```
00010                    XLIST
```

01970

```
00030
00040
00050      EXTERNAL STODAT, ADVBFF, IOSET, SETIOD, SETBYT, STOSQD
00060      EXTERNAL CDRSAV, CDRCHN,  CDRRET,ILLOUT,PIOMOD
00070      INTERNAL CDRINT
00080
00090      ;DEVICE DATA BLOCK LINKAGE
00100      EXTERNAL CDRDB,CDRDAT,CRDIS
00110      ENTRY CDRDSP
```

```
00120
00130
00140
00150      ,CDR PARAMETER ASSIGNMENTS
00160
00170      ,    CDR CONTROL REGISTER
00180                CRDONE=10;          DONE FLAG
00190                CRBUSY=20;          BUSY FLAG
00200                CRBIN=40;           BINARY
00210                CRALL=100;          ALL FLAG
00220                CRMISS=200;         DATA MISSED
00230                CREOC=400;          END OF CARD
00240                CREOFF=1000;        END OF FILE
00250                CRERR=2000;         ERROR
00260                CHCHN=2
00270      ,    ACCUMULATORS
00280                CRDAT1=TEM
00290                CRAC=JDAT
00300
00310      ,    SPECIAL IO STATUS WORD ASSIGNMENTS
00320                CRMFST=40000;       FIRST CARD
00330                CRMBIN=200000;      BINARY
00340                CRMIMG=100000;      IMAGE
00350      ,    SPECIAL CHARACTERS
00360                S2EOF=32;           END OF FILE
00370
00380      REPEAT 0,<
00390      ,CDR DATA BLOCK
00400
00410      CDRDAT:   SIXBIT /CDR/
00420       34
00430       0
00440       EXP CDRDSP
00450       XWD 1400+PROG,10403
00460       0
00470       0
00480       XWD PROG,0
00490       0
00500       0
00510      CRDIS:    JRST .
00520      >

00530
00540      ,CDR SERVICE DISPATCH TABLE
00550
000000  711600 000000  00560      CDRDSP:   CONO CR,0 ;RELEASE
000001  263140 000000  00570                POPJ PDP,;          CLOSE
000002  254000 000000  00580                JRST ILLOUT         ;OUTPUT
000003  254000 000004' 00590                JRST CRINP;         INPUT
```

```
                                00600
                                00610
000004  621000 000002   00620   CRINP:  TLZ IOS,IOBEG;          VIRGIN DEVICE?  IOBEG:=0
                                00630
000005  661000 040004   00640   CDRIN1: TLO IOS,IOFST+CRMFST;           IOFST:=CRMFST:=1
000006  135040 000000   00650           LDB TAC,PIOMOD
000007  306040 000014   00660           CAIN TAC,B;             MODE=BINARY?
000010  661000 200000   00670           TLO IOS,CRMBIN;         YES.  CRMBIN:=1
000011  306040 000010   00680           CAIN TAC,I;             MODE=IMAGE?
000012  661000 100000   00690           TLO IOS,CRMIMG;         YES.  CRMIMG:=1
000013  660000 010000   00700           TRO IOS,IOACT;          IOACT:=1
000014  202006 000002   00710           MOVEM IOS,DEVIOS(DEVDAT)
000015  260140 000000   00720           PUSHJ PDP,SETBYT;       TAC0-5:=TAC12-13:=0; TAC6-11:=BYTE SIZE
000016  202046 000010   00730           MOVEM TAC,DEVPTR(DEVDAT)
000017  201040 000000   00740           MOVEI TAC, CDRCHN;      ASSIGN PI CHANNEL
000020  711601 000160   00750           CONO CR,CRBIN+CRALL+CRBUSY(TAC);        SELECT BINARY, ALL
000021  263140 000000   00760           POPJ PDP,;              RETURN
```

```
                                00770
                                00780
000022  711740 000010   00790   CDRINT:  CONSO CR,CRDONE;     DONE FLAG?
000023  254000 000022'   00800            JRST CDRINT
000024  264000 000000   00810            JSR CDRSAV;                  SAVE ACCUMULATORS AND ESTABLI
000025  201300 000000   00820            MOVEI DEVDAT,CDRDAT
000026  200006 000002   00830            MOVE IOS,DEVIOS(DEVDAT)
000027  711700 002200   00840            CONSZ CR, CRMISS+CRERR;      DATA MISSED OR ERROR?
