTINES AND CRAP.

*not clear from
paper tape*

0437	3664	7750	SPA SNA CLA	/TEST NOW FOR ORIGIN AND LEADER-TRAILER
0440	3665	5643	JMP I BEGG	/DATA, ORIGIN, OR LEADER TRAILER
0441	3666	1105	TAD BCHAR	/FIELD CHARACTER
0442	3667	0374	AND L70	/JUST GET FIELD
0443	3670	3372	DCA BFIELD	/SAVE IN NEXT FIELD
0444	3671	1372	TAD BFIELD	/GET BACK
0445	3672	1023	TAD M20	/MORE THEN 8 K?
0446	3673	7700	SMA CLA	
0447	3674	4567	NO	/YEP. 10000 BBBIGGG!!!
0450	3675	5245	JMP BEGG+2	
0451			/	
0452			/	
0453	3676	4234	BEND, JMS BASSEM	
0454	3677	7041	CIA	
0455	3700	1371	TAD BCHECK	/CHECK CHECKSUM
0456	3701	7640	SZA CLA	/GOOD?
0457	3702	5775	JMP I BCERR	/GIVE CHECKSUM MESSAGE, IT BAD
0460	3703	4476	JMS I PMORE	/ASK IF ANY MORE TAPES?
0461	3704	5200	JMP BNFILE	
0462	3705	7240	MONE	/CLOSE THE OUTPUT FILE
0463	3706	3135	DCA BFIELD	
0464	3707	4576	PUTWORD	/SEND T O BLAHS.
0465	3710	5552	PIP	/RETURN TO PIP
0466			/	
0467			/	
0470			/	
0471			/	
0472			/	
0473	3711	0000	SEQIN, 0	/SEQ INPUT UNIT.
0474	3712	4556	CHECKIO	/CHECKIO AND LEAVE AC 0
0475	3713	3073	DCA CNTRLZ	/CLEAR THE CONTROLZ FLAG
0476	3714	1102	TAD BFLAG1	/GET INPUT FLAG.
0477	3715	1047	TAD L777	/SUBTRACT1
0500	3716	7650	SNA CLA	
0501	3717	5336	JMP SEQTTY	
0502	3720	4560	SEQTST, GETL	/TEST LOW READER FOR A CHAR
0503	3721	5327	JMP SEQN1	
0504	3722	1373	TAD M232	
0505	3723	7450	SNA	
0506	3724	2073	ISZ CNTRLZ	
0507	3725	7650	SNA CLA	
0510	3726	5711	JMP I SEQIN	/EXIT
0511			/	
0512			SEQN1, ASMIFN CARD-1	/DO WE WANT CARD READER CHECK LOADED????
0513			ASMSKP 5	/NOPE. DONT ASSEMBLE THEM IN
0514			/	
0515	3727	4776	JMS I SEQCIN	/CHECK FOR CARD READER AND GET CHAR.
0516	3730	5320	JMP SEQTST	/CHAR NOT READY YET.
0517	3731	5340	JMP SEQCOM	/CHAR READY.
0520			/	
0521			/	
0522	3732	6011	6011	/DEVICE IS HIGH SPEED READER, FLAG READY???
0523	3733	5320	JMP SEQTST	/GO INTO BIG WAIT LOOP
0524	3734	6016	6016	
0525	3735	5340	JMP SEQCOM	
0526	3736	4560	SEQTTY, GETL	/GET A CHARACTER
0527	3737	5336	JMP .-1	/WAIT FOR IT
0530	3740	3105	SEQCOM, DCA BCHAR	/STASH AWAY
0531	3741	1105	TAD BCHAR	
0532	3742	1373	TAD M232	
0533	3743	7650	SNA CLA	
0534	3744	2073	ISZ CNTRLZ	
0535	3745	1105	TAD BCHAR	

0536	3746	5711	JMP I	SEQIN	
0537		/			
0540		/			
0541		/			
0542	3747	0000	SEQOUT, 0		
0543	3750	3311	DCA	SEQIN	/SEQUENTIAL OUTPUT BLOP,
0544	3751	4556	CHECKIO		/SAVE THE CHAR
0545	3752	1104	TAD	BFLAG2	/CHECKIO
0546	3753	1047	TAD	L7777	/GET THE OUTPUT FLAG
0547	3754	7640	SZA CLA		
0550	3755	5361	JMP	SEQ02	/HIGH PUNCH OUTPUT
0551	3756	1311	TAD	SEQIN	
0552	3757	4407	PUTL		
0553	3760	5747	JMP I	SEQOUT	/OUT IT GOES.
0554		/			
0555		SEQ02,	ASMIFZ	CARD-1	/DO WE CHECK FOR LINE PRINTER???
0556	3761	4777	JMS I	SEQLP	/YEP, GO CHECK
0557		/			
0560	3762	4556	CHECKIO		/LINE PRINTER ISN T THE ONE.
0561	3763	6021	6021		/WAIT FOR OK.
0562	3764	5362	JMP	.-2	/WAIT TILL DONE.
0563	3765	1311	TAD	SEQIN	/GET THE CHAR.
0564	3766	6026	6026		/SEND IT OUT
0565	3767	7200	SEQEXT, CLA		/CLEAR THE AC.
0566	3770	5747	JMP I	SEQOUT	/ALL DONE.
0567		/			
0570		/			
0571		/			
0572		/			
0573	3771	0000	BCHECK, 0		
0574	3772	0000	BFEILD, 0		
0575	3773	7546	M232, -232		
0576	3774	0070	L70, 70		
0577	3775	4477	BCERR, CERR		
0600		/			
0601		/			
0602		/			
0603		/			
0604			ASMIFN	CARD-1	/CARD READER AND LINE PRINTER THERE???
0605			ASMSKP	3	/NOPE. DONT ASSEMBLE IN POINTERS.
0606		/			
0607	3776	6025	SEQCIN, CDREAD		/POINTER TO CARD READER ROUTINE.
0610	3777	6275	SEQLP, LPTEST		/POINTER TO LINE PRINTER ROUTINE.
0611		/			
0612		/			
0613		/			
0614		/			
0615		/			
0616		/			
0617			EJECT		

← paper tape output

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0620 /
0621 /
0622 *4000
0623 /
0624 /
0625 /
0626 /
0627 /
0630 /
0631 /
0632 4000 0000 0000 /FIRST 3 LOCATION ARE RESERVED FOR A REGISTERS IN LMODE
0633 4001 0000 0000
0634 4002 0000 0000
0635 /
0636 /
0637 /
0640 /
0641 4003 4403 BINTAP, HPOP /INPUT FROM LINC TAPE.
0642 4004 1120 TAD FUNIT /GET THE UNIT
0643 4005 3211 DCA ,+4 /SET UP CONTROL BLOCK READ
0644 4006 1122 TAD FBNUM /GET THE STARTING BLOCK NUMBER
0645 4007 3214 DCA ,+5 /GET BLOCK NUMBER
0646 4010 4571 READ /READ IN HEADER BLOCK
0647 4011 0000 0 /PLACED IN UNIT
0650 4012 7000 BUFFER+400 /READ HEADER BLOCK IN SECOND BLOCK OF BUFFER.
0651 4013 0001 1 /1 RECORD
0652 4014 0000 0 /CORECT BLOCK NUMBER
0653 4015 4403 HPOP /ZAP IN FBLOCK AGAIN
0654 4016 2122 ISZ FBNUM /MOVE PAST HEADER BLOCK
0655 4017 4772 JMS I BSETI /SET UP WORD GETTER.
0656 4020 1056 TAD M400 /SET UP NUMBER OF 400 WORD BLOCKS TO CHECK
0657 4021 3132 DCA BTEMP1 /AND STASH AWAY.
0660 4022 1367 TAD BMTAB /GET START OF MEMORY MAP CONFIG.
0661 4023 3133 DCA BTEMP2 /AND PLACE AWAY.
0662 /
0663 4024 1064 BEILOP, TAD M400 /400 WORDS PER RECORD
0664 4025 3134 DCA BTEMP3 /SET UP COUNT
0665 4026 1132 TAD BTEMP1 /GET THE BLOCK NUMBER
0666 4027 1371 TAD L40 /GET BETWEEN 0-37
0667 4030 7112 CLL RTR
0670 4031 7012 RTR
0671 4032 7010 RAR
0672 4033 3130 DCA ORIGIN /MOVE INTO 7400 POSITION
0673 4034 7006 RTL /SET UP INITIAL ORIGIN.
0674 4035 7006 RTL
0675 4036 3135 DCA BFIELD /MOVE LINC TO FIELD POSITION.
0676 4037 1533 BETLP2, TAD I BTEMP2 /AND PLACE IN BFIELD.
0677 4040 7650 SNA CLA /IS THIS BLOCK USED.
0700 4041 5245 JMP BEOUT /?
0701 4042 4773 JMS I BGETI /NOPE. WANDER DOWN.
0702 4043 3131 DCA DATA /GET A WORD FROM TAPE/
0703 4044 4576 PUTWORD /PLACE IN DATA WORD.
0704 4045 2130 BEOUT, ISZ ORIGIN /SEND IT DOWN THE LINE.
0705 4046 7000 NOP /BOP UP ORIGIN.
0706 4047 2134 ISZ BTEMP3 /BOP UP 400 COUNTER
0707 4050 5237 JMP BETLP2 /NOT YET DONE. DO ANOTHER.
0710 4051 2133 ISZ BTEMP2 /BOP UP MAP POINTER
0711 4052 7000 NOP /IT REALLY CAN SKIP(I FOUND OUT THE HARD WAY)
0712 4053 2132 ISZ BTEMP1 /BOP UP BIGCOUNT POINTER
0713 4054 5224 JMP BEILOP /GO BACK AND GET NEXT FIELD AND ORIGIN.
0714 4055 7240 MUNE /ALL DONE.
0715 4056 3135 DCA BFIELD /PLACE AN "EOF" ON BFIELD
0716 4057 4576 PUTWORD /END OF FILE CODE WORD.

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MORE OF THE BINARY ROUTINES.

0717	4060	5552	PIP	/RETURN TO PIP
0720		/		
0721		/		
0722		/		
0723		/		
0724	4061	0000	BTAPE, Z	/MAIN TAPE OUTPUTER, ←
0725	4062	1135	TAD BFIELD	/LAST TIME THROUGH?
0726	4063	7001	IAC	
0727	4064	7652	SNA CLA	/?
0730	4065	5770	JMP I BTEMP	/YEP. CLOSE FILE.
0731	4066	1135	TAD BFIELD	/GET THE FIELD
0732	4067	7041	CIA	
0733	4070	1137	TAD BOFIELD	/SAME AS LAST ONE?
0734	4071	7640	SZA CLA	
0735	4072	5315	JMP BIDIFF	/NOPE. SET TO CHANGE BANKS.
0736	4073	1130	TAD ORIGIN	/GET THE ORIGIN
0737	4074	0064	AND L7400	/JUST HIGH BITS.
0740	4075	7041	CIA	/
0741	4076	1136	TAD BOLDO	/ADD IN LAST ORIGIN
0742	4077	7640	SZA CLA	/SAME 400 WORD BANK??
0743	4100	5315	JMP BIDIFF	/NOPE.. CHANGE BANKS.
0744		/		
0745	4101	1130	BINTRY, TAD ORIGIN	/GET THE ORIGIN
0746	4102	0365	AND L377	/GET IN 400 WORD BANK POSITION
0747	4103	1366	TAD BPOINT	/GET START OF BUFFER LOCATION.
0750	4104	3065	DCA TEMP	/STOKE AWAY
0751	4105	1131	TAD DATA	/GET THE DATA WORD
0752	4106	3465	DCA I TEMP	/NOW PLACE IN BUFFER
0753	4107	1130	TAD ORIGIN	/GET ORIGIN
0754	4110	0064	AND L7400	/GET JUST BANK NUMBER
0755	4111	3136	DCA BOLDO	/STASH AWAY.
0756	4112	1135	TAD BFIELD	/RESET THE FIELD TOO
0757	4113	3137	DCA BOFIELD	/AND AWAY IT GOES.
0760	4114	5661	JMP I BTAPE	/GO BACK AND GET ANOTHER WORD.
0761		/		
0762		/		
0763	4115	1130	BIDIFF, TAD ORIGIN	/GET THE ORIGIN
0764	4116	7006	RTL	
0765	4117	7006	RTL	
0766	4120	0060	AND L7	/MUST MAKE IT BITS 8-11
0767	4121	1135	TAD BFIELD	/PUT IN FIELD BIT NOW!
0770	4122	7004	RAL	/AND ROTATE IN REST OF CRAP.
0771	4123	3132	DCA BTEMP1	/STASH AWAY/
0772	4124	1137	TAD BOFIELD	/GET THE OLD FIELD BITS.
0773	4125	7700	SMA CLA	/IF ITS MINUS, DONT DUMP BUFFERS.
0774	4126	4352	JMS BIDUMP	/NOT THE FIRST TIME THROUGH. DUMP BUFFERS
0775	4127	1132	TAD BTEMP1	/REGET NEW POSITION
0776	4130	3103	DCA BOLDP	/AND PLACE IN OLD PLACE
0777	4131	1132	TAD BTEMP1	/GET PLACE AGAIN
1000	4132	1367	TAD BMTAB	/START OF POSITION THING
1001	4133	3133	DCA BTEMP2	/CORE MAP
1002	4134	1533	TAD I BTEMP2	/GET REFERENCE WORD
1003	4135	7650	SNA CLA	/IS IT TAKEN?
1004	4136	2140	ISZ BCOUNT	/NOPE. ANOTHER RECORD TO WRITE OUT LATTER ON.
1005	4137	7240	MONE	/MEANWHILE....
1006	4140	3533	DCA I BTEMP2	/TELL SYSTEM IT S TAKEN NOW.
1007	4141	1132	TAD BTEMP1	/REGET BASE POINTER
1010	4142	1364	TAD BMBASE	/ADD IN STARTING BLOCK NUMBE
1011	4143	3550	DCA .+5	/READ IN NEW CORE IMAGE FOR OVERLAYING.
1012	4144	4571	READ	/READ IT IN
1013	4145	0001	DSYS1, SYSBIN	/FROM SYSTEM BINARY UNIT.
1014	4146	6400	BUFFER	/THIS IS THE GENERAL CORE WORKING AREA FOR THE BINARY.
1015	4147	0001	1	

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1016      4150 0000      0      /RECORD NUMBER GOES HERE.
1017      4151 5301      JMP    BINTRY  /RETURN TO MAIN PUTTER.
1020      /
1021      /
1022      /
1023      4152 0000      BIDUMP, 0      /DUMPS THE PRESENT BUFFER INTO THE CORRECT POSITION.
1024      4153 1103      TAD      BOLDP  /GET OLD POINTER
1025      4154 1364      TAD      BMBASE /ADD IN THE RECORD NUMBER BASE.
1026      4155 3362      DCA      .+5    /SAVE AWAY.
1027      4156 4572      WRITE     /WRITE IT OUT.
1030      4157 0001      DSYS2, SYSBIN
1031      4160 6400      BUFFER
1032      4161 0001      1
1033      4162 0000      0
1034      4163 5752      JMP I    BIDUMP  /RETURN
1035      /
1036      /
1037      /
1040      /
1041      /
1042      4164 0370      BMBASE, SYSBBLOCK
1043      4165 0377      L377, 377
1044      4166 6400      BPOINT, BUFFER
1045      4167 7340      BMTAB, BUFFER+740 /BINARY CORE WORKING AREA
1046      4170 4200      BTEND, BTENT  /LOADING MAP.
1047      4171 0040      L40, 40
1050      4172 4514      BSETI, SETI
1051      4173 4525      BGETI, GETI
1052      /
1053      /
1054      /
1055      /
1056      /
1057      /
1060      /
1061      /
1062      EJECT

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```

1063                                *4200
1064                                /
1065                                /
1066                                /
1067                                /
1070                                /
1071                                /
1072    4200  4667  BTENT,  JMS I  BBDUMP    /DUMP THE BUFFER
1073    4201  1140          TAD    BCOUNT  /NUMBER OF RECORDS SAVED.
1074    4202  7450          SNA              /ANY AT ALL?
1075    4203  4567          NO              /NOPE.
1076    4204  3671          DCA I  BBOINT-1 /STASH IN HEADER BLOCK.
1077    4205  4572          WRITE          /WRITE OUT HEADER BLOCK NOW.
1100    4206  0001  BSYS,  SYSBIN
1101    4207  7000          BUFFER+400
1102    4210  0001          1
1103    4211  0447  BBBHDR, SYSHDR          /POSITION OF HEADER BLOCK ON SYSTEM.
1104                                /
1105    DSYS3=BSYS
1106                                /
1107    4212  4565          POP
1110    4213  1140          TAD    BCOUNT  /BRING BACK FBLOCK FROM LOWER AREA NOW.
1111    4214  7001          IAC              /REGET THE LENGTH.
1112    4215  3117          DCA    FSIZE    /ADD 1 FOR HEADER BLOCK
1113    4216  7305          PTWO           /SAVE IN CORRECT PLACE.
1114    4217  3123          DCA    FWHAT    /SET FOR OUTPUT FILE.
1115    4220  7305          PTWO           /SET FOR BINARY FILE
1116    4221  3121          DCA    FTYPE
1117    4222  4563          DIRECT
1120    4223  4404          HPUSH          /LOOKUP UP NAME AND ROOM.
1121    4224  1122          TAD    FBNUM    /STASH AWAY.
1122    4225  3104          DCA    OUTBLOCK /GET THE STARTING BLOCK
1123    4226  1120          TAD    FUNIT
1124    4227  3105          DCA    OUTUNIT  /STASH IN UNIT TOO.
1125    4230  1206          TAD    BSYS     /SET UP OUTPUT UNIT.
1126    4231  3103          DCA    INUNIT   /GET INPUT UNIT
1127    4232  1211          TAD    BBBHDR   /SET UP INPUT UNIT
1130    4233  3102          DCA    INBLOCK  /POINTER TO HEADER BLOCK
1131    4234  7201          PONE           /STASH IN INPUT BLOCK NUMBER
1132    4235  3117          DCA    FSIZE    /SET THE SIZE TO 1 BLOCK
1133    4236  4554          COPY
1134    4237  1270          TAD    BBBASE   /COPY THE HEADER BLOCK TO THE CORRECT LOCATION ON TAPE,
1135    4240  3102          DCA    INBLOCK  /GET THE BINARY WORK AREA POINTER.
1136    4241  4564          MOVE           /SET THE INPUT UP AGAIN.
1137    4242  6400          BUFFER
1140    4243  7000          BUFFER+400      /NOW MOVE THE HEADER BLOCK WHICH
1141    4244  0400          400            /WE JUST READ INTO BUFFER BY COPY
1142    4245  1272          TAD    BBOINT   /BACK UP TO BUFFER+400 SO WE CAN USE THE HEADER
1143    4246  3132          DCA    BTEMP1  /BLOCK INFORMATION FOR THE COPYING OF THE BLOCKS.
1144    4247  1056          TAD    M40      /START OF MEMORY BLOCK CONFIG.
1145    4250  3134          DCA    BTEMP3   /SET UP OUTCHECKER
1146    4251  2104          ISZ    OUTBLOCK /SET UP TO LOOK AT 40 BLOCKS
1147                                /
1150    4252  1532          BELOOP, TAD I  BTEMP1 /BTEMP3 IS OUR COUNTER NOW.
1151    4253  7650          SNA CLA         /SKIP PAST HEADER BLOCK
1152    4254  5261          JMP    BEEND    /GET THE MEMORY USAGE WORD
1153    4255  7201          PONE           /BLOCK USED?
1154    4256  3117          DCA    FSIZE    /NOPE. GO DOWN
1155    4257  4554          COPY           /SET TO MAKE A 1 BLOCK COPY
1156    4260  2104          ISZ    OUTBLOCK /BY PLACING A "1" IN FSIZE
1157    4261  2102          BEEND, ISZ    OUTBLOCK /YEP. COPY A BLOCK
1160    4262  2132          ISZ    INBLOCK  /GO TO NEXT OUTBLOCK.
1161    4263  7000          NOP            /GO TO NEXT INPUT BLOCK
                                         /BOP MEMORY POINTER
                                         /THIS CAN SKIP IF BUFFER WAS SET TO 7000

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1162	4264	2134	ISZ	BTEMP3	/HAVE WE FINISHED THE HEADER BLOCK?
1163	4265	5252	JMP	BELOOP	/NOT YET DONE.
1164	4266	5552	PIP		/ALL DONE. RETURN TO PIP.
1165			/		
1166			/		
1167			/		
1170	4267	4152	BBDUMP,	BIDUMP	
1171	4270	0370	BBBASE,	SYSBBLOCK	
1172	4271	7337		BUFFER+737	/POINTER TO HEADER BLOCK LENGTH. MUST BE AT BBPOINT-1
1173	4272	7340	BBPOINT,	BUFFER+740	/POINTS TO START OF CORE MAP IN HEADER BLOCK
1174			/		
1175			/		
1176			/		
1177			/		
1200			/		
1201	4273	0000	BBOUT,	0	
1202	4274	1104	TAD	BFLAG2	/MASS STORAGE OUTPUT???
1203	4275	7640	SZA	CLA	
1204	4276	5301	JMP	..+3	/NO.
1205	4277	4776	JMS	I BBLT	/YEP. GO DO IT.
1206	4300	5673	JMP	I BBOUT	/AND RETURN.
1207	4301	7201	PONE		/IS THIS END OF INPUT???
1210	4302	1135	TAD	BFIELD	/(BFIELD=777??
1211	4303	7640	SZA	CLA	
1212	4304	5316	JMP	BBBBBJ	/NOT END. CHECK ORIGIN AND FIELD SETTINGS,%
1213	4305	1140	TAD	BCOUNT	
1214	4306	4550	ROR6		/ROTATE INTO LOW ORDER BITS OF AC.
1215	4307	0024	AND	L77	
1216	4310	4575	AUXOUT		
1217	4311	1140	TAD	BCOUNT	
1220	4312	0024	AND	L77	
1221	4313	4575	AUXOUT		/OUTPUT CHECKSUM
1222	4314	4405	LEADER		
1223	4315	5552	PIP		/GIVE TRAILER AND RETURN TO PIP
1224			/		
1225	4316	1101	BBBBBJ,	TAD BDELZ	/GET THE DELETE ZEROS SWITCH.
1226	4317	7650	SNA	CLA	/IS IT NON ZERO?
1227	4320	5324	JMP	..+4	/ITS ZERO. DONT DELETE ZEROS.
1230	4321	1131	TAD	DATA	/GET THE DATA WORD.
1231	4322	7650	SNA	CLA	/IS IT ZERO?
1232	4323	5673	JMP	I BBOUT	/YEP. RETURN TO THE CALLER NOW. ZERO DELETED.
1233	4324	1135	TAD	BFIELD	/SEE IF IN SAME DATA FIELD AS BEFORE.
1234	4325	7041	CIA		
1235	4326	1137	TAD	BFIELD	/?
1236	4327	7650	SNA	CLA	/?
1237	4330	5335	JMP	BBN1	/YEP. DON T DO A NEW FIELD
1240	4331	1135	TAD	BFIELD	/GET THE FIELD
1241	4332	1036	TAD	L700	/PLACE ON TWO HIGH ORDER BITS.
1242	4333	4575	AUXOUT		/AND OUTPUT IT.
1243	4334	5342	JMP	BBNEW0	/AND GO OUTPUT ORIGIN.
1244			/		
1245	4335	1136	BBN1,	TAD BOLD0	/IS IS LOCATION+1?
1246	4336	7040	CMA		
1247	4337	1130	TAD	ORIGIN	/SO THTA IT WOULD LOAD HERE ANYWAY.
1250	4340	7650	SNA	CLA	
1251	4341	5352	JMP	BBN2	/NEXT LOC. DON T DO A NEW ORIGIN
1252	4342	1130	BBNEW0,	TAD ORIGIN	/NEW ORG. OUTPUT IT ON SEQ. DEVICE
1253	4343	4550	ROR6		/NOW PLACE IN RIGHT HALF OF A.C.
1254	4344	0024	AND	L77	/JUST 6 BITS
1255	4345	1025	TAD	L100	/PLACE ON ORIGIN BIT
1256	4346	4366	JMS	BOADD	/AND PUT OUT WITH A CHECKSUM
1257	4347	1130	TAD	ORIGIN	/GET THE ORIGIN
1260	4350	0024	AND	L77	/JUST 6 BITS