000030  660000 200000   00850            TRO IOS,IODERR;      IODERR:=1
000031  711440 000010   00860            DATAI CR, CRDAT1;    INPUT INFORMATION
000032  260140 000000   00870            PUSHJ PDP,IOSET;     PROG:=C(JBTADR18-35), ITEM:=C(DEVPTR)
000033  627000 040000   00880            TLZN IOS,CRMFST;     FIRST CARD?  CRMFST:=0
000034  256000 000000   00890            XCT CRDIS            ;NOT FIRST, GO TO SUBROUTINE
                        00900
000035  640400 007400   00910   CRFIRS:  TRC CRDAT1, 7400;     FIRST COL OF FIRST CARD
000036  646400 007400   00920            TRCN CRDAT1,7400;    Y, X, 0, OR 1 PUNCH?
000037  254000 000047'   00930            JRST CREOFC;                 NO, END OF FILE CARD
000040  711700 001000   00940            CONSZ CR, CREOFF;    END OF FILE?
000041  254000 000051'   00950            JRST CREOF;                  YES
000042  603000 200000   00960            TLNE IOS,CRMBIN;     CRMBIN=1?
000043  254000 000125'   00970            JRST CRFSTB;         YES
000044  603000 100000   00980            TLNE IOS,CRMIMG;     CRMIMG=1?
000045  254000 000144'   00990            JRST CRFSTI;         YES
000046  254000 000067'   01000            JRST CRFSTL+1
                        01010
                        01020
000047  201040 000017'   01030   CREOFC:  MOVEI TAC,CDRCHN     ;WAIT FOR EOC
000050  711601 000020     01040            CONO CR,CRBUSY(TAC)
000051  661000 000040     01050   CREOF:   TLO IOS, IOEND;      IOEND:=1
000052  201240 000032     01060            MOVEI DAT,S2EOF
000053  260140 000000     01070            PUSHJ PDP,STODAT;    STORE END OF FILE CHARACTER
000054  330000 000000     01080            SKIP
000055  254000 000217'   01090            JRST CRLST2;         BLOCK FULL OR BLOCK COMPLETE
000056  201040 000056'   01100            MOVEI TAC,.;         DATA STORED PROPERLY
000057  542040 000034'   01110            HRRM TAC, CRDIS;     SET DISPATCH TO RETURN HERE.
000060  711740 000400     01120            CONSO CR, CREOC;     END OF CARD?
000061  254000 000226'   01130            JRST CREXIT;         NO.
000062  260140 000000     01140            PUSHJ PDP,ADVBFF;    ADVANCE BUFFER
000063  330000 000000     01150            SKIP
000064  661000 000002     01160            TLO IOS,IOBEG;       IOBEG:=1
000065  254000 000231'   01170            JRST CROFF
                        01180
000066  260140 000164'   01190   CRFSTL:  PUSHJ PDP, CRITMS;   STORE ITEM
000067  201040 000074'   01200            MOVEI TAC,CRCV;      TAC:=CRCV.  HOLLERITH READ
                        01210
000070  711640 000002     01220   CRREST:  CONI CR, TAC1
000071  620100 000160     01230            TRZ TAC1, CRBIN+CRALL+CRBUSY; SELECT HOLLERITH, ALL:=0, BUS
000072  711602 000000     01240            CONO CR, (TAC1);     RESET CARD READER
000073  254000 000112'   01250            JRST CREXT1;         CHANGE DISPATCH AND GO
                        01260
```

```
                                01270
                                01280
                                01290      , HOLLERITH READ MODE
                                01300
000074  200440 000241'          01310      CRCV:     MOVE CRAC, [POINT 6,CRDAT1,23];          COLUMNS 79 AND 80
000075  711740 000400            01320                CONSO CR,CREOC;      END OF CARD?
000076  200440 000142'          01330                MOVE CRAC,CRC1;      NO.  LOOK AT ALL CHARACTERS
000077  134040 000011            01340                LDBI TAC,CRAC        ;CONVERT HOLLERITH
000100  231040 000005            01350                IDIVI TAC, 5;        TO ASCII
000101  135242 000206'          01360                LDB DAT, CRCV1(TAC1)
000102  260140 000053'          01370                PUSHJ PDP,STODAT;    STORE IN BU FER
000103  254000 000052'          01380                JRST CREOF+1
000104  254000 000115'          01390                JRST CRINS
000105  603440 760000            01400                TLNE CRAC, 760000;   WORD COMPLETE?
000106  254000 000077'          01410                JRST CRCV+3;         NO
000107  711700 000400            01420                CONSZ CR,CREOC;      END OF CARD?