1261	4351	4366	JMS	BOADD	/AND OUTPUT IT TOO
1262		/			
1263	4352	1130	BSN2,	TAD	ORIGIN
1264	4353	3136		DCA	BOLOD
1265	4354	1135		TAD	BFIELD
1266	4355	3137		DCA	BOFIELD
1267	4356	1131		TAD	DATA
1270	4357	4550	ROR6		
1271	4360	0024	AND	L77	
1272	4361	4366	JMS	BOADD	/AND PUT IT OUT
1273	4362	1131	TAD	DATA	
1274	4363	0024	AND	L77	
1275	4364	4366	JMS	BOADD	/NOW PUT IT OUT TOO
1276	4365	5673	JMP I	BBOUT	/NOW EXIT
1277		/			
1300		/			
1301		/			
1302	4366	0000	BOADD,	0	
1303	4367	3070		DCA	TEMP3
1304	4370	1070		TAD	TEMP3
1305	4371	1140		TAD	BCOUNT
1306	4372	3140		DCA	BCOUNT
1307	4373	1070		TAD	TEMP3
1310	4374	4575	AUXOUT		/UPDATE BCOUNT
1311	4375	5766	JMP I	BOADD	/SEND IT ALONG
1312		/			
1313	4376	4061	BBLT,	BTAP	
1314		/			
1315		/			
1316		/			
1317		/			
1320		/			
1321		/			
1322		/			
1323		/			
1324					
			EJECT		

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1325      /
1326      /
1327      /
1330      /
1331      /
1332      /
1333      /
1334      /
1335      /
1336      /
1337      /
1340      /
1341      /
1342      /
1343      /
1344      4377 0310 BINLST, 310      /BINARY INPUT DEVICE LIST. "H"
1345      4400 0314      314      /"L"
1346      ASMIFN RF08      /DO WE WANT THE RF08 PRESENT
1347      4401 0322      322      /YES. "R"
1350      4402 4324      4324      /"T"
1351      /
1352      /
1353      /
1354      4403 3417 BINGO, BHIGH      /HIGH SPEED READER
1355      4404 3476      BLT      /LINC TAPE
1356      ASMIFN RF08      /DISK?
1357      4405 3474      BLRF8      /YES. RF08
1360      4406 3420      BTY      /TELETYPE.
1361      /
1362      /
1363      /
1364      4407 3513 BINGO2, BHIGH2
1365      4410 3526      BLT2
1366      ASMIFN RF08
1367      4411 3524      BLRF82
1370      4412 3514      BTY2
1371      /
1372      /
1373      /
1374      /
1375      /
1376      /
1377      /
1400      /
1401      /
1402      /
1403      4413 0000 MORE, 0      /DISPLAYS A "MORE" MESSAGE.
1404      4414 4562      DECODE      /DECODE A LINE
1405      4415 4432      MMORE      /THATS OUR MESSAGE
1406      4416 4573      SEARCH      /LOOK UP THE ANSWER
1407      4417 4424      MAORN
1410      4420 4427      MGOTO
1411      4421 5214      JMP MORE+1      /JUMP TABLE
1412      4422 2213 MANDM1, ISZ MORE      /BAD REPLY.
1413      4423 5613 MANDM2, JMP I MORE      /NO MORE TAPES
1414      /
1415      /
1416      4424 0301 MAORN, 301
1417      4425 0316      316
1420      4426 4322      4322
1421      /
1422      4427 4423 MGOTO, MANDM2
1423      4430 4422      MANDM1

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1424      4431  4423      MANDM2
1425      /
1426      /
1427      4432  0200  MMORE,  LEFT+200
1430      4433  0040      TOP=300
1431      /
1432      /
1433      /
1434      /
1435      ASMIFN  CARD      /CARD MESSAGE
1436      ASMSKP  10      /THERE. GIVE CARD MESSAGE
1437      /
1440      /
1441      TEXT    "FMORE TAPES?"
1442
1443
1444      HN --- NO MORE TAPES
1445      HR --- READ ANOTHER TAPE\
1446      /
1447      /
1450      /
1451      /
1452      /
1453      /
1454      ASMIF2  CARD      /CARD READER NOT THERE?
1455      ASKSKP  10      /SKIP OVER MESSAGE
1456      /
1457      /
1460      4434  0615
1460      4435  1722
1460      4436  0540
1460      4437  1116
1460      4440  2025
1460      TEXT    "FMORE INPUT?"
1461      4441  2477
1461
1462      4442  4340
1462
1463      4443  4340
1463      4444  4310
1463      4445  1640
1463      4446  5555
1463      4447  5540
1463      4450  1617
1463      4451  4015
1463      4452  1722
1463      4453  0540
1463      4454  1116
1463      4455  2025
1463      HN --- NO MORE INPUT
1464      4456  2443
1464      4457  1022
1464      4460  4055
1464      4461  5555
1464      4462  4022
1464      4463  0501
1464      4464  0440
1464      4465  1517
1464      4466  2205
1464      4467  4003
1464      4470  0122
1464      4471  0423
1464      4472  4017
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1464      4473  2240
1464      4474  2401
1464      4475  2005
1464      4476  2334
1464      HR --- READ MORE CARDS OR TAPES\
1465      /
1466      /
1467      /
1470      /
1471      /
1472      /
1473      /
1474      /
1475      /
1476      /
1477      /
1500      /
1501      /
1502      4477  4551  CCERR,  DISPLAY      /CHECKSUM ERROR DISPLAY.
1503      4500  4502  CCERR      /DISPLAY MESSAGE
1504      4501  5277  JMP      .-2      /HANG AROUND UNTIL A +D OR +P IS TYPED.
1505      /
1506      /
1507      /
1510      4502  0200  CCERR,  LEFT+200
1511      4503  0000      TOP=340
1512      4504  0603
1512      4505  1005
1512      4506  0313
1512      4507  2325
1512      4510  1540
1512      4511  0522
1512      4512  2217
1512      4513  2234
1512      TEXT      "FCHECKSUM ERROR\
1513      /
1514      /
1515      /
1516      /
1517      /
1520      /
1521      4514  0000  SETI,  0      /SETS UP GETI
1522      4515  7240      MONE      /BOP DOWN BY 1
1523      4516  1122      TAD      FBNUM      /GET FIRST BLOCK NUMBER
1524      4517  3342      DCA      GEENUM      /AND PLACE IN READ CALL.
1525      4520  1120      TAD      FUNIT      /GET THE UNIT
1526      4521  3337      DCA      GUNIT      /PLACE AWAY UNIT
1527      4522  7240      MONE      /SET THE SWITCH
1530      4523  3347      DCA      GCUNT      /TO OVERFLOW FIRST TIME THROUGH
1531      4524  5714      JMP I  SETI      /RETURN
1532      /
1533      /
1534      /
1535      /
1536      /
1537      4525  0000  GETI,  0      /GETS A CHARACTER FROM THE SYSTEM BUFFER.
1540      4526  7200      CLA
1541      4527  2347      ISZ      GCUNT      /IS BUFFER EXHAUSTED?
1542      4530  5343      JMP      GOK      /NOPE. GET NEXT.
1543      4531  1064      TAD      M400      /YEP. RESET COUNTRTE FOR A NEW BLOCK.
1544      4532  3347      DCA      GCUNT      /COUNTER RESET.
1545      4533  1340      TAD      GPLACE      /GET START OF BUFFER
1546      4534  3346      DCA      GPLCE2      /STORE AWAY.

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1547	4535	2342	IS4	GEENUM	/BOP UP TO NEXT REOCRD.
1550	4536	4571	READ		
1551	4537	0000	GUNIT, 0		/AND READ IT IN.
1552	4540	6400	GPLACE, BUFFER		
1553	4541	0001	1		
1554	4542	0000	GEENUM, 0		
1555	4543	1746	GOK, TAD I	GPLCE2	/GET WORD FROM BUFFER
1556	4544	2346	IS2	GPLCE2	/BOP UP POINTER
1557	4545	5725	JMP I	GETI	/EXIT
1560			/		
1561	4546	0000	GPLCE2, 0		
1562	4547	0000	GCUNT, 0		/GCOUNT ALREADY USED ELSEWHERE
1563			/		
1564			/		
1565			/		
1566			/		
1567			/		
1570			/		
1571			/		
1572			/		
1573			/		
1574			/		
1575			/		
1576			/		
1577			/		
1600			ASMI F2	RF08	/RF08 THERE?
1601			ASMSKP	15	/NOPE. DONT ASSEMBLE THIS CRAP.
1602			/		
1603			/		
1604	4550	7417	ASUGO1, ASULP1		/TRANSFER TABLES FOR SYS AND UNIT COPIES
1605	4551	7427	ASUTT1		
1606	4552	7425	ASUDD1		
1607	4553	7417	ASULP1		
1610			/		
1611			/		
1612			/		
1613	4554	7432	ASUGO2, ASULP2		
1614	4555	7442	ASUTT2		
1615	4556	7440	ASUDD2		
1616	4557	7432	ASULP2		
1617			/		
1620			/		
1621			/		
1622			/		
1623			/		
1624			/		
1625			/		
1626			/		
1627			/		
1630			/		
1631			/		
1632	4560	0000	NOSUCH, 0		/THIS ROUTINE DISPLAYS A DEVICE OVERFLOW MESSAGE
1633	4561	4567	NO		/ON THE SCREEN CONSISTING OF THE LETTERS N AND O.
1634			/		
1635			/		
1636			/		
1637			/		
1640			/		
1641			/		
1642			/		
1643			/		
1644			/		
1645			/		

1646			/		
1647			/		
1650	4562	0000	STATRS, 0		/THIS CALIBRATES DISK IF NOT OK.
1651	4563	6032	KCC		/CLEAR AC AND TTY.
1652	4564	1376	TAD	RKSTAT	/REGET THE STATUS NOW.
1653	4565	7640	SZA CLA		/IS IT ZERO? <NO EXTRA UNITS SELECTED>?
1654	4566	6751	DCLA		/NOPE. DO A CALIBRATE.
1655			/		
1656	4567	4551	STATLP, DISPLAY		/DO SOME MORE DISPLAYING WHILE WAITING.
1657	4570	0263	MAINDIS		/FOR THE DISK TO BE READY.
1660	4571	6741	OROS		/READ IN STATUS.
1661	4572	7010	RAR		/ROTATE TO LINK.
1662	4573	7620	SNL CLA		/DONE.
1663	4574	5762	JMP I	STATRS	/YEP. EXIT.
1664	4575	5367	JMP	STATLP	/NOPE. WAIT A WHILE.
1665			/		
1666			/		
1667			/		
1670	4576	0000	RKSTAT, 0		/WORD FOR STATUS BEFORE I-O PRESET.
1671			/		
1672			/		
1673			/		
1674			/		
1675			/		
1676			/		
1677			/		
1700			ASHIFN .8100		/IF THE 300 BIT IS ON, ASSEMBLE IN THE PAGE PSEUDO-OP.
1701			PAGE		
1702			/		
1703			/		
1704			/		
1705			/		
1706			/		
1707			/		
1710			/		
1711			/		
1712			/		
1713	4600	0000	STATSV, 0		
1714	4601	6032	KCC		/CLEAR THE KEYBOARD AND THE AC.
1715	4602	6736	OROC		/READ IN THE OLD COMMAND REGISTER.
1716	4603	0206	AND	STL6	/LEAVE IN JUST EXTRA UNITS BITS.
1717	4604	3607	DCA I	RKSTTP	/AND SAVE AWAY THE DRIVE WE'RE ON.
1720	4605	5600	JMP I	STATSV	/RETURN NOW.
1721			/		
1722			/		
1723			/		
1724	4606	0006	STL6, 6		
1725	4607	4576	RKSTTP, RKSTAT		/ACROSS PAGE POINTER.
1726			/		
1727			/		
1730			/		
1731			/		
1732			/		
1733			/		
1734			/		
1735			/		
1736			/		
1737			/		
1740			/		
1741			/		
1742			/		
1743			/		
1744			/		

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1745      /
1746      /
1747      /
1750      /
1751      /
1752      /
1753      /
1754      /
1755      /
1756      /
1757      /
1760      /
1761      /
1762      4610 0240 BININP, LEFT+240
1763      4611 0140 TOP=220
1764      /
1765      /
1766      ASMIFN RF08!CARD /DO WE WANT STANDARD MESSAGE???
1767      ASMSKP 12 /NOPE. DONT ASSEMBLE I.T IN...
1770      /
1771      /
1772      TEXT "FINPUT DEVICE:
1773
1774
1775      HH --- HIGH SPEED READER
1776      HL --- LINC TAPE
1777      HT --- TELETYPE\"
2000      /
2001      /
2002      /
2003      /
2004      ASMIFZ RF08+1&CARD /DO WE WANT THE CARD READER BUT NO DISK?
2005      ASMSKP 13 /YES. DONT ASSEMBLE THAT IN.
2006      /
2007      /
2008      TEXT "FINPUT DEVICE:
2009
2010
2011
2012
2013      C --- CARD READER
2014      HH --- HIGH SPEED READER
2015      L --- LINC TAPE
2016      T --- TELETYPE\"
2017      /
2020      /
2021      /
2022      /
2023      /
2024      /
2025      /
2026      ASMIFZ CARD+1&RF08 /ASSEMBLE FOLLOWING MESSAGE IF DISK BUT NO CARD READER.
2027      ASMSKP 13 /SKIP OVER IT.
2030      /
2031      /
2032      TEXT "FINPUT DEVICE:
2033
2034
2035      HH --- HIGH SPEED READER
2036      L --- LINC TAPE
2037      R --- RF08,RK08 DISK
2040      T --- TELETYPE\"
2041      /
2042      /
2043      /

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2044      /
2045      /
2046      /
2047      /
2050      ASMIF2  RF00&CARD  /DO WE WANT BOTH DISK AND CARD?
2051      ASMSKP  14         /NOPE. NOT THIS MESSAGE.
2052      /
2053      /
2054      4612  0611
2054      4613  1620
2054      4614  2524
2054      4615  4004
2054      4616  0526
2054      4617  1103
2054      TEXT    "F INPUT DEVICE:
2055      4620  0572
2055      4621  4340
2056      4622  4340
2056      4623  4303
2057      4624  4055
2057      4625  5555
2057      4626  4003
2057      4627  0122
2057      4630  0440
2057      4631  2205
2057      4632  0104
2057      C --- CARD READER
2060      4633  0522
2060      4634  4310
2060      4635  1040
2060      4636  5555
2060      4637  5540
2060      4640  1011
2060      4641  0710
2060      4642  4023
2060      4643  2005
2060      4644  0504
2060      4645  4022
2060      4646  0501
2060      4647  0405
2060      HH --- HIGH SPEED READER
2061      4650  2243
2061      4651  1440
2061      4652  5555
2061      4653  5540
2061      4654  1411
2061      4655  1603
2061      4656  4024
2061      4657  0120
2061      L --- LINC TAPE
2062      4660  0543
2062      4661  2240
2062      4662  5555
2062      4663  5540
2062      4664  2206
2062      4665  6070
2062      4666  5422
2062      4667  1360
2062      4670  7040
2062      4671  0411
2062      R --- RF00,RK00 DISK

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2063      4672 2313
2063      4673 4324
2063      4674 4055
2063      4675 5555
2063      4676 4024
2063      4677 0514
2063      4700 0524
2063      4701 3120
2063      4702 0534
2063
2063      T ---
2063      TELETYPE\"
2064      /
2065      /
2066      /
2067      /
2070      /
2071      /
2072      /
2073      /
2074      /
2075      /
2076      /
2077      /
2100      /
2101      /
2102      /
2103      /
2104      /
2105      /
2106      /
2107      /
2110      /
2111      /
2112      /
2113      /
2114      4703 0240 BINOUT, LEFT+240
2115      4704 0140 TOP=200
2116      /
2117      /
2120      /
2121      ASMIFN CARD!RF08 /DO WE WANT STANDARD OUTPUT DEVICES.
2122      ASMSKP 12 /NOPE. DONT ASSEMBLE THEM IN.
2123      /
2124      /
2125      TEXT "FOUTPUT DEVICE:
2126
2127
2130      HH --- HIGH SPEED PUNCH
2131      HL --- LINC TAPE
2132      HT --- TELETYPE\"
2133      /
2134      /
2135      /
2136      /
2137      ASMIFZ RF08+1&CARD /DO WE WANT THE LINE PRINTER ROUTINES LOADED??
2140      ASMSKP 13 /DO NOT DISPLAY LINE PRINTER MESSAGES.
2141      /
2142      /
2143      TEXT "FOUTPUT DEVICE:
2144
2145
2146      HH --- HIGH SPEED PUNCH
2147      L --- LINC TAPE

```

```

2150      P --- LINE PRINTER
2151      T --- TELETYPE\
2152      /
2153      /
2154      /
2155      /
2156      /
2157      /
2160      /
2161      /
2162      ASMI FZ CARD+1&RF08 /DO WE WANT DISK BUT NOT PRINTER?
2163      ASMSKP 13 /NOPE. SKIP OVER MESSAGE.
2164      /
2165      /
2166      TEXT "FOUTPUT DEVICE:
2167
2170
2171      HH --- HIGH SPEED PUNCH
2172      L --- LINC TAPE
2173      R --- RF08,RK08 DISK
2174      T --- TELETYPE\
2175      /
2176      /
2177      /
2200      /
2201      /
2202      /
2203      ASMI FZ CARD&RF08 /DO WE WANT BOTH PRINTER AND DISK?
2204      ASMSKP 14 /NOPE. DONT ASSEMBLE IN THIS MESSAGE
2205      /
2206      /
2207      4705 0617
2207      4706 2524
2207      4707 2025
2207      4710 2440
2207      4711 0405
2207      4712 2611
2207      4713 0305
2207      TEXT "FOUTPUT DEVICE:
2210      4714 7243
2210
2211      4715 4043
2211
2212      4716 4043
2212      4717 1010
2212      4720 4055
2212      4721 5555
2212      4722 4010
2212      4723 1107
2212      4724 1040
2212      4725 2320
2212      4726 0505
2212      4727 0440
2212      4730 2025
2212      4731 1603
2212      HH --- HIGH SPEED PUNCH
2213      4732 1043
2213      4733 1440
2213      4734 5555
2213      4735 5540
2213      4736 1411
2213      4737 1603
2213      4740 4024

```

2213	4741	0120	
2213			L --- LINC TAPE
2214	4742	0543	
2214	4743	2040	
2214	4744	5555	
2214	4745	5540	
2214	4746	1411	
2214	4747	1605	
2214	4750	4020	
2214	4751	2211	
2214	4752	1624	
2214			P --- LINE PRINTER
2215	4753	0522	
2215	4754	4322	
2215	4755	4055	
2215	4756	5555	
2215	4757	4022	
2215	4760	0660	
2215	4761	7054	
2215	4762	2213	
2215	4763	6070	
2215	4764	4004	
2215	4765	1123	
2215			R --- RF08,RK08 DISK
2216	4766	1343	
2216	4767	2440	
2216	4770	5555	
2216	4771	5540	
2216	4772	2405	
2216	4773	1405	
2216	4774	2431	
2216	4775	2005	
2216	4776	3400	
2216			T ---
			TELETYPE\
2217			/
2220			/
2221			/
2222			/
2223			/
2224			/
2225			/
2226			/
2227			/
2230			/
2231			/
2232			/
2233			EJECT
-			

```
2234      /
2235      /
2236      /
2237      /
2240      /
2241      /
2242      /
2243      /      CHAIN TO THE NEXT PART OF PIP
2244      /
2245      /
2246      /
2247      /
2250      /
2251      CHAIN  "PIP4"
```

0000
0001
0002
-

•20

PMODE
EJECT


```

0043      /
0044      /
0045      *5000
0046      /
0047      /
0050      /
0051      /
0052      /
0053      /
0054      /
0055      /
0056      /
0057      /
0060      /
0061      /
0062      ASCINP=BININP      /SAME DEFINITIONS AS BINARY(FOR NOW , ANYWAY)
0063      ASCOUT=BINOUT
0064      ASCLST=BINLST
0065      ASCLTO=ASCLST
0066      /
0067      /
0070      /
0071      /
0072      /
0073      /
0074      5000 4562 ASCII, DECODE      /GET THE INPUT REQUEST NOW
0075      5001 4610 ASCINP      /DISPLAY THE POSSIBLE INPUT DEVICES.
0076      5002 3102 DCA BFLAG1
0077      5003 3104 DCA BFLAG2
0100      5004 3140 DCA BCOUNT
0101      5005 3130 DCA ORIGIN
0102      5006 3135 DCA BFIELD
0103      5007 3103 DCA BOLOP
0104      5010 3073 DCA CNTRLZ
0105      ASMIFZ CARD-1      /INITIALIE VARIOUS POINTERS AND COUNTS.
0106      5011 4616 JMS I ACRCHK      /ASSEMBLE NEXT CHECK IF CARD READER DEISRED.
0107      5012 4573 SEARCH      /SEE IF ITS A "C" FOR THE CARD READER
0110      5013 4377 ASCLST      /SEARCH THE LIST FOR A GOOD OPTION
0111      5014 5174 ASCGO      /LIST OF GOOD CHARS
0112      5015 5200 JMP ASCII      /WHERE TO GO FOR THEM
0113      /      /NO LEGAL REQUEST THERE.
0114      /
0115      ASMIFZ CARD-1      /ASSEMBLE IN CARD POINTER IF CARD READER DESIRED.
0116      5016 3561 ACRCHK, CRDLTT      /CARD READER POINTER.
0117      /
0120      /
0121      5017 2102 ASCH1, ISZ BFLAG1      //SET FOR HIGH SPPEED READER
0122      5020 2102 ASCT1, ISZ BFLAG1      /SET FO R ITY
0123      5021 5233 JMP APART2      /GO AND GET OUTPUT
0124      /
0125      /
0126      ASMIFZ RF08      /DO WE HAVE THE DISK?
0127      ASMSKP 2      /NOPE. SKIP OVER DISK INSTRUCTIONS
0130      5022 4577 ASRF8, DISC      /SET UP FOR DISK OPERATION
0131      5023 7410 SKP
0132      5024 4402 ASCT, TAPE      /SET FOR TAPE OPERATION
0133      5025 7201 PONE      /SET TO INPUT AND SOURCE
0134      5026 3123 DCA FWHAT
0135      5027 7201 PONE
0136      5030 3121 DCA FTYPE
0137      5031 4563 DIRECT
0140      5032 4404 HPUSH      /LOOKUP UP NAME NOW.
0141      /      /AND SAVE IT AWAY
-

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S O U R C E H A N D L E R

0142	5033	4562	APART2,	DECODE		/GET THE OUTPUT DEVICE
0143	5034	4723	ASCOUT			
0144	5035	4573	SEARCH			/LOOKUP FOR REPLY
0145	5036	4377	ASCLT0			
0146	5037	5577	ASCG02			/GO TO WHERE IT POINTS
0147			ASMIFF	CARD-1		/IS LINE PRINTER THERE???
0150	5040	4642	JMS 1	ASCLPT		/CHECK IF "P" TYPED AND INITIALIZE LINEPRINTER.
0151	5041	5233	JMP	APART2		/NOT A GOOD REPLY
0152			/			
0153			/			
0154			ASMIFF	CARD-1		/ASSEMBLE IN PRINTER POINTER?
0155	5042	5765	ASCLPT,	LPT2		/PRINTER TO CHECKER AND INITIALIZER.
0156			/			
0157			/			
0160	5043	2104	ASCH2,	ISZ	BFLAG2	/SET TO HIGH OUTPUT
0161	5044	2104	ASCT2,	ISZ	BFLAG2	/SET TO TTY OUTPUT
0162			/			
0163			ASMIFF	RFDR		/DO WE HAVE THE DISK ROUTINES?
0164			ASMSKP	2		/NOPE. SKIP NEXT TWO INSTRUCTIONS.
0165	5045	4577	ASRF82,	DISC		/SET UP FOR DISK OPERATION
0166	5046	7410	SKP			
0167	5047	4402	ASCTT,	TAPE		/SET FOR A TAPE OPERATION, SHOULD THERE BE ONE.
0170	5050	7201	PONE			
0171	5051	3121	OCA	FTYPE		/SET FOR SOURCE MOOD.
0172	5052	7240	MONE			
0173	5053	1102	TAD	BFLAG1		
0174	5054	1104	TAD	BFLAG2		/IS IT MASS STORAGE TO MASS STORAGE.
0175	5055	7710	SPA CLA			/???
0176	5056	5406	FILEC			/YEP. DO TRANSFER NOW.
0177	5057	4566	PUSH			/SAVE OUTPUT FILE INFORMATION
0200	5060	4403	HPOP			/BRING IN INPUT FILE INFORMATION
0201	5061	4762	JMS 1	ASET1		/SET UP SEQUENTIAL TAPE INPUT
0202	5062	1104	TAD	BFLAG2		/ARE WE GOING TO TAPE
0203	5063	7640	SZA CLA			
0204	5064	4405	LEADER			/NO. WE BETTER GENERATE SOME LEADER NOW.
0205			/			
0206			/			
0207			/			
0210			/			
0211	5065	6016	ANTAPE,	6016		/INITIALIZE THE HIGH SPEED READER
0212	5066	6032		6032		/AND CLEAR THE TTY FLAG AND THE AC.
0213			/			
0214			/			
0215	5067	1102	ALOOP,	TAD	BFLAG1	/GET THE INPUT DEVICE POINTER.
0216	5070	7640	SZA CLA			/FROM A FILE?
0217	5071	5274	JMP	,+3		/NOPE.
0220	5072	4763	JMS 1	AAGET		/YEP. GET A CHAR NOW
0221	5073	7410	SKP			/SKIP OVER BELOW GET.
0222	5074	4574	AUXIN			/IF NOT FROM A FILE, GET THE CHAR NOW. AND L177
0223	5075	0142	AND	L177		/MAKE INTO A GOOD ASCII CHARACTER.
0224	5076	1026	TAD	L200		/WITH PARITY BIT ON.
0225	5077	3121	OCA	FTYPE		/AND STORE AWAY.
0226	5100	1073	TAD	CNTRLZ		/WAS A CONTROL Z TYPED?
0227	5101	7640	SZA CLA			
0230	5102	5313	JMP	AEND		/YEP. DO END
0231	5103	4573	SEARCH			/SEARCH FOR POSSIBLE SPECIAL CHARACTERS.
0232	5104	5165	AC1			
0233	5105	5370	AG1			
0234	5106	4764	JMS 1	AALIMC		/CHECK TO SEE IF IT S IN 240-337 LIMITS.
0235	5107	5312	JMP	ABAD		/IT ISN'T IGNORE IT.
0236			/			
0237	5110	4350	AOK,	JMS	APUTIT	/CHAR OK AS IS. OUTPUTTIT.
0240	5111	5267	JMP	ALOOP		/GO BACK AND GET ANOTHER ONE.

```

0241      /
0242      /
0243      5112 5267 AHAD,  JMP      ALOOP      /RAD CHAR. GET NEXT ONE
0244      /
0245      /
0246      /
0247      5113 1122 AEND,  TAD      RFLAG1    /IS IT MASS INPUT?
0248      5114 7650      SZA CLA
0249      5115 5320      JMP      AEND2
0250      5116 4476      JMS I   PNORE
0251      5117 5265      JMP      ANTAPE
0252      5120 4334 AEND2, JMS      ACRR
0253      5121 1372 TAD      AABLAH
0254      5122 3121 DCA      FTYPE
0255      5123 4350 JMS      APUTIT
0256      5124 7240 MONE
0257      5125 3121 DCA      FTYPE
0258      5126 4350 JMS      APUTIT
0259      5127 4334 JMS      ACRR
0260      5130 4425 LEADER
0261      5131 5552 PIP
0262      /
0263      /
0264      /
0265      /
0266      /
0267      /
0270      /
0271      /
0272      5132 4334 ACR,    JMS      ACRR
0273      5133 5267      JMP      ALOOP      /COMES HERE IF A CR ENCOUNTERED,      JMP      ALOOP
0274      /
0275      /
0276      5134 0000 ACR,    0
0277      5135 1365 TAD      AC1
0300      5136 3121 DCA      FTYPE
0301      5137 4350 JMS      APUTIT
0302      5140 1144 TAD      M212
0303      5141 7041 CIA
0304      5142 3121 DCA      FTYPE
0305      5143 4350 JMS      APUTIT
0306      5144 7240 MONE
0307      5145 3121 DCA      FTYPE
0310      5146 4350 JMS      APUTIT
0311      5147 5734 JMP I   ACRR
0312      /
0313      /
0314      /
0315      5150 0000 APUTIT, 0
0316      5151 1104 TAD      BFLAG2
0317      5152 7640 SZA CLA
0320      5153 5356 JMP      .+3
0321      5154 4761 JMS I   AAAPUT
0322      5155 5750 JMP I   APUTIT
0323      5156 1121 TAD      FTYPE
0324      5157 4575 AUXOUT
0325      5160 5750 JMP I   APUTIT
0326      /
0327      /
0330      5161 5200 AAAPUT, AAPUT
0331      5162 4514 ASETI, SETI
0332      5163 5403 AAGET, AAAGET
0333      5164 1253 AALIMC, GGLIMC
0334      /
0335      /
0336      /
0337      /

```

/LIMIT CHECKER

0340	5165	0215	AC1,	215	
0341	5166	0300		300	
0342	5167	0337		337	
0343	5170	0243		243	
0344			ASMIFZ	TERM-44	/IS 44 A LEGAL CHAR???
0345				244	/NO. ASSEMBLE INTO THE EXCEPTION TABLE.
0346	5171	0247		247	
0347	5172	0232	AABLAH,	232	
0350	5173	4211		4211	/END OF THE LIST
0351			/		
0352			/		
0353			/		
0354			/		
0355			/		
0356	5174	5017	ASCGO,	ASCH1	
0357	5175	5024		ASCT	
0360			ASMIFN	RF08	/DO WE HAVE DISK?
0361	5176	5022	ASRF8		/YEP. ASSEMBLE IN BRANCH
0362	5177	5020	ASCT1		
0363			/		
0364			/		
0365			/		
0366			/		
0367			/		
0370			/		
0371			/		
0372			/		
0373			/		
0374			/		
0375			/		
0376				EJECT	

-

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0377      /
0400      /
0401      /
0402      /
0403      /
0404      /
0405      /
0406      /
0407      /
0410      /
0411      5200 0000 AAPUT, 0
0412      5201 4573 SEARCH
0413      5202 5165 AC1
0414      5203 5470 AG2
0415      5204 1121 TAD FTYPE
0416      5205 1146 TAD M240
0417      5206 7710 SPA CLA
0420      5207 5220 JMP AP
0421      5210 1121 TAD FTYPE
0422      5211 1147 TAD M340
0423      5212 7700 SMA CLA
0424      5213 5220 JMP AP
0425      5214 1121 TAD FTYPE
0426      5215 0024 AND L77
0427      5216 4253 AAA1, JMS AAAAAA
0430      5217 5600 JMP I AAPUT
0431      /
0432      /
0433      /
0434      5220 5600 AP, JMP I AAPUT
0435      /
0436      5221 1365 APCR, TAD AL43
0437      5222 5216 JMP AAA1
0440      /
0441      5223 1060 AATAB, TAD L7
0442      5224 1364 TAD AL40
0443      5225 5216 JMP AAA1
0444      /
0445      /
0446      /
0447      AAEND, ASMIFN TERMC-44
0450      ASMSKP 2
0451      PFOUR
0452      TAD AL40
0453      5226 4253 JMS AAAAAA
0454      5227 1354 TAD AAAORG
0455      5230 7040 CMA
0456      5231 0103 AND BOLDP
0457      5232 7650 SNA CLA
0460      5233 5236 JMP .+3
0461      5234 4253 JMS AAAAAA
0462      5235 5227 JMP .-6
0463      5236 1353 TAD AAUNIT
0464      5237 3120 DCA FUNIT
0465      5240 1363 TAD AABLOCK
0466      5241 3122 DCA FBNUM
0467      5242 1363 TAD AABLOCK
0470      5243 7041 CIA
0471      5244 1356 TAD AAOUTB
0472      5245 3117 DCA FSIZE
0473      5246 7201 PONE
0474      5247 3121 DCA FTYPE
0475      5250 4404 HPUSH

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THIS PAGE OVERLAPS A LITTLE FROM PREVIOUS PAGE.

MORE OF THE ASCII HANDLER.

/CHECK FOR A SPECIAL CONTROL CHAR.
/SAME LIST IS OK.

/GET THE CHAR

/TOO SMALL. NOG A REGULAR CHAR.

/TOO BIG. IT S NO GOOD.
/GET THE CHAR AGAIN
/JUST THE LOW ORDER BITS.
/PLACE THE CHAR IN THE BUFFER.
/AND EXIT

/BAD CHAR.

/CR FOUND. PLACE A "43" IN THE BUFFER
/STICK IN BUFFER

/CONVERT TAB TO A 47

/IS 44 THE END OF FILE CHARACTER?
/NO. ZERO IS. IGNORE NEXT TWO STATEMENTS.
/DOLLAR SIGN IS THE END OF BUFFER CRAP
/MAKE IT INTO A DOLLAR SIGN
/AND PLACE EOF CHAR IN THE BUFFER.
/SEE IF BUFFER IS WRITTEN OUT.

/BY CHECKING ENDING ADDRESS

/BUFFER IS CLEAR AND WRITTEN OUT.
/BUFFER STILL IN USE. ADD 1 CHAR AND SEE IF DUMPED.
/NOT DUMPED. WAIT.
/GET THE UNIT
/AND PLACE AWAY
/GET THE FIRST BLOCK
/AND STASH AWAY.
/GET THE FIRST BLOCK

/ADD IN NEXT BLOCK TO GET SIZE.
/AND STASH AWAY.
/SET FOR SEOURCE

/NOW STASH THIS AWAY FOR FILEC TO USE.

0476	5251	4565	POP		/RESET THE OUTPUT UNIT CONFIGURATION.
0477	5252	5486	FILEC		/AND DO A DIRECTORY TYPE COPY.
0500			/		
0501			/		
0502			/		
0503			/		
0504			/		
0505	5253	0000	AAAAAA, W		/PLACES HALF A CHAR IN THE BUFFER.
0506	5254	3132	DCA	BTEMP1	
0507	5255	1135	TAD	BFIELD	/FIRST TIME THROUGH?
0510	5256	7642	SZA	CLA	
0511	5257	5303	JMP	AAA	/NOPE. IGNORE SETUP
0512	5260	2135	ISZ	BFIELD	/SET SWITCH
0513	5261	1363	TAD	AABLOCK	/GET START OF BINARY CHAP.
0514	5262	3356	DCA	AAOUTB	/AND SET UP WRITE BLOCK.
0515	5263	1354	TAD	AAAORG	/GET THE LOCATION OF START
0516	5264	3143	DCA	BOLDP	/AND SAVE IN THE ADDRESS
0517	5265	7240	MONE		/SET THE SWITCH TO PLACE IN LEFT HALF OF WORD.
0520	5266	3132	DCA	ORIGIN	
0521	5267	1064	TAD	M400	/SET THE WORD COUNTER
0522	5270	3134	UCA	BTEMP3	/TO 400 WORDS TO GO IN BUFFER.
0523			/		
0524			/		
0525			ASMIFN	STAR20-1	/DO WE WANT TO STICK IN A "*20" AT BEGINNING OF FILE???
0526			ASMSP	13	/NOPE. DONT ASSEMBLE THEM IN.
0527			/		
0530	5271	1361	TAD	A5262	/GET A "*20" AND PLACE IT
0531	5272	3503	DCA I	BOLDP	
0532	5273	2103	ISZ	BOLDP	/IN FIRST TWO WORDS OF FILE.
0533	5274	1362	TAD	A6043	
0534	5275	3503	DCA I	BOLDP	
0535	5276	2103	ISZ	BOLDP	/BOP UP THE IN POINTER.
0536	5277	2134	ISZ	BTEMP3	
0537	5300	2134	ISZ	BTEMP3	/INCREMENT THE BUFFER COUNTER BY 2.
0540			/		
0541	5301	1365	TAD	AL43	/TELL BUFFERS WE JUST PUT A "43" IN IT.
0542	5302	3366	DCA	ALASTC	/BY PLACING IT IN LAST CAR INSERTED.
0543			/		
0544	5303	1132	AAA,	TAD	BTEMP1
0545	5304	7041		CIA	
0546	5305	1365		TAD	AL43
0547	5306	7640		SZA	CLA
0550	5307	5315		JMP	.*6
0551	5310	1366		TAD	ALASTC
0552	5311	7041		CIA	
0553	5312	1365		TAD	AL43
0554	5313	7650		SNA	CLA
0555	5314	5653		JMP I	AAAAAA
0556	5315	1132		TAD	BTEMP1
0557	5316	3366		DCA	ALASTC
0560	5317	2130		ISZ	ORIGIN
0561	5320	5330		JMP	AAA2
0562	5321	1132		TAD	BTEMP1
0563	5322	7006		RTL	
0564	5323	7006		RTL	
0565	5324	7006		RTL	
0566	5325	0053		AND	L7700
0567	5326	3503		DCA I	BOLDP
0570	5327	5653		JMP I	AAAAAA
0571			/		
0572	5330	7240	AAA2,	MONE	
0573	5331	3132		DCA	ORIGIN
0574	5332	1132		TAD	BTEMP1
					/RESET HALF SWITCH.
					/PLACE IN RIGHT HALF OF WORD.

0575	5333	0024	AND	L77	
0576	5334	1923	TAD I	BOLDP	
0577	5335	3523	DCA I	BOLDP	/AND PLACE IT AWAY.
0600	5336	2123	ISZ	BOLDP	/THAT ALL
0601	5337	7000	NOP		/THIS CAN SKIP IF BUFFER=7420
0602	5340	2134	ISZ	BTEMP3	/INCREMENT THE COUNTER. ALL DONE WITH THIS BUFFER?
0603	5341	5653	JMP I	AAAAAA	/NOPE. BUFFER STILL GOOD.
0604	5342	1354	TAD	AAAORG	/BUFFER FULL. RESET POINTER.
0605	5343	3103	DCA	BOLDP	
0606	5344	1064	TAD	M400	
0607	5345	3134	DCA	BTEMP3	/RESET COUNTER.
0610	5346	1356	TAD	AAOUTB	/SET THE OUTPUT BLOCK
0611	5347	1367	TAD	AALIM	/WILL IT EXCEED WORKING AREA?
0612	5350	7650	SNA	CLA	
0613	5351	4567	NO		/YEP. IT WILL. GIVE ERROR MESSAGE.
0614	5352	4572	WRITE		/WRITE OUT FULL BUFFER.
0615	5353	0001	AAUNIT,	SYSBIN	
0616	5354	6400	AAAORG,	BUFFER	
0617	5355	0001	1		
0620	5356	0000	AAOUTB,	0	
0621	5357	2356	ISZ	AAOUTB	/BOP UP BLOCK
0622	5360	5653	JMP I	AAAAAA	/AND EXIT
0623			/		
0624			DSYS4=AAUNIT		
0625			/		
0626			/		
0627			ASMIFN	STAR20-1	/DO WE WANT THE "020" LITERALS IN???
0630			ASMSKP	3	/NOPE. DON T PUT THEM IN.
0631			/		
0632	5361	5262	A5262,	5262	
0633	5362	6043	A6043,	6043	
0634			/		
0635	5363	0370	AABLOCK,	SYSBBLOCK	
0636	5364	0040	AL40,	40	
0637	5365	0043	AL43,	43	
0640	5366	0000	ALASTC,	0	
0641	5367	7310	AALIM,	-SYSWT-1	/MAXIMUM SIZE OF THE WORKSPACE.
0642			/		
0643			/		
0644			/		
0645			/		
0646			/		
0647			/		
0650			/		
0651			/		
0652			/		
0653			/		
0654			/		
0655			/		
0656	5370	5132	AG1,	ACR	
0657	5371	5112	ABAD		
0660	5372	5112	ABAD		
0661	5373	5112	ABAD		
0662			ASMIF2	TERMC-44	/SHOULD WE IGNORE DOLLAR SIGNS?
0663			ABAD		/YEP. ASSEMBLE IN THE POINTER
0664	5374	5112	ABAD		
0665	5375	5113	AEND		
0666	5376	5110	AGK		
0667			/		
0670			/		
0671			/		
0672			/		
0673			/		

```

0674      /
0675      /
0676      5377 5043 AS CG02, AS CH2
0677      5400 5047 AS CT T
0700      AS M1 FN RF08 /DISK THERE?
0701      5401 5045 AS RF02 /YEP.
0702      5402 5044 AS CT2
0703      /
0704      /
0705      /
0706      /
0707      /
0710      /
0711      /
0712      /
0713      /
0714      /
0715      /
0716      /
0717      /
0720      /
0721      /
0722      /
0723      /
0724      EJECT
-

```

```

0725 / MORE ASCII HANDLERS
0726 /
0727 / WHICH OVERLAP SOME MORE FROM THE PREVIOUS PAGE.
0730 /
0731 /
0732 /
0733 /
0734 /
0735 /
0736 /
0737 /
0740 /
0741 /
0742 /
0743 /
0744 /
0745 /
0746 /
0747 5403 0000 AAAGET, 0 /MAIN BUFFER GETTER ROUTINE
0750 5404 7200 CLA /
0751 5405 1135 TAD BFIELD /ARE WE ACTIVE?
0752 5406 7640 SZA CLA /YEP. IGNORE NEXT.
0753 5407 5215 JMP AAGET2 /SET STATUS SWITCH
0754 5410 2135 ISZ BFIELD
0755 /
0756 / ASHIFN STAR20-1 /DO WE WANT TO SKIP PAST A "*20"
0757 / ASMSKP 3 /NOPE. NO *20 SKIP.
0760 /
0761 5411 4644 JMS I AGET1 /GET A WORD
0762 5412 4644 JMS I AGET1 /GET TWO WORDS (BYPASS "*20")
0763 /
0764 5413 7240 MONE /
0765 5414 3130 DCA ORIGIN / LEFT HALF OF WORD CHAR.
0766 /
0767 5415 2130 AAGET2, ISZ ORIGIN /WHICH HALF?
0770 5416 5224 JMP AAGET3 /RIGHT HALF.
0771 5417 4644 JMS I AGET1 /GET A WORD.
0772 5420 3103 DCA BOLDP /AND STASH AWAY
0773 5421 1103 TAD BOLDP /RETURN WITH ITS VALUE.
0774 5422 4550 ROR6 /SHIFT LEFT HALF OF AC TO THE RIGHT HALF
0775 5423 5227 JMP AAGET4 /GO DOWN AND GET REST.
0776 /
0777 5424 7240 AAGET3, MONE /
1000 5425 3130 DCA ORIGIN /RESET RIGHT-LEFT SWITHC.
1001 5426 1103 TAD BOLDP /GET THE RIGHT CHAR
1002 5427 0024 AAGET4, AND L77 /JUST GET 6 BITS
1003 5430 3121 DCA FTYPE /STORE AWAY.
1004 5431 4573 SEARCH /CHECK FOR A NO NO.
1005 5432 5460 AAGL1
1006 5433 5464 AAG01
1007 5434 1121 TAD FTYPE
1010 5435 1056 TAD M40 /FIGURE OUT CORRECT BIT 4
1011 5436 7510 SPA />40. A 20 0 TYPE CHARACTER
1012 5437 1025 TAD L100 /<40 A 300 TXPE CHAR.
1013 5440 1224 TAD AAGET3 /ADD IN 240 (ACTUALLY /240)
1014 5441 0243 AND A377 /JUST MAKE IT8 BITS
1015 5442 5603 JMP I AAAGET /AND EXIT.
1016 /
1017 /
1020 5443 0377 A377, 377
1021 5444 4525 AGET1, GET1
1022 /
1023 /

```

1024	5445	1143	AACR,	TAD	M215	/CARRIGE RETURN
1025	5446	7041		CIA		
1026	5447	5603		JMP I	AAAGET	
1027			/			
1030	5450	7201	AAATAB,	PONE		
1031	5451	1054		TAD	L10	
1032	5452	1026		TAD	L200	
1033	5453	5603		JMP I	AAAGET	
1034			/			
1035	5454	7305	AAAEND,	PTWO		
1036	5455	1061		TAD	L30	
1037	5456	1026		TAD	L200	
1040	5457	5603		JMP I	AAAGET	/EXIT WITH A CONTROL Z IN THE AC.
1041			/			
1042			/			
1043			/			
1044			/			
1045			/			
1046	5460	0000	AAGL1,	0		
1047				ASMIFZ	TERMC-44	/IS 44 THE END OF FILE CHAR?
1050				44		/YEP. ON 44 GO TO THE CONTROL Z GENERATOR.
1051	5461	0043		43		
1052	5462	0047		47		
1053	5463	4037		4037		/END OF LIST
1054			/			
1055			AAG01,	ASMIFN	TERMC-44	
1056	5464	5454		AAAEND		/00 IS THE END OF FILE CHARACTER.
1057				ASMIFZ	TERMC-44	
1060				AAAGET+1		/44 (DOLLAR SIGN) IS THE TERMINATOR.
1061				ASMIFZ	TERMC-44	/IS DOLLAR SIGN LEGAL?
1062				AAAEND		/NOPE. IT S THE END OF FILE CHAR.
1063	5465	5445		AACR		
1064	5466	5450		AAATAB		
1065	5467	5404		AAAGET+1		
1066			/			
1067	5470	5221	AG2,	APCR		
1070	5471	5220		AP		
1071	5472	5220		AP		
1072				ASMIFZ	TERMC-44	/ASMEBLE IGNORE CHARACTER IF DOLLA.R IS THE END OF FILE CAHR...
1073				AP		
1074	5473	5220		AP		
1075	5474	5220		AP		
1076	5475	5226		AAEND		
1077	5476	5223		AATAB		
1100			/			
1101			/			
1102			/			
1103			/			
1104			/			
1105			/			
1106			/			
1107			/			
1110			/			
1111			/			
1112			/			
1113			/			
1114	5477	0200	ABDIS,	LEFT+200		
1115	5500	0100		TOP=240		
1116				ASMIFN	REMAKE!RF08	/DO WE WANT REMAKE OPTION OR THE DISK?
1117				ASMSKP	5	/YEP. SKIP NEXT MESSAGE.
1120				TEXT	"FAUXILIARY OPTIONS:	
1121						
1122						

```

1123      HC --- COPY SPECIFIED BLOCKS
1124      HD --- DUPLICATE TAPE 2 ONTO 1\
1125      /
1126      /
1127      /
1130      /
1131      /
1132      ASMIFZ  REMAKE          /DO WE WANT REMAKE MESSAGE?
1133      ASMSKP  6              /YEP. PUT IN MESSAGE.
1134      TEXT    "FAUXILIARY OPTIONS:
1135
1136
1137      HC --- COPY SPECIFIED BLOCKS
1140      HD --- DUPLICATE TAPE 0 ONTO 1
1141      HR --- REFORMAT FILE\
1142      /
1143      /
1144      /
1145      /
1146      /
1147      /
1150      /
1151      /
1152      /
1153      /
1154      ASMIFZ  RF08          /DO WE WANT THE RF08 OPTIONS.
1155      ASKSKP  6              /NOPE. DON T PUT IN THE MESSAGE.
1156      /
1157      /
1160      5501  0601
1160      5502  2530
1160      5503  1114
1160      5504  1101
1160      5505  2231
1160      5506  4017
1160      5507  2024
1160      5510  1117
1160      5511  1623
1160
1160      TEXT    "FAUXILIARY OPTIONS:
1161      5512  7243
1161
1162      5513  4043
1162
1163      5514  4043
1163      5515  0340
1163      5516  5555
1163      5517  5540
1163      5520  0317
1163      5521  2031
1163      5522  4023
1163      5523  2005
1163      5524  0311
1163      5525  0611
1163      5526  0504
1163      5527  4002
1163      5530  1417
1163      5531  0313
1163
1164      5532  2343
1164      5533  0440
1164      5534  5555
1164      5535  5540
1164      5536  0425

```

C --- COPY SPECIFIED BLOCKS

```

1164      5537  2014
1164      5540  1103
1164      5541  0124
1164      5542  0540
1164      5543  2401
1164      5544  2005
1164      5545  4060
1164      5546  4017
1164      5547  1624
1164      5550  1740
1164      D --- DUPLICATE TAPE 0 ONTO 1
1165      5551  6143
1165      5552  2340
1165      5553  5555
1165      5554  5540
1165      5555  0317
1165      5556  2031
1165      5557  4023
1165      5560  3123
1165      5561  2405
1165      S --- COPY SYSTEM
1166      5562  1543
1166      5563  2540
1166      5564  5555
1166      5565  5540
1166      5566  0317
1166      5567  2031
1166      5570  4025
1166      5571  1611
1166      5572  2434
1166      U -
      -- COPY UNIT\
1167      /
1170      /
1171      /
1172      /
1173      /
1174      /
1175      /
1176      /
1177      /
1200      /
1201      /
1202      /
1203      /
1204      /
1205      EJECT
-