000110  254000 000115'          01430                JRST CRINS;          YES
000111  201040 000074'          01440                MOVEI TAC, CRCV;     NEXT DISPATCH TO CRCV.  HOLLERITH READ
                                01450
000112  542040 000057'          01460      CREXT1:   HRRM TAC, CRDIS;     UPDATE DISPTACHER
000113  254000 000226'          01470                JRST CREXIT
000114  000000 006424            01480      CRCON:    OCT 6424
                                01490
000115  200440 000143'          01500      CRINS:    MOVE CRAC,CRC2;      BLOCK FULL OR BLOCK COMPLETE  INSERT CR
000116  134240 000011            01510                LDBI DAT, CRAC
000117  260140 000102'          01520                PUSHJ PDP,STODAT;    STORE CHAR
000120  330000 000000            01530                SKIP;                EXIT1.
000121  254000 000217'          01540                JRST CRLST2;         EXIT2.  BLOCK FULL OR BLOCK COMPLETE
000122  603440 760000            01550                TLNE CRAC,760000;    THATS ALL?
000123  254000 000116'          01560                JRST CRINS+1;        NO
000124  254000 000213'          01570                JRST CRLAST;         END OF THE CARD
                                01580
```

```
                                01590
                                01600      ,BINARY READ MODE
                                01610
000125  135040 000242'          01620      CRFSTB:   LDB TAC,[POINT 3,CRDAT1,35];  7-9 PUNCH?
000126  302040 000005            01630                CAIE TAC, 5
000127  660000 400000            01640                TRO IOS, IOIMPM;     YES.  IOIMPM:=1
000130  711640 000001            01650                CONI CR, TAC
000131  620040 000120            01660                TRZ TAC, CRBUSY+CRALL;         BUSY FLAG:=0, ALL FLAG:=0
000132  711601 000000            01670                CONO CR,(TAC);       RESET TO RE-READ COL 3
000133  201040 000135'          01680                MOVEI TAC, CRCOL2;  DISPATCH TO CRCOL2 ON NEXT INTERRUPT
000134  254000 000112'          01690                JRST CREXT1
                                01700
000135  201040 000137'          01710      CRCOL2:   MOVEI TAC, CRCOL4;  DISPATCH TO CRCOL4 ON NEXT INTERRUPT
000136  542040 000112'          01720                HRRM TAC,CRDIS
                                01730
000137  200240 000010            01740      CRCOL4:   MOVE DAT, CRDAT1
000140  260140 000165'          01750                PUSHJ PDP, CRITMS+1;          STORE THE WORD FROM DAT
000141  254000 000226'          01760                JRST CREXIT
                                01770
000142  440600 000010            01780      CRC1:     POINT 6,CRDAT1
000143  170700 000114'          01790      CRC2:     POINT 7,CRCON,20
```

```
                                01800
                                01810
                                01820     ,IMAGE READ MODE
                                01830
000144  201040 000147'          01840     CRFSTI:   MOVEI TAC, .+3;     DISPATCH TO CRFSTI + 3 ON NEXT INTERRUP
000145  137400 000243'          01850               DPB CRDAT1,[POINT 24,CRTEM,23];          SAVE COLUMN 1 AS MI
000146  254000 000112'          01860               JRST CREXT1
                                01870
000147  260140 000164'          01880               PUSHJ PDP, CRITMS;  SET ITEM AND CHECK SIZE
000150  434400 000240'          01890               IOR CRDAT1, CRTEM;  CRTEM12-35:=COL 1 AND 2
000151  201040 000153'          01900               MOVEI TAC, .+2;     DISPATCH TO CRFSTI + 7 ON NEXT INTERRUP
000152  254000 000157'          01910               JRST CRIM1+1
                                01920
000153  711640 000002           01930               CONI CR, TAC1
000154  620100 000120           01940               TRZ TAC1, CRBUSY+CRALL;       BUSY FLAG:=ALL FLAG:=0
000155  711602 000000           01950               CONO CR, (TAC1);    RESET READER ON COL 3
                                01960
000156  201040 000156'          01970     CRIM1:    MOVEI TAC,.;        DISPATCH TO CRIM1 ON NEXT INTERRUPT
000157  711700 000400           01980               CONSZ CR, CREOC;    END OF CARD?