```

```

1206 /
1207 /
1210 /
1211 /
1212 /
1213 /
1214 /
1215 /
1216 /
1217 /
1220 /
1221 /
1222 /
1223 /
1224 /
1225 /
1226 /
1227 /
1230 /
1231 /
1232 CINPUT=ASCINP /SAME AS SOURCE INPUT(FOR NOW)
1233 COUTPUT=ASCOUT /SAME AS SOURCE FOR NOW.
1234 /
1235 /
1236 /
1237 5600 4562 ABSOL, DECODE /GIVE THE MESSAGE AND WAIT FOR A REPLY.
1240 5601 5477 ABDIS /ABSOLUTE DISPLAY CRAP.
1241 5602 1120 TAD FUNIT /GET THE NUMBER OF ADDITION AL UNITS.
1242 5603 0060 AND L7 /ONLY 3 GOOD BITS ALLOWED.
1243 5604 7450 SNA /WAS IT ZERO?
1244 5605 7201 PONE /YEP. MAKE IT INTO A ONE.
1245 5606 7041 CIA /COMP TO SET UP COUNT
1246 5607 3365 DCA ABSTMP /AND STORE AWAY IN COUNTER SET.
1247 5610 4573 SEARCH /LOOKUP THE RELYP.
1250 5611 5755 ABL1
1251 5612 5761 ABG1
1252 5613 5200 JMP ABSOL /ILLEGAL REPLY.
1253 /
1254 /
1255 /
1256 /
1257 5614 3103 DUP, DCA INUNIT /COPIES 0 TO 1 OR MORE TAPES.
1260 5615 3102 DCA INBLOCK /SET UP INPUT UNIT AND BLOCK TO 0, OUTPUT BLOCK TO 0.
1261 5616 3104 DCA OUTBLOCK
1262 5617 7201 PONE
1263 5620 3105 DCA OUTUNIT
1264 5621 7332 CLA CLL CML RTR /SET THE OUTPUT UNIT TO 1
1265 5622 7010 RAR /2000
1266 5623 3117 DCA FSIZE /1000. A 1000 BLOCK COPY.
1267 5624 1365 TAD ABSTMP /SET UP SIZE.
1270 5625 3106 DCA OUTNUM /RECALL THE NUMBER OF COPIES TO MAKE
1271 5626 4554 COPY /AND SAVE IN THE COPIER PARAMETER TABLE.
1272 5627 5552 PIP /THEN GO DO COPY.
1273 / /RETURN TO PIP WHEN DONE
1274 /
1275 /
1276 5630 4562 ACOPY, DECODE /GET THE INPUT DEVICE AND BLOCK NUMBER.
1277 5631 4610 CINPUT /FROM THE COPY INPUT CRAP.
1280 5632 4573 SEARCH /LOOK-UP REPLY.
1281 5633 4577 ACPL1 /INPUT LIST
1282 5634 5674 ACPG1 /GO TO LIST
1283 5635 5230 JMP ACOPY /NO GOOD REPLY FOUND
1284 /

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1305 /
1306 /
1307 /
1310 /
1311 /
1312 ASMIFZ RF08 /DISK?
1313 ASKSKP 2 /NO DISK HANDLERS THERE.
1314 5636 4577 ACOPR, DISC /SET UP FOR DISK
1315 5637 7410 SKP
1316 5640 4402 ACOPT, TAPE /SET UP FOR TAPE
1317 5641 1120 TAD FUNIT
1320 5642 3103 DCA INUNIT /SET UP THE INPUT UNIT NOW.
1321 5643 4566 PUSH /SAV THE SIZE BECUASE DECODE MIGH ZAP IT.
1322 5644 4304 JMS AGETN /GET THE STARTING BLOCK NUMBER.
1323 5645 5230 JMP ACOFY /NOT ALL LEGAL NUMBERS.
1324 5646 1331 TAD AGNUM /GET THE BLOCK NUMBER
1325 5647 3102 DCA INBLOCK /AND SAVE AWAY.
1326 5650 4562 ACOFY2, DECODE /GET THE OUTPUT DEVICE
1327 5651 4703 COUTPUT /DISPLAY CHOICES
1330 5652 4573 SEARCH /LOOK UP THE REPLY
1331 5653 4377 ACPL1
1332 5654 5700 ACPG2
1333 5655 5250 JMP ACOFY2 /NOT A LEGAL REPLY
1334 /
1335 /
1336 /
1337 /
1340 /
1341 ASMIFZ RF08 /DISK?
1342 ASMSKP 2 /NOPE.
1343 5656 4577 ACOPR2, DISC /SET UP FOR DISK
1344 5657 7410 SKP
1345 5660 4402 ACOPT2, TAPE /SET UP FOR TAPE
1346 5661 1120 TAD FUNIT /GET THE CORRECT OUTPUT UNIT
1347 5662 3105 DCA OUTUNIT /AND STASH AWAY.
1350 5663 4304 JMS AGETN /GET THE BLOCK NUMBER.
1351 5664 5250 JMP ACOFY2 /NOT A LEGAL NUMBER
1352 5665 1331 TAD AGNUM /GET THE STARTING BLOCK
1353 5666 3104 DCA OUTBLOCK /AND STASH AWAY.
1354 5667 4565 POP /RESTORE THE SIZE OF THE COPY.
1355 5670 1365 TAD ABSTMP /RECALL THE NUMBER OF COPIES TO MAKE
1356 5671 3106 DCA OUTNUM /AND SAVE IN THE COPY PARAMETER
1357 5672 4554 COPY /AND DO IT.
1360 5673 5552 PIP /RETURN TO PIP WHEN DONE.
1361 /
1362 /
1363 /
1364 /
1365 /
1366 /
1367 /
1370 /
1371 ACPL1=BINLST
1372 /
1373 5674 5630 ACPG1, ACOFY /ILLEGAL REPLY
1374 5675 5640 ACOPT /LINE TAPE
1375 / ASMIFN RF08 /DISK?
1376 5676 5636 ACOPR /YES, DISK
1377 5677 5630 ACOFY /ILLEGAL
1400 /
1401 /
1402 /
1403 5700 5650 ACPG2, ACOFY2 /ILLEGAL

```

1474	5721	5060	ACOPT2		/LINE TAPE
1475			ASMIFN	RF28	/DISK?
1476	5722	5056	ACOPR2		/YES.
1477	5723	5056	ACOPY2		/ILLEGAL
1478			/		
1479			/		
1480	5724	2020	AGETN,	0	/CONVERTS FRAME INTO A NUMBER (IF NOT THERE RETURNS TO .+1, OTHERWISE TO .+2)
1481	5725	6141	LINE		/GO OVER CODE
1482			LMODE		
1483	1726	0051	SET I	1	/SET 1 TO POINT TO FRAME BLOCK.
1484	1727	6123	FRAME+6	000-1	
1485	1728	0642	LDF	2	/IN OF 2
1486	1729	5731	STC	AGNUM	/ZAP OUT PRESENT NUMBER.
1487	1730	0062	SET I	2	/SET 2 TO A COUNT.
1488	1731	7772	-5		
1489	1732	1321	AALoop,	LDH I 1	/GET THE NEXT CHAR FROM FRAME.
1490	1733	1420	SHD I		/IS IT A 7?
1491	1734	7777	7777		/WHICH IS END OF NUMBER?
1492	1735	7750	JMP	AALL	/YEP. EXIT.
1493	1736	1122	ADA I		/IS IT TOO SMALL?
1494	1737	7720	-57		/ (BELOW 62)
1495	1738	0451	APD		
1496	1739	7752	JMP	AALL	/YEP. BAD CHAR.
1497	1740	1122	ADA I		/IS IT TOO LARGE
1498	1741	7760	-11		/ (ABOVE 72)
1499	1742	0471	APD I		
1500	1743	7752	JMP	AALL	/YEP. BAD CHAR.
1501	1744	1020	LDA I		/GET OLD TOTAL
1502	1745	0000	AGNUM,	0	
1503	1746	0243	ROL	3	/MULTIPLY BY 12
1504	1747	1560	BCL I		
1505	1748	0007	7		
1506	1749	5731	STC	AGNUM	/MULTIPLY DONE
1507	1750	1321	LDH I	1	/REGET THE NUMBER
1508	1751	1120	ADA I		
1509	1752	7717	-60		/CHOP OFF CHAR BITS
1510	1753	3731	ADD	AGNUM	/ADD IN OLD TOTAL.
1511	1754	0470	AZE I		/IF NOT ZERO THEN SKP
1512	1755	0011	CLR		/IF ZERO, ZERO AC TO 0000, IN CASE IT WAS 7777, WHICH IS EVIL IN 8 MODE.
1513	1756	5731	STC	AGNUM	/STASH AWAY SOMEPLACE OTHER.
1514	1757	0222	XSK I	2	/BOP UP COUNT
1515	1758	7714	JMP	AALoop	/MORE TO GO.
1516	1759	7752	JMP	AALL	/TOO MANY DIGITS. NUM TOO LARGE.
1517			/		
1518			/		
1519			/		
1520	1750	0002	ALD,	PDP	/GET INTO PMODE
1521				PMODE	
1522	5751	2304	ISZ	AGETN	/GO TO GOOD RETURN
1523			/		
1524			LMODE		
1525			/		
1526	1752	0002	AALL,	PDP	/GET INTO R MODE
1527				PMODE	/WE RE BACK IN PMODE NOW.
1528	5753	7200	CLA		/CLEAR THE AC
1529	5754	5704	JMP I	AGETN	/AND EXIT.
1530			/		
1531			/		
1532			/		
1533			/		
1534			/		
1535			/		
1536			/		
1537			/		
1538			/		
1539			/		
1540			/		
1541			/		
1542			/		
1543			/		
1544			/		
1545			/		
1546			/		
1547			/		
1548			/		
1549			/		
1550			/		
1551			/		
1552			/		

```

1503      /
1504      /
1505      /
1506      /
1507      /
1510      /
1511      5755 0303 ABL1, 303
1512      ASMIFN REMAKE /REMAKE OPTION INCLUDED???
1513      322 /YEP. PLACE CHECK CHAR IN LIST.
1514      ASMIFZ RF08 /DISK THERE
1515      ASMSKP 2 /NOPE. DO NOT OUT IN S AND U
1516      5756 0323 323
1517      5757 0325 325
1520      5760 4304 4304
1521      /
1522      5761 5630 ABG1, ACOPY
1523      ASMIFN REMAKE /REMAKE OPTION???
1524      KQNVRT /YEP. PLACE IN POINTER OPTION.
1525      ASMIFZ RF08 /HOW ABOUT THE POINTERS?
1526      ASKSKP 2 /NOT THERE
1527      5762 7400 AASYSC
1530      5763 7405 AAUNTC
1531      5764 5614 DUP
1532      /
1533      /
1534      /
1535      /
1536      /
1537      /
1540      /
1541      /
1542      /
1543      /
1544      /
1545      /
1546      /
1547      /
1550      /
1551      ASMIFN CARD-1 /DO WE WANT LINE PRINTER??
1552      ASMSKP 30 /NOPE. DONT ASSEMBLE IT N.
1553      /
1554      /
1555      /
1556      5765 0000 LPT2, 0 /LINE PRINTER CHECKER AND INITIALIZER,
1557      5766 1121 TAD FTYPE /GET THE OUTPUT DEVICE
1560      5767 1376 TAD LPM320 /IS IT A "P"
1561      5770 7640 SZA CLA /?
1562      5771 5765 JMP I LPT2 /NOPE. RETURN TO CHECK SOME MORE.
1563      5772 4777 JMS I LLPEJ2 /YEP. GIVE TWO EJECTS TO GET THINGS GOING.
1564      5773 2104 ISZ BFLAG2 /PREPARE TO SET OUTPUT FLAG TO 3
1565      5774 5775 JMP I .+1 /RETURN AND ADD TWO MORE TO BFLAG2
1566      5775 5043 ASCH2 /HIGH SPEED PUNCH SETTER
1567      /
1570      5776 7460 LPM320, -320 /"P"
1571      5777 6323 LLPEJ2, LPEJ2 /POINTER TO EJECTOR ROUTINE.
1572      /
1573      /
1574      /
1575      /
1576      /
1577      /
1600      /
1601      /
-

```

1602	/	
1603	/	
1604	/	
1605	/	
1606		ASMIFZ CARD
1607	ABSTMP, 0	/L.P. THERE?
1610	/	/NOPE. DEFINE THE TEMPORARY NOW
1611	/	
1612		ASMIFN CARD
1613	ABSTMP=LPT2	/L.P. THERE?
1614	/	/YEP. USE ENTRY AS THE TEMP
1615	/	
1616	/	
1617	/	
1620	/	
1621	/	
1622	/	
1623	/	
1624	/	
1625	/	
1626	/	
1627	/	
1630	/	
1631	/	
1632	/	
1633	/	
1634	/	
1635	/	
1636		EJECT

```
1637 /
1640 /
1641 /
1642 /
1643 /
1644 /
1645 /
1646 / GET THE LAST PART OF PIP
1647 /
1650 /
1651 /
1652 CHAIN "PIP5"
```

0000
0001
0002
-

*20

0000
0001
0002

0003
0004
0005
0006
0007
0010
0011
0012
0013
0014
0015
0016
0017
0020
0021
0022
0023
0024
0025

/

P I P 5

EJECT

-

```

0026      /
0027      /
0030      /
0031      /
0032      /
0033      ASMIFN CARD=1      /DO WE WANT THE WARD READER ROUTINE IN THERE?????
0034      ASMSKP 2237-1415  /NOPE. SKIP PAST THE MESS.
0035      /
0036      /
0037      /
0040      *6000
0041      /
0042      /
0043      /
0044      /
0045      /
0046      /
0047      /
0050      /
0051      6000 0000 CDFLAG, 0000      /FOR JUMPS IN LINC MODE.
0052      /ALSO USED AS THE CARD MOVING INDICATOR. THIS CAN BE DONE BECAUSE WE WILL ON
      LY EXECUTE
0053      /JUMPS IN LINC MODE WHEN THIS FLAG IS NON-ZERO[CARD MOVING]
0054      /IF YOU HAVE ANY DOUBTS ABOUT WHETHER THIS IS TRUE AFTER YOU MAKE CHANGES, M
      OVE THIS TO
0055      /A NEW LOCATION OTHER THEN 0 OF THIS SEGMENT.
0056      /THIS WORD MAY BE LOCATED ANYPLACE ON THIS PAGE
0057      /
0060      /
0061      /
0062      /
0063      /
0064      /
0065      /
0066      /
0067      /
0070      0001 0000 CDCUNT, 0000      /DEFINE SYMBOLS IN LMODE IN CASE OF ADDRESSING ERRORS WHILE ASSEMBLING
0071      0002 0000 CPOINT, 0000
0072      0003 0000 CDSWT, 0000
0073      0004 0000 CDCONT, 0000
0074      /
0075      /
0076      /
0077      /
0100      /
0101      /
0102      /
0103      /
0104      /
0105      /
0106      /
0107      /
0110      /
0111      /
0112      /
0113      /
0114      /
0115      /
0116      /
0117      /
0120      /
0121      /
0122      /
      -

```

0123	6005	0000	CDINIT, 0		/INITIALIZE THE CARD READER.
0124	6006	3200	DCA	CDFLAG	/CLEAR THE CARD MOVING FLAG.
0125	6007	3133	DCA	BTEMP2	/CLEAR THE CARD IN BUFFER FLAG.
0126	6010	1136	TAD	BOLDO	/GET THE FIRST COLUMN TO BE LOOKED AT.
0127	6011	1131	TAD	DATA	/GET THE LAST COLUMN TO BE DONE.
0130	6012	7650	SNA CLA		/BOTH ZERO?
0131	6013	1224	TAD	COL110	/GET A 72 IN THE AC.
0132	6014	7442	SZA		/IS IT ZERO???
0133	6015	3131	DCA	DATA	/NOPE. STORE THE 72 IN THE LAST COLUMN SCAN.
0134	6016	1131	TAD	DATA	/GET THE LAST COLUMN AGAIN
0135	6017	7442	CMA		/NEGATE IT
0136	6022	1136	TAD	BOLDO	/IS THE FIRST > LAST???
0137	6021	7700	SMA CLA		/?
0140	6022	4567	NO		/IT ISN. T GIVE ERROR MESSAGE.
0141	6023	5605	JMP I	CDINIT	/INITIALIZATION FINISHED.
0142			/		
0143			/		
0144	6024	0110	CDL110, 110		/72 DECIMAL
0145			/		
0146			/		
0147			/		
0150	6025	0000	CDREAD, 0		/READS A CHAR FROM THE CARD READER.
0151	6026	7346	MTHREE		/DO WE WANT CARD READER INPUT???
0152	6027	1102	TAD	BFLAG1	/CHECK THE INPUT FLAG.
0153	6030	7650	SNA CLA		
0154	6031	5234	JMP	..+3	/YEP. WE WANT CARD READER INPUT
0155	6032	2225	ISZ	CDREAD	/NOPE. JMP THIRID RETURN ADDRESS.
0156	6033	5314	JMP	CDISZ	/ISZ CDREAD AGAIN BEFORE EXITING.
0157	6034	1133	TAD	BTEMP2	/IS THE CARD ALREADY IN THE BUFFER???
0160	6035	7640	SZA CLA		
0161	6036	5303	JMP	CDNEXT	/YEP. IT IS. FETCH A CHAR FROM IT.
0162	6037	1200	TAD	CDFLAG	/IS THE CARD MOVING???
0163	6040	7640	COL240, SZA CLA		/TESTA NO LITTERAL
0164	6041	5254	JMP	CDGONG	/ITS MOVING. CHECK TO SEE IF COLUMN IS READY.
0165	6042	6672	RCSE		/START THE CARD GOING NOW...
0166	6043	5277	JMP	CNCTR	/ITS NOT READY. WAIT AWILE BY RETURN TO USER.
0167	6044	2200	ISZ	CDFLAG	/SET THE SWITCH TO SHOW THE CARD MOVING.
0170	6045	4564	MOVE		/ZERO OUT THE CARD BUFFER.
0171	6046	6163	CDBUF-1		/CONTAINS A 0000
0172	6047	6164	CDBUF		
0173	6050	0050	50		/80=120=50*2
0174	6051	1356	TAD	CDPONT	/SET CPOINT TO POINT TO FIRST CHAR OF CARD BUFFER
0175	6052	3202	DCA	CPOINT	
0176	6053	3140	DCA	BCOUNT	/ZERO OUT THE CURRENT COLUMN COUNTER.
0177			/		
0200	6054	6631	CDGONG, RCSE		/IS THERE A CHAR THERE???
0201	6055	5277	JMP	CNCTR	/NOPE. WAIT.
0202	6056	6632	RCRA		/READ IT IN ALPHA NUMERIC TYPE
0203	6057	3065	DCA	TEMP	/STORE IN TEMP
0204	6060	2140	ISZ	BCOUNT	/BOP UP COLUMN COUNTER BY 1.
0205	6061	1140	TAD	BCOUNT	/GET CURRENT POSITION.
0206	6062	7161	CLL CML CMA IAC		/13 BIT NEGATE
0207	6063	1136	TAD	BOLDO	/IS IT BELOW THE STARTING COLUMN???
0210	6064	7660	SNL SZA CLA		
0211	6065	5277	JMP	CNCTR	/YEP. IGNORE IT.
0212	6066	1131	TAD	DATA	/GET THE UPPER LIMIT
0213	6067	7161	CLL CML CMA IAC		/13 BIT NEGATE.
0214	6070	1140	TAD	BCOUNT	/HAVE WE GONE TOO FAR???
0215	6071	7660	SNL SZA CLA		
0216	6072	5277	JMP	CNCTR	/YEP. IGNORE THE CHAR.
0217	6073	1065	TAD	TEMP	/ALL IS WELL. RETRIEVE THE HCHARACTER.
0220	6074	6141	LINC		/NOW GO OVER TO THE LINC SIDE.
0221			LMODE		

0222	0075	1362	SIH I	CPOINT	/SAVE THE HALFWORD IN THE BUFFER.
0223	0076	0002	PDP		
0224			PMODE		/AND BACK INTO 8 MODE.
0225			/		
0226	6077	7200	CNOIR,	CLA	/THE AC IS DEFINITELY NOT ZERO WHEN IT COMES HERE.
0227	6100	6671	RCSD		/END OF CARD REACHED???
0230	6101	5625	JMP I	CDREAD	/NOPE. RETURN TO USER TO WAIT AWHILE.
0231	6102	5322	JMP	CDONE	/GO CONVERT STORED CARD.
0232			/		
0233			/		
0234			/		
0235	6103	6141	CDNEXT,	LINC	/CARD IN BUFFER AND CONVERTED.
0236				LMODE	/LETS GET A CHAR.
0237	0104	1322	CDNXT2,	LDH I	/GET A CHAR,[COMES HERE IN LINC MODE SOMETIMES]
0240	0105	0022	PDP	CPOINT	/GET OVER INTO A DECENT MODE
0241			PMODE		
0242	6106	7450	SNA		/IS IT THROUGH(00=CR)
0243	6107	5316	JMP	CDEOC	/YEP. END OF CARD.
0244	6110	1056	TAD	M40	/NOT DONE. SEE WHICH WAY TO ADD.
0245	6111	7510	SPA		
0246	6112	1025	TAD	L100	/01-37=301-337
0247	6113	1240	TAD	CDL240	/40-77=240-277
0250			/		
0251	6114	2225	CDISZ,	ISZ	/AND EXIT TO SECOND LOCATION
0252	6115	5625	JMP I	CDREAD	/OR THIRD IF CARD READER NOT CHOSEN DEVICE.
0253			/		
0254			/		
0255			/		
0256	6116	3133	CDEOC,	DCA	/TURN OF THE CARD IN FLAG
0257	6117	3200		DCA	/ALSO TURN OFF THE CARD MOVING FLAG.
0260	6120	1361	TAD	CDL215	/GET A CR IN THE AC
0261	6121	5314	JMP	CDISZ	/AND EXIT.
0262			/		
0263			/		
0264			/		
0265			/		
0266			/		
0267	6122	2133	CDONE,	ISZ	/TURN ON THE CARD IN BUFFER FLAG
0270				BTEMP2	/WE CAN LEAVE ON THE CARD MOVING FLAG FOR NOW BECAUSE THE CARD MOVING FLAG I
			S TESTED FIRST		
0271	6123	6674	RCRD		/TURN OFF THE CARD DONE FLAG.
0272	6124	6141	LINC		/AND GO OVER TO LMODE
0273			LMODE		
0274	0125	0061	SET I	CDUNT	/SET COUNTER TO 80 COLUMNS
0275	0126	7657	-120		
0276	0127	0062	SET I	CPOINT	/SET POINTER TO POINT TO LAST COLUMN+1
0277	0130	0234	CDBUF+50		
0300	0131	4003	STC	CDSWT	/TELL THE BLANK SCANNER TO DELETE BLANKS.
0301			/		
0302	0132	1020	CDLOOP,	LDA I	
0303	0133	3777	-4000		/BACKSPACE 1 CHAR IN CARD BUFEER.
0304	0134	1140	ADM		
0305	0135	0002	CPOINT		
0306	0136	1302	LDH	CPOINT	/GET THE CHAR
0307	0137	0203	XSK	CDSWT	/TEST THE BLANKS SCAN SWITCH.
0310	0140	0450	AZE		/STILL SCANNING. CHECK FOR BLANK.
0311	0141	0456	SKP		/NOT BLANK OR NOT SCANNING.
0312	0142	6152	JMP	CDFUNT	/IT BLANK. IGNORE IT.
0313	0143	0301	ROR	1	/ROTATE RIGHT TO PUT BIT 11 IN BIT 0
0314	0144	1120	ADA I		/NOW ADD IN BASIC TABLA ADDRESS POINTER.
0315	0145	0235	CDTAB		
0316	0146	4004	STC	CDCONT	/GET TRANSITION CHAR ADDRESS.
0317	0147	1304	LDH	CDCONT	/NOW GET THE TRANSITION CHARACTER.

0320	0150	0063	SET I	CDSWT	/AND TELL IT WE RE NOT SCANNING BLANKS ANYMORE
0321	0151	7777	-0		
0322	0152	1342	CDFUNT,	STH	CPOINT
0323	0153	0221	XSK I	CDL215	/NOW STASH AWAY CONVERTED CHAR.
0324	0154	6132	JMP	CDL215	/HAVE WE DONE 80 COLUMNS??
0325	0155	0062	SET I	CPOINT	/NOPE. GO BACK AND DO ANOTHER.
0326	0156	4163	CDPUNT,	CDL215	/YEP. WE VE DONE 80 COLUMNS.
0327	0157	6104	JMP	CDNXT2	/SET THE POINTER SO CDNEXT CAN GET THE CHARS.
0330			/		/AND EXIT BUT FIRST GET A CHAR TO SEND BACK
0331			/		
0332			/		
0333			/		
0334			/		
0335			/		
0336			/		
0337	0160	0211	LP1,	211	/TAB
0340	0161	0215	CDL215,	215	/CR
0341	0162	4232		4232	/ END-OF-TAPE
0342			/		
0343			/		
0344			/		
0345			/		
0346			/		
0347			/		
0350			/		
0351			/		
0352			/		
0353					
			EJECT		

0354	/		
0355	/		
0356	/		
0357	0163	0000	0000
0360			/USED FOR ZEROING OUT THE CARD BUFFER.
0361	0164	0000	CDBUF, 0000
0362	/		/80 COLUMN BUFFER
0363			*CDBUF*50
0364	/		
0365	0234	0000	0000
0366	/		/USED AS END OF CHAR CHARACTER INCASE OF 80 CHARACTER SCAN.
0367	/		
0370	/		
0371	/		
0372	/		
0373	/		
0374	/		
0375	/		
0376	/		
0377	/		
0400	/		
0401	0235	4061	CDTAB, 4061
0402	0236	6263	6263
0403	0237	6465	6465
0404	0240	6667	6667
0405	0241	7071	7071
0406	0242	7243	7243
0407	0243	4047	4047
0410	0244	7542	7542
0411	0245	6057	6057
0412	0246	2324	2324
0413	0247	2526	2526
0414	0250	2730	2730
0415	0251	3132	3132
0416	0252	3554	3554
0417	0253	4537	4537
0420	0254	7677	7677
0421	0255	5512	5512
0422	0256	1314	1314
0423	0257	1516	1516
0424	0260	1720	1720
0425	0261	2122	2122
0426	0262	4144	4144
0427	0263	5251	5251
0430	0264	7334	7334
0431	0265	4601	4601
0432	0266	0203	0203
0433	0267	0405	0405
0434	0270	0607	0607
0435	0271	1011	1011
0436	0272	3356	3356
0437	0273	7450	7450
0440	0274	5336	5336
0441	/		
0442	/		
0443	/		
0444	/		
0445	/		
0446	/		
0447	/		
0450	/		
0451	/		
0452			EJECT

THIS IS THE CONVERSION TABLE FOR THE CARD READER CHARS TO ASCII CHARS.