000160  254000 000213'          01990               JRST CRLAST;        YES
000161  202026 000010           02000               MOVEM @DEVPTR(DEVDAT)
000162  350006 000010           02010               AOS DEVPTR(DEVDAT); INCREMENT ITEM POINTER
000163  254000 000112'          02020               JRST CREXT1
                                02030
000164  661000 000004           02040     CRITMS:   TLO IOS, IOFST;     IOFST:=1
000165  260140 000117'          02050               PUSHJ PDP, STODAT;  STORE WORD
000166  254000 000052'          02060               JRST CREOF+1
000167  254000 000052'          02070               JRST CREOF+1
000170  263140 000000           02080               POPJ PDP,;          RETURN
                                02090
000171  575426 231550           02100     CRCNV:    ASCII .←123456789.
000172  325546 734162
000173  301730 057116           02110               ASCII .Ø=@↑'\ /ST.
000174  561005 751650
000175  526552 754262           02120               ASCII .UVWXYZ;,(".
000176  551665 424104
000177  215125 545226           02130               ASCII .#%-JKLMNOP.
000200  462331 647640
000201  506447 222124           02140               ASCII .QR:$*[>&+A.
000202  555744 625602
000203  412070 442614           02150               ASCII :BCDEFGHI?.:
000204  436211 137534
000205  246727 420576           02160               ASCII :)]<!?:
                                02170
000206  350701 000171'          02180     CRCV1:    POINT 7,CRCNV(TAC),6
000207  260701 000171'          02190               POINT 7,CRCNV(TAC),13
000210  170701 000171'          02200               POINT 7,CRCNV(TAC),20
000211  100701 000171'          02210               POINT 7,CRCNV(TAC),27
000212  010701 000171'          02220               POINT 7,CRCNV(TAC),34
```

```
                                02230
                                02240
000213  301200 000122   02250   CRLAST:  CAIL ITEM,↑D82;      C(ITEM)<82?
000214  254000 000234'   02260            JRST CRCONT;        NO
000215  260140 000000    02270   CRLST0:  PUSHJ PDP,STOSQD;   STORE WORD COUNT
000216  330000 000000    02280            SKIP
000217  260140 000062'   02290   CRLST2:  PUSHJ PDP,ADVBFF;   ADVANCE BUFFER
000220  254000 000231'   02300            JRST CROFF;         EXIT1.  NEXT BUFFER FULL
000221  201040 000047'   02310            MOVEI TAC, CDRCHN
000222  711601 000160    02320            CONO CR, CRBIN+CRALL+CRBUSY(TAC);       SELECT BINARY, ALL
                                02330                             ,ASSIGN PI CHANNEL
000223  661000 040004    02340   CRLST1:  TLO IOS,IOFST+CRMFST;          IOFST:=CRMFST:=1
000224  623000 000001    02350            TLZE IOS, IOW;      IN A WAIT?  IOW:=0
000225  260140 000000    02360            PUSHJ PDP, SETIOD;  IOWS:=1
                                02370
000226  202006 000002    02380   CREXIT:  MOVEM IOS,DEVIOS(DEVDAT);     C(CRIOS):=C(IOS)
000227  202206 000011    02390            MOVEM ITEM, DEVCTR(DEVDAT);   C(CRCTR):=C(ITEM)
000230  254000 000000    02400            JRST CDRRET;        RESTORE ACCUMULATORS AND DISMISS INTERR
                                02410
000231  620000 010000    02420   CROFF:   TRZ IOS,IOACT;      IOACT:=0
000232  711600 000000    02430            CONO CR,0;          CLEAR CDR CONTROL REGISTER
000233  254000 000223'   02440            JRST CRLST1
                                02450
000234  201040 000221'   02460   CRCONT:  MOVEI TAC, CDRCHN;  ASSIGN PI CHANNEL
000235  711601 000160    02470            CONO CR, CRBIN+CRALL+CRBUSY(TAC);       SELECT BINARY, ALL,
000236  661000 040000    02480            TLO IOS,CRMFST;     CRMFST:=1
000237  254000 000226'   02490            JRST CREXIT
                                02500
000240  000000 000000    02510   CRTEM:   0
                                02520
000241  140600 000010    02530   END,
000242  000300 000010
000243  143000 000240'
```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000244

```
A                   000000  INT
AC1                 000015  INT
AC2                 000016  INT
AC3                 000017  INT
ADVBFF              000217' EXT
AL                  000001  INT
ASSCON              400000  INT
ASSPRG              200000  INT
B                   000014  INT
BUFPNT              000012  INT
BUFWRD              000013  INT
CDRCHN              000234' EXT
CDRDAT              000025' EXT
CDRDB               000000  EXT
CDRDSP              000000' INT
CDRIN1              000005'
CDRINT              000022' INT
CDRRET              000230' EXT
CDRSAV              000024' EXT
CHCHN               000002
CLOSB               002000  INT
CLSIN               000002  INT