/BLANK	1
/2	3
/4	5
/6	7
/8	9
/:	NUMBER SIGN
/AT SIGN	APOSTROPHE
/=	"
/0	/
/S	T
/U	v
/W	X
/Y	Z
/J	,
/%	BACK ARROW.
/>	?
/~	J
/K	L
/M	N
/O	P
/Q	R
/!	DOLLAR SIGN
/*	)
/;	\
/&	A
/B	C
/D	E
/F	G
/H	I
/L	.
/<	(
/+	+

```

0453 /
0454 /
0455 PMODE
0456 /
0457 /
0460 /
0461 /
0462 /
0463 /
0464 /
0465 /
0466 /
0467 /
0470 /
0471 /
0472 /
0473 LSE=6651
0474 LCF=6652
0475 LLB=6654
0476 LSD=6661
0477 LCB=6662
0500 LPH=6664
0501 /
0502 /
0503 /
0504 /
0505 /
0506 /
0507 /
0510 /
0511 /
0512 /
0513 6275 0000 LPTEST, 0000 /MAIN LINE PRINT CHARACTER CABOSH.
0514 6276 7346 MTHREE /IS IF LINE PRINTER IS THE CHOSEN ONE(DEVICE 3)
0515 6277 1104 TAD BFLAG2
0516 6300 7640 SZA CLA
0517 6301 5675 JMP I LPTEST /NOT THE CHOSEN ONE.
0520 6302 1721 TAD I LPSEQ /GET THE CHAR
0521 6303 3121 JCA FTYPE /PLACE IN SEARCHER INPUT.
0522 6304 4573 SEARCH
0523 6305 6160 LP1
0524 6306 6356 LP2
0525 6307 1121 TAD FTYPE /GET THE CHAR
0526 6310 1147 TAD M340 /SUBTRACT TOO BIG CHAR.
0527 6311 7100 CLL /CLEAR LINC FOR NEW TEST.
0530 6312 1025 TAD L100 /CHECK FOR LOWER LIMIT
0531 6313 7620 SNL CLA /IS IT INBETWEEN 240-337???
0532 6314 5720 JMP I LPEXIT /NOPE. IGNORE IT.
0533 6315 1121 TAD FTYPE /GET THE CHAR
0534 6316 4333 LPCOMM, JMS LPPUT /AND OUTPUT THE CHAR.
0535 6317 5720 JMP I LPEXIT /AM D EXIT
0536 /
0537 /
0540 /
0541 6320 3767 LPEXIT, SEQEXT
0542 6321 3711 LPSEQ, SEQIN
0543 6322 0000 LPCOL, 0000
0544 /
0545 /
0546 /
0547 /
0550 6323 0000 LPEJ2, 0 /GIVES TWO EJECTS ON THE PRINTER.
0551 6324 7240 LP0002, MONE /REALLY A 17

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0552	6325	4333	JMS	LPPUT	/EJECT 1
0553	6326	1374	TAD	LPW204	/RESET THE COLUMN COUNTER TO THE BEGINNING OF A LINE.
0554	6327	3322	OCA	LPCOL	/STASH AWAY.
0555	6330	7240	LPW03, NONE		
0556	6331	4333	JMS	LPPUT	/EJECT 2
0557	6332	5723	JMP I	LPEJ2	/RETURN TO THE CALLER.
0560			/		
0561			/		
0562			/		
0563			/		
0564	6333	0000	LPPUT, 0		/PRINTS A CHAR OR DOES A CONTROL CRAP.
0565	6334	3065	OCA	TEMP	/SAVE THE CHAR.
0566	6335	2322	ISZ	LPCOL	/END OF THE LINE??
0567	6336	5343	JMP	LPWFIT	/NOPE. PRINT IT.
0570	6337	1374	LPOR, TAD	LPW204	/RESET THE COLUMN COUNTER
0571	6340	3322	OCA	LPCOL	/STASH AWAY.
0572	6341	1021	LPW04, TAD	L7770	/SPACE 1 PRINTER LINE
0573	6342	5316	JMP	LPCOMM	/COM 40V PUTTER ROUTINE
0574	6343	4556	LPWFIT, CHECKIO		/CHECK FOR A CONTROL Z OR SOMETHING.
0575	6344	6661	LSU		/LINE PRINTER CLEAR???
0576	6345	5343	JMP	-2	/NOPE. WAIT.
0577	6346	6652	LCF		/CLEAR THE FLAG
0600	6347	1065	TAD	TEMP	/GET THE FUNCTION.
0601	6350	7500	LPW05, SMA		/IS IT A CONTROL.
0602	6351	6654	LLB		/NOPE. MUST BE CHAR. STICK IN BUFFER, R.
0603	6352	7510	SPA		/IS IT POSITIVE?
0604	6353	6664	LPW06, LPR		/NOPE. MUST BE CONTROL. ZAP IT
0605	6354	7200	CLA		/NOW CLEAR THE AC TO BE SURE.
0606	6355	5733	JMP I	LPPUT	/AND RETURN TO THE CALLER.
0607			/		
0610			/		
0611			/		
0612			/		
0613			/		
0614			/		
0615			/		
0616			/		
0617	6356	6361	LP2, LPTAB		
0620	6357	6337	LPCR		
0621	6360	6371	LPEND		
0622			/		
0623			/		
0624			/		
0625			/		
0626	6361	1373	LPTAB, TAD	LP40	/BLANK
0627	6362	4333	JMS	LPPUT	/SEND TO PUTTER ROUTINE.
0630	6363	7325	LPW07, PTHREE		/TO COMPENSTATE FOR THE -204 [204-1]
0631	6364	1322	TAD	LPCOL	/GET THE COLUMN.
0632	6365	0060	AND	L7	/IS IT A MULTIPLE OF 8
0633	6366	7640	SZA CLA		/??
0634	6367	5361	JMP	LPTAB	/NOPE. GIVE ANOTHER BLAKN.
0635	6370	5720	JMP I	LPEXIT	/AND EXIT.
0636			/		
0637			/		
0640	6371	4323	LPEND, JMS	LPEJ2	/GIVE TWO EJECTS.
0641	6372	5552	PIP		
0642			/		
0643			/		
0644			/		
0645			/		
0646	6373	0040	LP40, 40		
0647	6374	7574	LPW204, -204		
0650	6375	0212	LP212, 212		/LINE FEED IF LPW8 PRESENT.

0651 6576 0214 LP214, 214
0652 /
0653 /
0654 /
0655 /
0656 /
0657 /
0660 /
0661 /
0662 /
0663 /
0664 /
0665 /
0666 /
0667 /
0670 /
0671 EJECT

/FORM FEED IF LP00 PRESENT

0672 /
0673 /
0674 /
0675 /
0676 /
0677 /
0700 /
0701 /
0702 6377 0000 /
0703 /
0704 /
0705 /
0706 /
0707 /
0710 /
0711 /
0712 /
-

*BUFFER-1

0000

EJECT

THIS ORIGIN INSURES THAT BUFFER-1 CONTAINS A ZERO FOR THE TRIVIAL CORE ZERO ROUTINE
WHICH IS LOCATED IN PAGE 1(200-377)

```

2713          /          *BUFFER
2714          /
2715          /
2716          /
2717          /          THIS ROUTINE IS CALLED ONLY ONCE AT INITIALIZATION TO FIGURE OUT HOW
2720          /          MANY K OF CORE THE GUY HAS. THEN IT IS USED IN THE
2721          /          BUFFER AREA.
2722          /
2723          /
2724          /
2725          /
2726          /
2727          /
2730          /
2731          6400 0000 COREF, 0 /MAIN ENTRY.
2732          6401 7200 CLA /CLEAR AC TO BE SURE. WE'VE GOT ROOM.
2733          6402 1261 TAD CLIT01 /REPLACE JMS INSTRUCTION BY NORMAL TAD.
2734          6403 3712 DCA I CLIT02 /AND OVERLAY NOW.
2735          /
2736          6404 3065 DCA TEMP /ZERO OUT
2737          6405 2065 CLOOP, ISZ TEMP
2740          6406 1065 TAD TEMP
2741          6407 7041 CIA
2742          6410 5141 DCA COUNT
2743          6411 3066 DCA TEMP1
2744          6412 2066 CLOOP, ISZ TEMP1
2745          6413 4275 JMS CSET
2746          6414 1066 TAD TEMP1
2747          6415 3711 DCA I CPBYTE
2750          6416 2141 ISZ COUNT
2751          6417 5212 JMP CLOOP
2752          6420 1065 TAD TEMP
2753          6421 7041 CIA
2754          6422 5141 DCA COUNT
2755          6423 3066 DCA TEMP1
2756          6424 2066 CLOOP, ISZ TEMP1
2757          6425 4275 JMS CSET
2760          6426 1711 TAD I CPBYTE
2761          6427 7041 CIA
2762          6430 1066 TAD TEMP1
2763          6431 7640 SZA CLA
2764          6432 5236 JMP COUNT
2765          6433 2141 ISZ COUNT
2766          6434 5224 JMP CLOOP
2767          6435 5205 JMP CLOOP
2770          /
2771          6436 7344 COUT, MTWO
2772          6437 1065 TAD TEMP
2773          6440 7106 CLL RTL
2774          6441 7006 RTL
2775          6442 3066 DCA TEMP1
2776          6443 1310 TAD CBUFF
2777          6444 7041 CIA
2778          6445 7106 CLL RTL
2779          6446 7006 RTL
2780          6447 7004 RAL
2781          6450 1066 TAD TEMP1
2782          6451 1047 ASMIFN RF08 /DISK PRESENT???
2783          6452 3074 TAD L7777 /YEP. BOP DOWN THE NUMBER OF BUFFERS BY 1 TO PROTECT 7400
2784          6453 6201 DCA BNUM
2785          6454 1074 CDF 0
2786          6455 7110 TAD BNUM
2787          CLL RAR

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1012	6456	0021	AND	L7770	
1013	6457	7640	SZA	CLA	
1014	6460	5267	JMP	CCCCDC	
1015	6461	1056	CLIT01,	TAD	M4J
1016	6462	3236		DCA	COUT
1017	6463	4551		DISPLAY	
1020	6464	6513		INSULT	
1021	6465	2236		ISZ	COUT
1022	6466	5265		JMP	.-3
1023			CCCCDC,	ASMIFZ	CARD
1024				ASMSKP	3
1025	6467	4671		JMS I	.*2
1026	6470	7410		SKP	
1027	6471	6703		LP08TS	
1030				ASMIFZ	RF08
1031				ASMSKP	3
1032	6472	1200		TAD	COREF
1033	6473	5674		JMP I	.*1
1034	6474	6601		CDISKC	
1035				ASMIFZ	RF08
1036				CMA CMA	
1037				ASMIFZ	RF08
1040				JMP I	COREF
1041			/		
1042			/		
1043	6475	0000	CSET,	0	
1044	6476	1047		TAD	L7777
1045	6477	1066		TAD	TEMP1
1046	6500	0060		AND	L7
1047	6501	7106		CLL	RTL
1050	6502	7004		RAL	
1051	6503	1307		TAD	CCDF
1052	6504	3305		DCA	.*1
1053	6505	0000		0	
1054	6506	5675		JMP I	CSET
1055			/		
1056	6507	6201	CCDF,	CCDF	0
1057	6510	6400	CBUFF,	BUFFER	
1060	6511	7777	CPBYTE,	7777	
1061	6512	0222	CLIT02,	INITOV	
1062			/		
1063			/		
1064			/		
1065			/		
1066	6513	0240	INSULT,	LEFT+240	
1067	6514	0340		TOP	
1070			TEXT "		
1071	6515	4306			
1071	6516	1140			
1071	6517	2717			
1071	6520	2514			
1071			FI WOULD		
1072	6521	0443			
1072	6522	0640			
1072	6523	4022			
1072			F RUN		
1073	6524	2516			
1073	6525	4306			
1073	6526	4006			
1073	6527	0123			
1073	6530	2405			
1073			F FASTER		
1074	6531	2243			

/A LITTER TYPE.
 /TEST FOR THE LINE PRINTER
 /SKIP PAST LP08 CRAP
 /TEST FOR NO AWALEX
 /DO WE WANT A SCRATCH DISK SETUP???
 /NOPE. DO DISK CHECK NOW.
 /RETURN ADDRESS
 /DO TO CORE CHECKER
 /NOW CHECK FOR DISKSSSSS
 /MINUS ONE COUNT, FOR NOW.
 /CHECK FOR THIS RETURN.....
 /RETURN NOW
 /SHOULD BE A FREE LOC NOW.
 /POINTER INITIALIZATION OVERLAY,
 /ABOUT CENTER OF SCREEN

1074	6532	0011	
1074	6533	0640	
1074	6534	3117	
1074			FIF YOU
1075	6535	2543	
1075	6536	0640	
1075	6537	4010	
1075			F HAD
1076	6540	0104	
1076	6541	4306	
1076	6542	4040	
1076			F 8K
1077	6543	7013	
1077	6544	4306	
1077	6545	1116	
1077	6546	2324	
1077	6547	0501	
1077			FINSTEAD
1100	6550	0443	
1100	6551	0617	
1100	6552	0640	
1100	6553	1716	
1100			FOF ONLY
1101	6554	1431	
1101	6555	4306	
1101	6556	4040	
1101	6557	6413	
1101	6560	3400	
1101			F 4K\"
1102			/
1103			/
1104			/
1105			/
1106			/
1107			/
1110			EJECT

1111		/		
1112		/		
1113		/		
1114		/		
1115		/		
1116		/		
1117		/		
1120		/		
1121			ASMI FZ RF08	/DISK CHECKER OK???
1122			ASMSKP 127	/SKIP FOLLOWING CODE
1123		/		
1124		/		
1125		/		
1126		/		
1127		/		
1130		/		
1131			*BUFFER+200	/DISK CHECKER CRAP.....
1132		/		
1133		/		
1134	6600	0000	CDISK, 0	/PHOONEY RETURN
1135	6601	3200	CDISK, DCA CDISK	/SAVE RETURN ADDRESS.
1136	6602	7240	CLA CMA	/CLEAR THE RK08 STATUS REGISTER
1137	6603	6742	DCLS	
1140	6604	7200	CLA	/NOW CLEAR THE AC
1141	6605	1302	TAD CDIL70	/PLACE A 70 IN THE AC TO SEE IF THE RK08 IS THERE
1142	6606	6732	DLDC	/SEND TO THE CONTROLLER
1143	6607	7200	CLA	/CLEAR AC IN CASE IOT WAS A NOP
1144	6610	6736	DRDC	/NOW READ BACK IN COMMAND REGISITER
1145	6611	7041	CIA	/NEGATE IT
1146	6612	1302	TAD CDIL70	/TEST TO SEE IF STILL THERE
1147	6613	7650	SNA CLA	/HOW ABOUT IT.
1150	6614	5261	JMP CRK08	/REG IS GOOD. WEVE GOT AN RK08
1151		/		
1152	6615	6601	DCMA	/BAM. CLEAR DISK
1153	6616	6601	DCMA	/ONE MORE TIME FOR GOOD MEASURE
1154	6617	1024	TAD L77	/A DISK ADDRESS.
1155	6620	6643	DXAL	/SEND IT OUT
1156	6621	7200	CLA	/CLEAR THE AC TO BE SURE
1157	6622	6645	DXAC	/READ IT BACK???
1160	6623	7041	CIA	
1161	6624	1024	TAD L77	/ALL WELL?
1162	6625	7650	SNA CLA	/???
1163	6626	4231	JMS DSET	/SET UP FOR THE DISKS NOW???
1164	6627	7240	CLA CMA	/MINUS 1 FOR THE COUNT.
1165	6630	5600	JMP I CDISK	/RETURN
1166		/		
1167		/		
1170		/		
1171		/		
1172	6631	0000	DSET, 0	
1173	6632	7240	MONE	
1174	6633	3670	DCA I CRKPTN	/SET TO ALL ONES SO RK08 CONTROLLER WILL THINK ITS THE
1175	6634	1074	TAD BNUM	/WRONG UNIT AND WILL GIVE A POWER CLEAR.
1176	6635	0021	AND L7770	/GET THE NUMBER OF BUFFERS NOW.
1177	6636	7650	SNA CLA	/SEE IF GREATER THEN 20. ACTUALLY 10 WILL DO
1200	6637	5250	JMP DSETP1	/?
1201	6640	4564	MOVE	/NOT BK. NO REBOOTSTRAP.
1202	6641	0750	RKBTST	
1203	6642	6213	RKBTST	/SAVE OLD INSTRUCTIONS
1204	6643	0002	2	/IN CARD READER TEMP.
1205	6644	4564	MOVE	
1206	6645	6671	RKSETU	
1207	6646	0750	RKBTST	/NOW MOVE IN KEYBOARD TEST INSTRUCTIONS.

```

1210      6647 0022      2
1211      6650 1273 DSETP1, TAO DTAB1 /GET THE FIRST TABLE LOCATIONS
1212      6651 3210 JCA AUTJ1 /SAVE AWAY
1213      6652 1410 DCLOOP, TAO I AUTJ1 /GET THE NEXT ADDRESS
1214      6653 7450 SVA /IS IT ZERO????
1215      6654 5031 JMP I DSET /YES, RETURN
1216      6655 3005 JCA TEMP /SAVE THE ADDRESS
1217      6656 1301 TAO OSYSBIN /GET THE CORRECT NEW UNIT
1220      6657 3405 JCA I TEMP /AND SET IT UP.
1221      6662 5252 JMP DCLOOP /GO BACK FOR NEXT.
1222      /
1223      /
1224      /
1225      /
1226      6661 4231 CRK08, JMS DSET /SET UP THE BINARY UNITS AS ADVERTISED.
1227      6662 4564 MOVE /NOW MOVE THE RK08 ROUTINES UP THE
1230      6663 7226 RKREAD /THE DESIRED AREA
1231      6664 7026 RFREAD
1232      6665 0152 -RFREAD /LENGTH JUST HAPPENS TO BE THIS NUM.
1233      6666 7240 CLA CMA /MINUS 1 FOR THE COUNT, BABY.
1234      6667 5000 JMP I CDISK /HANDLER NOW SET UP USE DISKS.
1235      /
1236      /
1237      /
1240      /
1241      /
1242      /
1243      /
1244      6670 4576 CRKPTN, RKSTAT /RK08 STATUS AS OF BEFORE I-O PRESET.
1245      6671 4751 RKSETU, RKBTST+18177:4600 /JMS I RKBTST+1
1246      6672 6164 RKCHAR /CHECK THE RK08 CHARACTER.
1247      /
1250      /
1251      /
1252      /
1253      /
1254      /
1255      /
1256      /
1257      /
1260      /
1261      /
1262      /
1263      /
1264      /
1265      /
1266      /
1267      /
1270      /
1271      /
1272      /
1273      /
1274      /
1275      6673 6673 DTAB1, . /POINTS TO NEXT -1
1276      6674 4145 OSYS1
1277      6675 4157 OSYS2
1300      6676 4206 OSYS3
1301      6677 5353 OSYS4
1302      6700 0000 00000
1303      /
1304      /
1305      6701 0011 OSYSBIN, SYSBSP /SPECIAL BINARY UNIT.
1306      6702 0070 CDIL70, 70

```

1307 /
1310 /
1311 /
1312 /
1313 /
1314 /
1315 /
1316 /
1317 /
1320 /
1321 /
1322 /
1323 /
1324 /
1325 /
1326 /
1327 /
1330 /
1331 /
1332 /
1333 /
1334 /
1335 /
1336 /

EJECT

```

1337      /
1340      /
1341      /
1342      /
1343      /
1344      /
1345      /
1346      ASMFZ  CARD      /LP08 TESTER ROUTINES
1347      ASKSKP 1373-1273 /SKIP PAST THE STUFF NOW
1350      /
1351      /
1352      /
1353      /
1354      /
1355      6703 0000 LP08TS, 0
1356      6704 6652      LCF
1357      6705 1022      TAD      M4
1360      6706 3065      DCA      TEMP
1361      6707 3066      DCA      TEMP1
1362      6710 6662      LCB
1363      6711 6661 LP08LP, LSD
1364      6712 7410      SKP
1365      6713 5703      JMP I  LP08TS
1366      6714 2066      ISZ      TEMP1
1367      6715 5311      JMP      LP08LP
1370      6716 2065      ISZ      TEMP
1371      6717 5311      JMP      LP08LP
1372      6720 1337 LP08LT, TAD  LP08PT
1373      6721 7450      SNA
1374      6722 5703      JMP I  LP08TS      /ALL FINISHED WITH THE PATCH NOW
1375      6723 3727      DCA I  LP08PO      /STORE IN THE POINTER NOW
1376      6724 2323      ISZ      ,-1
1377      6725 2320      ISZ      LP08LT
1400      6726 5320      JMP      LP08LT
1401      /
1402      /
1403      /
1404      /
1405      6727 0240 LP08PO, LP0801
1406      6730 6324      LP0802
1407      6731 6330      LP0803
1410      6732 6341      LP0804
1411      6733 6350      LP0805
1412      6734 6353      LP0806
1413      6735 6363      LP0807
1414      6736 6374      LPM204
1415      /
1416      /
1417      /
1420      /
1421      LP08BA=,87600
1422      LP08B2=LPEJ287600
1423      /
1424      /
1425      /
1426      6737 6666 LP08PT, LPR:LCB
1427      6740 1376      TAD      LP214-LP08B2+LP08BA
1430      6741 1376      TAD      LP214-LP08B2+LP08BA
1431      6742 1375      TAD      LP212-LP08B2+LP08BA
1432      6743 5353      JMP      LP0806-LP08B2+LP08BA
1433      6744 6666      LPR:LCB
1434      6745 7201      PONE
1435      6746 7656      -122      /ALL THATS NECESSARY TO FILL OUT TABS CORRECTLY,