CLSOUT              000001  INT
CRAC                000011
CRALL               000100
CRBIN               000040
CRBUSY              000020
CRC1                000142'
CRC2                000143'
CRCNV               000171'
CRCOL2              000135'
CRCOL4              000137'
CRCON               000114'
CRCONT              000234'
CRCV                000074'
CRCV1               000206'
CRDAT1              000010
CRDIS               000136' EXT
CRDONE              000010
CREOC               000400
CREOF               000051'
CREOFC              000047'
CREOFF              001000
CRERR               002000
CREXIT              000226'
CREXT1              000112'
CRFIRS              000035'
CRFSTB              000125'
CRFSTI              000144'
CRFSTL              000066'
CRIM1               000156'
CRINP               000004'
CRINS               000115'
CRITMS              000164'
CRLAST              000213'
```

```
CRLST0              000215'
CRLST1              000223'
CRLST2              000217'
CRMBIN              200000
CRMFST              040000
CRMIMG              100000
CRMISS              000200
CROFF               000231'
CRREST              000070'
CRTEM               000240'
D                   000017  INT
DAT                 000005  INT
DCL                 000001  INT
DCW                 020000  INT
DDI                 000007  INT
DDO                 000006  INT
DDTMEM              000037  INT
DDTSYM              000036  INT
DEN                 000004  INT
DEVADR              000007  INT
DEVBUF              000006  INT
DEVCHR              000001  INT
DEVCTR              000011  INT
DEVDAT              000006  INT
DEVIAD              000007  INT
DEVIOS              000002  INT
DEVLOG              000005  INT
DEVMOD              000004  INT
DEVNAM              000000  INT
DEVOAD              000010  INT
DEVPTR              000010  INT
DEVSER              000003  INT
DGF                 000012  INT
DIN                 000003  INT
DLK                 000005  INT
DOU                 000002  INT
DR                  000016  INT
DRL                 000000  INT
DSI                 000011  INT
DSO                 000010  INT
DTW                 040000  INT
DVAVAL              000040  INT
DVCDR               100000  INT
DVDIR               000004  INT
DVDIRI              400000  INT
DVIN                000002  INT
DVLPT               040000  INT
DVMTA               000020  INT
DVOUT               000001  INT
DVTTY               000010  INT
ENTRB               020000  INT
I                   000010  INT
IB                  000013  INT
IBUFB               200000  INT
ILLOUT              000002' EXT
```

```
INITR                   400000  INT
INPB                    010000  INT
IO                      000020  INT
IOACT                   010000  INT
IOREG                   000002  INT
IORKTL                  040000  INT
IOCON                   000040  INT
IODEND                  020000  INT
IODERR                  200000  INT
IODISC                  400000  INT
IODONE                  400000  INT
IODTER                  100000  INT
IOEND                   000040  INT
IOFST                   000004  INT
IOIMPM                  400000  INT
IONRCK                  000100  INT
IORDEL                  000100  INT
IORET                   000020  INT
IOS                     000000  INT
IOSET                   000032' EXT
IOSTRT                  000010  INT
IOUSE                   400000  INT
IOW                     000001  INT
IOWC                    000020  INT
IOWS                    400000  INT
ITEM                    000004  INT
JBFADR                  000000  INT
JBFCTR                  000002  INT
JBFPTR                  000001  INT
JBUF                    000005  INT
JDAT                    000011  INT
JERR                    002000  INT
JIOW                    100000  INT
JNA                     004000  INT
LOOKB                   040000  INT
MTW                     010000  INT
OBUFB                   100000  INT
OUTPB                   004000  INT
PDP                     000003  INT
PICHN                   000100  INT
PIOMOD                  000006' EXT
PROG                    000007  INT
RUN                     200000  INT
RUNABL                  204000  INT
S2FOF                   000032
SETBYT                  000015' EXT
SETIOD                  000225' EXT
STODAT                  000165' EXT
STOSQD                  000215' EXT
TAC                     000001  INT
TAC1                    000002  INT
TEM                     000010  INT
TTYATC                  020000  INT
TTYUSE                  010000  INT
USRMOD                  010000  INT
```

UUO 000014 INT

END OF ASSEMBLY