```

1436	6747	0000	0
1437		/	
1440		/	
1441		/	
1442		/	
1443		/	
1444		/	
1445		/	
1446		/	
1447		/	
1450		/	
1451			EJECT
-			

```

1452      /
1453      /
1454      /
1455      /
1456      /
1457      /
1460      /
1461      *CDBUF
1462      6164 0000 RKCHAR, 2
1463      6165 7300 CLA CLL
1464      6166 6034 KMS
1465      6167 1143 TAD M215
1466      6170 7650 SNA CLA
1467      6171 5376 JMP DIALEX
1470      6172 4564 MOVE
1471      6173 6204 JACKS
1472      6174 0247 OVEREX
1473      6175 0007 OVERLEN
1474      6176 4564 DIALEX, MOVE
1475      6177 6213 RKBST
1476      6200 0750 RKBST
1477      6201 0002 2
1500      6202 5603 JMP I .+1
1501      6203 0750 RKBST
1502      /
1503      /
1504      6204 4571 JACKS, READ
1505      6205 0010 10
1506      6206 6400 BUFFER
1507      6207 0022 22
1510      6210 0302 302
1511      6211 6213 CDF CIF 10
1512      6212 5447 JMP I L7777
1513      /
1514      OVERLEN=.=JACKS
1515      /
1516      /
1517      6213 0000 RKBST, 0
1520      6214 0000 0
1521      /
1522      /
1523      /
1524      /
1525      /
1526      /
1527      /
1530      /
1531      /
1532      /
1533      /
1534      /
1535      /
1536      /
1537      /
1540      /
1541      /
1542      /
1543      EJECT

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/ORIGIN INITIALIZATION CODE IN THE CARD READER BUFFER.

/CLEAR AC TO BE SURE.
 /READ IN THE AC CHARACTER NOW
 /IS IT A C.R.
 /?
 /NORMAL TAPE EXIT.
 /SET UP DISK RETURN NOW.
 /MOVE OVERLAY IN NOW

/OLD INFO

/READ IN DIAL-MS BOOTSTRAP NOW.

/TWENTY TWO FOR 8=K.
 /302*21422=3228323
 /UPPER CORE
 /REBOOTSTRAP

1544	/		
1545	/		
1546	/		
1547	/		
1550	/	THIS IS THE OPTIONAL RF08-RK08 ROUTINE. IT IS DIVIDED INTO TWO PARTS.	
1551	/		
1552	/	THE SECOND PART IS THE ACTUAL LOW LEVEL DISK ROUTINE.	
1553	/		
1554	/	THE FIRST PART IS A LITTLE CALLING ROUTINE WHICH INTERPRETS THE CALLS FROM PIPS MASS STORAGE ROUTIN	
	ES.		
1555	/	AND PROTECTS LOCATIONS 7400-7777 FROM THE DISK ZAPPING THEM.	
1556	/		
1557	/		
1560	/		
1561	/		
1562	/		
1563	/		
1564	/		
1565	/		
1566	/		
1567	/		
1570	/		
1571	/		
1572		ASMIFZ RF08	
1573		ASMSKP 1362	/SHOULD BE CORRECT NUMBER TO SKIP OVER THEM
1574	/		
1575	/		
1576	/		
1577	/		
1600	/		
1601		*7400	
1602	/		
1603	/		
1604	/		
1605	/		
1606	/		
1607	/		
1610	/		
1611	/		
1612	/		
1613	/		
1614	/		
1615	/		
1616	/		
1617	/	THE SYSTEM AND UNIT COPIER HANDLERS.	
1620	/		
1621	/		
1622	/		
1623	/		
1624	/		
1625	/		
1626	/		
1627	/		
1630	/		
1631	/		
1632	/		
1633	/		
1634	7400 4564	AASYSC, MOVE	/SET UP TO COPY JUST THE SYSTEM (NO INDEX)
1635	7401 7472	ASYSL	/SYSTEM COPY INFORMATION
1636	7402 7466	AASUC	/COMMON INFORMATION
1637	7403 0004	AASUCS	/SIZE OF SYSTEM INFORMATION
1640	7404 >211	JMP AASUCR	/GO TO COMMON ROUTINES
1641	/		

1642			/		
1643			/		
1644			/		
1645	7405	4564	AAUNTC,	MOVE	/SET UP TO COPY THE ENTIRE UNIT.
1646	7406	7476	AUNT	L	/INFORMATION
1647	7407	7466	AASUC		/TO COMMON ROUTINES.
1650	7410	0004	AASUCS		/NUMBER OF WORDS TO MOVE
1651			/		
1652			/		
1653			/		
1654			/		
1655	7411	1120	AASUCR,	TAD	/GET THE NUMBER OF COPIES TO MAKE
1656	7412	0060	AND	L7	/CHOP OFF THE HIGH ORDER CRAP
1657	7413	7450	SNA		/ZERO???
1660	7414	7001	IAC		/YEP. MAKE 1 COPY ONLY
1661	7415	7041	CIA		
1662	7416	3501	DCA	AAMHOW	/STASH AWAY NUMBER TO MAKE
1663			/		
1664			/		
1665			/		
1666			/		
1667			/		
1670	7417	4562	ASULP1,	DECODE	/GET THE INPUT DEVICE
1671	7420	4610	CINPUT		/COPY INPUT IS GOOD ENOUGH FOR ME
1672	7421	4573	SEARCH		/LOOK UP THE REPLY
1673	7422	4377	ACPL1		/TABLE OF CHARS
1674	7423	4550	ASUG01		/TRANSFER TABLE
1675	7424	5217	JMP	ASULP1	/NOT A LEGAL REPLY
1676			/		
1677			/		
1700			/		
1701			/		
1702			/		
1703	7425	4577	ASUDD1,	DISC	/DISC IS CHOOSSEN
1704	7426	7410	SKP		
1705	7427	4402	ASUTT1,	TAPE	/TAPE IS CHOOSSEN
1706	7430	1120	TAD	FUNIT	
1707	7431	3103	DCA	INUNIT	
1710			/		
1711	7432	4562	ASULP2,	DECODE	/GET THE OUTPUT UNIT
1712	7433	4703	COUTPUT		/OUTPUT OPTIONS
1713	7434	4573	SEARCH		/LOOKUP REPLY
1714	7435	4377	ACPL1		/REPLY LIST
1715	7436	4554	ASUG02		/WHERE TO GO WHEN FOUND
1716	7437	5232	JMP	ASULP2	/NOT A LEGAL OUTPUT DEVICE
1717			/		
1720			/		
1721			/		
1722	7440	4577	ASUDD2,	DISC	/DISC IS THE CHOOSSEN ONE.
1723	7441	7410	SKP		
1724	7442	4402	ASUTT2,	TAPE	/TAPE IS THE CHOOSSEN ONE
1725	7443	1120	TAD	FUNIT	
1726	7444	3105	DCA	OUTUNIT	/STASH AWAY
1727			/		
1730			/		
1731			/		
1732	7445	1501	TAD	AAMHOW	/GET THE NUMBER OF COPIES TO MAKE
1733	7446	3106	DCA	OUTNUM	/STASH AWAY NOW.
1734	7447	1266	TAD	AASIZ1	/GET THE SIZE OF THE FIRST COPY
1735	7450	3117	DCA	FSIZE	/AND STASH IN THE SIZE PARAMETER
1736	7451	1267	TAD	AABL1	/GET THE FIRST BLOCK NUMBER
1737	7452	3102	DCA	INBLOCK	/AND SET UP THE READ
1740	7453	1102	TAD	INBLOCK	/AND THE

1741	7454	3104	DCA	OUTBLOCK	/AND THE WRITE
1742	7455	4554	COPY		/COPY THE SELECTED BLOCKS.
1743	7456	1270	TAD	AASIZ2	/THE THE SECOND COPY
1744	7457	3117	DCA	FSIZE	/STASH THAT AWAY
1745	7460	1271	TAD	AABL2	/THE THE SECOND STARTING BLOCK NUMBER
1746	7461	3102	DCA	INBLOCK	
1747	7462	1102	TAD	INBLOCK	
1750	7463	3104	DCA	OUTBLOCK	/SET UP FINAL COPY
1751	7464	4554	COPY		/AND DO IT
1752	7465	5552	PIP		/FINALLY RESTART PIP.
1753			/		
1754			/		
1755			/		
1756			/		
1757			/		
1760			/		
1761			/		
1762			/		
1763			/		
1764			/		
1765			/		
1766	7466	0000	AASIZ1, 0		/SIZE OF THE FIRST COPY
1767	7467	0000	AABL1, 0		/BLOCK NUMBER OF THE FIRST COPY.
1770	7470	0000	AASIZ2, 0		/SIZE OF THE SECOND COPY
1771	7471	0000	AABL2, 0		/BLOCK NUMBER OF THE SECOND COPY.
1772			/		
1773			/		
1774			/		
1775			/		
1776			AASUC=AASIZ1		/POINTER TO COMMON TABLE
1777			AASUCS=-AASUC		/SIZE OF MOVE.
2000			/		
2001			/		
2002			/		
2003			/		
2004			/		
2005			/		
2006			/		
2007			/		
2010			/		
2011			/		
2012			/		
2013	7472	0046	ASYSL, TINDEX-DIALSYS		
2014	7473	0300	DIALSYS		
2015	7474	0020	SYSSBLOCK-TINDEX-TILEN		
2016	7475	0350	TINDEX+TILEN		
2017			/		
2020			/		
2021	7476	1000	AUNT1, TUPPER-TLOWER+1		
2022	7477	0000	TLOWER		
2023	7500	0000	0		
2024			/		
2025			/		
2026			/		
2027			/		
2030			/		
2031			/		
2032			/		
2033			/		
2034			/		
2035			/		
2036			/		
2037			/		

2040	/	
2041	/	
2042	/	
2043	/	
2044	/	
2045	/	
2046	/	
2047	/	
2050	/	
2051		EJECT

-

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2052      /
2053      /
2054      /
2055      /
2056      /
2057      /
2060      /
2061      /
2062      /
2063      /      DISK DEFINITIONS.....
2064      /
2065      /
2066      /      DISK DEFINITIONS FOR THE RK08
2067      /
2070      /
2071      /
2072      /
2073      /
2074      /
2075      /
2076      /
2077      /
2100      DMAW=6605
2101      DCMA=6601
2102      DMAR=6603
2103      DEAL=6615
2104      DEAC=6616
2105      DFSE=6621
2106      DISK=6623
2107      DCIM=6611
2110      DSAC=6612
2111      DIML=6615
2112      DIMA=6616
2113      DFSC=6622
2114      DXAL=6643
2115      DXAC=6645
2116      DMAC=6626
2117      /
2120      /
2121      /
2122      /
2123      /
2124      /
2125      /      RK08 DISK DEFINITIONS.
2126      /
2127      /
2130      /
2131      /
2132      /
2133      /
2134      /
2135      /
2136      /
2137      /
2140      /
2141      /
2142      /      DCLA=6751
2143      /      DLOC=6732
2144      /      DLODR=6733
2145      /      DLDW=6735
2146      /      DCHP=6737
2147      /      DRDA=6734
2148      /      DRDC=6736
2149      /      DRDS=6741
2150      /      DCLS=6742

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2151		DMNT=6743
2152		DSKC=6745
2153		DSKT=6746
2154		DSKE=6747
2155		DRWC=6752
2156		DLWC=6753
2157		DLCA=6755
2160		DRCA=6757
2161	/	
2162	/	
2163	/	
2164	/	
2165	/	
2166	/	
2167	/	
2170	/	
2171	/	
2172	/	
2173	/	
2174	/	
2175	/	
2176	/	
2177	/	
2200	/	
2201	/	
2202	/	
2203	/	
2204	/	
2205	/	
2206	/	
2207	/	
2210	/	
2211	/	
2212		EJECT
-		

2213		/			
2214		/			
2215		/			
2216		/			
2217		/			
2220		/			
2221		/			
2222		/			
2223		/			
2224		/			
2225		/			
2226	7501 0000	RF08R,	0		/DISK=READ SETUP ROUTINE
2227	7502 1767		TAD I	RRRT	/ADDRESS OF TREAD
2230	7503 3770		DCA I	WWWI	/MOVE TO TWRITE FOR THE ARGUEMENT GETTER,
2231	7504 5307		JMP	RRC	/GO TO THE COMMON ARG GETTER.
2232		/			
2233	7505 0000	RF08W,	0		/DISK=WRITE SET-UP ROUTINE
2234	7506 7305		CLA CLL	IAC RAL	/+2 IN THE AC TO ADD THE READ ROUTINE ADDRESS
2235	7507 1371	RRC,	TAD	RRR	/POINTER TO THE READ ROUTINE
2236	7510 3372		DCA	RRT	/SAVE IN THE GO- TO LOCATION.
2237	7511 4555		SETA		/INITIALIZE THE ARGUEMENT GETTER
2240	7512 1417		GETA		/GET THE FIRST ARGUEMENT
2241	7513 0060		AND	L7	/CHOP OFF RANDOM UNITS BITS.
2242	7514 3362		DCA	RUNIT	/STASH AWAY NOW.
2243	7515 1417		GETA		/GET THE NEXT ARGUEMENT NOW.
2244	7516 3363		DCA	RLOC	/SAVE AWAY IN THE LOCATION WORD
2245	7517 1417		GETA		/NOW GET THE NUMBER OF BLOCKS TO TRANSFER
2246	7520 3364		DCA	RNUM	/AND STASH AWAY NOW.
2247	7521 1417		GETA		/NOW GET THE FIRST BLOCK TO BE TRANSFERRED
2250	7522 3365		DCA	RFIRST	/AND STASH AWAY ALSO.
2251	7523 1074		TAD	BNUM	/NOW GET THE NUMBER OF BUFFERS AVAILABLE
2252	7524 0060		AND	L7	/JUST GET HOW MUCH GOES INTO FIELD 0
2253	7525 3366		DCA	ROUT	/AND STORE IN THE FIRST TIME THROUGH BIT.
2254		/			
2255		/			
2256		/			
2257		/			
2260	7526 1364	ROK,	TAD	RNUM	/GET THE NUMBER LEFT TO DO
2261	7527 7650		SNA CLA		/STILL SOME MORE???
2262	7530 5774		JMP I	RRRET	/NOPE. EXIT NOW.
2263	7531 1366		TAD	ROUT	/TEST TO SEE IF ITLL FIT THIS TIME.
2264	7532 7041		CIA		/NEGATE.
2265	7533 1364		TAD	RNUM	/NUMBER LEFT
2266	7534 7510		SPA		/TEST NOW
2267	7535 5356		JMP	RFIT	/ITLL FIT. GO AND READJUST COUNT NOT
2270	7536 3364		DCA	RNUM	/STORE AWAY NUMBER TO GO NEXT TIME.
2271	7537 4772	RRTRY,	JMS I	RRT	/GO DO THE DISK OPERATION.
2272	7540 5773		JMP I	RRERR	/DISK ERROR HAS OCCURED.
2273	7541 3363	RRGOOD,	DCA	RLOC	/CLEAR THE LOCATION TO 0000
2274	7542 1362		TAD	RUNIT	/BOP UP TO THE NEXT MEMORY FIELD
2275	7543 1054		TAD	L10	
2276	7544 3362		DCA	RUNIT	/SO THE OVERLAP WORKS CORRECTLY.
2277	7545 1365		TAD	RFIRST	/BOP UP THE BLOCK NUMBER BY THE NUMBER DONE
2300	7546 1366		TAD	ROUT	
2301	7547 3365		DCA	RFIRST	/SO THAT WELL PICK UP FROM WHERE WE LEFT OFF.
2302	7550 1020		TAD	L20	/SET THE NUMBER OF BLOCKS TO DO TO 20
2303	7551 3366		DCA	ROUT	/WHICH IS THE NUMBER IN 1 MEMORY FIELD
2304	7552 5326		JMP	ROK	/AND GO BACK AND DO THE NEXT ONE.
2305		/			
2306		/			
2307		/			
2310		/			
2311		/			

2312		/				
2313	7553	7541	REWERE,	RRGOOD		/IF ACCEPTED AS IS
2314	7554	7537	RRTRY			/TO RETRY THE OPERATION.
2315	7555	7541	RRGOOD			/TO TRY TO SKIP PAST THE ERROR
2316		/				
2317		/				
2320		/				
2321		/				
2322	7556	7200	RFIT,	CLA		/ITLL FIT THIS TIME. SET TO CORRECT OUTPUT NUMBER
2323	7557	1364		TAD	RNUM	
2324	7560	3366		DCA	ROUT	/NUMBER TO DO IS THE EXACT NUMBER
2325	7561	5326		JMP	ROK	/AND GO BACK AND TRY AGAIN
2326		/				
2327		/				
2330		/				
2331	7562	0000	RUNIT,	0		
2332	7563	0000	RLOC,	0		
2333	7564	0000	RNUM,	0		
2334	7565	0000	RFIRST,	0		
2335	7566	0000	ROUT,	0		
2336	7567	1400	RRRT,	TREAD		/POINTS TO TREAD
2337	7570	1412	WWWT,	TWRITE		/POINTS TO TWRITE
2340	7571	7626	RRR,	HEADSK		/POINTS TO A READ DISK ROUTINE
2341	7572	0000	RRT,	0		/FINAL POINTER
2342	7573	7615	RRERR,	RERR		/POINTER TO THE ERROR RECOVERY ROUTINE
2343	7574	1476	RRRET,	TEXT		/MASS I-O EXIT LOCATION
2344		/				
2345		/				
2346		/				
2347		/				
2350			AAMHOW=RF00R			/DEFINE A TEMPORARY FOR THE SPECIAL COPIES
2351		/				
2352		/				
2353		/				
2354		/				
2355		/				
2356		/				
2357		/				
2360		/				
2361		/				
2362		/				
2363		/				
2364		/				
2365		/				
2366		/				
2367		/				
2370			EJECT			

```

2371      /
2372      /
2373      /
2374      /
2375      /
2376      /
2377      /
2400      /
2401      /
2402      /
2403      /
2404      /
2405      7575 0601
2405      7576 4004
2405      7577 1123
2405      7600 1340
2405      7601 0522
2405      7602 2217
2405      RRBAD, TEXT      "FA DISK ERROR
2406      7603 2243
2406      7604 0610
2406      7605 0123
2406      7606 4017
2406      7607 0303
2406      7610 2522
2406      7611 2205
2406      7612 0440
2406      7613 4040
2406      FHAS OCCURRED
2407      7614 4043
2407      "
2410      /
2411      /
2412      /
2413      /
2414      /
2415      /
2416      /
2417      /
2420      /
2421      /
2422      7615 3001  RERR,   DCA      LOC1      /STASH AWAY IN A PLACE I KNOW IS FREE
2423      7616 4564      MOVE
2424      7617 7575      RRBAD
2425      7620 2101      TMAIND
2426      7621 0020      20
2427      7622 1001      TAD      LOC1      /RETRIEVE THE BLOCK NUMBER
2430      7623 4625      JMS I    RREREO    /CALL THE ERROR MESSAGE DISPLAY ROUTINE
2431      7624 7553      REWERE    /LIST OF RETURN OPTIONS.
2432      /
2433      /
2434      /
2435      7625 2037  RREREO, TTBC      /POINTER TO THE ERROR MESSAGE DISPLAY ROUTINE
2436      /
2437      /
2440      /
2441      /
2442      READSK=,      /THE DISK READ ROUTINE GOES HERE.
2443      /
2444      /
2445      /
2446      /
2447      /

```

2450
2451
2452
2453
2454
2455
-

/

EJECT

2456		/			
2457		/			
2460		/			
2461		/			
2462		/			
2463	7626	0000	RFREAD, 0		/RF08 READ-WRITE ROUTINES. READ ENTRY
2464	7627	5234	JMP	RFCOMM	/GO TO COMMEN ENTRY
2465		/			
2466	7630	0000	RFWRITE, 0		/RF08 WRITE ENTRY
2467	7631	1230	TAD	RFWRITE	/REPLACE THE READ ENTRY BY THE WRITE FOR
2470	7632	3226	DCA	RFREAD	/THE RETURN
2471	7633	7305	CLA	CLL IAC RAL	/+2 TO MAKE DMAR A DMAW
2472		/			
2473	7634	1343	RFCOMM, TAD	RFDMAR	/ADD A READ INSTRUCTION TO THE AC.
2474	7635	3275	DCA	RFINST	/NOW STORE AWAY THE CORRECT FUNCTION
2475	7636	6601	DCMA		/CLEAR THE DISK STATUS REGISTER
2476	7637	1740	TAD I	RRLOC	/GET THE LOC TO WHERE WERE GOING TO
2477	7640	1047	TAD	L7777	/SUBTRACT 1 FOR GOOD MEASURE
2500	7641	3351	DCA	RFDBAD	/STORE AWAY NOW
2501	7642	1063	TAD	M6	/SET UP THE RANDOM COUNTER
2502	7643	3066	DCA	TEMP1	/WHICH TIMES OUT THE DISK THERE FLAG.
2503	7644	1741	TAD I	RROUT	/GET THE NUMBER OF BLOCKS TO DO
2504	7645	7053	CIA	RTR	/MOVE TO BITS 0-3 OF THE AC AND
2505	7646	7012	RTR		/NEGATE
2506	7647	7010	RAR		
2507	7650	0064	AND	L7400	/CHOP OFF ANY CRAP WE PICKED UP ON THE WAY.
2510	7651	3350	DCA	RFDBWC	/STASH AWAY NOW
2511	7652	1737	TAD I	RRUNIT	/GET THE FIELD BITS ON
2512	7653	0021	AND	L7770	/AND OUT UNIT BITS
2513	7654	6615	DIML		/AND SET THE FIELD BITS IN THE STATUS REG.
2514	7655	1737	TAD I	RRUNIT	/NOW GET THE UNIT FOR REAL
2515	7656	0060	AND	L7	/JUST THE UNIT BITS
2516	7657	7106	CLL	RTL	
2517	7660	7006	RTL		
2520	7661	7004	RAL		/SHIFT OVER TO EXTENDED DISK BITS
2521	7662	3065	DCA	TEMP	/SAVE FOR A SECOND
2522	7663	1742	TAD I	RRFIRST	/GET THE FIRST BLOCK NUMBER
2523	7664	7012	RTR		
2524	7665	7012	RTR		/IGNORE 4 LOW ORDER BITS
2525	7666	0344	AND	RFL377	/JUST BLOCK BITS OF DISK
2526	7667	1065	TAD	TEMP	/ADD IN DISK SELECTION BITS
2527	7670	6643	DXAL		/SET UP THE DISK ADDRESS.
2530	7671	1742	TAD I	RRFIRST	/RECALL THE STARTING BLOCK NUMBER
2531	7672	4550	ROR6		/ROTAE LOW BITS TO BITS 0-3 OF
2532	7673	7004	RAL		/THE AC. THIS SAVES A LOC.
2533	7674	0064	AND	L7400	/CHOP OFF STRAY CRAP
2534	7675	0000	RFINST, 0		/CORRECT DISK INSTRUCTION GOES HERE
2535	7676	4556	CHECKIO		/CHECK KEYBOARD NOW
2536	7677	2067	ISZ	TEMP2	/INCREMENT THE FAST COUNTER
2537	7700	5304	JMP	RFNOSK	/DIDNT SKIP
2540	7701	2066	ISZ	TEMP1	/NOW INCREMENT THE SLOW COUNTER
2541	7702	5304	JMP	RFNOSK	/IT DIDNT SKIP EITHER
2542	7703	5334	JMP	RF08NO	/DISK FLAG DIDNT RAISE. PROBABLY NO DISK.
2543	7704	6623	RFNOSK, DISK		/AND NOW CHECK THE DISK FLAG
2544	7705	5276	JMP	RFINST+1	/IT DIDNT SKIP EITHER. HANG AROUND.
2545	7706	6621	DFSE		/WAS THERE AN ERROR?
2546	7707	5332	JMP	RFGXT	/NOPE. GOOD RETURN
2547	7710	6616	DIMA		/AN. ERROR. WAS IT A MYTHICAL ONE
2550	7711	0345	AND	RF1003	/THIS CHECKS IMPORTANT BITS
2551	7712	7112	CLL	RTR	
2552	7713	1350	TAD	RFDBWC	/ALSO CHECK TO SEE IF OPERATION COMPLETED
2553	7714	7650	SNA	CLA	/ALL WELL????
2554	7715	5332	JMP	RFGXT	/ALL IS WELL. EXIT

2555	7716	6645	DXAC		/READ IN THE EXTENDED REGISTER
2556	7717	0344	AND	RFL377	/CHOP OFF CRAP
2557	7720	7106	CLL	RTL	
2560	7721	7006	RTL		/ROTATE TO GOOD BLOCK NUMBER BITS
2561	7722	3065	DOA	TEMP	/SAVE FOR A SECOND
2562	7723	6626	DMAC		/NOW PICK UP THE LOW ORDER BITS
2563	7724	0064	AND	L7400	/IGNORE RANDOM WORD STUFF
2564	7725	7106	CLL	RTL	
2565	7726	7006	RTL		/SHIFT INTO CORRECT PLACE
2566	7727	7004	RAL		/WHICH IS BITS 0-11 OF THE AC.
2567	7730	1065	TAD	TEMP	/ADD IN THE CORRECT FACTOR
2570	7731	0626	JMP	1 REREAD	/AND RETURN TO THE CALLER
2571			/		
2572			/		
2573			/		
2574	7732	2226	RFGXT,	ISZ REREAD	/ALL IS WELL. SKIP PAST ERROR RETURN
2575	7733	0626	JMP	1 REREAD	/AND EXIT TO THE USER
2576			/		
2577			/		
2600			/		
2601			/		
2602			/		
2603	7734	4551	RF08NO,	DISPLAY	/DISK FLAG NOT UP. GIVE ERROR MESSAGE
2604	7735	7752	RF08N2		
2605	7736	5334	JMP	RF08NO	/ITS AN INFINITE WAIT.
2606			/		
2607			/		
2610			/		
2611			/		
2612			/		
2613			/		
2614			/		
2615			/		
2616	7737	7562	RRUNIT,	RUNIT	/POINTER TO PREVIOUS SECTION INFO
2617	7740	7563	RRLOC,	RLOC	
2620	7741	7566	RROUT,	ROUT	
2621	7742	7565	RRFIRST,	RFIRST	
2622			/		
2623	7743	6603	RFDMAR,	DMAR	/ACTUAL RF08 DISK READ IOT
2624	7744	0377	RFL377,	377	
2625	7745	1003	RF1003,	1003	
2626			/		
2627			/		
2630			/		
2631			/		
2632			/		
2633			/		
2634			RFDRAD=7751		/DATA BREAK ADDRESS
2635			RFDBWC=7750		/WORD COUNT LOCATION
2636			/		
2637			/		
2640			/		
2641			/		
2642			/		
2643			/		
2644			/		
2645			*RFDBAD+1		/ORIGIN PAST DATA BREAK
2646			/		
2647			/		
2650			/		
2651			/		
2652	7752	0300	RF08N2,	LEFT+300	/ABOUT THE CENTER OF THE SCREEN
2653	7753	0000	TOP=340		

2654	7754	2616
2654	7755	1742
2654	7756	2411
2654	7757	2313
2654	7760	3420

TEXT "END DISK"

2655	/
2656	/
2657	/
2660	/
2661	/
2662	/
2663	/
2664	/
2665	/
2666	/
2667	/
2670	/
2671	/
2672	/
2673	/
2674	/
2675	/
2676	/
2677	/
2700	/
2701	/
2702	/

EJECT

2703		/		
2704		/		
2705		/		
2706		/		
2707		/		
2710		/		
2711		/		
2712		/		
2713		/		
2714		/		
2715		/		
2716		/		
2717		/		
2720		/		
2721		/	*READSK-400	/ORIGIN THIS SECTION INTO FREE AREA.
2722		/		
2723		/		
2724		/		
2725		/		
2726		/		
2727		/		
2730	7226 0000	RKREAD, 0		/RK08 READ ROUTINES
2731	7227 5234	JMP	RKCOMM	/GO TO COMMON AREA
2732		/		
2733	7230 0000	RKWRITE, 0		/RK08 WRITE ENTRY POINT
2734	7231 1230	TAD	RKWRITE	/REPLACE THE READ ENTRY BY THE CORRECT
2735	7232 3226	DCA	RKHEAD	/WRITE ENTRY
2736	7233 7305	CLA CLL IAC RAL		/+2 TO MAKE THE READ A WRITE
2737		/		
2740	7234 1334	RKCOMM, TAD	RKDLDLDR	/ADD IN THE READ INSTRUCTION
2741	7235 3275	DCA	RKINST	/AND SAVE IN THE CORRECT INSTRUCTION WORD
2742	7236 1733	TAD I	RKUNIT	/GET THE FIELD BITS
2743	7237 0021	AND	L7770	/AND LOAD INTO THE COMMAND REGISTER
2744	7240 1107	TAD	RKDRIV	/INSERT CORRECT DRIVE NUMBER NOW.
2745	7241 6732	DLCC		/SEND TO JIMS CONTROLLER
2746	7242 1733	TAD I	RKUNIT	/NOW WELL GET THE UNIT BITS
2747	7243 0060	AND	L7	/JUST THE UNIT PORTION
2750	7244 7112	CLL RTR		/ROTATE TO BITS 0-3
2751	7245 7012	RTR		
2752	7246 1730	TAD I	RKIRST	/NOW ADD IN THE CORRECT BLOCK NUMBER.
2753	7247 3013	DCA	RKTRCK	/SAVE IN THE TRACK POINTER NOW
2754	7250 1732	TAD I	RKLCC	/GET THE CORE LOCATION
2755	7251 1047	TAD	L7777	/SUBTRACT 1 FOR THE D.B.
2756	7252 3014	DCA	RKLOCC	/SAVE IN A LOCATION POINTER NOW.
2757	7253 1731	TAD I	RKOUT	/GET THE NUMBER OF RECORDS TO DO
2760	7254 7041	CIA		/NEGATE IT NOW
2761	7255 3012	DCA	RKCUNT	/SAVE IN THE COUNTER NOW.
2762	7256 5263	JMP	RKNBOP	/DONT BOP UP THE ADDRESS AND TRACK FOR FIRST OPERATION
2763		/		
2764	7257 1014	RKBP, TAD	RKLOCC	/GET THE LAST LOCATION
2765	7260 1040	TAD	L400	/BOP UP BY 400 TO THE NEXT CORE LOC.
2766	7261 3014	DCA	RKLOCC	/AND SAVE IT.
2767	7262 2013	ISZ	RKTRCK	/BOP UP THE SECTOR BY 1 NOW.
2770		/		
2771	7263 7240	RKNBOP, CLA CMA		/PREPARE TO START THE NEXT OPERATION
2772	7264 6742	DCLS		/CLEAR THE STATUS REGISTER NOW.
2773	7265 7200	CLA		/CLEAR THE AC BECAUSE DCLS DOESNT
2774	7266 1023	TAD	M20	/RESET THE TIME OUT COUNTER SO THAT
2775	7267 3066	DCA	TEMP1	/WE'LL KNOW IF WE TAKE TOO MUCH TIME.
2776	7270 1014	TAD	RKLOCC	/GET THE LOCATION TO DO.
2777	7271 6755	DLCA		/SEND IT OUT TO THE CONTROLLER
3000	7272 1064	TAD	M400	/SET THE WORD COUNT TO 1 RECORD (-400 WORDS)
3001	7273 6753	DLWC		/AND SEND IT TO THE CONTROLLER

3002	7274	1013	/	TAD	RKTRCK	/NOW GET THE TRACK AND SECTOR IN THE AC.
3003			/			
3004	7275	0000	/	RKINST, 0		/DO RK08 INSTRUCTION
3005			/			
3006	7276	4556		CHECKIO		/TEST THE KEY BOARD
3007	7277	2067		ISZ	TEMP2	/AND ALSO THE TIME-OUT FLAG
3010	7300	5306		JMP	RKNOSK	/STILL OK
3011	7301	2066		ISZ	TEMP1	/HOW ABOUT THE SLOW COUNTER
3012	7302	5306		JMP	RKNOSK	/STILL OK
3013			/			
3014	7303	4551		DISPLAY		/ERROR . NOT DONE YET. A BOO BOO.
3015	7304	7735		RKBAD817717600		/RK08 BAD MESSAGE FOR ORIGIN AT 7600
3016	7305	5303		JMP	.=2	/WAIT FOREVER
3017			/			
3020	7306	6745		RKNOSK, DSKC		/NOW TEST THE DISK FLAG.
3021	7307	7410		SKP		/NOT COMPLETE. TEST THE ERROR FLAG.
3022	7310	5313		JMP	.+3	/COMPLETE. TEST THE ERROR FLAG ANYWAY
3023	7311	6747		DSKE		/ALSO CHECK THE POSSIBILITY OF AN ERROR WITH NO COMPLETION FLAG.
3024	7312	5276		JMP	RKINST+1	/NOT YET DONE. HANG AROUND AWHILE
3025	7313	6747		DSKE		/TEST THE ERROR FLAG
3026	7314	5323		JMP	RKOUN1	/WEVE FINISHED WITH THIS SECTOR. CHECK FOR MORE TO GO
3027	7315	6741		RKSEKE, DRDS		/READ IN THE STATUS REGISTER
3030	7316	0527		AND	RKL40	/WAS IT A TRACK MISS
3031	7317	7640		SZA CLA		/?
3032	7320	5351		JMP	RKOFF	/IT WAS. DRIVE BLEW IT. A NO-NO
3033	7321	1013		TAD	RKTRCK	/NOW GET THE RECORD THAT FAILED.
3034	7322	5626		JMP I	RKREAD	/RETURN ON AN ERROR CONDITION TO DISPLAY MESSAGE.
3035			/			
3036			/			
3037	7323	2012		RKOUN1, ISZ	RKCUNT	/BOP UP THE RECORD COUNT. DONE?
3040	7324	5257		JMP	RKBOP	/NOT YET DONE. BOP ALL AND GET NEXT.
3041	7325	2226		ISZ	RKREAD	/GOOD OPERATION. GOOD RETURN. ALL IS WELL
3042	7326	5626		JMP I	RKREAD	/RETURN TO CALLER
3043			/			
3044			/			
3045			/			
3046			/			
3047			/			
3050			/			
3051			/			
3052			/			
3053	7327	0040		RKL40, 40		/POINTER TO FIRST BLOCK NUMBER
3054	7330	7565		RKIRST, RFIRST		/POINTER TO THE NUMBER OF BLOCKS TO DO
3055	7331	7566		RKOUT, ROUT		/POINTER TO THE CORRECT LOCATION TO DO
3056	7332	7563		RKLOC, RLOC		/POINTER TO THE UNIT AND FIELD BITS
3057	7333	7562		RKUNIT, RUNIT		/ACTUAL RK08 READ INSTRUCTION
3060	7334	6733		RKDLDL, ULDR		
3061			/			
3062			/			
3063			/			
3064			/			
3065			/			
3066			/			
3067			/			
3070			/			
3071			/			
3072			/			
3073			/			
3074			/			
3075			/	RKLOCC=AUTO5		/CONTAINS THE CORE ADDRESS-1 FOR THE PRESENT TRANSFER
3076			/	RKTRCK=AUTO4		/CONTAINS THE TRACK AND SECTOR PRESENTLY BEING USED
3077			/	RKCUNT=AUTO3		/CONTAINS -THE NUMBER OF RECORDS TO GO.
3100			/			

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3101      /
3102      /
3103      /
3104      /
3105      /
3106      7335 0140 RKBAD, LEFT+140 /SHOULD BE GOOD ENOUGH
3107      7336 0300 TOP=340 /ABOUT THE CENTER
3110      7337 0604
3110      7340 2211
3110      7341 2605
3110      7342 4016
3110      7343 1724
3110      7344 4027
3110      7345 1722
3110      7346 1311
3110      7347 1607
3110      7350 3400
3110      TEXT "FDRIVE NOT WORKING\
3111      /
3112      /
3113      /
3114      /
3115      /
3116      /
3117      /
3120      /
3121      /
3122      7351 3230 RKOFF, DCA RKWRITE /SET UP A COUNT OF 4096 IN A TEMPORARY REGISTER
3123      7352 4551 DISPLAY /DISPLAY THE ERROR MESSAGE FOR A FEW SECONDS
3124      7353 7770 RKOFF28177!7600 /POINTER TO 7600 ERROR MESSAGE
3125      7354 2230 ISZ RKWRITE /INCREMENT AND TEST THE COUNTER
3126      7355 5352 JMP , -3 /DISPLAY FOR ABOUT 10 SECONDS.
3127      7356 7240 CLA CMA /CLEAR THE STATUS REGISTER BITS
3130      7357 6742 DCLS /CLEAR THE STATUS REGISTER
3131      7360 6751 DCLA /DO A POWER CLEAR
3132      7361 4556 RKHANG, CHECKIO /NOW WAIT FOR THE RESYNC OF THE DISC
3133      7362 6747 DSKE /WAS THERE AND ERROR ON THE RECALIBRATE?
3134      7363 7410 SKP /NOPE, NOT YET ANYWAY.
3135      7364 5315 JMP RKSEKE /THERE WAS AN ERROR, GIVE THE MESSAGE
3136      7365 6745 DSKC /IS THE RECALIBRATE FINISHED.
3137      7366 5361 JMP RKHANG /NOPE, WAIT FOR IT.
3140      7367 5263 JMP RKNBOP /RETRY THE OPERATION NOW.
3141      /
3142      /
3143      /
3144      /
3145      /
3146      /
3147      /
3150      /
3151      /
3152      /
3153      7370 0240 RKOFF2, LEFT+240 /ABOUT CENTER SCREEN
3154      7371 0000 TOP=340
3155      7372 0623
3155      7373 0505
3155      7374 1340
3155      7375 0522
3155      7376 2217
3155      7377 2234
3155      TEXT "FSEEK ERROR\
3156      /
3157      /

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NO ERRORS

SYMBOL	VALUE	DEF	REFERENCES
AAA	5303	0544	0511
AAAAAA	5253	0505	0427 0453 0461 0555 0570 0603 0622
AAEND	5454	1035	1056 1062
AAAGET	5403	0747	0332 1015 1026 1033 1040 1062 1065
AAADRG	5354	0616	0454 0515 0624
AAAPUT	5161	0330	0321
AAATAB	5450	1030	1064
AAA1	5216	0427	0437 0443
AAA2	5330	0572	0561
AABLAH	5172	0347	0255
AABLOC	5363	0635	0465 0467 0513
AABL1	7467	1767	1736
AABL2	7471	1771	1745
AACR	5445	1024	1063
AAEND	5226	0447	1076
AAGET	5163	0332	0220
AAGET2	5415	0767	0753
AAGET3	5424	0777	0770 1013
AAGET4	5427	1002	0775
AAGL1	5460	1046	1005
AAG01	5464	1055	1006
AALIM	5367	0641	0011
AALIMC	5164	0333	0234
AALL	5752	1471	1432 1436 1456
AAL00P	5714	1423	1455
AAMHOW	7501	2350	1662 1732
AAOUTB	5356	0620	0471 0514 0610 0621
AAPUT	5200	0411	0330 0430 0434
AASIZ1	7466	1766	1734 1776
AASIZ2	7470	1770	1743
AASUC	7466	1776	1636 1647 1777
AASUCH	7411	1655	1640
AASUCS	0004	1777	1637 1650
AASYSC	7400	1634	1527
AATAB	5223	0441	1077
AAUNIT	5353	0615	0463 0624
AAUNTC	7405	1645	1530
ABAD	5112	0243	0235 0657 0660 0661 0663 0664
ABDIS	5477	1114	1240
ABG1	5761	1522	1251
ABL1	5755	1511	1250
ABSOL	5600	1237	0635 1252
ABSTMP	5765	1613	1246 1267 1355
ACOPR	5636	1314	1376
ACOPR2	5656	1343	1406
ACOPT	5640	1316	1374
ACOPT2	5660	1345	1404
ACOPY	5630	1276	1303 1323 1376 1377 1522
ACOPY2	5650	1326	1333 1351 1403 1407
ACPG1	5674	1373	1302
ACPG2	5700	1403	1332
ACPL1	4377	1371	1301 1331 1673 1714
ACR	5132	0272	0656
ACRCHK	5016	0116	0106
ACRR	5134	0276	0254 0263 0272 0311
AC1	5165	0340	0232 0277 0413
AEND	5113	0247	0230 0665
AEND2	5120	0254	0251
AGETI	5444	1021	0761 0762 0771
AGETN	5704	1412	1322 1350 1465 1474
AGNUM	5731	1440	1324 1352 1420 1444 1450 1453

SYMBOL	VALUE	DEF	REFERENCES
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AG1	5370	0600	0233
AG2	5470	1007	0414
ALASTC	5366	0640	0542 0551 0557
ALD	5750	1463	1420
ALDOP	5067	0210	0240 0243 0273
AL40	5364	0636	0442 0452
AL43	5365	0637	0436 0541 0546 0553
ANTAPE	5065	0211	0253
AOK	5110	0237	0666
AP	5220	0434	0420 0429 1070 1071 1073 1074 1075
APART2	5033	0142	0123 0151
APCR	5221	0436	1067
APUTIT	5150	0310	0237 0257 0262 0301 0305 0310 0322 0325
ASCG0	5174	0306	0111
ASCG02	5377	0676	0146
ASCH1	5017	0121	0312 0350
ASCH2	5043	0160	0676 1566
ASCI1	5000	0074	0637 0112
ASCI1P	4010	0062	0070 1232
ASCLPT	5042	0100	0100
ASCLST	4377	0064	0065 0110
ASCLTO	4377	0060	0145
ASCOU1	4703	0063	0143 1233
ASCT	5024	0132	0357
ASCTT	5047	0167	0677
ASCT1	5020	0122	0362
ASCT2	5044	0161	0702
ASET	1502	0254	0511 0260
ASET1	5162	0331	0201
ASRF8	5022	0130	0361
ASRF82	5045	0160	0701
ASUDD1	7425	1703	1606
ASUDD2	7440	1722	1610
ASUG01	4550	1604	1674
ASUG02	4554	1613	1715
ASULP1	7417	1670	1604 1607 1675
ASULP2	7432	1711	1613 1616 1716
ASUTT1	7427	1705	1605
ASUTT2	7442	1724	1614
ASYSL	7472	2013	1635
AUNTL	7476	2021	1646
AUTO1	0010	0131	1415 1417 1426 1435 1466 1715 1717 1723 1724 1725 1726 1727 1733 1734 1766 1771 1776 2000 2007 2114 2115 2117
			2121 2130 2150 2151 2152 2154 2171 2210 2220 2225 2232 2237 1212 1213
AUTO2	0011	0132	1467 1656 1660
AUTO3	0012	0133	2366 2370 2373 2375 2405 2122 2123 3077
AUTO4	0013	0134	2371 2401 3076
AUTO5	0014	0135	2374 2402 3075
AUTO6	0015	0136	2624
AUTO7	0016	0137	1427 1433 1434 2060 2071
AUTO8	0017	0140	0512 0257
AUXIN	4574	0552	0361 0420 0222
AUXOUT	4575	0554	0507 1216 1221 1242 1310 0324
A377	5443	1020	1014
A5262	5361	0632	0530
A6043	5362	0633	0533
BASSEM	3634	0406	0365 0414 0453
BBBASE	4270	1171	1134
BBBBBJ	4316	1225	1212
BBBHDR	4211	1103	1127
BBBPUT	3627	0400	0367
BBDUMP	4267	1170	1072
BBLT	4376	1313	1205

SYMBOL	VALUE	DEF	REFERENCES
BBNEW0	4342	1252	1243
BBN1	4335	1245	1237
BBN2	4352	1263	1251
BB0INT	4272	1173	1076 1142
BB00T	3551	0250	0126 0130 0132 0146
BB0UT	4273	1201	0557 1206 1232 1276
BBTAPE	3546	0244	0236
BCERR	3775	0577	0457
BCHAR	0105	0414	0357 0432 0441 0530 0531 0535
BCHECK	3771	0573	0356 0375 0455
BCHEX	3621	0371	0404
BCOUNT	0140	0461	0052 1004 1073 1110 1213 1217 1305 1306 0100 0176 0204 0205 0214
BDELZ	0101	0401	0204 0206 1225
BEEND	4261	1157	1152
BEGG	3643	0416	0353 0363 0426 0431 0436 0440 0450
BEILOP	4024	0663	0713
BELOOP	4252	1150	1163
BEND	3676	0453	0364
BEOUT	4045	0704	0700
BETLP2	4037	0676	0707
BEILD	3772	0574	0352 0371 0443 0444
BFIELD	0135	0456	0050 0351 0372 0463 0675 0715 0725 0731 0756 0767 1210 1233 1240 1265 0102 0507 0512 0751 0754
BFLAG1	0102	0411	0053 0065 0066 0225 0234 0310 0476 0076 0121 0122 0173 0215 0247 0152
BFLAG2	0104	0412	0054 0200 0201 0226 0231 0545 1202 0077 0160 0161 0174 0202 0316 1564 0515
BGETI	4173	1051	0701
BGO	3606	0356	0376
BGOLST	3555	0255	0100
BHIGH	3417	0065	1354
BHIGH2	3513	0200	1364
BIDIFF	4115	0763	0735 0743
BIDUMP	4152	1023	0774 1034 1170
BINARY	3400	0042	0636 1000 0060 0102
BINGO	4403	1354	0057
BINGO2	4407	1364	0174
BININP	4610	1762	0043 0062
BINLST	4377	1344	0056 0173 0064 1371
BINOUT	4703	2114	0171 0063
BINTAP	4003	0641	0244
BINTRY	4101	0745	1017
BLODE	3442	0114	0260
BLODYR	3547	0245	0237
BLRF8	3474	0155	1357
BLRF82	3524	0216	1367
BLT	3476	0157	1355
BLT2	3526	0220	1365
BL7345	3501	0162	0203
BMBASE	4164	1042	1010 1025
BMTAB	4167	1045	0660 1000
BNFILE	3600	0347	0245 0461
BNUM	0074	0374	2421 2424 2426 1006 1010 1175 2251
BOADD	4366	1302	1256 1261 1272 1275 1311
BOFIEL	0137	0460	0045 0733 0757 0772 1235 1266
BOLOO	0136	0457	0051 0304 0741 0755 1245 1264 0126 0136 0207
BOLOP	0103	0413	0047 0776 1024 0103 0456 0516 0531 0532 0534 0535 0567 0576 0577 0600 0605 0772 0773 1001
BOTTOM	7400	0300	2016 2301
BPART2	3504	0167	0073 0147 0175 0210
BPODE	3434	0105	0261
BPOINT	4166	1044	0747
BSCOMM	3452	0126	0112
BSETI	4172	1050	0655
BSTGO	3557	0260	0101
BSYS	4206	1100	1105 1125

SYMBOL	VALUE	DEF	REFERENCES
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BTAP	4061	0724	0760 1313
BTEMP1	0132	0453	0657 0665 0712 0771 0775 0777 1007 1143 1150 1160 0506 0544 0556 2562 0574
BTEMP2	0133	0454	0661 0676 0710 1001 1002 1006 0125 0157 0256 0267
BTEMP3	0134	0455	0664 0706 1145 1162 0522 0536 0537 0602 0607
BTEND	4170	1046	0730
BTENT	4200	1072	1046
BTTY	3420	0066	1360
BTTY2	3514	0201	1370
BUFFER	6400	0306	0676 0677 0701 0703 1404 2441 2446 0250 0251 0252 0253 0650 1014 1031 1044 1045 1101 1137 1140 1172 1173 1174
BWORD1	0077	0377	0360 0373 0407
BWORD2	0100	0400	0362 0374 0413
CARD	0001	0167	0303 0305 0672 0272 0512 0555 0604 1435 1454 1766 2004 2013 2026 2050 2057 2121 2137 2162 2203 0105 0115 0116 0154 1551 1606 1612 0032 1023 1346
CBUFF	6510	1057	0776
CCDF	6507	1056	1051
CCERR	4502	1510	1503
CCLOOP	6424	0756	0766
CCMORE	3256	2444	2453
CCOM	3251	2437	2430
CCOPY	3214	2377	0507 2417
CCOUNT	5302	2477	2414 2452
CDBUF	6164	0361	0171 0172 0277 0326 0363 1461
CDCCDC	6467	1023	1014
CDCONT	6004	0073	0316 0317
CDCONT	6001	0070	0274 0323
CDONE	6122	0267	0231
CDEOC	6116	0256	0243
CDFLAG	6000	0051	0124 0162 0167 0257
CDFUNT	6152	0322	0312
CDGONG	6054	0200	0164
CDIL70	6702	1306	1141 1146
CDINIT	6005	0123	0315 0141
CDISK	6600	1134	1135 1165 1234
CDISKC	6601	1135	1034
CDISE	6114	0251	0156 0261
CDLOOP	6132	0302	0324
CDL110	6024	0144	0131
CDL215	6161	0340	0260
CDL240	6040	0163	0247
CDNEXT	6103	0235	0161
CDNXT2	6104	0237	0327
CDPONT	6156	0326	0174
CDREAD	6025	0150	0607 0155 0230 0251 0252
CDSWT	6003	0072	0300 0307 0320
CDTAB	6235	0401	0315
CERR	4477	1502	0577
CHECK1	4556	0513	1337 1473 2020 0611 2576 0474 0544 0560 0574 2535 3006 3132
CINB	3255	2443	2403 2460 2461
CINPUT	4610	1232	1277 1671
CINS	3254	2442	2425 2433 2457 2465
CINU	3252	2440	2401
CLIT01	6461	1015	0733
CLIT02	6512	1061	0734
CLLOOP	6412	0744	0751
CLOOP	6405	0737	0767
CLOWER	0114	0432	1500 1505
CNOTR	6077	0226	0166 0201 0211 0216
CNTRLZ	0073	0373	0475 0506 0534 0104 0226
COPY	4554	0506	0323 1133 1155 1123 1137 1163 1165 1271 1357 1742 1751
COREF	6400	0731	0753 1032 1040
COUNT	0141	0464	1677 1710 1713 1727 2377 2403 1204 1206 1236 1254 1413 1423 1742 1762 2202 2206 2211 2250 2505 2512 0742 075

[illegible]

SYMBOL	VALUE	DEF	REFERENCES
DFOUND	3000	2074	1576
DFSC	6622	2112	
DFSE	6621	2104	2545
DGETNU	2334	1271	1222 1261 1300 1324 1314
DGLEN	2706	1753	1577 1763 2147 2264
DIAL	5553	0504	1544
DIALBO	0300	0231	0724
DIALEX	6176	1474	1467
DIALSY	0300	0232	2013 2014
DIMA	6616	2111	2547
DIML	6615	2110	2513
DINDEX	2415	1406	1374
DIRECT	4563	0530	0311 0165 1117 0137
DISC	4577	0562	0155 0216 0130 0165 1314 1343 1723 1722
DISK	6623	2125	2037 2062 2173 2215 2543
DISKWO	0001	0155	0244 0246
DISPLA	4551	0500	0653 1701 1703 1720 1722 2274 1522 1656 1017 2603 3014 3123
DISREP	3173	2322	2311
DLCA	6755	2157	2777
DLDC	6732	2141	1142 2745
DLDR	6733	2142	3060
DLDW	6735	2143	
DLEN	2414	1405	1376
DLOOK	2475	1500	
DLOOP	2304	1237	1255
DLOOP1	2477	1502	1531
DLOOP2	2534	1542	1554
DLOOP3	2660	1717	1743
DLWC	6753	2156	3001
DL5757	2570	1602	1440
DMAC	6626	2115	2562
DMAR	6603	2101	2623
DMAW	6605	2077	
DMNT	6743	2151	
DNAME	3064	2166	1575 2201 2213 2245 2252 2253
DNBACK	3145	2262	2244
DNGLEN	3147	2264	2172
DNOS	2674	1733	1731
DNUT	3141	2250	2224 2231 2236 2243
DN01	2516	1521	1507 1511
DNPAST	3150	2265	2217
DNPOIN	3146	2263	2167 2173
DOK	3112	2217	2200 2251
DPAST	2717	1765	1600 1772 1775 2051 2265
DPGETL	2371	1332	1205 1211 1273 1317
DPPOINT	2413	1404	1414 1662 2046 2263
DPSTAR	2374	1335	1200
DPSWIT	2375	1336	1202
DRCA	6757	2160	
DRDA	6734	2145	
DRDC	6736	2146	1715 1144
DRDS	6741	2147	1660 3027
DREENT	2453	1446	2134
DRWC	6752	2155	
DSAC	6612	2107	
DSET	6631	1172	1163 1215 1226
DSETP1	6650	1211	1200
DSIZE	2376	1337	1203
DSKC	6745	2152	3020 3136
DSKE	6747	2154	3023 3025 3133
DSKT	6746	2153	
DSOURC	2472	1465	1460

SYMBOL	VALUE	DEF	REFERENCES
DSYSBI	6701	1305	1217
DSYS1	4145	1013	1276
DSYS2	4157	1030	1277
DSYS3	4206	1105	1300
DSYS4	5353	0624	1301
DTAB1	6673	1275	1211
OTHERE	2733	2005	2026 2037 2050
DUP	5614	1257	1531
DWRITE	2634	1666	1663
DXAC	6645	2114	1157 2555
DXAL	6643	2113	1155 2527
DYBACK	2567	1601	1443
DYGLEN	2565	1577	1412
DYGOOD	2435	1426	1422
DYLOOP	2425	1416	1424
DYPAST	2566	1600	1416
DIRECT	2400	1371	0531 2045
DZAP	5017	2113	2106
D1CLOS	2615	1647	1640
D1NOG	2645	1700	1634
D2CLOS	2651	1704	1645
ECHO	0001	0200	0515 0616 1055 2154 2156 2176 2212 2221 2230
ELOWER	0112	0430	1523
EUPPER	0113	0431	1545
EXIT	0246	0710	0505
EXITLO	0251	0713	0715
FBNUM	0122	0441	0314 0321 1654 1655 2153 0644 0654 1121 1523 0466
FCORE	0262	0753	0651
FFILEC	1515	0303	0123
FFTEMP	1537	0330	0307
FILEC	5406	0122	0230 0176 0477
FNAME	0124	0443	2414 2423 2430 1163 1165 1167 1171 1333 1431 2222 2227 2234 2241 2522 2532 2537 0070 0074 0202 0205 1416
FSIZE	0117	0436	2412 2414 2422 2423 2430 0310 1174 1263 1503 1513 1550 1650 1657 2023 2157 2406 2520 2522 2531 2532 2537 0105
FTYPE	0121	0440	0110 0114 0117 0122 0127 0141 0305 1112 1132 1154 0472 1266 1735 1744
FUNIT	0120	0437	1026 2141 2155 2160 2253 2262 2263 2264 1173 1221 1455 2103 2137 2312 0076 0161 0223 0277 1116 0136 0171 0225
			0256 0261 0300 0304 0307 0323 0415 0421 0425 0474 1003 1007 1557 0521 0525 0533
			0312 0317 0350 0362 0363 1172 1224 1400 2552 2554 0133 0140 0145 0303 0642 1123 1525 0464 1241 1317 1344
			1706 1725
FWHAT	0123	0442	0306 1446 2074 0164 1114 0134
GALL	1243	2230	2342
GCLEAR	1006	1665	2314
GCOUNT	1103	1771	1676 1712
GCUNT	4547	1562	1530 1541 1544
GEENUM	4542	1554	1524 1547
GETA	1417	0512	0440 0453 0455 0462 2240 2243 2245 2247
GETI	4525	1537	1051 1557 1021
GETL	4560	0521	1705 1724 0502 0526
GGCLEA	1302	2314	2153 2200
GGIN	1300	2312	2165 2233
GGINSE	1102	1770	1707 1726
GGIMC	1253	2252	2145 2271 2272 0333
GGLINE	1275	2307	2236
GGMAIN	1301	2313	2167 2223
GGMS3	1274	2304	2257
GGNUM	1100	1766	1665 1667 1673 1715
GGTEXT	1104	1772	1742
GIN	1052	1735	1670 1674 1716 1752 1753 1755 1757 2312
GINSER	1200	2136	1770 2146 2237 2240
GINTO	1070	1753	1763
GLEFT	1073	1757	1747
GLIMIT	1277	2311	2151
GLINE	1000	1657	0524 1660 1662 2307

SYMBOL	VALUE	DEF	REFERENCES
GLOOP1	1021	1701	1711
GLOOP2	1040	1720	1730
GMAIN	1007	1666	1731 2100 2313
GMLN	1101	1767	1736
GNLF	1230	2176	2341
GNL334	1307	2330	2216
GRRNO	1242	2221	2215
GRRUB	1232	2205	2343
GNUM	1276	2310	1766 2147 2163 2164 2206 2210 2232
GNXIT	1210	2146	2345 2346 2347 2350 2351 2354
GOK	4543	1555	1542
GPLACE	4540	1552	1545
GPLACE2	4546	1561	1546 1555 1556
GPUT	1226	2166	2162
GSPG1	1315	2341	2144
GSPL1	1303	2322	2143
GTEXT	1120	2015	1704 1723 1772 1334
GUNIT	4537	1551	1526
G1	1022	1702	1661 1663
G2	1041	1721	1664
HHPOP	3321	2526	0115 2533
HHPUSH	3313	2516	0117 2523
HHTEMP	3327	2536	0330 2521 2530 2537
HPOP	4403	0114	0316 0641 0653 0200
HPUSH	4404	0116	0167 1120 0140 0475
ILEN	0111	0427	1375 1754
INBLOC	0102	0403	0411 0322 2402 1130 1135 1157 1260 1325 1737 1740 1746 1747
INDEX	0110	0426	1373 1515 1555 1653 2550 2551
INITOV	0222	0651	1061
INSULT	0513	1066	1020
INUNIT	0103	0404	0413 0320 2400 1126 1257 1320 1707
IOCD	0766	1562	1542
IOCHEC	0743	1521	0514 1524 1556
IOCP	0767	1563	1545
JACKS	0204	1504	1471 1514
KEYCHA	0072	0372	0657 1550 1555 2001 2007
LBMAX	0054	2021	2511
LBNUM	0006	2020	1767 2021 1337
LCB	6662	0477	0673 1426 1433
LCF	6652	0474	0577 1362
LEADER	4405	0120	0233 1222 0204 0264
LEFT	0000	0276	0772 2014 1102 2300 2322 1427 1510 1762 2114 1114 1066 2652 3106 3153
LINE	4561	0523	1175 2150 2214
LINEB	1120	2014	2015 2033
LLB	6654	0475	0602
LLEDER	3303	2503	0121 2512
LLPEJ2	5777	1571	1563
LOC1	0001	0111	1401 1440 1441 2626 2627 2422 2427
LPCOL	6322	0543	0554 0566 0571 0631
LPCOMM	6316	0534	0573
LPCR	6337	0570	0620
LPEJ2	6323	0550	1571 0557 0640 1422
LPEND	6371	0640	0621
LPEXIT	6320	0541	0532 0535 0635
LPM204	6374	0647	0553 0570 1414
LPM320	5776	1570	1560
LPPUT	6333	0564	0534 0552 0556 0606 0627
LPR	6664	0500	0604 1426 1433
LPSEQ	6321	0542	0520
LPTAB	6361	0626	0617 0634
LPTST	6275	0513	0610 0517
LPT2	5765	1556	0155 1562 1613

SYMBOL	VALUE	DEF	REFERENCES
LPWFIT	6343	0574	0567
LP08BA	6600	1421	1427 1430 1431 1432
LP08B2	6200	1422	1427 1430 1431 1432
LP08LP	6711	1363	1367 1371
LP08LT	6720	1372	1377 1400
LP0801	0240	0672	1405
LP0802	6324	0551	1406
LP0803	6332	0555	1407
LP0804	6341	0572	1410
LP0805	6350	0601	1411
LP0806	6353	0604	1412 1432
LP0807	6363	0630	1413
LP08P0	6727	1405	1375
LP08PT	6737	1426	1372
LP08TS	6703	1355	1027 1305 1374
LP1	6160	0337	0523
LP2	6356	0617	0524
LP212	6375	0650	1431
LP214	6376	0651	1427 1430
LP40	6373	0646	0626
LSD	6661	0476	0575 1363
LSE	6651	0473	
LUNOAD	1154	2047	2352
L10	0054	0347	0356 0361 1031 2275
L100	0025	0320	2267 1255 1012 0246 0530
L177	0142	0465	2137 0223
L20	0020	0312	0662 2062 2302
L200	0026	0321	1414 2140 2506 0107 0136 0224 1032 1037
L30	0061	0355	0165 0442 1036
L333	0051	0344	1220
L377	4165	1043	0746
L4	0055	0350	1465 2113 2147
L40	4171	1047	0666
L400	0040	0333	0535 0536 0545 0552 0137 2765
L4000	0030	0323	1024 2005 2625
L4020	3550	0246	0116
L5000	0031	0324	0516
L54	0041	0334	1325
L5757	0116	0435	2116 2127 2207
L60	0035	0330	
L6000	0032	0325	0120 0123 0142
L7	0060	0354	0175 1770 2553 0134 0766 0441 1242 0632 1046 1656 2241 2252 2515 2747
L70	3774	0576	0442
L700	0036	0331	0433 1241
L7000	0033	0326	0476 0504 0542
L7400	0064	0360	0361 0737 0754 2507 2533 2563
L77	0024	0317	1461 2161 1244 1247 1215 1220 1254 1260 1271 1274 0426 0575 1002 1154 1161
L7700	0053	0346	1751 1243 0275 0566
L7740	0056	0351	0352 1760
L7757	0034	0327	0530
L7770	0021	0314	1767 2205 0572 1012 1176 2512 2743
L7777	0047	0342	1212 1447 1452 1456 1461 2075 2100 2104 2107 2140 2143 2170 0477 0546 1005 1044 1512 2477 2755
MAINDI	0263	0772	0621 0654 1657
MANDM1	4422	1412	1423
MANDM2	4423	1413	1422 1424
MAORN	4424	1416	1407
MGOTO	4427	1422	1410
MMEXIT	1351	2405	2400
MMORE	4432	1427	1405
MMOVE	1327	2363	0533 2365
MON	7240	0273	0647 1352 1360 1456 2205 2364 2367 2372 0255 0303 0470 0736 1162 1164 1166 1170 1201 1526 1533 1564 1647 1713
			2006 2555 0224 0462 0714 1005 1522 1527 0172 0260 0306 0517 0572 2764 0777 0551 0555 1173

SYMBOL	VALUE	DEF	REFERENCES
MORE	4413	1403	2376 1411 1412 1413 1444 1463 1464
MOVE	4564	0532	0675 0711 2411 2422 2732 1461 1467 1661 2517 2527 2546 1136 2174 1201 1225 1227 1474 1474 1634 1645 2423
MTHREE	7346	0275	0151 0514
M1W0	7344	0274	0151 0044 0771
M10	0021	0313	0314 1363 1777
M12	0037	0332	
M20	0023	0316	1404 1405 1445 2774
M200	3632	0403	0434
M212	0144	0467	1264 2504 2522
M215	0143	0466	1061 0514 1624 1465
M232	3773	0575	0504 0532
M240	0146	0471	0416
M32	0052	0343	1213
M322	0027	0322	2313
M34	0052	0345	1464
M340	0147	0472	2254 2265 0422 0526
M377	0145	0470	0421
M4	0022	0315	1376 1377 1235 1357
M40	0050	0352	2261 0656 1144 1010 0244 1015
M400	0064	0361	0506 0511 0663 1543 0521 0606 3002
M43	0062	0356	1470
M54	0042	0355	1322
M5757	0057	0353	1420 1720 2176
M6	0063	0357	1367 2501
M60	0043	0336	1276 1312
M70	0044	0337	1302
M73	0045	0340	1230
M77	0046	0341	1251
N0	4567	0540	1425 1451 1703 2156 0447 1075 1444 1463 1633 0613 0140
N0DIS	3151	2273	0541
N0N0DI	3155	2300	2275
N0SUCH	4560	1632	0074 0076 0077 0110 0111 0112 0133 0134 0135 0136 0140 0141 0142
ORIGIN	0130	0451	0046 0370 0402 0672 0704 0736 0745 0753 0763 1247 1252 1257 1263 0101 0520 0560 0573 0765 0767 1000
OUTBLO	0104	0405	0412 0315 2404 1122 1146 1156 1261 1353 1741 1750
OUTNUM	0106	0407	0650 0304 2413 2556 1270 1356 1733
OUTUNI	0105	0406	0414 0313 2411 1124 1263 1347 1726
OVEREX	0247	0711	1472
OVERLE	0007	1514	1473
PALT	0730	1500	1443
PCHAR	0736	1506	1362 1366 1424 1462 1463 1467 1515
PCOM	0714	1461	1455
PCSW	0737	1621	1361 1372 1374 1402 1412
PDCAVR	0612	1347	1410
PDIS	0731	1501	1341 1343 1345 1346 1350
PDO	0636	1374	1371
PFLICK	0001	0204	1442 1477 2620
PFOUR	7307	0271	0246 1434 0451
PGETL	0702	1447	1357 1373 1444 1472 1514
PHOR	0732	1502	1344 1400
PINST1	0601	1336	1354
PIP	5552	0502	1547 0324 0465 0717 1164 1223 0265 1272 1360 0641 1752
PIPG0	0213	0655	0624
PIPL	0202	0620	0625
PIPLST	0210	0631	0623
PIPPIP	0200	0615	0503
PL00P	0663	1424	1445
PMORE	0076	0376	0460 0252
PNOT1	0651	1407	1355 1411
PONE	7201	0260	0267 1666 1714 2231 0523 1131 1153 1207 0133 0135 0170 0473 1430 1244 1262 1434
POP	4565	0534	1407 1673 2126 2316 1107 0476 1354
POTHER	3372	2623	1500 2630
PPAST	0635	1373	1365

SYMBOL	VALUE	DEF	REFERENCES
PPDIS	0600	1335	0501 1340 1342 1466
PPOP	1360	2417	0535 2424
PPSTAR	0621	1357	1474
PPTEMP	1366	2427	2413 2421 2430
PPUSH	1352	2410	0537 2415
PRIGHT	0711	1456	1451
PSIX	7327	0272	
PSTART	0734	1504	1351 1452 1453 1460 1335
PSWITC	0735	1505	1353 1450 1457 1336
PTABLE	0747	1525	1426
PTHREE	7325	0270	0272 0630
PTWO	7305	0267	0270 0271 1437 1672 0305 1464 2112 2145 0111 0160 0222 1113 1115 1035
PUSH	4566	0536	1377 1665 2120 2131 2307 0221 0177 1321
PUTL	4407	0124	1063 1066 2157 2217 0552
PUTWOR	4576	0556	0401 0464 0703 0716
PVER	0733	1503	1347 1406 1407 1430
RCRA	6632	0107	0202
RCRB	6634	0110	
RCRD	6674	0113	0271
RCSO	6671	0111	0227
RCSE	6672	0112	0165
RCSF	6631	0106	0200
READ	4571	0544	1402 2437 0646 1012 1445 1464 1550 1504
READEN	0260	0726	0713 0714
READIN	0254	0720	0712 0713 0714
READSK	7626	2442	2340 2721
REMAKE	0000	0175	1116 1132 1512 1523
REPOIS	3161	2306	0543 2315 2317
REPLAC	4570	0542	2125 2327
HERR	7615	2422	2342
RESTAR	0216	0645	0615 0704 0710
RESTST	0261	0736	0667
REWERE	7553	2313	2431
RFCOMM	7634	2473	2464
RFD8AD	7751	2634	2500 2645
RFD8WC	7750	2635	2510 2552
RFDISK	1540	0347	0563 0364
RFDMAR	7743	2623	2473
RFGXT	7732	2574	2546 2554
RFINST	7675	2534	2474 2544
RFIRST	7565	2334	2250 2277 2301 2621 3054
RFIT	7556	2322	2267
RFLJ77	7744	2624	2525 2556
RFNOSK	7704	2543	2537 2541
RFREAD	7626	2463	1231 1232 2470 2570 2574 2575
RFWRIT	7630	2466	2467
RF08	0001	2215	0244 0246 0421 0560 0700 0702 0072 0101 0122 0131 0160 0410 0501 0532 0673 0153 0214 1346 1356 1366 1600 1766 2004 2026 2050 2121 2137 2162 2203 0126 0163 0360 0700 1116 1154 1312 1341 1375 1405 1514 1525 1744 1030 1035 1037 1121 1572
RF08NO	7734	2603	2542 2605
RF08N2	7752	2652	2604
RF08R	7501	2226	0103 0104 0105 0106 2350
RF08W	7505	2233	0124 0125 0126 0127
RF1003	7745	2625	2550
RK8AD	7335	3106	3015
RKBOP	7257	2764	3040
RKBST	6213	1517	1203 1475
RKBTST	0750	1541	1202 1207 1245 1476 1501
RKCHAR	6164	1462	1246
RKCOMM	7234	2740	2731
RKCUNT	0012	3077	2761 3037
RKDLDR	7334	3060	2740

SYMBOL	VALUE	DEF	REFERENCES
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RKDRIV	0107	0422	0167 2744
RKDUN1	7323	3037	3026
RKHANG	7361	3132	3137
RKINST	7275	3004	2741 3024
RKIRST	7330	3054	2752
RKLOC	7332	3056	2754
RKLOCC	0014	3075	2756 2764 2766 2776
RKL40	7327	3053	3030
RKNBOP	7263	2771	2762 3140
RKNOSK	7306	3020	3010 3012
RKOFF	7351	3122	3032
RKOFF2	7370	3153	3124
RKOUT	7331	3055	2757
RKREAD	7226	2730	1230 2735 3034 3041 3042
RKSEKE	7315	3027	3135
RKSETU	6671	1245	1206
RKSTAT	4576	1670	1652 1725 1244
RKSTTP	4607	1725	1717
RKTRCK	0013	3076	2753 2767 3002 3033
RKUNIT	7333	3057	2742 2746
RKWRIT	7230	2733	2734 3122 3125
RK70	1556	0370	0164 0354 0357 0360
RL0C	7563	2332	2244 2273 2617 3056
RNUM	7564	2333	2246 2260 2265 2270 2323
R0K	7526	2260	2304 2325
R0R6	4550	0476	1454 1214 1253 1270 0774 2531
ROUT	7566	2335	2253 2263 2300 2303 2324 2620 3055
RRBAD	7575	2405	2424
RRC	7507	2235	2231
RRERED	7625	2435	2430
RRERR	7573	2342	2272
RRFIRS	7742	2621	2522 2530
RRGOOD	7541	2273	2313 2315
RRLOC	7740	2617	2476
RROUT	7741	2620	2503
RRR	7571	2340	2235
RRRET	7574	2343	2262
RRRT	7567	2336	2227
RRT	7572	2341	2230 2271
RRTRY	7537	2271	2314
RRUNIT	7737	2616	2511 2514
RSIX	0070	1576	0477 1602
RUNIT	7562	2331	2242 2274 2276 2616 3057
SAVEST	0260	0735	0646
SEARCH	4573	0550	0622 2142 1060 0055 0077 0172 1406 0107 0144 0231 0412 1004 1247 1300 1330 0522 1672 1713
SEQCIN	3776	0607	0515
SEQCOM	3740	0530	0517 0525
SEQEXT	3767	0565	0541
SEQIN	3711	0473	0553 0510 0536 0543 0551 0563 0542
SEQLP	3777	0610	0556
SEQN1	3727	0512	0503
SEQOUT	3747	0542	0555 0553 0566
SEQO2	3761	0555	0550
SEQTST	3720	0502	0516 0523
SEQTTY	3736	0526	0501
SETA	4555	0510	0437 2237
SETI	4514	1521	1050 1531 0331
SSERCH	0334	1011	0551 1013 1015 1016 1020 1040
SSLOOP	0344	1022	1042
SSNO	0356	1035	1030
STAR20	0001	0220	0525 0627 0756
STATLP	4567	1656	1664

SYMBOL	VALUE	DEF	REFERENCES
STATRS	4562	1650	0730 1603
STATSV	4600	1713	0735 1720
STL6	4606	1724	1716
SYSBBL	0370	0242	1042 1171 2635
SYSBIN	0001	0243	1013 1030 1100 2615
SYSBSP	0011	0247	1305
SYSERR	7402	0527	1454 1463 2102 2111 2145
SYSHDR	0447	0251	1103
SYSBBL	0370	0250	2015
SYSWT	0467	0233	0041
TABLED	0420	1107	1525 1535
TAPE	4402	0112	0352 0157 0220 1445 1776 2015 2036 2061 2131 2147 2172 2213 2132 0167 1124 1140 1164 1316 1345 1725 1724
TAPER	1453	0212	0071
TAPEW	1464	0227	0121
TAXO	1704	0561	0443 0477 0500 0503 0541
TBEXIT	1754	0640	1004
TBLAH	1600	0436	0272 0446 0452 0457 0640
TBLAHT	2036	1004	0703
TBLOCK	1720	0575	0464 0471 0472 0602 1001
TBLOKK	2033	1001	0737
TBREG	0005	1026	1030 1045
TCHEKE	1755	0645	0035
TCOUNT	1761	0656	0461 0524 0630 1002
TDOC	1752	0636	0633
TDOWN	1644	0511	0475
TEERNT	1513	0274	0216 0233
TEMAIN	1764	0661	0017 0645 0647
TEMP	0065	0364	1014 1022 1032 1033 1036 1041 1737 1740 1744 0153 0154 0155 0163 0172 0202 1223 1262 1272 1305 1313 1675 1676
TEMP1	0066	0365	0750 0752 0203 0217 0565 0600 0736 0737 0740 0752 0772 1216 1220 1360 1370 2521 2526 2561 2567
TEMP2	0067	0366	1743 1750 1754 2536 3007
TEMP3	0070	0367	1234 1245 1250 1252 1253 2010 2011 2020 2030 2031 2032 1303 1304 1307
TEMP4	0071	0370	0570 0577 2174 2175 0417 0424 0427
TERENT	1512	0273	0215
TERMC	0000	0173	2325 2344 0344 0447 0662 1047 1055 1057 1061 1072
TERRC1	1762	0657	0612
TERRC2	1763	0660	0515 0614
TERRROT	2031	0771	0750
TEXIT	1476	0246	0224 2343
TILEN	0002	0235	0427 2563 2015 2016
TINDEX	0346	0234	0426 2562 2013 2015 2016
TKOUNT	2034	1002	0761
TLOC1	1715	0572	0454 0473 0512 0534 0546 0547 0553 0554
TLOOP	1652	0523	0637
TLOOP2	1730	0607	0625
TLOWER	0000	0236	0430 2564 2021 2022
TLP1	1675	0551	0540 0544
TMAIND	2101	1104	0734 1057 1105 2425
TMAINE	2005	0724	0661 0730 1026
TMESS1	2202	1117	0620
TMESS2	1557	0676	0646
TMESS3	1765	0702	0650
TNT2LG	1740	0622	0613 0615
TOP	0340	0277	0773 1103 2323 1430 1511 1703 2115 1115 1067 2653 3107 3154
TOPR	1717	0574	0447 0450 0527 0531
TOUT1	2132	1107	1031
TOUT2	2133	1110	
TREAD	1400	0067	0545 0213 0351 0353 2336
TRENT	1627	0470	0273 1000
TRENT2	1646	0514	1003
TRENT3	2026	0761	0747 0751

SYMBOL	VALUE	DEF	REFERENCES
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TSELER	1757	0647	0625
TSKP	1750	0634	0270
TSTOPR	1727	0564	0451
TSYSLO	0272	0240	0432 2566
TSYSUP	0467	0241	0435 2567
TTAPE	0340	2545	0113 2557 2575 2611
TTAPEW	1514	2275	0232
TTBC	0237	1023	0740 1054 2435
TTBLAH	1511	0272	0220 0234 0241
TTBLP	0244	1033	1050
TTBLK	0246	1035	1027 1040
TTG1	0223	0747	0741
TTRENT	0032	1020	0274 0771
TTRENT2	0035	1003	0762
TTSKP	1527	0270	0217 0231 0240
TTS1	0074	1067	1061
TTS2	0072	1062	1055
TTTSET	0353	2552	2547
TTTSKP	1510	2271	0230
TTYCR	0364	1060	0520 1067
TTYGET	1105	1777	0522 2003 2004 2011
TTYPUT	0361	2574	0125 2504
TUPPER	0777	0237	0431 2565 2021
TWHERE	1424	0150	0070 0120 0152 0176 0177 0200 0201 0203 0204 0205
TWRITE	1412	0117	0547 0214 0247 0252 0251 0256 0275 0287
ULJ00	1175	2077	0047
UNLOAD	1155	2054	2553
UNLOOP	1162	2063	2272
UNPOS	1173	2074	2054
WRITE	4572	0546	1066 2444 1027 1077 0614
WWWT	7570	2337	2230
ZERO	7200	0265	0266

